



**PROJECT DESIGN DOCUMENT FORM
FOR SMALL-SCALE CDM PROJECT ACTIVITIES (F-CDM-SSC-PDD)
Version 04.1**

PROJECT DESIGN DOCUMENT (PDD)

Title of the project activity	“Svilosa Biomass Project”
Version number of the PDD	03
Completion date of the PDD	14/10/2014
Project participant(s)	Svilocell EAD (Project owner)
Host Party(ies)	Bulgaria
Sectoral scope(s) and selected methodology(ies)	Sectoral scope (1): Energy Industries – Renewable Energy and AMS-I.C./Version 20
Estimated amount of annual average GHG emission reductions	91,734 tCO _{2e}

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

The purpose of the project is to utilise the available renewable energy sources in the form of biomass residues received as a result from the preliminary treatment of wood for the production of bleached kraft pulp in Svilocell Pulp Mill. The biomass residues are combusted in a specially designed biomass boiler to generate thermal energy in the form of water steam that is necessary for the production of the pulp. The capacity of the biomass boiler is 19.732 MW (thermal). No electric energy is generated by the project.

“Svilosa Biomass Project” will be registered as a Gold Standard Voluntary Emission Reduction (GS-VER) project. Due to its significant contribution to climate change mitigation and sustainable development in the region, this project is expected to fulfil the requirements of the Gold Standard rigorously.

The project helps Bulgaria to stimulate and commercialise the use of biomass energy technologies and markets. It demonstrates the viability of biomass plants which will support improved energy security, improved air quality, alternative sustainable energy futures, improved local livelihoods and sustainable renewable energy industry development. The specific goals of the project are:

- reducing greenhouse gas emissions in Bulgaria compared to business-as-usual scenario,
- helping to stimulate the growth of biomass projects in Bulgaria,
- improving of the financial parameters of the company-project owner and its compatibility on the bleached craft pulp market,
- reduce other pollutants resulting from fossil fuel dependent power generation industry in Bulgaria, compared to business-as-usual scenario.

The project owner “Svilocell” EAD was established on 23.12.2005 and is the only producer in Bulgaria of bleached kraft pulp¹ and products thereof. The company is a subsidiary of Svilosa AD and is currently owner of the former JI registered project “Svilosa Biomass Project”². It plays a crucial role in the Bulgarian pulp and paper industry and is a market leader in the country and the region. The Company pursues an ambitious investment strategy affirming its leading position in the pulp and paper industry in the Balkans and the rest of Europe. More than 85% of its products are exported.

The ECF (Elemental Chlorine Free)-bleached pulp produced by Svilocell EAD is used as a raw material for the production of various types of paper (e.g. tissue papers, papers for writing, printing, copying, papers with pigmented covering, surface-improved papers, corrugated cardboard with covering, cardboard facing). The pulp is produced from material derived from local hard and soft deciduous wood.

Svilocell EAD holds a Forest Stewardship Council (FSC®) certificate (FSC® C112486) for Chain of Custody and Controlled Wood.

The project was initially developed and registered as a Joint Implementation (JI) project with the support of the World Bank (Prototype Carbon Fund) and started operation in 2004. The project was determined positively by TUEV SUD with Determination Report No 67962 dated 04 Oct 2002² and received a Letter of Approval by the Ministry of Environment and Water of Bulgaria dated 25 Feb 2003³.

¹ Bleached kraft pulp consists mainly of cellulose and hemicellulose, two polymers that are composed of sugar molecules. The glucose units in each of these two chemicals are linked together in such a way (beta-1-4) that they are much more resistant to chemical hydrolysis than starch molecules.

² <http://ji.unfccc.int/JIITLProject/DB/ASKDPSK8ARA1APZGEW4VUXH080HYP2/details>

³ The Letter of Approval is available from the UNFCCC here:

<http://ji.unfccc.int/UserManagement/FileStorage/5HAIWK1TQFYRGUSU728NX3M09OBL6DJ>

It was registered under UNFCCC Track 1 procedure with project ID BG1000163.⁴

Since 01 Jan 2004 the biomass boiler that was built under the project has been in regular operation. For the period until the end of the first Kyoto period (31 Dec 2012) the project has undertaken eight verifications and been issued emission reductions equal to a total of 476,880 tCO₂e. The Kyoto crediting period of the project ran from 01 Jan 2008 to 31 Dec 2012.

The first crediting period of the Kyoto Protocol ended on 31 Dec 2012 and the Doha amendment to the Kyoto Protocol still has not been signed into force. At 11 April 2014, 8 out of the required 144 instruments of acceptance had been submitted to the UNFCCC.

As a result, countries have not yet received Assigned Amount Units which make transaction under the JI mechanism possible. Existing JI projects can no longer receive JI carbon credits for their verified emission reductions.

That is why the project owner has decided to pursue registration of the Svilosa Biomass Project under the Gold Standard (GS) in order to monetize the emission reductions from the biomass boiler. In future, the project will be able to claim voluntary carbon credits (Verified Emission Reductions – VER) and trade them on the voluntary market.

The biomass boiler was commissioned and started operation on 01 Jan 2004 with a smaller capacity of 11 MW. It was upgraded to 19,732 MW (thermal) in 2011 and had all necessary permits and certificates. The boiler is fueled by wood bark and other residues generated during the wood processing for Svilocell's core product (pulp). The resulting heat energy is used to meet the energy demand of the pulp mill. Emission reductions are realised by reducing the amount of steam purchased from a nearby captive Combined Heat and Power Plant (CHPP) "Svilosa CHPP" and the quantity of coal required for its generation.

A.2. Location of project activity

A.2.1. Host Party(ies)

The host party is the Republic of Bulgaria.

Bulgaria has ratified the Kyoto Protocol⁵ on 17/07/2002 and it entered into force on 25/07/2002.

Bulgarian National Focal Point to the UNFCCC is the Ministry of Environment and Water⁶.

A.2.2. Region/State/Province etc.

The project activity is situated in the region of Veliko Tarnovo at its border with the Danube River in Northern Bulgaria.

A.2.3. City/Town/Community etc.

The "Svilosa Biomass Project" is situated near the town of Svishtov, at the right bank of the Danube River.

A.2.4. Physical/ Geographical location

The project is situated near the town of Svishtov on the right bank of the Danube river at the territory of Svilosa.

⁴ Project information is available from the UNFCCC here:

<http://ji.unfccc.int/JIITLProject/DB/ASKDPSK8ARA1APZGEW4VUXH080HYP2/details>

⁵ <http://www.moew.government.bg/?show=top&cid=356&lang=en>

⁶ http://ji.unfccc.int/JI_Parties/DB/5EH2UF1UOGCEO6HKKAKY8PHE4I9WX6/viewDFP

The geographic coordinates of the project site are as follows:

Table 1: Geographic coordinates of the project.

Latitude	Longitude
43°38'24.43"N	25°18'26.56"E

Fig.1: Location of the project site.



The site is clearly visible in GOOGLE Earth as shown on Fig.1.

Fig.2: Location of the town of Svishtov in Bulgaria.



A.3. Technologies and/or measures

The project will supply Svilocell with thermal energy in the form of process steam. The project falls under Type I – Renewable Energy Projects, Category I.C – Thermal energy production with or without electricity.

“Svilosa Biomass Project” falls in the “Renewable Energy Supply Category”, according to the Gold Standard Toolkit.

The methodology used is the supply of users (commercial facility) with thermal energy that displaces fossil fuel use by combusting of biomass residues received as a result from the preliminary treatment of wood for the production of bleached kraft pulp.

The wood residues (bark) produced by “Svilocell” EAD during the process of wood treatment for the pulp production will be used to replace part of the coal used in the near-by captive coal-fired combined heat-and-power plant “Svilosa CHPP” that supplied the pulp mill with thermal energy in the form of process steam. A biomass-fired boiler will generate thermal energy for the needs of the pulp line, which is a step in the production of bleached kraft pulp.

The project involves a biomass boiler for the generation of process heat for the pulp mill. The installation for biomass consists of a radiation and convection part acting as one unit.

The boiler installation possesses an Operational permit No BT-PK-0511, dated January, 7th, 2004 issued by the Regional Department Inspection for State Technical Supervision – city of Veliko Tarnovo.⁷

The biomass boiler is of standard configuration including:

- Installation for preliminary treatment of the wood waste (shredder) with the following characteristics:
 - Electric motor with 90 kW installed capacity
 - Load factor – 66%
 - Working cycle – continuous
- Standard horizontal steam boiler
- Biomass pre-combustion chamber
- Biomass feeding installation
- Control system, including SCADA system
- Steam pipe-lines

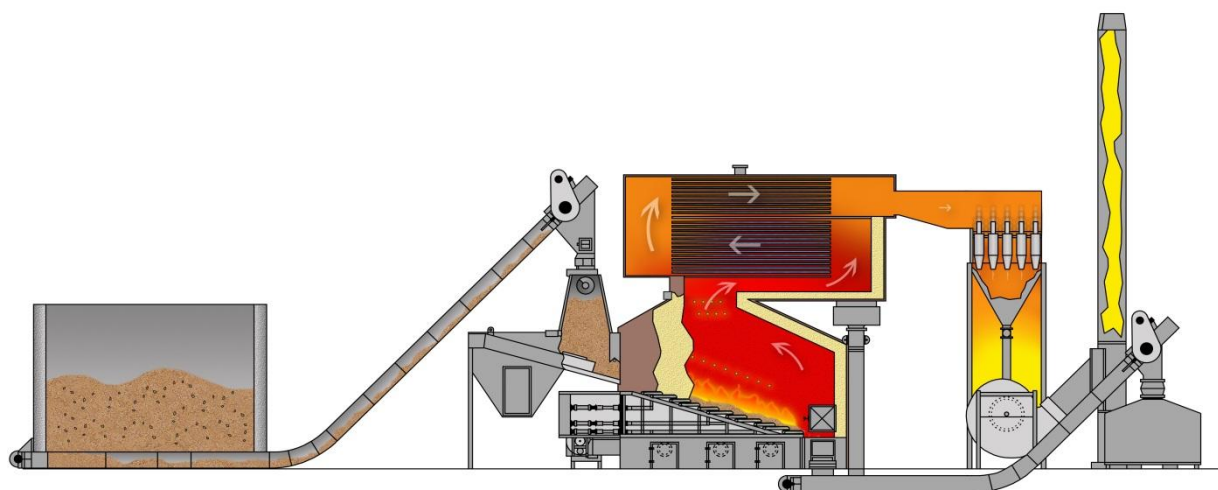
The main characteristics of the biomass boiler are as follows:

- Nominal thermal capacity – 19.732 MW;
- Nominal steam generation – 28 t/h saturated steam;
- Operating pressure – 1.3 MPa;
- Feed water inlet temperature – 60 °C;
- Temperature of the flue gases at the outlet before forced-draught fans – 185 °C ± 30 °C;
- Fuel type – wood barks;
- Fuel calorific value – 3.256 MWh/t (W= 30 – 40%)
- Nominal fuel flow – 7,245 kg/h;
- Biomass boiler efficiency (info from the manufacturer) – 85%.

The general drawing of the boiler is shown on Fig.3 bellow:

Fig.3: general drawing of the boiler:

⁷ Available on request.



A.4. Parties and project participants

Party involved (host) indicates a host Party	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Republic of Bulgaria (host)	Svilocell EAD (private entity)	No

A.5. Public funding of project activity

There has been no public funding used for the financing of the project

A.6. Debundling for project activity

According to Annex 13 of the EB 54 Report, “Guidelines on assessment of debundling for SSC project activities; version 03”,⁸ a proposed SSC PA is eligible to use the simplified modalities and procedures for SSC PAs if there is not a registered SSC PA with the same project participants as the proposed SSC PA.

There is not any registered SSC PA with the same project participants as the proposed SSC PA. Therefore, the proposed project activity is not a debundled component of a large scale project activity.

SECTION B. Application of selected approved baseline and monitoring methodology**B.1. Reference of methodology**

For determination of the baseline, the methodology AMS-I.C./Version 20, dated 01/06/2014, “Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories – I.C. Thermal energy production with or without electricity”⁹, approved by the CDM Executive Board, is applied, using conservative options and data as presented in the following section.

In addition, the following methodological tools are applied in this PDD:

- “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” Version 01.
- “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion” Version 02.

The completion date of the baseline study is 22/05/2014.

B.2. Project activity eligibility

Applicability condition in the AMS-I.C. / Version 20	Compliance of the condition
This methodology comprises renewable energy technologies that supply users ¹⁰ with thermal energy that displaces fossil fuel use. These units include technologies such as solar thermal water heaters and dryers, solar cookers, energy derived from renewable biomass and other technologies	Svilosa Biomass Project is the installation of a biomass boiler utilising of renewable energy source in the form of biomass residues received as a result from the preliminary treatment of wood for the production of bleached kraft pulp.

⁸ http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid17.pdf

⁹ <https://cdm.unfccc.int/methodologies/DB/6EL4AG49US2S1DNH55Y4S7GDQFA2JF>

¹⁰ That is residential, industrial or commercial facilities.



that provide thermal energy that displaces fossil fuel.	
Biomass-based cogeneration and trigeneration systems are included in this category.	Not applicable. The proposed project is not a biomass-based co-generation or trigeneration system because it generates thermal energy only. The electric energy for the operation of the boiler and auxiliary systems is imported from the national grid.
Emission reductions from a biomass cogeneration system can accrue from one of the following activities: (a) Electricity supply to a grid; (b) Electricity and/or thermal energy (steam or heat) production for on-site consumption or for consumption by other facilities; (c) Combination of (a) and (b).	Not applicable. The proposed project is not a biomass co-generation system.
Project activities that seek to retrofit or modify an existing facility for renewable energy generation are included in this category.	Not applicable. The proposed project is a new facility.
In the case of new facilities (Greenfield projects) and project activities involving capacity additions the relevant requirements related to determination of baseline scenario provided in the “General guidelines for SSC CDM methodologies” for Type-II and Type-III Greenfield/capacity expansion project activities also apply.	The project facility is built to supply the existing pulp mill with thermal energy in the form of industrial steam which in the baseline scenario is supplied by the near-by coal-fired “Svilosa” CHPP. The capacity of the pulp manufacturing installation remains the same so the quantity of thermal energy (steam) remains the same as in the baseline. In this respect there will be no capacity addition compared to the baseline scenario.
The total installed/rated thermal energy generation capacity of the project equipment is equal to or less than 45 MW thermal (see paragraph 9 for the applicable limits for cogeneration and trigeneration project activities).	The installed thermal capacity of the biomass boiler is 19.732 MW(thermal) which is less than the limit of 45 MW(thermal) set by the methodology. The project is not a biomass-based co-generation or trigeneration system and no electric energy is generated.
For co-fired systems, the total installed thermal energy generation capacity of the project equipment, when using both fossil and renewable fuel, shall not exceed 45 MW thermal (see paragraph 9 for the applicable limits for cogeneration project activities).	Not applicable. The proposed project is not a co-fired system. The biomass boiler uses only biomass residues as fuel.

The following capacity limits apply for biomass cogeneration and trigeneration units: (a) If the project activity includes emission reductions from both the thermal and electrical energy components, the total installed energy generation capacity (thermal and electrical) of the project equipment shall not exceed 45 MW thermal. For the purpose of calculating this capacity limit the conversion factor of 1:3 shall be used for converting electrical energy to thermal energy (i.e. for renewable energy project activities, the maximal limit of 15 MW(e) is equivalent to 45 MW thermal output of the equipment or the plant); (b) If the emission reductions of the cogeneration project activity are solely on account of thermal energy production (i.e. no emission reductions accrue from the electricity component), the total installed thermal energy production capacity of the project equipment of the cogeneration unit shall not exceed 45 MW thermal; (c) If the emission reductions of the cogeneration project activity are solely on account of electrical energy production (i.e. no emission reductions accrue from the thermal energy component), the total installed electrical energy generation capacity of the project equipment of the cogeneration unit shall not exceed 15 MW.	Not applicable. The proposed project is not a biomass cogeneration or trigeneration system.
The capacity limits specified in paragraphs 7 to 9 above paragraphs apply to both new facilities and retrofit projects. In the case of project activities that involve the addition of renewable energy units at an existing renewable energy facility, the total capacity of the units added by the project should comply with capacity limits in paragraphs 7 to 9 , and should be physically distinct from the existing units.	The proposed project activity is a new facility built to replace the industrial steam supplied in the baseline by the near-by coal-fired Svilosa CHPP (Combined Heat-and-Power Plant). The installed capacity of the biomass boiler in the project is 19.732 MW (thermal) as specified in Section A above and satisfies the capacity limits set by the methodology.
If solid biomass fuel (e.g. briquette) is used, it shall be demonstrated that it has been produced using solely renewable biomass and all project or leakage emissions associated with its production shall be taken into account in the emissions reduction calculation.	The project uses biomass residues, namely waste material from the preliminary treatment of wood for the production of bleached kraft pulp. The justification of the biomass used in the project as “renewable” is given below. The project emissions due to preliminary treatment of the biomass are accounted for in the calculation of the emission reductions.



Where the project participant is not the producer of the processed solid biomass fuel, the project participant and the producer are bound by a contract that shall enable the project participant to monitor the source of the renewable biomass to account for any emissions associated with solid biomass fuel production. Such a contract shall also ensure that there is no double-counting of emission reductions.	Not applicable. The owner of the project is the producer of the processed solid biomass fuel. The biomass fuel is the wood wastes (wood barks,) produced by “Svilocell” EAD during the process of wood treatment for the production of pulp.
If electricity and/or steam/heat produced by the project activity is delivered to a third party i.e. another facility or facilities within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered into that ensures there is no double-counting of emission reductions.	Not applicable. The industrial steam generated by the biomass boiler is used by the project owner to supply its own installation for production of pulp with thermal energy. No steam is supplied to any third parties or facilities within or out of the project boundary.
If the project activity recovers and utilizes biogas for power/heat production and applies this methodology on a stand-alone basis i.e. without using a Type III component of a SSC methodology, any incremental emissions occurring due to the implementation of the project activity (e.g. physical leakage of the anaerobic digester, emissions due to inefficiency of the flaring), shall be taken into account either as project or leakage emissions.	Not applicable. The project activity does not recover or utilize biogas. The biomass (wood waste) is combusted directly in the biomass boiler.
If project equipment contains refrigerants, then the refrigerant used in the project case shall have no ozone depleting potential (ODP).	Not applicable. The project activity is not a trigeneration installation and does not contain refrigerants.
Charcoal based biomass energy generation project activities are eligible to apply the methodology only if the charcoal is produced from renewable biomass sources provided: (a) Charcoal is produced in kilns equipped with methane recovery and destruction facility; or (b) If charcoal is produced in kilns not equipped with a methane recovery and destruction facility, methane emissions from the production of charcoal shall be considered. These emissions shall be calculated as per the procedures defined in the approved methodology AMS-III.K. Alternatively, conservative emission factor values from peer reviewed literature or from a registered CDM project activity can be used, provided that it can be demonstrated that the parameters from these are comparable e.g. source of biomass,	Not applicable. The project activity does not use charcoal but directly combusts wood wastes.

characteristics of biomass such as moisture, carbon content, type of kiln, operating conditions such as ambient temperature.	
In cases where the project activity utilizes biomass, sourced from dedicated plantations, applicability conditions prescribed in the tool “Project emissions from cultivation of biomass” shall apply.	Not applicable. The project activity utilizes renewable biomass (wood waste) from the production of pulp.

The proposed project uses solely wood residues from the preliminary treatment of wood used for the production of pulp in an installation, property of the project owner.

According to Annex 18, EB 23: Definition of Renewable Biomass¹¹:

The biomass used in the project activity is “renewable” because it satisfies at least three of the conditions set by the regulation:

1. The biomass originates from land areas that are forests. Svilocell EAD's main product is bleached hardwood kraft pulp. A natural product is used for raw material - wood derived from local tree species: beech, poplar, oak and acacia. Svilocell EAD holds FSC® certificate ¹²(FSC® C112486) for Chain of Custody and Controlled Wood which covers standards FSC-STD-40-004 V2-1 and FSC-STD-40-005 V2-1.

The wood originates from local Bulgarian forests which are subject to The Forest Law¹³. This Law regulates the public relations connected to the preservation, management and exploitation of the forest territories in the Republic of Bulgaria guaranteeing multifunctional and sustainable management of the forest ecosystems.

As a member of the European Union, Bulgaria has adopted all rules and regulations issued by the European Council regarding forest systems and forest management.

All activities connected to the forest management are observed by the Bulgarian Executive Forest Agency¹⁴. The future development of the forest sector in Bulgaria is outlined in the National Strategy for the development of the forest sector in the Republic of Bulgaria 2013 - 2020¹⁵

The management of the forests in Bulgaria is demonstrated in the Annual Agricultural Report for 2012¹⁶. p.169, Table IV.1:

Table IV.1. Implementation of provided for silvicultural activities in state forest areas in 2011

Silvicultural activities	Plan	Report	Expenditures budget + economic activity, thousand BGN
1. Collection, yield and purchase of seeds: tonnes	24.7	23.7	181.78
2. Production of afforestation seedlings: million	18.3	23.3	2 796.61
3. Preparation of soil for afforestation—hectares	1 542.5	1 603.0	3 436.86
4. Completed preparation of soil—hectares		364.6	
5. Afforestation in SFA—hectares	1 424.5	1 498.3	1 646.04
6. Crop replenishment—hectares	624.8	633.5	541.47

¹¹ https://cdm.unfccc.int/EB/023/eb23_repan18.pdf

¹² <http://www.svilosa.bg/web/files/texts/15/50.pdf>

¹³ http://www.iag.bg/data/docs/ZAKON_ZA_GORITE.pdf

¹⁴ <http://www.iag.bg/act/lang/2/cat/4/display>

¹⁵ http://www.mzh.government.bg/MZH/en/ShortLinks/cross_compliance/Gorskisektor.aspx

¹⁶ <http://www.mzh.government.bg/MZH/Documents/reports.aspx>

7. Cultivating crops—hectares	12 172.3	9 281.4	2 840.76
8. Crop fencing: thousand of linear metres	18.02	13.1	31.33
9. Cleansing areas for afforestation—hectares	270.7	280.9	115.66
Average rate of crops interception: - 1-year		77.4%	
2 year		81.2%	
3 year		82.0%	

Source: Ministry of Agriculture and Food

2. The biomass used as a fuel by the project is a biomass residue. The bulk wood material is used for the production of bleached kraft pulp and the remaining from the pre-treatment process- bark, saw-dust, wood shavings are used as fuel for the biomass boiler.

Fig.4: Wood stored before de-barking



Fig.5: Dry process debarking installation



Fig.6: Biomass after debarking



Fig. 7: Boiler fuel feeding system



3. The biomass is the non-fossil fraction of an **industrial waste**. The biomass used is a result of the de-barking of the wood logs used as source for the production of pulp and in the absence of the project would have been dumped in an industrial waste landfill as was the routine before implementation of the project.

B.3. Project boundary

The greenhouse gasses and emission sources are defined for the project activity and the baseline scenario. As a result, the project boundary for “Svilosa Biomass Project” is as demonstrated in the figure below:

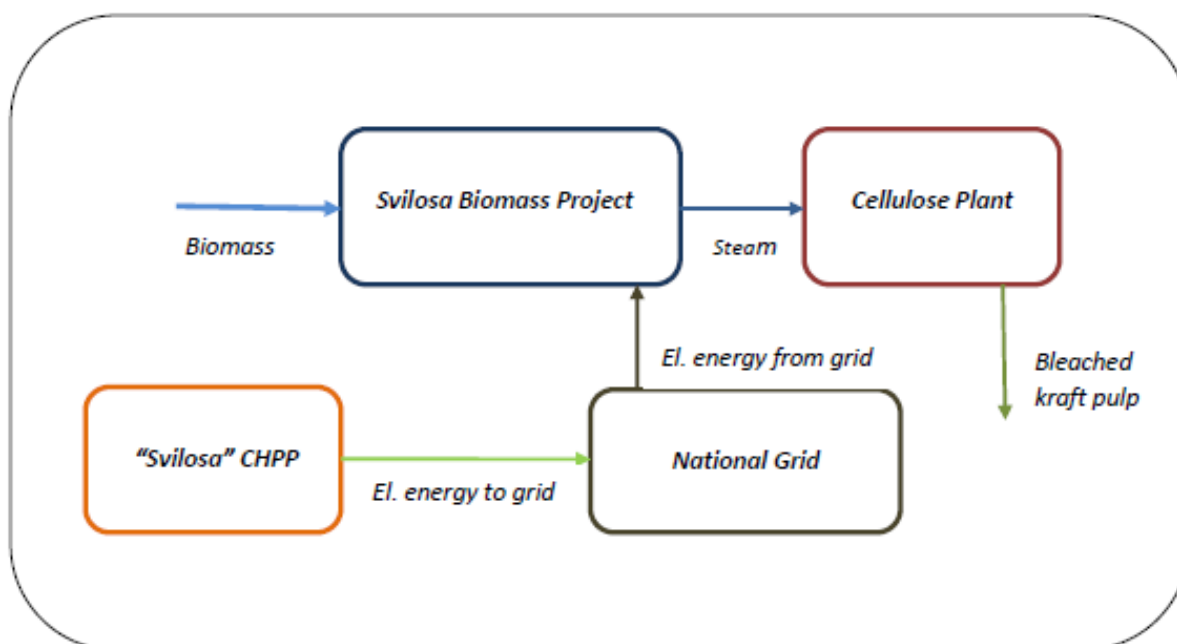


Fig. 8: Project boundary

Based on the project boundary and operation of the project activity, the greenhouse gasses and emission sources included in or excluded from the project boundary are shown in the table below:

Table 6: Emissions sources included in or excluded from the project boundary

	Source	Gas	Included?	Justification/Explanation
Baseline	Fossil fuel-fired Power Plant	CO ₂	Yes	CO ₂ emissions of thermal energy generation from fossil fuel fired power plant are displaced due to the project activity
		CH ₄	No	CH ₄ emissions are not accounted in the project for simplicity.
		N ₂ O	No	Minor emission source and excluded by the methodology.
Project Activity	Emissions due to consumption of electric energy from the grid for pre-treatment of the wood residues	CO ₂	Yes	Main source of project emissions.
		CH ₄	No	Minor emission source and excluded by the methodology in the

	(biomass) and operation of the project facility			particular case. The project is not a geothermal.
		N ₂ O	No	Minor emission source and excluded by the methodology

B.4. Establishment and description of baseline scenario

According to the methodology AMS-I.C, ver. 20 which is used by the project for renewable energy technologies that displace technologies using fossil fuels, the simplified baseline is the fuel consumption of the technologies that would have been used in the absence of the project activity, times an emission factor for the fossil fuel displaced. The project facility did not exist prior the implementation of the project.

The project generates thermal energy only so no electric energy is transferred from the project to the national grid.

Before implementation of the project “Svilocell” EAD used industrial steam supplied by the local captive combined heat and power plant (CHPP) “Svilosa” which used imported coal as fuel. In the absence of the project “Svilocell” would continue to use steam produced by the CHPP as no other suitable sources were available in the area. By using a renewable waste wood biomass as fuel the biomass boiler replaces the fossil fuel (coal) used by the power plant in the baseline.

As the baseline CHPP is still in operation, the efficiency will be calculated as the total annual energy produced over the last three years using the historical data as prescribed in paragraph 25 of AMS-I.C, ver.20 (total electricity generated and total steam/heat extracted divided by the thermal energy value of the fuel use).

B.5. Demonstration of additionality

Initially the proposed project has been registered and developed as JI project and was published on the web-site of UNFCCC under ID No BG1000163¹⁷. The JI project had been positively validated and its additionality had been approved by TUEV SÜED with Determination Report No 67962/2002-10-04¹⁸.

The additionality of the project was demonstrated with the special Report prepared by the World Bank, No 25098-BUL, issued officially 8 September 2003. The Report was named “Project Appraisal Document on the Purchase of Emission Reductions Proposed by the Prototype Carbon Fund”¹⁹. A draft version of the Report was issued to the project proponent in September 2002²⁰. The study was the basis for the positive determination and additionality approval of the project by TUEV SÜED with Determination Report No 67962/2002-10-04.

Nevertheless the project owner will demonstrate its additionality again, having in mind the newest versions of the tools and guidelines on additionality.

In accordance with the “Guidelines on the Demonstration of Additionality of Small-scale Project Activities”, Ver.09.0 (previously known as “Attachment A to Appendix B of the simplified modalities

¹⁷ <http://ji.unfccc.int/JIITLProject/DB/ASKDPSK8ARA1APZGEW4VUXH080HYP2/details>

¹⁸ <http://ji.unfccc.int/UserManagement/FileStorage/HAN6X4RWSQB73MDTKJ50L82CYUZF1>

¹⁹ http://www-wds.worldbank.org/servlet/WDSCContentServer/WDSP/IB/2003/12/24/000012009_20031224101428/Rendered/PDF/2509810paper.pdf

²⁰ Prototype Carbon Fund – Baseline Study on the Biomass boiler in Svilosa Project

and procedures for small-scale CDM project activities version 08”)²¹ and “Non-binding best practice examples to demonstrate additionality for SSC project activities”²², Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

- (a) Investment barrier: a financially more viable alternative to the project activity would have led to higher emissions;
- (b) Technological barrier: a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions;
- (c) Barrier due to prevailing practice: prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions;
- (d) Other barriers: without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.

Investment barrier is selected to demonstrate the additionality of the project activity and “Tool for the demonstration and assessment of additionality” - Version 07.0.0. is applied.

The methodology requires certain steps to be followed:

Step 1: Identification of alternatives to the small-scale project activity consistent with current laws and regulations

Sub-step 1a: Define alternatives to the project activity

In the absence of the proposed project activity, plausible and credible project alternatives to the proposed project activity are as follows:

All possible realistic alternatives to the project activity that can supply thermal energy to the pulp mill are listed below:

Alternative A: The proposed project activity not undertaken as VER project activity;

Alternative B: Continuation of the current situation (supply of steam from the captive CHPP “Svilosa”);

Alternative C: Thermal energy supplied by newly built thermal power-plant working on fossil fuel;

Alternative D: Thermal energy supplied by newly built thermal power-plant working on renewable biomass other than that used in the project.

No other alternatives to the project activity can be identified related to the technology applied and applicable under the specific circumstances.

Alternative A: The proposed project activity not undertaken as VER project activity.

This alternative is credible and realistic but it leads to worse financial results. The local and international markets. In this case the project will not reach the IRR benchmark without revenues from VER..

Alternative B: Continuation of the current situation (supply of steam from the captive CHPP “Svilosa”).

This alternative is both credible and realistic. The “Svilosa” CHPP that supplied the pulp mill with thermal energy is still in operation and is able to supply industrial steam instead of the biomass boiler.

²¹ http://cdm.unfccc.int/Reference/Guidclarif/ssc/methSSC_guid05.pdf

²² http://cdm.unfccc.int/EB/035/eb35_repan34.pdf

This alternative was selected as baseline scenario because it corresponds to the “business as usual” case, where continuing the operation of the existing captive coal-fired CHPP is not connected with any considerable additional investments.

Alternative C: Thermal energy supplied by newly built thermal power-plant working on fossil fuel.

This alternative is credible but not realistic. The price of coal is lowest on the market but from other hand the coal as fuel is quite unacceptable from environmental point of view. A construction permit from the Regional Environment and Water Agency and the Municipality can be issued only in case Regulation 1/2006 norms on air quality are followed. This is possible only with additional expensive equipment installing (e.g. SO₂ removing installation).

So the price of the new Steam station on coals will become very high. It is obvious that the alternative of building a new local power plant on coal is not reasonable from economic point of view. Therefore, this alternative is not considered.

From the other hand there is no possibility of using other type of fossil fuel (e.g. natural gas or heavy oil) due to the following reasons:

- No natural gas supply infrastructure is available in the region and there are no plans to build such infrastructure. Building of a new gas supply line with Svilocell’s own money will be very expensive and economically not viable option.
- Using heavy oil as fuel will face the same barriers as using coal and in addition the heavy oil is much more expensive. Therefore this alternative will not be regarded.

Alternative D: Thermal energy supplied by newly built thermal power-plant working on renewable biomass other than that used in the project.

That alternative is credible but not realistic because no other financially viable source of renewable biomass is available. The waste wood residues that are generated in the production process of cellulose are the only resources available and accessible for utilisation in the project activity proposed. It would be possible to import biomass from another source or use different type of biomass outside the project boundary but this option will increase the operational expenses substantially due to the high price of the alternative biomass. This alternative is therefore disregarded.

This leaves Alternative A and Alternative B as both credible and realistic and suitable for further consideration.

Sub-step 1b: Consistency with mandatory laws and regulations

The realisation of the project is not required by the Bulgarian legislation and it is not subject to special Bulgarian Government decisions.

The above-defined alternatives are fully in consistency with the mandatory Bulgarian laws and regulations.

As per Alternative “A” it can be underlined that in the last years the Bulgarian Government undertook special cares and efforts of RES implementation legislation development. In April 2011 “Energy from Renewable sources Act” - SG 35/03.05.2011²³ was adopted. This document primarily concerns the encouragement of the energy production based on renewable energy sources and combined energy production but without any requirements for obligatory projects implementation. Unfortunately, the

²³ <http://www.mi.government.bg/en/library/zakon-za-energiyata-ot-vazobnovyaemi-iztochnici-167-c25-m258-1.html>

supporting scheme through feed-in tariffs is available only to biomass plants that produce electricity. Because the project activity is connected only with thermal production for plant's internal production needs, these incentives are not available for it.

In terms of project development procedures, the proposed project is in full compliance with the laws and regulations in Bulgaria namely the "Energy from Renewable sources Act" and the "Energy act"²⁷.

All existing equipment for thermal energy generation using coal as per Alternative "B" is in compliance with the present legislation (Laws, Regulations, Rules, Orders, and Licenses).

There are no legislation norms existing or under development, which can prevent or stop the operation of the captive CHPP "Svilosa".

The current thermal demand in Svilocell pulp mill could be covered entirely by the existing CHPP in the absence of the project activity.

Outcome of Step 1b: Alternative A and Alternative B are realistic and credible alternative scenarios to the proposed project activity and are in compliance with Bulgarian legislation and regulations. The proposed project activity is not the only one that is in compliance with Bulgarian laws and regulations and can be additional.

Step 2: Investment analysis

The purpose of this step is to determine whether the proposed project activity is not:

- (a) The most economically or financially attractive; or
- (b) Economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs).

The latest version of the "Guidelines on the assessment of investment analysis", ver.05.0²⁴, available on the UNFCCC website, will be taken into account when applying this step.

Substep 2a: Determine appropriate analysis method

The project activity does not generate direct financial benefits other than estimated VER related income but spares financial resource required to buy thermal energy from the baseline CHPP that would supply the mill with thermal energy in the absence of the project activity. Hence, Option I: Simple cost analysis is not applicable. The identified Alternative A does generate economic benefits by sparing the expenses for buying of thermal energy from the baseline CHPP but does not generate any VER related income. Alternative B is in fact the "Business as usual" scenario and presents the continuation of the current situation and it does not generate any financial or economic benefit.

From the remaining options the Project Proponent has chosen Option III-Benchmark analysis

Sub-step 2b: Option III: Apply benchmark analysis

This step recommends the identification of a financial indicator, such as IRR, most suitable for the project type and decision-making context. The project proponent has chosen the IRR of the project as the most suitable financial indicator because it gives the best idea of the profitability of an investment or project. IRR of the project will be calculated after taxes. From the other hand the other alternative to the project is in fact not to invest and according to the Guidelines on the investment analysis the recommended indicator in this case is the IRR. The investment does not consider using of loan facility and will be realised with own capital so in fact the IRR calculated is equity IRR.

²⁴ http://cdm.unfccc.int/Reference/Guidclarif/reg/reg_guid03.pdf

The benchmark will be defined according to the Guidelines which suggest using the government bond rates, increased by a suitable risk premium. In relation to this, the benchmark rate is calculated in line with the Capital Asset Pricing Model (CAPM)²⁵ which represents the expected return after taxes too. The CAPM suggests below formula to calculate the discount rate (in other words benchmark rate):

$$E(R_i) = R_f + \beta_i (E(R_m) - R_f)$$

Where

$E(R_i)$ is the expected return on the capital asset;

R_f is the risk-free rate of interest such as interest arising from government bonds;

β_i (the beta coefficient is the sensitivity of the asset returns to market returns

$E(R_m) - R_f$ is known as the market premium or risk premium (the difference between the expected market rate of return and the risk-free rate of return).

Risk Free Rate (R_f)

The Risk free rate is derived from the Bulgarian government bonds with longest maturity at the time of the investment decision taking which is defined as 31 October 2002 (Letter from Svilosa to IBRD with acceptance to initiate consultations on the draft Term Sheet).

The government bonds with the longest maturity of 10 years have been issued on the primary market in July 2002²⁶ and reached 8.84% which can be considered as the value of the risk free rate.

The Beta Coefficient (β_i)

In 2002 the companies trading on the Sofia stock exchange have been quite a few and it is not quite possible to calculate the beta coefficient properly. That is why this coefficient is estimated at 1.0 which means that the project owner will expect a return equal to the market return. This estimation is conservative from financial point of view.

Market risk premium ($E(R_m) - R_f$)

To estimate the “Market risk premium” of Turkey, the independent study of Aswath Damodaran – Stern School of Business (New York University) was used. The study offers an assessment of the market risk for different countries according to their credit ratings as the determined country market risk premium for Bulgaria at the time of investment decision taking (31 October 2002) is 9.0% calculated on the basis of the credit rating B1 given to Bulgaria by Stern School of Business.²⁷

All in all, the relevant discount rate (the benchmark) is calculated as:

$$8.44\% + 9.00\% * 1.0 = 17.44\%$$

²⁵http://en.wikipedia.org/wiki/Capital_asset_pricing_model for the definition of CAPM

²⁶

http://www.google.bg/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CC0QFjAA&url=http%3A%2F%2Fbnb.bg%2Fbnbweb%2Fgroups%2Fpublic%2Fdocuments%2Fbnb_download%2Fs_ir_interestrates_a3_bg.xls&ei=AzJ2U5rlJZPL0AWPv4HACQ&usg=AFQjCNHvI3IHG0KmFmzfVedGCdEvhFBC0g&bvm=bv.66699033,d.bGE

²⁷

<http://www.google.bg/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CC0QFjAA&url=http%3A%2F%2Fwww.stern.nyu.edu%2F~adamodar%2Fpc%2Farchives%2Fctryprem02.xls&ei=sTR2U6yaNKS0AXayIHADg&usg=AFQjCNFJg8FmSin0IF11SAgsS4mP7QJzKA&bvm=bv.66699033,d.bGE>

The above discount rate can easily be assumed as conservative as the total country risk premium calculated by Prof. Damordan for Bulgaria in the same table referred above is 13.51% which is considerably higher than the adopted country risk premium of 9.0%.

Substep 2c: Calculation and comparison of financial indicators

The below IRR calculations of the project reveal the fact that the project is not financially attractive. Therefore, carbon revenues are of great importance for the project.

The assumptions used for this analysis are outlined as follows:

- All the investment costs are financed by equity.
- The investment period is estimated as one year in the financial feasibility.
- The investment analysis is performed over a 25+1-year period which is the technical lifetime of the project plus the construction phase. This therefore includes the investments made by the project owner during the construction phase (1 year) and the operational costs along the investment analysis period.
- The Equity IRR (Internal Rate of Return) of the project cash flow has been calculated.
- A tax rate of 23.5% is applied to the project in line with Bulgarian corporate tax law at the time of the investment decision taking²⁸.
- The depreciation period for the equipment is assumed in line with the Bulgarian Corporate tax law for 2002, Depreciation Rates Table²⁹ at 25 years;
- The fair value of the assets is 0 at the end of the investment analysis period;
- At the time of the investment decision taking (31 October 2002) the present project owner was owner of the baseline CHPP which supplied industrial steam to the pulp mill and the cost of thermal energy had not been calculated and accounted for. The implementation of the project would lead to a replacement of certain quantity of coal, used as fuel in the CHPP and certain amount of economic savings which were defined in the Report of the World Bank-Prototype Carbon Fund³⁰ which is, in fact, the Feasibility Study Report of the project. These savings are calculated in the analysis as project income.
- The revenues from GS VERs are excluded from the analysis.

Table 7: Input parameters

Parameter	Unit	Value	Reference
Installed capacity of the boiler	MW	14	Report of the World Bank-Prototype Carbon Fund No 25098-BUL (draft)
Availability (plant load factor)	h/yr	8370	Report of the World Bank-Prototype Carbon Fund No 25098-BUL (draft)
Annual energy generation	MWh _{th}	117,000	Report of the World Bank-Prototype Carbon Fund No 25098-BUL (draft)

²⁸

<http://www.google.bg/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCsQFjAA&url=http%3A%2F%2Fbizines.dir.bg%2Fzakoni%2Fzkpo.htm&ei=Azl2U-P3Nail0QW9koHICA&usq=AFQjCNGit3kqsfah74BN6L3h13LJztYehg&bvm=bv.66699033,d.bGE>

²⁹ <http://www.nap.bg/page?sId125fsL=3&sId125dsA=2014&id=34&textMode=0>

³⁰ <http://www->

wds.worldbank.org/servlet/WDSCContentServer/WDSP/IB/2003/12/24/000012009_20031224101428/Rendered/PDF/2509810paper.pdf

Total investment	USD	2,750,000	Report of the World Bank-Prototype Carbon Fund No 25098-BUL (draft)
Quantity of coal saved by the project	t	22,500	Report of the World Bank-Prototype Carbon Fund No 25098-BUL (draft)
Unit price of coal	USD/MWh	4.75	Report of the World Bank-Prototype Carbon Fund No 25098-BUL (draft)
	USD/t	33.0125	
O&M costs	USD	240,000	Report of the World Bank-Prototype Carbon Fund No 25098-BUL (draft)
Depreciation period	years	25	Bulgarian Corporate Tax Law (2002)
Corporate tax	%	23.5	Bulgarian Corporate Tax Law (2002)
Financial Analysis Duration (year)		26	As allowed in the Guidance on the Assessment of Investment Analysis ,version 05
US\$/BGN exchange ratio		1.9948	Bulgarian National Bank – average rate for September 2002
Benchmark rate (%)		17.44	Calculated

Based on the above input parameters the equity IRR of the project was calculated as 14.40 % which is considerably lower than the benchmark of 17.44 % and that makes the project not financially attractive without revenues from the sale of GS VERs.

Substep 2d: Sensitivity analysis

Sensitivity analysis was applied to Annual operating costs, Investment costs, Thermal energy generation and Coal price.

All four parameters represent a share of more than 20% from project's revenues and costs which is the requirement of the Guidelines on the investment analysis, version 05 for parameters to be varied.

The annual operational costs of Svilosa Biomass Boiler have been defined in the World Bank – Prototype carbon fund Report based on estimated 15 personnel and the overall O&M costs of the captive power plant that supplied the plant with industrial steam, as well as World Bank's expertise in similar projects.

Table 8: Sensitivity to Variation in Annual O&M Costs

	IRR Sensitivity with Annual O&M Costs				
Change in %	-10.0%	-5.0%	0.0%	5.0%	10.0%
Without VER	15.12	14.76	14.40%	14.03	13.66

As demonstrated, even 10% decrease of the O&M costs cannot make the project reach the benchmark. In order to reach an IRR of 17.40% the O&M costs has to decrease with 48% which is not likely to happen, having in mind that those costs tend to increase in time rather than to decrease.

Applying variations on investment costs, the range was considered to be in a bandwidth of +10% and – 10% with a 5% step as advised in “Tool for the demonstration and assessment of additionality”, Version 07.0.0 the resultant equity IRR is shown in Table 10 below:

Table 9: Sensitivity to Variation in Investment Costs

	IRR Sensitivity with Investment Cost				
Change in %	-10.0%	-5.0%	0.0%	5.0%	10.0%

Without VER	16.07	15.19	14.40%	13.58	12.90
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As demonstrated in table 10 the project is relatively more sensitive to an increase of the investment costs and with 10% decrease the IRR reaches 16.07 % which is still below the benchmark of 17.44%. In order to reach the benchmark the investments have to decrease with 17% which is not likely to happen. The technology applied is relatively new in Bulgaria and the proposed project is in fact one of the first-of-its-kind in the country. The type of equipment to be supplied is relatively new on the market which does not make the possibilities to negotiate lower price realistic.

Variation on thermal energy generation was applied in a bandwidth of +10% and –10% with a 5% step. The investment analysis of the project is based on the fact that the project does not generate direct revenue but rather leads to saving of coal in the baseline CHPP. The savings directly depend on the thermal energy generated by the project and the price of the coal. In fact the influence of the coal price is at the same rate and percentage as the influence of the thermal energy generation – the energy generation is directly linked to the quantity of coal saved as well as the amount of savings/revenues is directly linked to the price of coal with a negative relationship – the higher the price of coal, the higher the conditional revenues of the project and respectively the higher the IRR.

As demonstrated in the tables below 10% increase in the price of coal or the energy generated leads to an increase of the IRR to 15.51% which is still below the benchmark. In order to reach the benchmark the quantity of energy generated or the price of coal have to increase with at least 14%. This is not very likely to happen due to the following reasons:

- The capacity of the biomass boiler and the energy generation are optimised based on the quantity of wood waste available on site and generated by the pulp mill. This quantity is limited to a certain extend and do not allow considerable increase of the capacity;
- At the time of the investment decision taking the CHPP had a long-term 10 years contract for coal supply at a fixed price of 4.75 \$/MWh and it is not justified to expect a considerable increase of the price after that period.

Table 10: Sensitivity to Variation in Thermal energy generation

	IRR Sensitivity with Thermal energy generation				
Change in %	-12.0%	-5.0%	0.0%	5.0%	12.0%
Without VER	12.11	13.26	14.40%	14.69	15.51

Table 11: Sensitivity to Variation in coal price

	IRR Sensitivity with Electricity Selling Price				
Change in %	-10.0%	-5.0%	0.0%	5.0%	10.0%
Without VER	12.11	13.26	14.40%	14.69	15.51

The above benchmark and accompanying sensitivity analyses reveal the fact that the project cannot reach or surpass the benchmark IRR expectation. In case of a 10% decrease of the investment costs, the highest equity IRR without VER 16.07% is obtained and that is still lower than the benchmark of 17.44%. Therefore, the project is not financially attractive without VER revenues.

The major milestones in developing the investment project and CDM application are summarized in the below table:

Table 12: Major dates of the project's development

Activity	Date
Letter of Intent sent to the Prototype Carbon Fund	03 September 2001
Draft Baseline Study prepared by the World Bank – Prototype Carbon Fund	September 2002
Issuing of positive Determination report No 67962 for the JI project by Tuev Sued	04 October 2002
Letter from Svilosa to IBRD with acceptance to initiate consultations on the draft Term Sheet	31 October 2002*
Issuing of Letter of Approval for the JI project by the Bulgarian Government	25 February 2003
Signing of Emission Reductions Purchase Agreement (ERPA) with IBRD on behalf of Prototype Carbon Fund (PCF)	24 September 2003
Start of operation of the biomass boiler and start of the JI crediting period	01 January 2004
Issuing of Declaration of Approval for the JI project by the Dutch Government	15 October 2009
End of the JI crediting period	31 December 2012

*This date is considered as the date of Investment Decision Taking

Step 4: Common practice analysis

The project activity is identified as a Small scale hence no Common practice analysis is required.

B.6. Emission reductions

B.6.1. Explanation of methodological choices

The baseline for the project was established through the official methodology of AMS I.C / Version 20, named “Thermal energy generation with or without electricity”³¹ as approved by the CDM Executive Board. The monitoring methodology referred to in AMS I.C / Version 20 is applied in order to define the monitoring plan.

The project emissions, baseline emissions and emission reductions are calculated as demonstrated in the methodology.

Baseline emissions

According to AMS-I.C /Version 20, para. 24: For renewable energy technologies that displace technologies using fossil fuels, the simplified baseline is the fuel consumption of the technologies that would have been used in the absence of the project activity, times an emission factor for the fossil fuel displaced:

$$BE_{thermal,CO_2,y} = (EG_{thermal,y} / \eta_{BL,thermal}) * EF_{FF,CO_2} \quad (1)$$

Where:

$BE_{thermal,CO_2,y}$ The baseline emissions from steam/heat displaced by the project activity during the year y (tCO₂)

$EG_{thermal,y}$ The net quantity of steam/heat supplied by the project activity during the year y (TJ)

³¹ <http://cdm.unfccc.int/methodologies/DB/JSEM51TG3UVKADPA25IPUHXJ85HE8A>

EF_{FF, CO_2} The CO_2 emission factor of the fossil fuel that would have been used in the baseline plant obtained from reliable local or national data if available, alternatively, IPCC default emission factors can be used (tCO₂/TJ)

$\eta_{BL, thermal}$ The efficiency of the plant using fossil fuel that would have been used in the absence of the project activity

As the project was implemented prior to applying for GS registration and registered as JI project, para. 25 of the methodology will be followed and baseline calculations will be based on historical data on energy use (coal) and plant output of steam in the baseline plant for three years prior to the estimated date of registration of the project as Gold Standard project. The data from the last 3 years of the Kyoto Protocol (2010, 2011 & 2012) will be used as a base.

The captive baseline power plant is a Combined Heat-and-Power Plant that supplied thermal energy to local consumers in combination with generation of electric energy supplied to the National Bulgarian grid. In that case the thermal efficiency of the baseline captive power plant will be determined as per para. 39 of AMS-I.C,ver.20: , the efficiency shall be calculated as the total annual energy produced over the last three years using the historical data as prescribed in paragraph 25 (total electricity generated and total steam/heat extracted divided by the thermal energy value of the fuel use).

The baseline scenario corresponds to para. 28 of AMS-I.C,ver.20 (d): Electricity and thermal energy (steam/heat) are produced in a cogeneration or trigeneration unit using fossil fuel (with a possibility of export of electricity to a grid/other facilities and/or thermal energy to other facilities).

The baseline CHPP “Svilosa” is part of the European Emissions Trading Scheme and is obliged by Bulgarian law to deliver verified annual reports for the GHG emissions generated during its operation. The reports are published on the web-site of the Bulgarian Environment Protection Agency³². The reports contain all major data regarding the operation of the plant including, to the amount of electricity generated, thermal energy delivered to clients, fossil fuel consumed during the year, emission factor of the fossil fuel used, total net thermal energy generated by combusting fossil fuel, etc. The reports are verified by an independent entity, certified to perform validations and verifications of installations related to EU ETS, CDM and JI mechanisms. The reports issued by the baseline CHPP “Svilosa” for the years 2010, 2011 & 2012 state the following.

Table 14: CHPP “Svilosa” – verified historical activity data

	Coal	Heavy oil	El. energy to grid	Industrial steam delivered	EF coal	EF heavy oil	EF weighted	Thermal efficiency
	Thermal en.	Thermal en.						
Desig nation	EH _{BL}		EC _{BL,grid}	EG _{BL}				
	TJ gross	TJ gross	MWh	MWh	tCO2/TJ	tCO2/TJ	tCO2/TJ	%
2010	6,943	19	548,839	91,105	95.94	76.59	95.89	36.34
	MWh (net) total							
	1,760,755							
2011	5,495	12	436,338	67,826	95.943	77.367	95.90	35.53
	MWh (net) total							
	1,418,898							
2012	3,586	30	268,191	33,210	96.022	77.3667	95.87	33.07

³² <http://eea.government.bg/eea/main-site/bg/rr/r-te/dokladi-2r.html>

	MWh (net) total					
	911,465					

Source: Annual reports of installations included in EU ETS

The annual verified Monitoring reports also give information regarding the emission factor of the fossil fuel used. The CHPP has used two types of fuel in that historical period – coal and heavy oil. The emission factor that will be used for the baseline emission calculations is a weighted average of the reported emission factors of coal and heavy oil.

In order to be conservative 2010 - the year with the highest thermal efficiency of the CHPP will be used as a base for the ex-ante baseline emissions calculation.

The thermal energy generated by the project activity for the period 2010 – 2012 is given in the verified Monitoring reports for that period. The Monitoring reports have been verified by Bureau Veritas Bulgaria and are published at the web-site of the UNFCCC³³.

Table 15: Reported annual thermal energy generation by the Project

Annual Summary	Unit	2010	2011	2012
Gross heat output from biomass boiler	t	39,540	48,615	127,659
	MWh	30,652	37,686	98,724
	TJ	110.347	135.670	355.406

After the economic crisis during 2009, the operation of the mill in 2010 and 2011 could be described as loading of production facilities and reaching optimal capacity. The biomass boiler operation is related to the pulp mill production. Due to wearing out of some of the main parts of the biomass boiler at the end of 2011 an overhaul was performed. The increase of the nominal thermal capacity of the boiler was reached through replacement of main parts that extended the heating surface and increased boiler's efficiency. The biomass boiler reached its production capacity in 2012 and after. That is why 2012 will be used for ex-ante calculation of the baseline emissions during the crediting period.

Project emissions

As per paragraph 66 and 67 of AMS I.C, version 20, project emissions include:

CO₂ emissions from on-site consumption of fossil fuels due to the project activity which shall be calculated using the latest version of the “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion”.

CO₂ emissions from electricity consumption (PE_{EC,y}) which shall be calculated using the latest version of the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”.

As the proposed project activity is a biomass based steam boiler, there would be zero project emissions as only carbon neutral biomass would be utilized for thermal energy generation. No fossil fuel will be used by the project as a back-up fuel or in emergency cases as the boiler is not designed for that kind of process.

³³ <http://ji.unfccc.int/JIITLProject/DB/ASKDPSK8ARA1APZGEW4VUXH080HYP2/details>

As the project activity will consume electricity, the “Tool to calculate baseline, project and/or leakage emission from electricity consumption” Version 01 is applied to calculate project emission from electricity consumption ($PE_{EC,y}$)³⁴.

Scenario A (electricity consumption from the grid) from the tool applies and emissions are calculated as follows (the source is only one – the National grid):

$$PE_{EC,y} = EC_{PJ,y} \times EF_{EL,y} \times (1 + TDL_y) \quad (2)$$

where

$PE_{EC,y}$ = Project emissions from electricity consumption in year y (tCO_2/yr)

$EC_{PJ,y}$ = Quantity of electricity consumed by the project electricity consumption in year y (MWh/yr)

$EF_{EL,y}$ = Emission factor for electricity generation in year y (tCO_2/MWh)

TDL_y = Average technical transmission and distribution losses for providing electricity in year y

The project falls under Scenario A: Electricity consumption from the grid.

The project participant has opted for Option A2: Use conservative default value of $1.3tCO_2/MWh$. This value applies for the project electricity consumption source and will be used throughout the whole crediting period. The project participant will use a default value of 20% for the average technical transmission and distribution losses for the project electricity consumption. This value will be used throughout the whole crediting period.

The data about the electricity consumption for 2012 which is selected as base for the ex-ante calculations of the project emissions are given in the table below:

Table 16: Project electricity consumption

Month	Boiler	Shredder
	El. consumption 2012, MWh	
January	80.2	41.3424
February	80.507	37.0656
March	80.824	41.3424
April	93.55	39.9168
May	80.638	41.3424
June	75.28	39.9168
July	61.04	41.3424
August	52	41.3424
September	41.1	39.9168
October	34.73	29.9376
November	68.5	39.9168
December	88.39	41.3424
Sub-total	836.759	474.7248
Total	1,311.484	

³⁴ http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-05-v1.pdf/history_view

Leakage

Paragraph 76 of the methodology AMS I.C/Version 20 states that- “If the energy generating equipment currently being utilized is transferred from outside the boundary to the project activity, leakage is to be considered.”

As there is no transfer of energy generating equipment from outside the boundary to the project activity and all the equipment is brand-new, leakage does not have to be considered.

The biomass is not collected from outside the project site but is generated in the process of wood treatment for onsite production needs of the pulp mill, hence, leakage on the account of collection/processing/transportation of biomass residues is not applicable for the present case.

In the “General Guidance on leakage in Biomass project activities” version 03, leakage identified in three types of emission sources:

Parameter	Guidance on leakage	Project activity status
Shift of project activities	Shift of pre-Project activities are relevant where in the absence of Project activity the land areas would be used for other purposes (i.e. agriculture) and the renewable biomass from existing or new forests	This is not applicable since the project activity uses wood barks which is a waste of the pulp production process
Emissions from the production of the renewable biomass	Potentially significant emission sources from the production of renewable biomass can be (a) Emission from application of fertilizer; and (b) Project emissions from clearance of land	This is not applicable since the project activity uses wood barks which is a waste of the pulp production process
Competing use for the biomass	The Project developer shall evaluate ex ante if there is a surplus of the biomass in the region of the project activity, which is not utilized. If it is demonstrated (e.g. using published literature, official reports, surveys, etc.) that the quantity of available biomass in the region (e.g 50 km radius) is at least 25 % larger than the quantity of biomass that is utilized including the project activity, then this source of leakage can be neglected otherwise this leakage shall be estimated and deducted from the emission reductions	This is not applicable since the project activity uses wood barks which is a waste of the pulp production process

As a result it can be stated that leakage is equal to 0.

Emission reductions

As per paragraph 80 of AMS I.C/Version 20, the emission reductions calculations are as follows:

$$ER_y = BE_y - PE_y - LE_y \quad (3)$$

Where:

ER_y = Emission reductions of the project activity in year y (tCO₂e)

BE_y = Baseline emissions of the project activity in year y (tCO₂e)

PE_y = Project emissions of the project activity in year y (tCO₂)

LE_y = Leakage emissions of the project activity in year y (tCO₂)

B.6.2. Data and parameters fixed ex ante

(Copy this table for each piece of data and parameter.)

Data / Parameter	$EF_{EL,y}$
Unit	tCO ₂ /MWh
Description	Emission factor of the national power grid of Bulgaria
Source of data	“Tool to calculate baseline, project and/or leakage emission from electricity consumption”, Version 01
Value(s) applied	1.3
Choice of data or Measurement methods and procedures	Default Grid Emission Factor
Purpose of data	Calculation of project emissions
Additional comment	This parameter has been fixed ex-ante for the whole crediting period.

Data / Parameter	TDL_y
Unit	Fraction
Description	Average technical transmission and distribution losses for providing electricity
Source of data	“Tool to calculate baseline, project and/or leakage emission from electricity consumption”, Version 01
Value(s) applied	0.20 (20%)
Choice of data or Measurement methods and procedures	Default value
Purpose of data	Calculation of project emissions
Additional comment	This parameter has been fixed ex-ante for the whole crediting period.

B.6.3. Ex-ante calculation of emission reductions

Baseline emissions

$$BE_{thermal,CO_2,y} = (EG_{thermal,y} / \eta_{BL,thermal}) * EF_{FF,CO_2}$$

Where

$BE_{thermal, CO_2,y}$	The baseline emissions from steam/heat displaced by the project activity during the year y (tCO ₂)	Calculated
$EG_{thermal,y}$	The quantity of heat supplied by the project activity during	355.406

	the year y (TJ)	
$\eta_{BL,thermal}$	The efficiency of the plant using fossil fuel that would have been used in the absence of the project activity	36.34
EF_{FF,CO_2}	The CO_2 emission factor of the fossil fuel that would have been used in the baseline plant obtained from reliable local or national data if available, alternatively, IPCC default emission factors can be used (tCO_2/TJ)	95.89

$$BE_{thermal, CO_2} = (355.406/0.3634)*95.89 = 93,780 \text{ tCO}_2/\text{year}$$

Project emissions

$PE_{EC,y}$	Project emissions from electricity consumption in year y (tCO_2/yr)	Calculated
$EC_{PJ,y}$	Quantity of electricity consumed by the project electricity consumption in year y (MWh/yr)	1,311.484
$EF_{EL,y}$	Emission factor for electricity generation in year y (tCO_2/MWh)	1.3
TDL_y	Average technical transmission and distribution losses for providing electricity in year y	0.20 (20%)

$$PE_y = EC_{PJ,y} \times EF_{EL,y} \times (1+TDL_y) = 1,311.484*1.3*(1+0.20) = 2,046 \text{ tCO}_2/\text{year}$$

Leakage emissions

$$LE_y = 0$$

Emission reductions

$$ER = 93,780 - 2,046 = 91,734 \text{ tCO}_2/\text{year}$$

**B.6.4. Summary of ex-ante estimates of emission reductions**

The exact start date of the crediting period will be determined by the date of registration under the Gold Standard.

Year	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage (tCO ₂ e)	Emission reductions (tCO ₂ e)
2013	93,780	2,046	0	91,734
2014	93,780	2,046	0	91,734
2015	93,780	2,046	0	91,734
2016	93,780	2,046	0	91,734
2017	93,780	2,046	0	91,734
2018	93,780	2,046	0	91,734
2019	93,780	2,046	0	91,734
Total	656,460	14,322	0	642,138
Total number of crediting years	7 years 0 months			
Annual average over the crediting period	93,780	2,046	0	91,734

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

(Copy this table for each data and parameter.)

Data / Parameter	$EG_{\text{thermal},y}$
Unit	TJ
Description	The net quantity of heat supplied by the project activity during the year y
Source of data	Plant records
Value(s) applied	355.406
Measurement methods and procedures	Measured hourly and recorded monthly and yearly 3) Data Archiving: Paper/ Electronic 4) Monitoring Procedure: Steam thermal energy meter would be used to measure the quantity of heat generated by the boiler 5) Records will be kept for at least 2 years after the last transfer of VERs from the project.
Monitoring frequency	Continuous monitoring, integrated hourly and recorded monthly and yearly
QA/QC procedures	The QA/QC procedures for the measurement devices are described separately for each measurement device (flow meter) in their manufacture instructions. The measurement QA/QC procedures are described in Chapter B.7.3. Quality system ISO 9001:2008 is implemented in the factory and all measurement processes, as device technical descriptions and documentation, position, QA/QC procedures, calibrations, training, temporally replacing procedures etc. are included. The thermal energy meter will undergo maintenance/calibration subject to appropriate industry/country standards.
Purpose of data	Calculation of baseline emissions
Additional comment	As per AMS-I.C,ver.20, (Monitoring) the net quantity of heat generated is determined by metering the energy produced by a sample of the systems where the simplified baseline is based on the energy produced multiplied by an emission coefficient.

Data / Parameter	$EC_{PJ,y}$
Unit	MWh
Description	Electricity consumed from the grid in the year y
Source of data	Installation electricity meters
Value(s) applied	1,311.484
Measurement methods and procedures	Will be measured ex-post and recorded monthly. Records will be kept for at least 2 years after the last transfer of VERs from the project.
Monitoring frequency	Continuous monitoring. Monthly recording.
QA/QC procedures	Electricity meters will undergo maintenance/calibration subject to appropriate industry/country standards.
Purpose of data	Project emissions calculation
Additional comment	In case records are missing due to meters failure or replacement the electricity consumption for that period and that part of the installation will be estimated by multiplying the installed capacity of the electric motors and devices involved times the working hours of the installation as per plant's records.

Data / Parameter	$\eta_{BL,thermal}$
Unit	%
Description	The efficiency of the plant using fossil fuel that would have been used in the absence of the project activity
Source of data	Annual verified EU ETS activity reports of the baseline CHPP published at the web-site of the National Environment Protection Agency
Value(s) applied	36.34
Measurement methods and procedures	Calculated every year based on the annual verified EU ETS reports. Records will be kept for at least 2 years after the last transfer of VERs from the project.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Calculation of the baseline emissions
Additional comment	-

Data / Parameter	EF_{FF,CO_2}
Unit	tCO ₂ /TJ
Description	The CO ₂ emission factor of the fossil fuel that would have been used in the baseline plant.
Source of data	Annual verified EU ETS activity reports of the baseline CHPP published at the web-site of the National Environment Protection Agency
Value(s) applied	95.62
Measurement methods and procedures	Recorded every year based on the annual verified EU ETS reports. Records will be kept for at least 2 years after the last transfer of VERs from the project.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	If the use of more than one fossil fuel is reported by the baseline CHPP the emission factor will be calculated as weighted average value.

Data / Parameter	$EH_{BL,y}$
Unit	MWh
Description	Total net quantity of heat generated by the boilers of the baseline CHPP in the year y
Source of data	Annual verified EU ETS activity reports of the baseline CHPP published at the web-site of the National Environment Protection Agency
Value(s) applied	1,760,755
Measurement methods and procedures	Recorded every year based on the annual verified EU ETS reports. Records will be kept for at least 2 years after the last transfer of VERs from the project.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data / Parameter	$EC_{BL,y}$
Unit	MWh
Description	Total net quantity of electric energy generated by the baseline CHPP in the year y
Source of data	Annual verified EU ETS activity reports of the baseline CHPP published at the web-site of the National Environment Protection Agency
Value(s) applied	548,839
Measurement methods and procedures	Recorded every year based on the annual verified EU ETS reports. Records will be kept for at least 2 years after the last transfer of VERs from the project.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

Data / Parameter	$EG_{BL,y}$
Unit	MWh
Description	Total quantity of useful heat generated by the boilers of the baseline CHPP in the year y
Source of data	Annual verified EU ETS activity reports of the baseline CHPP published at the web-site of the National Environment Protection Agency
Value(s) applied	91,105
Measurement methods and procedures	Recorded every year based on the annual verified EU ETS reports. Records will be kept for at least 2 years after the last transfer of VERs from the project.
Monitoring frequency	Annually
QA/QC procedures	-
Purpose of data	Calculation of baseline emissions
Additional comment	-

B.7.2. Sampling plan

Since proportion of data to be monitored is 100%, there will be no sampling.

B.7.3. Other elements of monitoring plan

1. Monitoring objective

The objective of the monitoring plan is to assure the complete, consistent, clear, and accurate monitoring and calculation of the project emission reductions during the whole crediting period. The project owner is responsible for the implementation of the monitoring plan, and the grid company cooperates with the project owner.

2. General information

The company - project owner has adopted and certified an Integrated Management System (IMS) on the Quality and Environment in accordance to the international approved standards ISO 9001:2008 and ISO 14001:2004. A Quality Certificate № SOF0170240 dated December 27th, 2011 as well Environment Certificate № SOF0170240/A dated August 3rd, 2012 were issued by Lloyds Register Quality Assurance

Ltd. During the period October 25th – 26th, 2012 a recertification audit of the ISO 9001:2008 was carried out. On December 1st, 2012 the new certificate was received, which is valid till November 30th, 2015.

A certification audit concerning the standard OHSAS 18001: 2007 is pending.

The company has adopted Procedure P10 - Securing and control of equipment for observation and measuring. It defines the order, the authorities and responsibilities for management of the equipment for measurement and monitoring, calibration, records kept as well as their storage. Procedure P10 of the IMS is an integral part of the Management and monitoring system of the Biomass boiler project.

The operator of the biomass boiler is required to comply with the data collection, testing and analysis, and data management obligations of this MP. The operator must integrate the following data collection requirements into the company's data basis and information collection policies.

3. Monitoring data

1. Data on CHP plant performance:

- Process heat production (MWh/yr)
- Total electricity generation (MWh/yr)
- Coal emissions factor (tCO₂/MWh)
- Total net heat production (MWh/yr)

The data will be collected and processed on yearly basis

2. Data on biomass boiler performance:

- Quantity of useful heat production (MWh/yr)
- Quantity of electric energy consumed on-site (MWh/yr)

The data will be collected continuously and recorded and processed monthly and yearly.

The operator has the responsibility to input the required data feeds on a monthly and annual basis as required in the monitoring methodology and input data templates in the electronic workbook. The workbook should be saved after each update. Back-up copies of the workbook should be saved and stored on a secure system on a monthly basis to avoid loss of information.

The following measuring equipment will be used for monitoring of the project activity:

Measuring instrument	Measuring units and parameters	Manufacturer	Serial number	Installation date	Mistake/Uncertainty level	Comment
PROWIRL 72F	m ³ /h steam	ENDRES+ HAUSER	F406B4 02000	22.05.2012	±0.75	Swirl flow meter. It transfers the information to the RMC621 meter for defining the amount of heat energy generated in MW/h.
RMC621	t/h, MW/h / TJ, – heat	ENDRES+ HAUSER	D9003 A0422E	16.11.2010	±0.2 %	

	output from boiler, $EG_{thermal,y}$					
Electric meter	Electric energy consumed from the grid by the shredder	Iskra – Slovenia; type MT830-T1A42R5 6S53-E1-M3KO2Z4	35650744	29.05.2014	1 st class ($\pm 0.5\%$)	
Electric meter	Electric energy consumed from the grid by the installation (shredder excluded)	Iskra – Slovenia; type MT830-T1A42R5 6S53-L2A-M3KO3Z4	35690985	29.05.2014	1 st class ($\pm 0.5\%$)	

4. Responsibility

The management and operation of the project is the responsibility of the Svilocell EAD (the project operator). Ensuring the environmental credibility of the project through accurate and systematic monitoring of the project's implementation and operation, for the purpose of achieving trustworthy VERs is the key responsibility of the operator.

The project operator will have responsibility to procure and install all the necessary equipment and data acquisition systems to enable the collection and of the stipulated data at the required frequency, and to manage and present this data in the electronic workbook as part of a wider data management system that will be sufficient to meet the needs of the monitoring and the independent verifier.

The establishment of transparent, auditable systems for the collection and storage of data, including adequate record keeping and data monitoring systems. The operator must develop and implement a protocol that provides for these critical functions and processes, which must be fit for independent auditing.

For electronic and paper based data entry and record keeping system, there must be clarity in terms of the procedures and protocols for collection and entry of data, use of workbooks and spreadsheets and any assumptions made, so that compliance with requirements can be assessed by a third party. Stand-by processes and systems, e.g. paper based systems, must be outlined to provide for the possibility of electronic system failures and used in the event of such failure. The record keeping system must provide for a paper trail that can be audited.

The operator will appoint a competent manager who will be in charge of and accountable for the generation of VERs including monitoring, record keeping, computation of VERs, audits and verification. The operator will officially sign off on all official paper versions of GHG emission worksheets.

5. QA/QC and procedures in case of emergency

The activities outlined here will be undertaken under the ISO 9001:2008 QA/QC system that is implemented in the pulp mill. This will ensure that all management and operational systems will meet the requirements of external auditors.

The operator will prepare reports as needed for audit and verification purposes.

The project owner will prepare an annual Monitoring report which should include: information on overall project performance, emission reductions generated and verified and comparison with targets, observations regarding baseline scenario indicators, compliance with sustainable development targets, information on adjustment of key assumptions concepts, calculation methods and other amendments of the monitoring system.

It is the responsibility of the operator to ensure that the required capacity and internal training is made available to its operational staff to enable them to undertake the tasks required by the monitoring process. Initial staff training must be provided before the project starts operating and generating VERs.

In the spirit of capacity building and project co-operation, the operator may want to include in training activities staff from government agencies involved in the project and possibly from other Bulgarian entities involved in GHG reduction projects.

The following table summarises the roles and responsibilities of the various project partners with regard to the monitoring system.

Table 17: Project management and operation system

	SBP Operator and Management
Monitoring system	Review monitoring plan and suggest adjustments if necessary; Develop and establish management and operations system linked with ISO9001:2008; Establish and maintain monitoring system and implement MP.
Data Collection	Establish and maintain data measurement and collection systems for all MP indicators; Check data quality and collection procedures regularly.
Data computation	Enter data in MP workbooks; Use MP workbooks to calculate emission reductions.
Data storage systems	Implement record maintenance system; Store and maintain records (paper trail); Implement sign off system for completed worksheets; Forward monthly and annual worksheet outputs.
Performance monitoring and reporting	Analyse data and compare project performance with project targets; Analyse system problems and recommend improvements (performance management); Prepare and forward periodic reports.
Training and Capacity Building	Develop and establish MP training, skills review and feedback system; Ensure operational staff trained and enabled to meet needs of MP; Consider providing training support to national authorities and other GHG reducing projects.
Quality assurance/Quality control audit and verification	Establish and maintain quality assurance system with a view to ensuring transparency and allowing for audits and verification Prepare for, facilitate and co-ordinate audits and verification process

The values metered by the measuring instruments at the output side of the Project plant will be used in the calculation of the Project's emission reductions. Electricity meters should be installed to measure the daily electric energy consumed by the project activity. If the meter for daily measurement needs to be repaired or calibrated, a reserve meter should be put into operation. In case records are missing due to meters failure or

replacement, the electricity consumption for that period and that part of the installation will be estimated by multiplying the listed installed capacity of the electric motors and devices involved, times the working hours of the installation as per plant's records.

The QA/QC procedures for the thermal energy measurement devices are described separately for each measurement device (flow meter) in their manufacture instructions. QA/QC system ISO 9001:2008 is implemented in the plant and all measurement processes, as device technical description and documentation, position, QA/QC procedures, calibration, training, temporally replacing procedures etc. are included.

For all measurement devices out of the calibration period the maximal error of the device will be used in conservative direction at readings.

Data record will be archived for a period of 2 years after the issuance of the CERs to which the records pertain.

SECTION C. Duration and crediting period

C.1. Duration of project activity

C.1.1. Start date of project activity

C.1.2.

31 October 2002

C.1.3. Expected operational lifetime of project activity

According to the “Tool to determine the remaining lifetime of the equipment”, Version 01, the default value of the operational lifetime of 25 years 0 months years has been adopted.

C.2. Crediting period of project activity

C.2.1. Type of crediting period

As per GS TAC decision from September 2014 the crediting period is a renewable 3*7 year period with a maximum of 21 years overall. The starting date of the first crediting period under JI and under a Green Investment Scheme is 1 January 2004. The baseline will get renewed retroactively 2 years prior to the date of registration of the project under Gold Standard.

C.2.2. Start date of crediting period

Two years prior the date of the registration by the Gold Standard Foundation.

C.2.3. Length of crediting period

7 years 0 months

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

As part of the JI procedures the project has received host country endorsement and subsequent approval from the Designated National Authority - Ministry of Environment and Water in Bulgaria. Again as part of the procedures the project has gone through a public consultation process, which took place on 11/12/2002. All the comments received during the consultations have been taken into account.

Since the project is a renewable energy biomass based power project it does not fall under the purview of



the Environmental Impact Assessment (EIA) according to the Bulgarian Environmental Protection Act. The Ministry of Environment and Water in Bulgaria has been notified regarding the project and after evaluation of the relevant documents the Ministry has decided that no EIA is required for the project activities. This is confirmed with a letter dated 04/02/2003.



РЕПУБЛИКА БЪЛГАРИЯ
МИНИСТЕРСТВО НА ОКОЛНАТА СРЕДА И ВОДИТЕ

РЕШЕНИЕ № 2-ПР /2003

за преценяване на необходимостта от извършване на оценка на въздействието
върху околната среда

на основание чл. 93, ал. 5 от Закона за опазване на околната среда и представената писмена документация от инвеститора “Свилоса” АД, гр. Свищов, област Велико Търново

РЕШИХ

да не се извършва оценка на въздействието върху околната среда за инвестиционно предложение “Инсталация за изгаряне на дървесни кори и производство на технологична пара”, с местоположение в източната част на цех “Суровинноподготвителен” към Завода за целулоза, площ 700 м², капацитет 14т/ч наситена пара с налягане 13 бара, топлинна мощност 11 МВт.

МОТИВИ:

1. В резултат от реализирането на инвестиционното предложение няма да настъпят неблагоприятни въздействия върху компонентите на околната среда.
2. Използването на дървесни кори за добив на енергия ще доведе до намаляване на емисиите на парникови газове, серен диоксид, азотни оксиди и прах и ще се подобри качеството на атмосферния въздух в района.
3. С предвидените в инвестиционното предложение дейности ще се постигне намаляване на количеството на депонираните отпадъци и подобряване на качеството на подземните води.
4. Строителството ще се реализира в границите на заводската площадка и не предвижда усвояването на нови земи.
5. Инвестиционното предложение не засяга защитени със закон територии и местообитания, планински и гористи местности, влажни и крайбрежни зони, паметници на културата и територии със санитарен статут.
6. Не са изразени устно или депозирани писмено възражения от засегнатата общественост срещу реализацията на инвестиционното предложение.

МИНИСТЪР:

(Д. АРСЕНОВА)

Дата: 22.02.2003г.

The motives behind the decision of the Ministry as listed in the letter are the following:

1. The project will not lead to negative effects on the environment;
2. The use of wood bark for energy production will lead to reduction of emissions of CO₂, SO₂, NO_x and dust;
3. The quantity of waste deposited in the landfill will be reduced, hence the quality of the underground water will be improved;
4. The construction will be within the factory site and no new lands will be acquired;
5. The investment proposal does not affect legally protected areas and habitats, mountain woodlands, wetlands and coastal areas, cultural monuments and areas with sanitary status;
6. No verbal or written objections to the realization of the project have been received from stakeholders.

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

When deciding on the stakeholders to be invited, Svilocell was trying to cover all categories suggested by Gold Standard. Local and national governmental ministries and agencies, as well as relevant Bulgarian non-governmental organisations were invited. The international NGOs, supporting GS and the representative of GS were invited as well. All invitees were contacted at least 2 weeks before the meeting for confirmation of their presence (as required by the Gold Standard V 2.2).

In order to invite stakeholders from Category A (Local People), announcements were made in a local newspaper, on the information board of the Municipality, as well as on the web page of Svilosa AD (<http://www.svilosa.bg/kib/index.php/en>).

The meeting was held on August 21, 2014, in the conference room of the municipality of Svishtov - the nearest town to the project site. In addition to the individual invitations the meeting schedule was published in a local newspaper and an announcement was displayed on the announcement board of the municipality building. The audio of the meeting was recorded. The meeting followed the agenda below:

1. Opening of the meeting

- Presented the project developers and representatives;
- Explanation of the objective of the meeting: to get feedback and suggestions for improvement of the project from all the attendees.

2. Explanation of the project:

Short presentation of the project (based on the non-technical summary):

- Project schedule
- Overall goals of the project
- An explanation of what The Gold Standard is

3. Questions for clarification about the project

People were given the opportunity to ask questions for clarification on the project idea.

4. Blind SD exercise

This started with an explanation of SD, including the possible indicators, parameters and procedure for carrying out the assessment.

Attendees were then asked which indicators they thought were relevant to the project, and to score them.

5. Discussion on monitoring SD

Attendees were asked if they have ideas on how each of the indicators could be monitored cost effectively.

6. Presentation and discussion of the continuous input /grievance mechanism**7. Assessment of the meeting**

Filling in the evaluation forms

8. Closure of the meeting

Some of the NGOs who were unable to attend the meeting, sent a written opinion regarding the project. A letter from the Ministry of Environment and Water (Climate Change Directorate) was received stating that no representative is able to attend the meeting, and expressing the Ministry's principle support to the project. (Annex 3 of the LSC report)

There were 40 participants present at the meeting. The attendees represented a diverse group of stakeholders.

E.2. Summary of comments received

Stakeholder comment	Was comment taken into account (Yes/ No)?	Explanation (Why? How?)
What amount of carbon dioxide will be reduced annually from the project?	Yes	The expected amount is about 90,000 tons / year of CO _{2e}
Is waste biomass from forests used in the installation?	Yes	Only bio-waste from the process of preparing the timber is used in the installation.
How is the issue with the waste ash resolved, will it be stored?	Yes	Currently the ash is deposited in a landfill for non-hazardous industrial waste as per the IPPC permit issued by the Ministry of Environment and Water. In the near future the ash will be used for the production of a soil conditioner (fertilizer).
Does Svilosa have certified ISO systems and are they audited?	Yes	Svilocell has certified quality management system according to ISO 9001: 2008 and certified environmental management system - ISO 14001: 2007. Audits are conducted with a frequency twice a year by an independent auditing body.
Will the odours in the air be reduced by the project?	Yes	Although part of the installation for the pulp production the current project is not related to the odours emitted in the air. Svilocell does not exceed the nationally set limits values for odours.



In conclusion, no concern was raised during the meetings which require revisiting sustainability assessment.

E.3. Report on consideration of comments received

The sustainable development assessment shall not be revisited as no negative comments have been received. The stakeholder's comments did not require that any aspect of the project be modified.

For more information please see the LSC Report of the project.

SECTION F. Approval and authorization

The project has received a letter of endorsement for registration under GS by the Ministry of Environment and Water of Bulgaria dated 15th April, 2014.

The project has also received a letter of confirmation by the Ministry of Environment and Water that since 1st January 2013 the project is no longer Joint Implementation project.

Both letters are attached to the PDD.

Appendix 1: Contact information of project participants

Organization	Svilocell EAD
Street/P.O. Box	West Industrial Zone
Building	-
City	Svishtov
State/Region	Veliko Tarnovo
Postcode	5250
Country	Bulgaria
Telephone	+359 631 41141
Fax	+359 631 41141
E-mail	svlocell@svilosa.bg
Website	www.svilosa.bg
Contact person	Mihail Kolchev
Title	Executive Director
Salutation	Mr.
Last name	Kolchev
Middle name	Georgiev
First name	Mihail
Department	
Mobile	
Direct fax	+359 631 41141
Direct tel.	+359 631 41141
Personal e-mail	

Appendix 2: Affirmation regarding public funding

There is no public funding of the project. Please see the ODA declaration of Project Owner uploaded at GS web-site.

Appendix 3: Applicability of selected methodology

Applicability of selected methodology is discussed in detail in section B.2.

Appendix 4: Further background information on ex ante calculation of emission reductions

No additional background information on ex-ante calculation of emission reductions is presented.

Appendix 5: Further background information on monitoring plan

Monitoring plan is explained in detail under Section B.7

Appendix 6: Summary of post registration changes



History of the document

Version	Date	Nature of revision
04.1	11 April 2012	Editorial revision to change history box by adding EB meeting and annex numbers in the Date column.
04.0	EB 66 13 March 2012	Revision required to ensure consistency with the “Guidelines for completing the project design document form for small-scale CDM project activities” (EB 66, Annex 9).
03	EB 28, Annex 34 15 December 2006	The Board agreed to revise the CDM project design document for small-scale activities (CDM-SSC-PDD), taking into account CDM-PDD and CDM-NM.
02	EB 20, Annex 14 08 July 2005	- The Board agreed to revise the CDM SSC PDD to reflect guidance and clarifications provided by the Board since version 01 of this document. - As a consequence, the guidelines for completing CDM SSC PDD have been revised accordingly to version 2. The latest version can be found at http://cdm.unfccc.int/Reference/Documents.
01	EB 07, Annex 05 21 January 2003	Initial adoption.
Decision Document Business Function: Registration		Class: Type: Regulatory Form