Determination Report

Determination of
the
"Jägala-Joa Hydropower
Joint Implementation Project,
Estonia"

Report No. 924281

2008, January 25

TÜV SÜD Industrie Service GmbH,
Carbon Management Service
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Client:	Kommunalkredit Public Consulting GmbH Türkenstrasse 9 A1090, Vienna, Austria
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Summary:

The Certification Body "Climate and Energy" of TÜV SÜD Industrie Service GmbH has been ordered by the LHCarbon OÜ in Tallin, Estonia, to determine the above mentioned JI project.

The determination of this project has been performed by document reviews, an audit at the location of the project and interviews at the offices of the project owner and its technical advisor.

The need for corrective action request (CAR) and clarification requests (CR) is described in the attached determination protocol. During the determination all issues indicated in CARs and CRs are considered to be resolved.

As result of this procedure, it can be confirmed that the submitted project documentation is in line with all requirements set by the Marrakech Accords and the Kyoto Protocol.

Additionally the assessment team reviewed the estimation of the projected emission reductions.

We can confirm that the indicated amount of 36.945 tons CO_2 (ERUs) during the Kyoto crediting period from November 1st, 2008 – December 31st, 2012 represents a conservative estimation using the assumptions given by the project documents.

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Abbreviations

BM	Build Margin
CAR	Corrective action request
CR	Clarification request
DFP	Designated Focal Point
DP	Determination Protocol
EIA	Environmental Impact Assessment
ER	Emission reduction
ERU	Emission Reduction Unit
GHG	Greenhouse gas(es)
GSP	Global Stakeholder consultation Process
JI	Joint Implementation
JISC	JI Supervisory Committee
KP	Kyoto Protocol
MP	Monitoring Plan
MS	Management System
NAP	National Allocation Plan due the EU Emissions Trading Scheme
OM	Operating Margin
PDD	Project Design Document
PIN	Project Idea Note
SCADA	Supervisory Control And Data Acquisition
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change

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1 INTRODUCTION

1.1 Objective

LHCarbon OÜ in Tallin, Estonia has commissioned TÜV SÜD Industrie Service (in short: TÜV SÜD) to make a determination of the "**Jägala-Joa Hydropower Joint Implementation Project**" (in short: Jägala-Joa HPP) with regard to the relevant requirements for JI project activities. The determination serves as a design verification and is a requirement for all JI projects submitted to the JISC. The purpose of a determination is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Determination is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reduction units (ERUs).

UNFCCC criteria refer to the Kyoto Protocol Article 6 criteria and the Guidelines for the implementation of Article 6 of the Kyoto Protocol as agreed in the Marrakech Accords.

1.2 Scope

The determination scope is defined as an independent and objective review of the project design document (PDD), the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. TÜV SÜD has employed a risk-based approach in the determination, focusing on the identification of significant risks for project implementation and the generation of ERUs.

The determination is not meant to provide any consulting towards the project owner Jägala Energy OÜ or the compiler of project design documents LHCarbon OÜ. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 GHG Project Description

The project foresees the restoration of a small hydropower plant in Estonia by the River Jägala at the municipality of Jõelähtme, approximately 25 km to east from Estionan capital Tallinn. The hydropower plant will have a total capacity of ca 1978 kW (two turbines of nominal capacity of 800 kW and one turbine of capacity 378 kW, of type "GHE Francis-Spiral Turbine") and the expected net output 7,900 MWh per year will be feeded into the Estonian national grid. The project qualifies as the JI-project as the renewable electricity produced by the Jägala-Joa hydropower plant will displace carbon intensive electricity produced from fossil fuel sources in the Estonian grid.
Jägala-Joa HPP will be commissioned by October 2008. The first turbine will be installed for electricity generation by August 2008. The generated ERUs are supplied by Jägala-Joa Energy OÜ, an Estonian private hydropower development company. The project documentation has been compiled by the project proponent, LHCarbon OÜ, located in Tallinn, Estonia, with additional support from other institutions.

2 METHODOLOGY

In order to ensure transparency, a determination protocol was customised for the project. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The determination protocol serves the following purposes:

- It organises, details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent determination process where TÜV SÜD has documented how a particular requirement has been validated and the result of the determination.

The determination protocol for this project consists of three tables. The different columns in these tables are described in Figure 1.

The completed determination protocol is enclosed in Appendix A to this report.

Determination Protocol Table 1: Mandatory Requirements			
Requirement	***Reference***	***Conclusion***	***Cross reference***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the determination report. **O** is used in case of an outstanding, currently not solvable issue, **AI** means Additional Information is required.*	*Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent determination process.*

Determination Protocol Table 2: Requirement checklist				
Checklist Question	***Reference***	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in six different sections. Each section is then further subdivided. The lowest level constitutes a checklist question.	*Gives reference to documents where the answer to the checklist question or item is found.*	*Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.*	*This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below). **Clarification** or **Additional Information** is used when the independent entity has identified a need for further clarification or more information.*

Determination Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action and additional Information requests	***Ref. to checklist question in table 2***	***Summary of project owner response***	***Determination conclusion***
If the conclusions from the draft determination are either a Corrective Action Request or a Clarification or Additional Information Request, these should be listed in this section.	*Reference to the checklist question number in Table 2 where the Corrective Action Request or Clarification or Additional Information Request is explained.*	*The responses given by the Client or other project participants during the communications with the independent entity should be summarised in this section.*	*This section should summarise the independent entity's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".*

Figure 1 Determination protocol tables

2.1 Review of Documents

A first PDD (Version 1 – 29.November 2006) were submitted to TÜV SÜD by LHCarbon OÜ on 29.11.2006. The second PDD (Version 2 – 22.May 2007) were submitted on 23.05.2007. The third PDD (Version 3 – 25.May 2007) were submitted on 30.05.2007 for publishing on the TÜV SÜD website www.netinform.net and on JISC-website. The publishing on JISC-website was confirmed on 04.06.2007.

As a result of the elaborations based to the corrective action and clarification requests the PDD was revised again (version 4, 27.September 2007) and sent to TÜV SÜD on September 27, 2007. After given comments from TÜV SÜD a renewed PDD-version (version 5, Dec 4, 2007, JI PDD Jägala-Joa Hydropower 04.12.07.doc) was provided, which served as the basis of this determination report.

2.2 Follow-up Interviews

On December 6, 2006 TÜV SÜD performed an on-site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the initial document review. Representatives of the project proponent LHCarbon OÜ and the owner and developer Jägala Energy OÜ have been interviewed.

The main topics of the interviews are summarised in Table 1. The complete and detailed list of all persons interviewed and documents revised are enclosed in Appendix B to this report.

Table 1: Interview topics

Interviewed organisation	Interview topics
Jägala Energy OÜ	Project design and technological possibilities, monitoring plan, stakeholder comments, monitoring procedures, measurement equipment, documentation, archiving of data
LHCarbon	Project design, baseline, monitoring plan and procedures, environmental impacts, stakeholder comments, additionality, business plan

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination is to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified for TÜV SÜD's positive conclusion on the project design.

Most findings and comments during the follow-on interviews were immediately resolved. Still a determination protocol was sent to LHCarbon with 29 CARs and 5 CRs. The most of the CARs and CRs were resolved by changes in the PDD version 3 (May 25 2007). The CAR#2 regarding the time schedule, CAR#4 regarding the status of EIA, CAR#7 regarding the technology, CAR#24 regarding the transboundary impacts, CAR #25 regarding the Letter of Endorsement, CAR #26, regarding the evidence about the announcements in media and public hearing undertakings and CR#1, why do the Jägala HPP need JI-support in comparison to the other restored HPPs, were resolved by additional information and adjustments finally in the PDD version 4 (September 27, 2007).

To guarantee the transparency of the determination process, the concerns raised and the responses given are summarised in chapter 3 below. The whole process is documented in more detail in the determination protocol in Appendix A.

3 DETERMINATION FINDINGS

In the following sections the findings of the determination are stated. The determination findings for each determination subject are presented as follows:

1) The findings from the review of the PDD (version 1 – 29.November 2006) and the findings from interviews during the follow up visit are summarised. A more detailed record of these findings can be found in the Determination Protocol in Appendix A.

2) Where TÜV SÜD had identified issues that needed clarification or that represented a risk to the fulfilment of the project objectives, a Clarification or Corrective Action Request, respectively, has been issued. The Clarification, Corrective Action Requests and Additional Information Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A.

3) Where Clarification Requests and Additional Information Requests have been issued, the exchanges with LHCarbon to resolve these Clarification and Additional Information Requests will be summarized in the determination report.

4) The conclusions of the determination are presented consecutively.

3.1 Project Design

3.1.1 Findings

The project foresees the restoration of a small hydropower plant in Estonia by the River Jägala at the municipality of Jõelähtme, approximately 25 km to east from Estionan capital Tallinn.
Jägala Energy OÜ has decided to construct the hydropower plant in accordance with the already issued special water use permit, which allows to have a total capacity of ca 1978 kW (two turbines of nominal capacity of 800 kW and one turbine of capacity 378 kW, of type "GHE Francis-Spiral Turbine") and the expected net output 7,900 MWh per year and it would be the largest hydropower plant in Estonia when realized.

The plant was originally established in 1917 and closed for operation in 1970. The dam is located on the Jägala River within 850 metres of the hydropower plant. The dam is 94 m in length, is made of stone, concrete and metal. The dam is built on a limestone terrace; it makes the restoration and reconstruction of the present building significantly more simple. The derivation channel, with a length of 850 m and width of 7 m on average, a height of walls of 2.2 m on average, is a facility of concrete and limestone, whose technical condition is varying. The channel does not need a capital reconstruction and reinforcement.

The net head of the power plant is 17.4 m and the rated maximum flow of all turbines is 13.1 m^3/s.

The final implementation schedule is realistic. Works for repair of the derivation channel and restoration of the upstream dam are already ongoing and Jägala Energy OÜ has in September 2007 executed an agreement with Austrian company Global Hydro Energy GmbH for turn-key installation of the hydropower plant equipment. There are planned to use modern state-of-the-art turbines and other equipment (generators, actuators, control system etc) and meet the "best available technology" criteria as defined in Estonia's BAT regulation. The technology supplier will also take care of supervision of installation and commissioning of the delivered equipment.

The management of Jägala Energy OÜ have gained earlier experience of in restoration of hydropower stations in Estonia and Latvia.

The main reconstruction and construction works are planned during May-July 2008, which allows carrying out installation of the technological equipment in July-October 2008 and commissioning of the plant by October 2008. Emission reductions would thus begin to be generated from 1st of November 2008. The operational lifetime of the project is mentioned with 20 years and this is in accordance with international practice.

The technical design and capacity of the plant is limited due to the water use limitations, which is set up in the special water use permit issued by Harju County Environmental Service. According to the permit it is required to keep sanitary minimum water flow 1,5 m³/s in river and during the summer season from May 1 up to September 1 between 12.00-20.00 the whole discharge less than 15 m³/s should be channeled into river to feed the waterfall. The owners of Jägala Energy OÜ have decided to design and construct the plant in accordance with the capacity and conditions prescribed in the already issued special water use permit and not to continue applying the increased water use.

Estonia has appointed a national focal point to UNFCCC and has ratified the Kyoto Protocol. The project is preliminary approved by Estonian Ministry of Environment as the project is named in the JI reserve of Estonia's NAP2 and it proves that the project is endorsed by the Estonian focal point. Nevertheless Estonia's JI procedures are not finalized and at the current moment no Letter of Endorsement or Letter of Approval are being issued.

3.1.2 Issued CARs / CRs

Regarding section A "*General description of the project*" 10 Corrective Action Requests are raised (see CAR#1 - CAR#10 in the Determination Protocol in Appendix A).

Regarding section C "*Duration of the project activity / crediting period*" 1 Corrective Action Request is raised (see CAR#16 in the Determination Protocol in Appendix A).

3.1.3 Conclusion

The project itself fulfils the prescribed requirements completely. The planned turbines are modern state-of-the-art turbines and represent current good practice for generation of electricity using hydropower.

The technical data are consistent and plausible. It is not expected that planned turbines will be substituted by better technologies within the project period.

The project time schedule is clear now and based to the signed contracts with contractors and suppliers. There is sufficient time foreseen for the design, supply and construction of the turbines and auxiliary installations. The crediting period is clearly defined.

The PDD contains information how training, operating, controlling, maintenance will be organized and managed. The aspects regarding future responsibilities and quality assurance are fixed.

Nevertheless there is no comprehensive separate feasibility study, the calculated production estimates are realistic, as they are based also to the real production data gained from neighbouring Linnamäe HPP and long-term measuring data and projections of water flows in river.

The Letter of Endorsement is not issued as Estonia's JI procedures are not finalized yet. Due to the missing national guidelines, the respective requirements could not be checked yet. Before TÜV SÜD can submit the project for registration at JISC website, the publishing of National JI-Guidelines is a pre-requirement. Hence this issue will be considered as an outstanding issue requiring a final revision of this determination report.

The issues indicated in CARs are considered to be resolved.

3.2 Baseline

3.2.1 Findings

CDM methodology ACM0002/Version 6 (May 2006) has been applied. The Operating and Build Margins have been calculated on the basis of detailed electricity generation and fuel consumption data from years 2003-2005 of 19 Estonia's oil shale, natural gas and other fossil fuels consuming as well as renewable energy plants supplying power to the grid. Additionality of the project is proven using the ver. 2 of the CDM Tool for the Demonstration and Assessment of Additionality as approved by the CDM Executive Board.

The discussion and selection of the baseline methodology is transparent as all data used are specified and documented. Also the discussion and determination of the chosen baseline is transparent. Different approaches have been presented and plausible reasons for the approach chosen have been given.

Financial calculations are based to the amendments of the Estonian Electricity Market Act, entered into force on May 1 2007, which gives to operators of renewable electricity to sell its power at a fixed feed-in tariff of 1.15 EEK/kWh during the fixed period.

As financing from EU or other multilateral or bilateral sources for hydro power projects in Estonia is limited, the investor requirements and the risks associated with the renewable electricity support scheme, additional revenue is required in the situation of rapid increase of the construction cots, to make the project utilizing modern hydropower equipment financially viable.

3.2.2 Issued CARs / CRs

Regarding section B "*Baseline*" 5 Corrective Action Requests and 1 Clarification Request are raised (see CAR#11-CAR#15 and CR#1, in the Determination Protocol in Appendix A).

3.2.3 Conclusion

The additional explanations regarding baseline methodology are sufficient. The baseline does take into account the major national and/or sectoral policies, macro-economic trends and political developments. The determined baseline emission factor for the electricity grid is consistent with the NAP. Relevant key factors are described and their impact on the baseline and the project risk is evaluated. The baseline determination is compatible with available data and can be considered as conservative.

In Step 3 "Barrier analysis" it is shown that the investment barriers are the main issue of realising such projects. The prepayment from the sale of carbon credits can also be utilized as part of the equity capital, thus lowering the financial risk for the equity investors. This is confirmed by official letter of a bank institution (Nordea Bank).

Additionally to the demonstrated Step 3 "barrier analysis" it is outlined in step 2 "financial analysis the financial modelling. The financial analysis shows also that the income from sale of Emis-

sion Reduction Units during 2008-12 improves the IRR of the project and enables to generate a positive NPV of the investment, thus making the project more attractive for the investors to undertake. An excel file was provided to the assessment team where financial analysis including sensitivity analysis is elaborated.

Taking to account the estimation of generation and the respective financial attractiveness the implementation of the hydropower project can be considered as additional.

The issues indicated in CARs and CRs are considered to be resolved. The project fulfils all prescribed requirements.

3.3 Monitoring Plan

3.3.1 Findings

No separate monitoring plan exists but a detailed description of monitoring activities in section D of the PDD is presented. Also an Excel table for monthly and annual data handling are prepared. During the initial verification audit it should be checked whether the PDD-description has been used as basis for a separate, detailed monitoring plan.

In section D.2 of the PDD it is presented the data, which should to be monitored during the operational phase of the HPP, including ex ante calculated data.

The electricity transmission and measurement system will be able to measure the amount of electricity imported from the national grid (maybe from different voltage levels) for self-consumption (e.g. in case of stoppage of hydro-turbines).

The presented monitoring methodology does reflect current good practice and is supported by the monitored and recorded data. The monitoring methodology is in accordance with the chosen methodology. The monitoring provisions are in line with the project boundaries.

The project proponents decided to use the net energy production EG_y (energy which is fed into the grid minus energy which is taken from the grid in times where the hydro-turbines do not produce enough energy to cover the self-consumption of the plant). The area of the reservoir is not much bigger compared to the average watered area during seasonal flooding in spring and autumn and therefore the emissions from the reservoir can be estimated as marginal. Therefore no project emissions have to be taken into account for the externally provided auxiliary energy. No leakage exists. The baseline emission factor will not be changed during the crediting period. The remaining variable to be monitored is therefore EG_y. This parameter will be monitored and measured in a re-traceable and plausible way. The monitoring provisions are in line with the project boundaries. In case of meter malfunctions the internal metering system of the hydro turbines (SCADA-systems) can serve as back-up.

The existing water use permit is valid till 10.07.2010. As long as no prolonged water use permit exists, no further emission reductions can be generated after that date. It is assumed that for a renewed water use permit the EIA and its approval are the pre-requirements and the status of EIA and prolongation of water use permit should be monitored, too.

3.3.2 Issued CARs / CRs

Regarding section D "*Monitoring Plan*" 3 Corrective Action Requests and 3 Clarification Requests are raised (see CAR#17 - CAR#19 and CR#2 - CR#4 in the Determination Protocol in Appendix A).

3.3.3 Conclusion

It is foreseen to monitor all measurable parameters (annual power production and power import for self-consumption), prolongation of water use permit and also ex ante calculated data. This approach is sufficiently.

It is clearly mentioned that annual power production means the net energy production (delivered electricity to the grid minus the demanded electricity from the grid). It means, that every internal demand of hydro-power plant from which voltage level it ever come (also demand from low voltage grid) has to be deducted.

The description of management structure is sufficiently described. All aspects regarding future responsibilities for registration, monitoring, measurement are already fixed in advance.

An excel-spread-sheet for recording and reporting of electricity production and self-consumption and calculation of emission reductions is pre-prepared. This could be accepted as only very few figures have to be recorded and multiplied for calculation of emission reductions and because no further requirements exist. Nevertheless it remains a minor risk that the monitoring is not traceable. Before the first verification the owner of HPP should prepare the monitoring plan as a separate document to clarify all monitoring actions and procedures for every participating person in more detail. Also a respectively prepared logbook to write down the read values can be very helpful for the monitoring staff.

The issues indicated in CARs and CRs are considered to be resolved. The project fulfils all the prescribed requirements.

3.4 Estimation of GHG Emission Reductions

3.4.1 Findings

The calculation is according to the approved CDM-methodology. Uncertainties in the GHG emissions estimates are addressed.

The project's spatial boundaries are clearly described. Regarding emission sources all aspects are covered. Only CO2 emissions have correctly been identified as relevant for the project. No aspects of leakage have been identified; hence a leakage calculation is not requested.

Hydropower does not create any anthropogenic greenhouse gas emissions in operation and project emissions from the reservoir with a size of 10 ha and average height of 2 m in the old riverbed can be considered negligible.

The project will definitely result in fewer GHG emissions than the baseline scenario. The used forecast of electricity generation is based on the calculations which considering the efficiency of the selected turbines and available water flow. The calculation of emission reductions itself is correctly computed.

3.4.2 Issued CARs / CRs

Regarding section E " *Estimation of greenhouse gas emission reductions*" 2 Corrective Action Requests and 1 Clarification Request are raised (see CAR#20 - CAR#21 and CR#5 in the Determination Protocol in Appendix A).

3.4.3 Conclusion

The issues indicated in CARs and CRs are considered to be resolved. The project fulfils all the prescribed requirements.

3.5 Environmental Impacts

3.5.1 Findings

The most relevant environmental impacts are sufficiently described in the PDD.

The environmental impact assessment (EIA) has been carried out by local consultancy company Ecoman OÜ. The draft EIA report concluded that the restoration of the hydropower plant does not have a significant impact on the attractiveness of the Jägala waterfall and on the regime of the Natura 2000 special conservation area. Special water use permit issued by Harju County Environmental Service allows implementing the project according to the conditions, which requires to keep sanitary minimum water flow 1,5 m^3/s in river and during the summer season from May 1 up to September 1 between12.00-20.00 the whole discharge less than 15 m^3/s should be channeled into river (waterfall).

The owners of Jägala Energy OÜ have decided to design and construct the plant in accordance with the capacity and conditions prescribed in the already issued special water use permit.

The draft EIA report also concluded that the planned Jägala-Joa HPP plant does not have an impact on the fish under protection as the fish cannot access the impacted area due to the dam of Linnamäe HPP downstream.

Analyzed social and economic effects and impacts of Jägala-Joa HPP are expected to be mainly positive.

EIA report foresees the need for future day-to-day surveillance and measurement of sanitary minimum water flows and the water level of the reservoir

There are no transboundary environmental impacts.

The EIA should be finalised to have a precondition for the prolongation of the special water permit of Jägala Energy OÜ, which is valid up to 10.07.2010.

3.5.2 Issued CARs / CRs

Regarding section F "*Environmental impacts*" 5 Corrective Action Requests are raised (see CAR#22 - CAR#26 in the Determination Protocol in Appendix A).

3.5.3 Conclusion

The existing water use permit is valid till 10.07.2010. It is assumed that for a renewed water use permit the EIA and its approval are the pre-requirements. As long as no prolonged water use permit is issued no further emission reductions after 10.07.2010 can be generated. This issue is included as "data to be monitored" in the monitoring plan.

The issues indicated in CARs and CRs are considered to be resolved. The project fulfils all prescribed requirements.

3.6 Local stakeholder process

3.6.1 Findings

Public meetings and consultations have been held according to the requirements set for the public consultations in EIA process.

The first public meeting to discuss the programme for the EIA was held on February 21 2006 and attended by 35 people representing local people, municipal government, project developer, environmental organisations and the Environmental Service of Harju County Government.
The purpose of the meeting was to present and to discuss the programme for the EIA. On the basis of the questions raised at the meeting the Environmental Service of Harju County Government formulated proposals to amend the EIA programme which were taken into account by the developer.

The second meeting to discuss the EIA of the project was held on June 21 and attended by 27 people representing local people, municipal government, project developer, environmental organisations and the Environmental Service of Harju County Government. On the basis of the questions raised at the meeting the Environmental Service of Harju County Government formulated further proposals to take into account in the EIA.

The announcement about public display of the EIA draft report and on stakeholder meeting to be held on June 21 2006 has been published in local newspaper "Harjumaa" on June 2 2006 no 40 (1433)

As of today all proposals have been addressed and respective documents enclosed to the EIA report.
Written agreements have been concluded with the following stakeholders:

- notarial agreements with all landowners affected by the planned reservoir
- entrepreneurs organizing rafting events downstream of the Jägala waterfall
- co-operative representing 27 real estates regarding preservation of the beach at the reservoir

Comments and proposals to the EIA Program and EIA Report are available.

3.6.2 Issued CARs/CRs

Regarding section E "*Stakeholders' comments*" 3 Corrective Action Requests are raised (see CAR#27 - CAR#29 in the Determination Protocol in Appendix A).

3.6.3 Conclusion

Provided information deems that the consultation process was carried out according the national regulations. The conducted stakeholder process is sufficiently described.

Comments and proposals to the draft EIA report should be taken into the consideration in compiling the final EIA report.

The issues indicated in CARs and CRs are considered to be resolved. The project fulfils all the prescribed requirements.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD started to publish the PDD and the baseline study on its homepage and on the UNFCCC JI project site on June 05 and was open for comments until July 04, 2007.

Within this period no comments have been received.

5 DETERMINATION OPINION

TÜV SÜD has performed a determination of the "Jägala-Joa Hydropower Joint Implementation Project, Estonia".

The determination was performed on the basis of UNFCCC criteria as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project itself meets all relevant UNFCCC requirements for JI.

By building a hydro power plant with state of the art turbines the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

Despite of the fact that the project is already mentioned in the JI-reserve in the 2. National Allocation Plan the Letter of Endorsement is not issued yet. Furthermore the Estonian national JI procedures are not finalized yet. Hence we can not state hitherto, that the project complies with the National JI Guidelines. Complying with that eligibility criterion is pre-required to submit the project for registration at the JISC. In order to register the project at the JISC the AIE has to be provided at least with the Letter of Approval of the host country.

The determination is based on the experience of our own onsite visit and on the information made available to us and the engagement conditions detailed in this report. TÜV SÜD can not guarantee the accuracy or correctness of this information. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the determination opinion."

Munich, 2008-01-25

Castro Javier

Deputy head of certification body "climate and energy"

Munich, 2008-01-25

Klaus Nürnberger

Project Manager

Annex 1 Determination Protocol

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A. General description of the project					
A.1. Title of the small-scale project:					
A.1.1.	Does the used project title clearly enable to identify the unique JI activity?	27	Because of several hydro power plants along the Jägala River the project title is not unique enough. **Corrective Action Request:** The title should be more specified, e.g. capacity of the HPP or *Jägala-Joa* or *Jõujaama* ?	**CAR #1**	☑
A.1.2.	Are there any indication concerning the revision number and the date of the revision?		Version number and date is clearly indicated.	☑	☑
A.1.3.	Is this consistent with the time line of the project's history?		Partly. Before the 2nd World War it was named Jägala Pulp Factory (*Puumassivabrik*), during the Soviet period Jägala-Joa HPS	☑	☑
A.2. Description of the small-scale project:					
A.2.1.	Is the description delivering a transparent overview of the project activities?		Yes	☑	☑
A.2.2.	What proofs are available demonstrating that the project description is in compliance with the actual situation or planning? e.g. contracts with suppliers, applications for permissions, EIA, LoE, permissions, visit	1, 5, 6, 12, 13, 15, 16, 18, 19, 20,	Adequate proofs are missing – not signed contract with the supplier (only offer available without clear validity period), EIA not approved yet, no Grid Connection nor Power Purchase Agreement signed (available only offer for the expansion of the existing 110/20 kV substation sent by e-mail, which does not cover the construction of the power line between HPP and sub-station) **Corrective Action Request:** Adequate proofs should be presented demonstrating that the implementation of the project according to the planned time-schedule is possible	**CAR #2**	☑
A.2.3.	Is the information provided by these proofs	6, 17	To keep the presented time-schedule is doubtful	**CAR**	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	consistent with the information provided by the PDD?		**Corrective Action Request:** Conditions for grid connection, information regarding construction of power lines, transformers, metering unit etc should be presented more clearly and these should be based to the actual offers from suppliers and contractors	**#3**	
A.2.4.	Is all information provided consistent with details provided by further chapters of the PDD?	30	No **Corrective Action Request:** Status of EIA should be presented consistently Project implementation time schedule should be revised	**CAR #4**	☑
A.3. Project participants:					
A.3.1.	Is the form required for the indication of project participants correctly applied?		Yes	☑	☑
A.3.2.	Is the participation of all listed entities or Parties confirmed by each one of them?	14	Term Sheet between Jägala Energy OÜ and the Austrian JI/CDM Programme signed on 14th of November 2006	☑	☑
A.3.3.	Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?		Yes	☑	☑
A.4. Technical description of the small-scale project:					
A.4.1.	*Location of the small-scale project:*				
A.4.1.1.	Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	12, 13, 30	From the view of the desk, yes! The location can be clearly identified **Corrective Action Request:** The derivation channel and upstream dam in Figure 2 in PDD should be indicated more clearly. And boundary characteristic presented in green colour in Figure 2, which is not relevant,	**CAR #5**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		should be removed		
A.4.1.2. How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?		Land property "*Jõujaama*" (Powerplant) is owned by Jägala Energy OÜ according to the land register. Derivation channel and upstream dam is owned by the Jägala Energy OÜ according to the sales contract signed by Jõelähtme Municipality and Jägala Energy OÜ.	☑	☑
A.4.2. Small-scale project type(s) and category(ies):				
A.4.2.1. To which category(ies) is the project activity belonging to? Is the category correctly identified and indicated?	30	The project belongs to the scope 1 (energy industries) and category AMS I.D. (SSC, renewable electricity to the grid) **Corrective Action Request:** The category should be mentioned in the PDD.	**CAR #6**	☑
A.4.3. Technology(ies) to be employed, or measures, operations or actions to be implemented by the small-scale project:				
A.4.3.1. Does the project design engineering reflect current good practices?	4, 5, 6, 7, 30	Cannot be evaluated yet, because the project design is described very general. **Corrective Action Request:** A more detailed description regarding technology in the PDD is needed. The validation team should be provided with feasibility study or other technical descriptions. On which description were the tenders based?	**CAR #7**	☑
A.4.3.2. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas balance? - flow (min/max/average), flow curves - feasibility study	4, 5, 6, 7, 30	No. There is not any information, about flows, heads, number of turbines and generators, turbine types, generator type, kind of operation (e.g. water flow regulation) … See comment above Required biological minimum in river 1,5 m3/s according to the water permit. During the period from 1st of May to 1st of September between 12-00 and 20-00 in case of flow below 15 m3/s the whole	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
- required biological minimum, required level up- and downstream - number of turbines and generators, turbine types, generator type - technology transfer / assembling - kind of operation - reservoir, volume of reservoir - Equipment Procurement - Land ownership, Land lease agreements - Long term service agreement		flow should be canalized into river. Allowed upstream maximum level in reservoir 28,85 m. Planned level in channel before the HPP 28,75 m. Area of the reservoir ca 10 ha, no remarkable volume for regulation purposes exists.		
A.4.3.3. Is the technology implemented by the project activity environmentally safe?		See comments above	☑	☑
A.4.3.4. Is the information provided in compliance with actual situation or planning?		See comments above	☑	☑
A.4.3.5. Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in the host country?		See comments above	☑	☑
A.4.3.6. Is the project technology likely to be substituted by other or more efficient technologies within the project period?		See comments above	☑	☑
A.4.3.7. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?		Yes, because Jägala Energy OÜ is the operator of the HPP and has limited expertise in operating HPPs. Despite of the fact that the power plant is fully automatic managed, remote monitored and operated by Internet and GSM at least initial staff training is necessary.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A.4.3.8. Is information available on the demand and requirements for training and maintenance?	30	To conduct initial staff training and maintenance is mentioned in the PDD. Regularly the project owner will operate and maintain the power plant. Technologically more complex matters of maintenance should be conducted by the technology supplier. **Corrective Action Request:** The requirements for training and maintenance should be explained in more detail	**CAR #8**	☑
A.4.3.9. Is a schedule available for the implementation of the project and are there any risks for delays?	6, 30	The schedule for the implementation of the power plant described in PDD is not clearly achievable, as no agreements signed yet with the supplier and different contractors (e.g. grid connection, power lines etc) **Corrective Action Request:** The time schedule should be revised	**CAR #9**	☑
A.4.4. Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed small-scale project, including why the emission reductions would not occur in the absence of the proposed small-scale project, taking into account national and/or sectoral policies and circumstances:				
A.4.4.1. Is the form required for the indication of projected emission reductions correctly applied?		Yes.	☑	☑
A.4.4.2. Are the figures provided consistent with other data presented in the PDD?	30	No, It should be clearly indicated that the crediting period starts with 1.1.2008 and not earlier. **Corrective Action Request:** The indicated amounts of ERUs 2008-2012 are too high and should be adjusted. See A.4.4.1, E.4., E.5. and E.6.	**CAR #10**	☑
A.4.5. Confirmation that the proposed small-scale project is not a debundled component of a larger project:				

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>A.4.5.1. Is there a registered SSC-JI project or an application to register which fulfills all of the following criteria?</td><td></td><td><table><tr><th>Bundling checklist</th><th>Yes / No</th></tr><tr><td>same project participants?</td><td>No</td></tr><tr><td>Registered within the previous 2 years</td><td>No</td></tr><tr><td>project boundary of other project is within 1 km of the project boundary of the proposed small-scale activity at the closest point.</td><td>No</td></tr><tr><td>the same project category and technol-ogy/measure</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">A.5. Project approval by the Parties involved:</td></tr>
<tr><td colspan="5">Open issues related to the approval of the Parties involved are covered in a separate “completeness checklist”</td></tr>
<tr><td colspan="5">B. Baseline</td></tr>
<tr><td colspan="5">B.1. Description and justification of the baseline chosen</td></tr>
<tr><td>B.1.1. Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?</td><td></td><td>Yes.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.1.2. Is the applied version the most recent one and / or is this version still applicable?</td><td></td><td>No. The additionality tool is version 2 and the last one is version 3. In case of JI it is acceptable and for this project sufficiently to use version 2.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.1.3. Is the applied methodology considered being the most appropriate one?</td><td></td><td>Yes.</td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">Fill in the required amount of sub checklists for applicability criteria as given by the methodology applied and comment at least every line answered with “No”.</td></tr>
</table>

<table>
<tr><th colspan="2">CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.1.4.</td><td>Criterion 1:
Type of capacity addition by renewable energy</td><td></td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.1.5.</td><td>Criterion 2:
Exclusion of fuel switching activities</td><td></td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.1.6.</td><td>Criterion 3:
Defined electricity grid boundaries</td><td></td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.1.7.</td><td>Criterion 4:
Approved inclusion in other methodologies (if applied only)</td><td></td><td>n.a.</td><td>n.a.</td><td></td></tr>
<tr><td colspan="6">B.2. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the small-scale project</td></tr>
<tr><td colspan="6">Description of how the baseline scenario is identified and description of the identified baseline scenario</td></tr>
<tr><td>B.2.1.</td><td>Is it clearly described that the baseline is represented by the combined margin of the grid the activity will be connected to?</td><td></td><td>Yes</td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
B.2.2.	In case of any modification or retrofit of existing facilities: Is data available to determine the historic production level?		The historic production data might be available in Eesti Energia, but not checked. Old Jägala-Joa HPP has been closed in 1970 due to the fact, that two big power plants (Balti and Eesti) using oil-shale started operation in the end of 1960-ies and in the beginning of 1970-ies. According to the oral information the installed capacity of the old Jägala-Joa HPP was 1400 kW.	☑	☑
B.2.3.	In case of any modification or retrofit of existing facilities: Have conservative assumptions been applied in order to estimate the point in time when the existing equipment needs to be replaced?		There is no equipment exist at the moment - old equipment has been removed several years ago already.	☑	☑
B.2.4.	Have all technically feasible baseline scenario alternatives to the project activity been identified and discussed by the PDD? Why can this list be considered as being complete?		See comment below		☑
B.2.5.	Have realistic and credible alternatives been identified providing comparable outputs or services? (step 1a)	30	Alternatives are explicitly not discussed. The used additionality tool in the Baseline study is only done for wind parks. **Corrective Action Request:** The JI-Guidance for baseline setting and monitoring plan should be applied. The additionality test has to be applied and specified for restoration of hydro power plants.	**CAR #11a**	☑
B.2.6.	Is the project activity without JI included in these alternatives? (step 1a)	30	No! see comment above **Corrective Action Request:** The project activity without JI should be discussed. The additionality of the proposed project is not yet proven. Table 1	**CAR #11b**	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			(p.7) of the Baseline study outlines that hydro power projects have production costs which are about 25% lower than wind energy project. Reference to wind projects is therefore not sufficient.		
B.2.7.	Is a discussion provided for all identified alternatives concerning the compliance with applicable laws and regulations? (step 1b)	30	Scenario 1 ("continuation of current production and operation of Balti and Eesti power plants") has been excluded as it does not comply with environmental regulations. Alternatives for restoration of HPPs are not identified yet. See comment in section B.2.5. **Corrective Action Request:** A discussion for all identified alternatives concerning the compliance with applicable laws and regulations should be provided.	**CAR #12**	☑
B.2.8.	Why do the Jägala HPP need JI-support in comparison to the other restored HPPs? Is there a list of all the other projects (location, capacities, operator)? Which differences to all the other projects do the Jägala HPP have? Which decisive proofs for the differences can be provided?	28	No clear information available at the moment **Clarification Request:** Why do the Jägala HPP need JI-support in comparison to the other restored HPPs? Is there a list of all the other projects (location, capacities, operator)? Which differences to all the other projects do the Jägala HPP have? Which decisive proofs for the differences can be provided?	**CR #1**	☑
B.2.9.	In case the PDD argues that specific laws are not enforced in the country or region: Is evidence available concerning that statement? (step 1b)		This argument is not used.	☑	☑
B.2.10.	In case of applying step 2 of the additionality tool: Is the analysis method appropriately identified (step 2a)?		Option III (benchmark analysis) is identified.	☑	☑
B.2.11.	In case of Option I (simple cost analysis): Is demonstrated that the activity produces		See comment above	n.a.	

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	no economic benefits other than JI income?				
B.2.12.	In case of Option II (investment comparison analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?		See comment above	n.a.	
B.2.13.	In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified?		The IRR (internal rate of return) has been used as financial indicator. This is the most suitable indicator for investors.		
B.2.14.	In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity?		See comment above in section B.2.5.		
B.2.15.	In case of Option II or Option III: Is the analysis presented in a transparent manner providing public available proofs for data?		Not applicable.		
B.2.16.	In case of applying step 3 (barrier analysis) of the additionality tool: Is a complete list of barriers developed that prevent the different alternatives to occur?		See comment above		
B.2.17.	In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and significance of these barriers?		See comment above		
B.2.18.	In case of applying step 3 (barrier analysis): Is it transparently shown that at least one of the alternatives is not prevented by the identified barriers?		See comment above		
B.2.19.	Have other activities in the host country /		See comment above		

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	region similar to the project activity been identified and are these activities appropriately analyzed by the PDD (step 4a)?				
B.2.20.	If similar activities are occurring: Is it demonstrated that in spite these similarities the project activity would not be implemented without the JI (step 4b)?		See comment above		
B.2.21.	Is it appropriately explained how the approval of the project activity will alleviate the economic and financial hurdles or other identified barriers (step 5)?		See comment above		
B.3. Description of how the definition of the project boundary is applied to the small scale project:					
B.3.1.	Do the spatial and technological boundaries as verified on-site comply with the discussion provided by the PDD?	28	Partly, yes. **Corrective Action Request:** Land boundaries (servitudes) for the high voltage power line cable from HPP to the 110/20 kV substation should be clarified	**CAR #13**	☑
Description of the sources and gases included in the project boundary (Fill in the required amount of sub checklists for sources and gases as given by the methodology applied and comment at least every line answered with “No”)					
B.3.2.	Source: Fugitive Emissions from non-condensable gases (geothermal activities only) Gas(es): CO_2, CH_4 Type: Project Emissions		Not applicable		
B.3.3.	Source: Emissions from combustion of fossil fuels (geothermal activities only) Gas(es): CO_2 Type: Project Emissions		Not applicable		

<table>
<tr><th colspan="2">CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.3.4.</td><td>Source:
Emissions from the reservoir (new hydroelectric activities only)
Gas(es): CO_2, CH_4
Type: Project Emissions</td><td>28</td><td><table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed by the PDD?</td><td>No</td></tr><tr><td>Inclusion / exclusion justified?</td><td>No</td></tr><tr><td>Explanation / Justification sufficient?</td><td>No</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table>
The area of the reservoir is not much bigger compare to the average watered area (compatible with the area during seasonal flooding in spring and autumn)

<u>Corrective Action Request:</u>
Emissions from the reservoir should be discussed and justified in the PDD.</td><td>CAR #14</td><td>☑</td></tr>
<tr><td>B.3.5.</td><td>Source:
emissions from electricity generation in fossil fuel fired power plants of any connected electricity system
Gas(es): CO2
Type: baseline emissions</td><td></td><td><table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed by the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.3.6.</td><td>Source:
Emissions from electricity generation in fossil fuel fired power plants of imported electricity
Gas(es): CO_2
Type: Baseline Emissions</td><td></td><td><table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed by the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
B.4. Further baseline information, including the date of baseline setting and the name(s) of the person(s)/entity(ies) setting the baseline Emissions reductions					
B.4.1.	Is there any indication of a date when determining the baseline?		Yes, the Baseline Study is dated November 6, 2006 and conducted by Stockholm Environment Institute Tallinn Centre.	☑	☑
B.4.2.	Is this in consistency with the time line of the PDD history?		Yes	☑	☑
B.4.3.	Is information of the person(s) / entity(ies) responsible for the application of the baseline methodology provided in consistency with the actual situation?	30	No, **Corrective Action Request:** The person who is responsible for the application should be mentioned in the PDD.	**CAR #15**	☑
B.4.4.	Is information provided whether this person / entity is also a project participant?		See comment above		☑
C. Duration of the project activity / crediting period					
C.1.	Are the project's starting date and operational lifetime clearly defined and reasonable?		The project starting date is defined with the beginning of construction works of the hydro power station on May 1, 2007.	☑	☑
C.2.	Is the assumed crediting time clearly defined and reasonable (crediting period between 2008 and 2012)?	30	The assumed crediting time is reasonable, however it is not clearly distinguished between the Kyoto-Period (2008-2012) and the time before. **Corrective Action Request:** It should be clearly distinguished between the Kyoto-Period (2008-2012) and the crediting time before.	**CAR #16**	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td colspan="5">D. Monitoring plan</td></tr>
<tr><td colspan="5">D.1. Description of monitoring plan chosen:</td></tr>
<tr><td>D.1.1. Is the applied methodology considered being the most appropriate one?</td><td></td><td>Yes.</td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">D.2. Data to be monitored:</td></tr>
<tr><td colspan="5">In the following “data checklists” are shown for all data which are fixed at determination time, and “monitoring checklists” for all data which have to be monitored during the life-time of the project.</td></tr>
<tr><td>D.2.1. Is the list of parameters presented by chapter D.2. considered to be complete with regard to the requirements of the applied methodology?</td><td>30</td><td>PDD chapter D.2 covers only the data which are to be monitored during project operation (net electricity supplied to the grid). It is required that also other data which are determined just once ex ante, are covered.

<u>Corrective Action Request:</u>
Add ex ante required data to PDD chapter D.2 (see following sections D.2.2. to D.2.13.).</td><td>CAR #17</td><td>☑</td></tr>
<tr><td>D.2.2. Is the choice of ex-ante or ex-post vintage of OM and BM factors clearly specified in the PDD?</td><td></td><td>It is clearly stated that the ex-ante approach is used.</td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">Fill in the required amount of sub checklists for fixed data parameter and comment any line answered with “No”</td></tr>
<tr><td>D.2.3. Parameter Title:
Annual electricity supplied to the grid prior to retrofit (applicable only for retrofit and modification activities)</td><td></td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr></table></td><td>See D.2.1.</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Choice of data correctly justified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>Yes</td></tr>
</table>

The emission factor is calculated as weighted average of Operating Margin (D.2.5.) and Build Margin (D.2.6.).
</td><td></td><td></td></tr>
<tr><td>D.2.4. Parameter Title:
Emission factor of the grid (CM)</td><td></td><td>
<table>
<tr><th>Data Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Choice of data correctly justified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>Yes</td></tr>
</table>

EF_y is calculated using the most recent information on the generation and the fuel consumption of the power plants in the Estonian grid. This implies some changes, which have been made retroactively by the Estonian government for former years. This leads to some small changes compared to previous EF_y values, used in other JI determination projects.
</td><td>See D.2.1.</td><td>☑</td></tr>
<tr><td>D.2.5. Parameter Title:
EF_{OM}
Operating Margin emission factor of the grid</td><td></td><td>
<table>
<tr><th>Data Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
</table>
</td><td>See D.2.1.</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Choice of data correctly justified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>Yes</td></tr>
</table>

The clarification in the EB 23 session “that even if a part of the plant capacity enables meeting the requirement of 20% (of the generation capacity in the systems) for estimating the build margin emission factor, the total plant capacity should be considered in estimating the build margin emission factor” was taken into consideration and led to a different BM-approach than in previous JI determination projects.
</td><td></td><td></td></tr>
<tr><td>D.2.6. Parameter Title:
EF_{BM}
Build Margin emission factor of the grid</td><td></td><td>
<table>
<tr><th>Data Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Choice of data correctly justified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>Yes</td></tr>
</table>

Details of fuel consumption are available to the AIE, but otherwise confidential. Cumulated data are public.
</td><td>See D.2.1.</td><td>☑</td></tr>
<tr><td>D.2.7. Parameter Title:
F
fuel consumption: amount of each fossil fuel consumed by each power source / plant</td><td></td><td>
<table>
<tr><th>Data Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided?</td><td>Yes</td></tr>
</table>
</td><td>See D.2.1.</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td><table><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table></td><td></td><td></td></tr>
<tr><td>D.2.8. Parameter Title:
COEF
CO2 emission coefficient of each fuel type</td><td></td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table></td><td>See D.2.1.</td><td>☑</td></tr>
<tr><td>D.2.9. Parameter Title:
GEN
electricity generation of each power source</td><td></td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table>
The emission factor is calculated as weighted average of Operating Margin (D.2.5.) and Build Margin (D.2.6.).</td><td>See D.2.1.</td><td>☑</td></tr>
</table>

<table>
<tr><th colspan="2">CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>D.2.10.</td><td>Parameter Title:
surface area of full reservoir level
(for new hydroelectric activities only)</td><td></td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>n.a.</td></tr><tr><td>Data unit correctly expressed?</td><td>n.a.</td></tr><tr><td>Appropriate description of parameter?</td><td>n.a.</td></tr><tr><td>Source clearly referenced?</td><td>n.a.</td></tr><tr><td>Correct value provided?</td><td>n.a.</td></tr><tr><td>Has this value been verified?</td><td>n.a.</td></tr><tr><td>Choice of data correctly justified?</td><td>n.a.</td></tr><tr><td>Measurement method correctly described?</td><td>n.a.</td></tr></table>
Not applicable.</td><td>n.a.</td><td></td></tr>
<tr><td>D.2.11.</td><td>Parameter Title:
fraction of time with low costs /must run plant at the margin (for simple adjusted OM only)</td><td></td><td>Not applicable.</td><td></td><td></td></tr>
<tr><td>D.2.12.</td><td>Parameter Title:
$GEN_{IMPORTS}$
electricity imports to the project electric-ity system</td><td></td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table></td><td>See D.2.1.</td><td>☑</td></tr>
<tr><td>D.2.13.</td><td>Parameter Title:
$COEF_{IMPORTS}$
CO2 emission coefficient of fuels used in</td><td></td><td>CO2 emissions of imported electricity is set to 0 tons CO2 per MWh.</td><td>See D.2.1.</td><td>☑</td></tr>
</table>

<table>
<tr><th colspan="2">CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td colspan="2">connected electricity systems</td><td></td><td></td><td></td><td></td></tr>
<tr><td>D.2.14.</td><td>Parameter Title:
EG_y
Net electricity supplied to the grid</td><td>1,5, 10,15</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>See re-mark</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>No</td></tr><tr><td>Correct reference to standards?</td><td>No</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table>
See comments below in section D.4.1</td><td></td><td>☑</td></tr>
<tr><td>D.2.15.</td><td>Parameter Title:
Quantity of steam produced
(for geothermal projects only)</td><td></td><td>Not applicable</td><td></td><td></td></tr>
<tr><td>D.2.16.</td><td>Parameter Title:
Fraction of CO2 in steam produced
(for geothermal projects only)</td><td></td><td>Not applicable</td><td></td><td></td></tr>
<tr><td>D.2.17.</td><td>Parameter Title:
Fraction of CH4 in steam produced
(for geothermal projects only)</td><td></td><td>Not applicable</td><td></td><td></td></tr>
<tr><td>D.2.18.</td><td>Parameter Title:
Quantity of steam generated during well testing
(for geothermal projects only)</td><td></td><td>Not applicable</td><td></td><td></td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
D.2.19. Parameter Title: Fraction of CO2 in steam during well testing (for geothermal projects only)		Not applicable		
D.2.20. Parameter Title: Fraction of CH4 in steam during well testing (for geothermal projects only)		Not applicable		
D.2.21. Parameter Title: CO_2 emission coefficient of fuel used by the geothermal plant (for geothermal projects only)		Not applicable		
D.3. Quality control (QC) and quality assurance (QA) procedures undertaken for data monitored:				
This aspect is covered for the relevant data in section D.2.14. – D.2.21.				
D.4. Please describe the operational and management structure that the project operator will apply in implementing the monitoring plan:				
D.4.1. Is the operational and management structure clearly described and in compliance with the envisioned situation? What does the abbreviation RR mean?	30	Not described yet! **<u>Corrective Action Request:</u>** A brief but clear description of operational and management structure should be described.	**CAR #18**	☑
D.4.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?		Responsibilities are very roughly described: Jägala Energy OÜ's manager will officially sign-off on all GHG Emission worksheets. It is Jägala Energy OÜ's responsibility to ensure that the required	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			capacity and internal training is made available to its operational staff to enable them to undertake the tasks required by the MP. The management and operational system and the capacity to implement this MP will be put in place before the project can start generating ERs. Jägala Energy OÜ will periodically undertake performance reviews as part of its ongoing operation and management See requests below:		
D.4.3.	Who will prepare the reports which are needed for verification purposes. Who will elaborate the GHG emission worksheet, where only the monitored data by Jägala Energy will be filled in. The rest should be computed automatically.	30	**Clarification Request:** Who will prepare the reports which are needed for verification purposes. Who will elaborate the GHG emission worksheet, where only the monitored data by Jägala Energy will be filled in. The rest should be computed automatically.	CR #2	☑
D.4.4.	Who from Jägala Energy will prepare the annual report which should include: information on overall project performance, emission reductions generated and verified and comparison with targets.	30	**Clarification Request:** Who from Jägala Energy will prepare the annual report which should include: information on overall project performance, emission reductions generated and verified and comparison with targets.	CR #3	☑
D.4.5.	Who will elaborate Initial staff training?	30	**Clarification Request:** Who will elaborate Initial staff training?	CR #4	☑
D.4.6.	Does the monitoring plan provide current good monitoring practice?	30	Yes, the monitoring plan describes sufficiently the monitoring practice which allows to manage the monitoring data.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
D.4.7.	If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	30	Annex 4 is not foreseen yet. **Corrective Action Request:** GHG emission work sheet should be provided as Annex 4 together with further information regarding Monitoring Plan.	**CAR #19**	☑
D.5. Name of person(s)/entity(ies) establishing the monitoring plan:					
D.5.1.	Is information of the person(s) / entity(ies) responsible for the monitoring methodology provided in consistency with the actual situation?		Yes.	☑	☑
D.5.2.	Is information provided whether this person / entity is also a project participant?		Yes, the manager of Jägala energy is also project participant.	☑	☑
E. Estimation of greenhouse gas emission reductions					
E.1. Estimated project emissions and formulae used in the estimation					
Explanation of methodological choices					
E.1.1.	Is it explained how the procedures provided by the methodology are applied by the proposed project activity?	30	The calculation of the emission factor of the Estonian grid is not explained in the PDD. **Corrective Action Request:** The reference only to the applied methodology is not sufficient.	**CAR #20**	☑
E.1.2.	Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?		See comment above	☑	☑
E.1.3.	Are the formulae required for the determination of project emissions correctly pre-		Yes.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	sented, enabling a complete identification of parameter to be used and / or monitored?				
Ex-ante calculation of emission reductions					
E.1.4.	Is the projection based on the same procedures as used for future monitoring?		Yes	☑	☑
E.1.5.	Are the GHG calculations documented in a complete and transparent manner?	23	No **Clarification Request:** The calculation spread sheet should be provided to the validation team.	**CR #5**	☑
E.1.6.	Is the data provided under this section in consistency with data as presented by other chapters of the PDD?		Yes	☑	☑
E.1.7.	Is the choice of options to determine the emissions factor (OM, BM) justified in a suitable and transparent manner?		The choice of options in baseline study annex 2 to calculate the emission factors is suitable and takes also recent EB / JISC-decisions into account	☑	☑
E.1.8.	In case of alternative weighing factors for the Combined Margin: Is the quantification of the alternative weighing factor justified in a suitable and transparent manner?		The standard weighting factor for hydro energy projects has been used.	☑	☑
E.1.9.	In case of alternative weighing factors for the Combined Margin: Is the guidance for the PDD concerning the acceptability of alternative weights considered in the discussion?		Not applicable.		

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
E.2. Estimated leakage and formulae used in the estimation, if applicable:				
E.2.1. Are formulae required for the estimation of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?		No leakage effect was detected.	☑	☑
E.3. The sum of E.1. and E.2.:				
E.3.1. Is the data provided under this section in consistency with data as presented by other chapters of the PDD?		The section is correctly filled out; the data are consistent with other data in the PDD and associated documents.	☑	☑
E.4. Estimated baseline emissions and formulae used in the estimation:				
E.4.1. Are formulae required for the estimation of baseline emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?		The calculation of the emission factor of the Estonian grid is not explained. See comment above in section E.1.1	☑	☑
E.5. Difference between E.4. and E.3 representing the emission reductions of the project:				
E.5.1. Are formulae required for the determination of emission reductions correctly presented?		Yes.	☑	☑
E.6. Table providing values obtained when applying formulae above:				
E.6.1. Will the project result in fewer GHG emissions than the baseline scenario?		The project will result in fewer GHG emissions than the baseline scenario!	☑	☑
E.6.2. Is the form/table required for the indication of projected emission reductions cor-	30	Yes, in principle. **Corrective Action Request:**	**CAR #21**	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	rectly applied?		The AAUs should not be included in this table.		
E.6.3.	Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?		Yes.	☑	☑
E.6.4.	Is the data provided under this section in consistency with data as presented by other chapters of the PDD?		Yes.	☑	☑
F. Environmental impacts					
F.1. Documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party:					
F.1.1.	Has an analysis of the environmental impacts of the project activity been sufficiently described?	30	No! The description is very general and not project specific. Although the HPP is a restored one, it should be nevertheless roughly described which impacts the restoration will really have. **Corrective Action Request:** The analysis of the environmental impacts of the project activity should be described briefly.	**CAR #22**	☑
F.1.2.	Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	30	According to the General Plan of the Municipality it is planned to restore the Jägala-Joa HPP. EIA is not approved yet. **Corrective Action Request:** Information regarding the approval conditions should be described.	**CAR #23**	☑
F.1.3.	Will the project create any adverse environmental effects?	30	See comment above **Corrective Action Request:** Mitigation measures of the negative environmental impacts should	**CAR #24**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		be described		
F.1.4. Are transboundary environmental impacts considered in the analysis?	30	**Corrective Action Request:** It should be mentioned that no transboundary impacts are relevant.	**CAR #25**	☑
F.1.5. Is a Letter of Endorsement available?	28	No. **Corrective Action Request:** Letter of Endorsement should be provided to the validation team before finalizing the determination.	**CAR #26**	☑
F.2. If environmental impacts are considered significant by the project participants or the host Party, provision of conclusions and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:				
F.2.1. Have identified environmental impacts been addressed in the project design?		See comment F.1.1. Detail design drawings are not available – e.g. for the automated opening and closing of spaces in upstream dam	☑	☑
F.2.2. Does the project comply with environmental legislation in the host country?		Yes	☑	☑
G. Stakeholders' comments				
G.1. Information on stakeholders' comments on the project, as appropriate:				
G.1.1. Have relevant stakeholders been consulted?		The first public meeting to discuss the programme for the EIA for the project was held on February 21 2006 and attended by 35 people representing local people, municipal government, project developer, environmental organisations and the Environmental Service of Harju County Government. The purpose of the meeting was to present and to discuss the	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			programme for the EIA. On the basis of the questions raised at the meeting the Environmental Service of Harju County Government formulated proposals to amend the EIA programme which were taken into account by the developer. The second meeting to discuss the EIA of the project was held on June 21 and attended by 27 people representing local people, municipal government, project developer, environmental organisations and the Environmental Service of Harju County Government. On the basis of the questions raised at the meeting the Environmental Service of Harju County Government formulated further proposals to take into account in the EIA. As of today all proposals have been addressed and respective documents enclosed to the EIA report. It is also important to point out that written agreements have been concluded with the following stakeholders: - notarial agreements with all landowners affected by the planned reservoir - entrepreneurs organising rafting events downstream of the Jägala waterfall - co-operative representing 27 real estates regarding preservation of the beach at the reservoir		
G.1.2.	Have appropriate media been used to invite comments by local stakeholders?	31	Not clear. Meetings have been occurred. Comments to the EIA Program and EIA Report are available. **Corrective Action Request:** Please provide evidence regarding announcements in media.	**CAR #27**	☑
G.1.3.	If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?		Partly. Public meetings held according to the requirements set for the public consultations in EIA process. See above mentioned CAR (in item G1.2)		☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
G.1.4.	Is the undertaken stakeholder process described in a complete and transparent manner?		The process is well described in the PDD; supporting documentation regarding announcement of public events in media is still missing. See comment above in G.1.2		☑
G.1.5.	Is a summary of the stakeholder comments received provided?	30	Not yet. **Corrective Action Request:** Please provide a summary of the stakeholder comments.	**CAR #28**	☑
G.1.6.	Has due account been taken of any stakeholder comments received?	30	Not clear. **Corrective Action Request:** Please provide a summary, which comments have been taken into the consideration	**CAR #29**	☑

H. Annexes 1 – 4					
Annex 1: Contact Information					
H.1.1.	Is the information provided in consistency with the one given under section A.3?		OK.	☑	☑
H.1.2.	Is information on all private participants and directly involved Parties presented?		OK.	☑	☑
Annex 2: Baseline study					
H.1.3.	If additional background information on baseline data is provided: Is this information in consistency with data presented by other sections of the PDD?		The information in the baseline study is an expanded version of the summary in the PDD. All information is consistent with the PDD-information.	☑	☑
H.1.4.	Is the data provided verifiable? Has sufficient evidence been provided to the determination team?		The data provided have been checked against recent publications and against company-internal data which were made available for the Estonian NAP-process. Generation data are made public per	☑	☑

			power plant. Fuel use data per power plant are confidential; they are available to the AIE but are not to be disclosed to the public. Cumulated data, however, are made public. Additionally plausibility checks have been applied. No discrepancies were found.		
H.1.5.	Does the additional information substantiate statements given in other sections of the PDD?		n.a.		
Annex 5: Monitoring information					
H.1.6.	If additional background information on monitoring is provided: Is this information in consistency with data presented by other sections of the PDD?		No further background information regarding monitoring are provided.		☑
H.1.7.	Is the information provided verifiable? Has sufficient evidence been provided to the determination team?		n.a.		
H.1.8.	Do the additional information / procedures substantiate statements given in other sections of the PDD?		n.a.		

Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by determination team	Ref. to table 1	Summary of project owner response	Validation team conclusion
CAR #1 The title should be more specified, e.g. capacity of the HPP or *Jägala-Joa* or *Jõujaama* ?	A 1.1	Renamed it to "Jägala-Joa Hydropower Joint Implementation Project"	This issue is considered to be resolved.

CAR #2 Adequate proofs should be presented demonstrating that the implementation of the project according to the planned time-schedule is possible.	A 2.2	The time-schedule is revised so that the plant will start operation by December 2008. For proof please review: - Contract for hydropower plant construction with Global Hydro Energy GmbH, signed on September 4 2007 - Special water use permit that allows JE to implement the project and text from public official homepage about issuance of the permit by Harju county environmental service. - Issued design criteria by local municipality of April 11 2007. - Prescription by local municipality of April 9 2007 that the HPP dam and derivation channel have to be restored by autumn 2007. - Text of the General Plan of the Jõelähtme Municipality that mentions restoration of the Jägala Hydropower Plant (pages 32, 45) 4. Partial map of the General Plan that includes the "production land" and substation for the hydropower plant at the "Jõujaama" real estate. - offer of Gugler Hydro Energy GmbH of March 28 2007 - offer of Eesti Energia of January 4 2007 for grid connection at 110/20 kV substation - offer of Empower EEE AS of March 20 2007 for establishing the grid from HPP to EE grid connection point PDD text has been accordingly revised.	The time-schedule is reasonable and consistent with confirmation of order and signed contract.. This issue is considered to be resolved.

CAR #3 Conditions for grid connection, information regarding construction of power lines, transformers, metering unit etc should be presented more clearly and these should be based to the actual offers from suppliers and contractors	A 2.3	Please review: - offer of Eesti Energia of January 4 2007 for grid connection at 110/20 kV substation - offer of Empower EEE AS of March 20 2007 for establishing the grid from HPP to EE grid connection point, e-mail of Empower where they extend the validity of the offer and include term for completion of works. PDD text has been accordingly revised.	This issue is considered to be resolved.

CAR #4 Status of EIA should be presented consistently Project implementation time schedule should be revised	A 2.4	The EIA has been currently put to hold in order to wait for the conditions of the Environmental Service of Harju County for prolongation of the special water permit of the near-by Linnamäe hydropower plant. The main discussion item is possible establishment of a fish ladder. The EIA for Jägala-Joa HPP was voluntarily undertaken with the sole aim to increase the allowed capacity of the HPP. As of today the owners of Jägala Energy OÜ have decided to construct the plant in accordance with the capacity and conditions prescribed in the already issued special water use permit. Estonian Maritime Biology Institute has in August 2007 carried out control fish catching related to both Jägala-Joa and Linnamäe HPP with a positive outcome for the continued operation of Linnamäe HPP and implementtation of Jägala-Joa HPP project. Independent of the decision related to Linnamäe HPP, the design incl. maximum flow of turbines of 14 m/s of Jägala-Joa HPP will not be affected as the plant is located upstream of Linnamäe HPP and it does not make sense to establish a fish ladder (theoretical worst case for Linnamäe) at Jägala-Joa as the waterfall itself serves as a natural obstacle for fish migration. In accordance with the signed contract, the detailed design drawings of the plant will be prepared within 4 weeks i.e. by early October and the drawings will be available for review by validator if necessary. The design will follow standard design of GHE that can be seen in document “GHE presentation.ppt” (p. 23).	The existing water use permit is valid till 10.07.2010. The project is designed according to existing permit. It is assumed that for a renewed water use permit the EIA and its approval are the prerequirements. Hence there is a remarkable risk that the prolongation of the water permit for Jägala may have relevant impacts at least on the operation conditions of Jägala power plant. As long as no further water use permit is in sight a new monitoring parameter “Approval of EIA and prolonged water use permit beyond 2010 available” should be amended. If this parameter is not fulfilled for the verification of the year 2010 no further emission reductions after 10.07.2010 can be generated. The revised project time schedule is reasonable and consistent with confirmation of order and signed contract.

		The EIA of Jägala-Joa HPP is expected to be completed within a few months after Jägala Energy has identified a new EIA expert as the former expert Mr. Heino Luik recently died in a car accident. The project time-schedule and the EIA description in PDD have been revised.	This issue is considered to be resolved.
CAR #5 The derivation channel and upstream dam in Figure 2 in PDD should be indicated more clearly. And boundary characteristic presented in green colour in Figure 2, which is not relevant, should be removed	A 4.1.1	See enclosed photos and AutoCAD files of dam and channel design. PDD has been accordingly revised by inserting a new map and a photo from where the facilities can be clearly identified.	This issue is considered to be resolved.
CAR #6 The category should be mentioned in the PDD.	A 4.2.1	PDD has been accordingly revised.	This issue is considered to be resolved.

CAR #7 A more detailed description regarding technology in the PDD is needed. The validation team should be provided with feasibility study or other technical descriptions. On which description were the tenders based?	A 4.3.1	PDD has been accordingly revised. See also Gugler offer for more details and a management meeting protocol on supplier selection. Technical data has been added to the PDD. Additionally, please review competing offers of Hydrolink and Gugler Water Turbines submitted during the 2nd round of the tender. The three companies (incll GHE) submitted bids on basis of same technical criteria and were evaluated according to following main criteria: productivity of technology, price, guarantees. No feasibility study as a separate comprehensive document has been prepared but the respective calculations and information exists and has been forwarded to the validator. Additionally, a study on Linnamäe HPP production (theoretical vs. real) has been provided that supports the production estimates made for Jägala-Joa HPP.	The relevant technical data are mentioned in the PDD (net-head, gross-head, min.-max. flow. of plant, max. flow for dam etc.). A feasibility study was not provided yet. With presenting the technical data in the PDD the project in question can now be evaluated that the the current water use permit is consistent the project design The Kehra flow data are without any justification or evaluation by expert opinion but are backed by the study on Linnamäe HPP. The production forecast based on these studies are reasonable and conservative. This issue is considered to be resolved.
CAR #8 The requirements for training and maintenance should be explained in more detail	A 4.3.8	PDD has been accordingly revised.	This issue is considered to be mainly resolved.
CAR #9 The time schedule should be revised	A 4.3.9	PDD has been accordingly revised.	See comment above CAR#4 and CAR#2

CAR #10 The indicated amounts of ERUs 2008-2012 are too high and should be adjusted. See A.4.4.1, E.4., E.5. and E.6.	A 4.4.2	ERU calculation and PDD has been accordingly revised.	This issue is considered to be resolved.
CAR #11a The JI-Guidance for baseline setting and monitoring plan should be applied. The additionality test has to be applied and specified for restoration of hydro power plants.	B 2.5	PDD has been accordingly revised.	The additionality test is now applied and specified for restoration of hydro power plants.
CAR#11b The project activity without JI should be discussed. The additionality of the proposed project is not yet proven. Table 1 (p.7) of the Baseline study outlines that hydro power projects have production costs which are about 25% lower than wind energy project. Reference to wind projects is therefore not sufficient. With production costs of 0,6 – 1,1 EEK/kWh and a tariff of 0,8 EEK/kWh a hydro power project could be profitable without JI support.	B 2.6	PDD has been accordingly revised.	This issue is considered to be resolved.
CAR #12 A discussion for all identified alternatives concerning the compliance with applicable laws and regulations should be provided.	B 2.7	PDD has been accordingly revised.	This issue is considered to be resolved.
CAR #13 Land boundaries (servitudes) for the high voltage power line cable from HPP to the 110/20 kV substation should be clarified	B 3.1	Empower EEE AS will take care of the servitudes in accordance with their offer of March 20 2007 for establishing the grid from HPP to EE grid connection point.	This issue is considered to be resolved.

CAR #14 Emissions from the reservoir should be discussed and justified in the PDD.	B 3.4	Reservoir size is max. 10 ha with an average depth of 2 m.	The emissions from the reservoir can be considered as marginal. The relevant figures and its justification are mentioned in section E.1. of the PDD. This issue is considered to be resolved.
CAR #15 The person who is responsible for the application should be mentioned in the PDD.	B 4.3	PDD has been accordingly revised	This issue is considered to be resolved.
CAR #16 It should be clearly distinguished between the Kyoto-Period (2008-2012) and the crediting time before.	C 2	PDD has been accordingly revised	This issue is considered to be resolved.
CAR #17 Add ex ante required data to PDD chapter D.2 (see following sections D.2.2. to D.2.13.).	D 2.1	PDD has been accordingly revised. Ex-ante data has been revised in section D.2.	This issue is considered to be resolved.
CAR #18 A brief but clear description of operational and management structure should be described.	D 4.1	PDD has been accordingly revised	This issue is considered to be mainly resolved.
CAR #19 GHG emission work sheet should be provided as Annex 4 together with further information regarding Monitoring Plan.	D 4.7	PDD has been accordingly revised. Draft annual and monthly worksheets have been provided.	A sufficient GHG emission work sheet on monthly basis was provided and should be amended to the PDD.

CAR #20 The reference only to the applied methodology is not sufficient.	E 1.1	PDD has been accordingly revised	This issue is considered to be resolved.
CAR #21 The AAUs should not be included in this table.	E 6.2	PDD has been accordingly revised. AAUs are not relevant any more due to revised time-schedule as the plant starts operation in 2008.	This issue is considered to be resolved.
CAR #22 The analysis of the environmental impacts of the project activity should be described briefly.	F 1.1	PDD has been accordingly revised.	This issue is considered to be resolved.
CAR #23 Information regarding the approval conditions should be described.	F 1.2	PDD has been accordingly revised.	This issue is considered to be resolved. See also comments re CAR#2 and CAR#4
CAR #24 Mitigation measures of the negative environmental impacts should be described	F 1.3	PDD has been accordingly revised.	This issue is considered to be resolved.
CAR #25 It should be mentioned that no transboundary impacts are relevant	F 1.4	PDD has been accordingly revised. The text has been revised.	This issue is considered to be resolved.
CAR #26 Letter of Endorsement should be provided to the validation team before finalizing the determination.	F 1.5	Estonia's JI procedures are not finalized and at the current moment no LoEs are being issued. The fact that the project is named in the JI reserve of Estonia's NAP2 proves that the project is endorsed by the Estonian focal point.	This issue is considered to be resolved.
CAR #27 Please provide evidence regarding announcements in media.	G 1.2	See enclosed announcement in "Harjumaa" from June 2 2006 on public display of the EIA and on stakeholder meeting to be held on June 21 2006.	This issue is considered to be resolved.

CAR #28 Please provide a summary of the stakeholder comments	G 1.5	PDD has been accordingly revised.	This issue is considered to be resolved.
CAR #29 Please provide a summary, which comments have been taken into the consideration	G 1.6	PDD has been accordingly revised.	This issue is considered to be resolved.

CR #1 Why does the Jägala HPP need JI-support in comparison to the other restored HPPs? Is there a list of all the other projects (location, capacities, operator)? Which differences to all the other projects do the Jägala HPP have? Which decisive proofs for the differences can be provided?	B 2.8	Jägala HPP needs JI-support as otherwise the financial return on the investment is not sufficient and the project is not able to attract equity and debt financing. Other HPP projects in Estonia have been constructed without carbon financing for the following reasons: - the costs were lower as the projects mainly concern restoration of former HPP plants - the projects utilized old turbines (renovated) or less advanced turbine technology - construction and operation costs have significantly increased in Estonia over last years due to rapid economic growth - owners of the plants have implemented the projects for other reasons – 1) image (Linnamäe, Keila-Joa) 2) to establish a reservoir for swimming (Kamari) - expectations for feed-in tariff development were more optimistic as under former legislation the tariff was linked to consumer tariff - cost of capital has been lower for other projects (e.g in case of Eesti Energia and LInnamäe & Keila-Joa HPP) This was also explained during the determination visit to Mr. Mellis. During preparation of the JI documentation for the JI project in question, no other hydropower plants have been commissioned in Estonia. The banks have refused to finance the projects (e.g. Sangaste, Purtse 2) due to low feasibility. For proof of financial additionality please also see enclosed statement from Nordea Bank of October 26 2007.	The common practice analysis is relative extensive now. Decisive reasons for the mentioned differences were given.

CR #2 Who will prepare the reports which are needed for verification purposes. Who will elaborate the GHG emission worksheet, where only the monitored data by Jägala Energy will be filled in. The rest should be computed automatically.	D 4.3	PDD has been revised accordingly.	This issue is considered to be mainly resolved.
CR #3 Who from Jägala Energy will prepare the annual report which should include: information on overall project performance, emission reductions generated and verified and comparison with targets.	D 4.4	PDD has been revised accordingly.	This issue is considered to be mainly resolved.
CR #4 Who will elaborate Initial staff training?	D 4.5	PDD has been revised accordingly.	This issue is considered to be mainly resolved.
CR #5 The calculation spread sheet should be provided to the validation team.	E 1.5	PDD has been revised accordingly.	The calculation spread sheet computing the combined margin was provided.

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by determination team	**Id. of CAR/CR**	**Explanation of Conclusion for Denial**
-	-	**-**

Annex 2 Information Reference List

Reference No.	Document or Type of Information
1	On-site interview at Jägala Energy OÜ by auditing team of TÜV SÜD on Wednesday, 06.12.2006 **Validation team on-site:** Ranno Mellis — OÜ Projektkeskus **Interviewed persons:** Horret Verrev — Jägala Energy OÜ Hannu Lamp — LHCarbon OÜ
2	Project Design Document for small scale project "Jägala-Joa Hydropower Joint Implementation Project in Estonia", Version 4, September 27, 2007.
3	Estonian JI Project Development Baseline Study. Stockholm Environment Institute Tallinn Centre, October 2006
4	Jägala simulation (Excel sheets) – Excel file
5	Jägala production calculations (*Jägala äriplaan*) – Excel file
6	Signed contract with Global Hydro Energy GMBH for supply of hydro turbines, generators and other equipment
7	Environmental Impact Assessment Report, OÜ Ecoman, August 2006 (*Keskkonnamõju hindamise aruanne*) – in Estonian Older version (April 2006) available also in Jõelähtme Municipality internet page: http://www.joelahtme.ee/failid/Jagala_Enegy_aruanne_1_.pdf
8	EIA Program (Keskkonnamõju hindamise KMH programm) – in Estonian. Available also in municipality's web-page: http://www.joelahtme.ee/index.php?id=2080
9	Minutes of the Meeting of the public hearing of the EIA Program, 21.02.2006 (in Estonian) Available also in municipality's web-page: http://www.joelahtme.ee/index.php?id=2080
10	Minutes of the Meeting of the public hearing of the EIA Report, 21.06.2006 (in Estonian)
11	List of Participants of the public hearing meeting, 21.06.2006

Reference No.	Document or Type of Information
12	Cross-section of Jägala-Joa Hydropower Plant, OÜ Avek Maa, 2005
13	Plan of the area of the reservoir and derivation dam
14	Term Sheet between Jägala Energy OÜ and the Austrian JI/CDM Programme, November 14, 2006
15	Water Permit no HR0828 (L.VT.HA-39075 (*Vee erikasutusluba*) – in Estonian
16	General Plan of the Jägala Municipality (in Estonian).Available also in municipality’s web-page: http://www.joelahtme.ee/?id=1517
17	Purchasing agreement of derivation channel and upstream dam
18	Statement from Land Property Register regarding ownership of “Jõujaama” land property
19	Offer from OÜ Langeproon Hüdroisolatsioonitööd, 04.01.2006
20	Offer from Hydrolink s.r.o. (No. 090/HL/2005-F)
21	Copy from local newspaper “Harjumaa” (no 40, June 2, 2006) about public display of the EIA draft report and on stakeholder meeting to be held
22	Letter from Estonian Environmental Investment Centre (no 3.2-4/399 from 21.04.2003) about the granting of Sillaoru HPP
23	Draft Monitoring Worksheet Jägala-Joa – Excel file
24	Letter from Nordea Bank (26.10.2007)
25	Decisions of Environmental Investment Centre about grant financing Available also in EIC web-page: http://www.kik.ee
26	Comparison of financing of hydro power plants in Estionia – Excel file
27	Project Design Document for SSC Project “Jägala-Joa Hydropower Joint Implementation Project in Estonia”, Version 3, May 30, 2007, published version
28	Response to the first version of Determination Protocol just after onsite-visit, Jägala-Joa CARs 27 09 07.doc, September 27, 2007
30	Final PDD for SSC project “Jägala-Joa Hydropower Joint Implementation Project in Estonia”, Version 5, December 04, 2007.

Reference No.	Document or Type of Information
31	Announcement in “Harjumaa” from June 2, 2006 on public display of the EIA and on stakeholder meeting to be held on June 21 2006.