Final Determination Report

Determination of "Rehabilitation of the district heating system of Crimea", JI Project, Ukraine

Report No. 664242, revision 1

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Subject:	Determination of a JI Project
Executing Operational Unit:	TÜV Industrie Service GmbH TÜV SÜD Group Carbon Management Service Westendstr. 199 - 80686 Munich - GERMANY
Client:	Leasing Enterprise "Krymteplocomunenergo" "3-A Gajdara Str., Simferopol Autonomous Republic of Crimea Ukraine
Contract approved by:	Michael Rumberg
Report Title:	Final Determination of the "Rehabilitation of district heating system of Crimea", JI Project, Ukraine
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Summary:

The Certification Body "Climate and Energy" of TÜV Industrie Service GmbH TÜV SÜD Group has been ordered by Leasing Enterprise "Krymteplocomunenergo". based in Simferopol to determine the above mentioned project in the context of the Austrian CDM/JI programme.

The determination of this project has been performed by document reviews, interviews by e-mail and on-site inspections, audits at the location of the project and interviews at the office of the client.

As the 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 under the prerequisite that all four outstanding issues are resolved.

Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of 711.346 tons CO_2 (to be issued as ERUs) in the provided crediting period (years 2008 - 2012, first commitment period under the Kyoto Protocol) represents a conservative estimation using the assumptions given by the project documents.

Work carried out by:	Thomas Kleiser (Project manager, GHG lead auditor) Klaus Nürnberger (auditor) Josef Konradl (trainee, technical expert)	**Internal Quality Control by:** Michael Rumberg Werner Betzenbichler

Abbreviations

AAUs	Assigned Amount Units
CAR	Corrective action request
CDM	Clean Development Mechanism
CR	Clarification request
DP	Determination Protocol
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
ERU	Emission Reduction Unit
GHG	Greenhouse gas(es)
JI	Joint Implementation
KP	Kyoto Protocol
MP	Monitoring Plan
MS	Management System
OE	Operational Entity
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1 INTRODUCTION

1.1 Objective

The Ukrainian company "Leasing Enterprise "Krymteplocomunenergo"" based in Simferopol, Autonomous Republic of Crimea, Ukraine has commissioned TÜV Industrie Service GmbH TÜV SÜD Group - Carbon Management Service - to make a determination of the "Rehabilitation of the district heating system of Crimea", JI Project, Ukraine 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 Austrian JI/CDM Programme. 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 - in the first commitment period under the Kyoto Protocol 2008 - 2012).

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. As the project is submitted under the Austrian JI/CDM Programme the terms of reference and currently valid programme guidelines for JI projects are moreover applicable to the project.

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, further against specific criteria and regulations of the Austrian JI/CDM programme. TÜV SÜD has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach in the determination, focusing on the identification of significant risks for project implementation and the generation of emissions reductions, in this case of ERUs in the period 2008 - 2012.

The determination is not meant to provide any consulting towards the Ukrainian company Leasing Enterprise "Krymteplocomunenergo"" in Simferopol as project owner and the "Institute of Engineering Ecology" and SEC "Biomass" as project developers. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

The audit team has been provided with a first PDD in June 16th, 2005. Based on this documentation a document review and a fact finding mission in form of an on-site audit has taken place. As a result of the review and the on-site audits TÜV SÜD auditing team submitted a draft determination protocol in early July 2005 with open issues, corrective action requests, clarification requests and additional information requests to the client. Subsequently the client submitted a revised PDD in July 2005 (dated July 13th, 2005), which was published in the Global Stakeholder Process from July 13h, 2005 until August 12th, 2005. In August 2005 (dated August 15th, 2005) the client submitted the final PDD. In the final PDD all required responses to

the issued CAR/CRs have been included, information given in the first PDD was substantiated and all data which had been found unclear or fault were proved, adjusted and renewed.

All changes aim at a clarification of open issues and have resulted in a conclusive argumentation in the final PDD version. The changes are not considered to be significant with respect to the qualification of the project as a JI project - as they rather have helped to clarify single aspects. Hence no repetition of the public stakeholder process has taken place.

Studying the existing documentation belonging to this project, it was obvious that the competence and capability of the determination team has to cover at least the following aspects:

- Knowledge of Kyoto Protocol and the Marrakech Accords
- Environmental and Social Impact Assessment
- Skills in environmental auditing (ISO 14000, EMAS)
- Quality assurance
- All technical aspects of oil and gas production and stripped casing-head methane suction and utilization
- Monitoring concepts
- Political, economical and technical random conditions in host country

According to these requirements TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV certification body "climate and energy":

Thomas Kleiser has studied physics and meteorology. He is member of staff at the department "Carbon Management Service" located in the head office of TÜV Industrie Service GmbH, TÜV SÜD Group in Munich since June 2001. Meanwhile he can refer to the experience of validation and determination of more than 20 CDM- and JI-projects. He was appointed as lead auditor in 2003 and as project manager in early 2005. He has already validated 3 other JI-projects in Ukrainel. Mr. Kleiser is also an auditor for environmental management systems (ISO 14.000).

Josef Konradl: Josef Konradl is head of the "Center for economic energy application" in Regensburg, Germany and can refer to more than 15 years of practical experience in "construction supervision for district heating networks, feasibility studies for geothermal energy supply, energy concepts and energy audits". Mr. Konradl is also an auditor for environmental management systems.

Klaus Nürnberger is head of the division energy certification at TÜV Industrie Service GmbH TÜV SÜD Group. In his position he is responsible for the implementation of verification and certifications processes for electricity production based on renewable sources. The division has assessed more than 600 plants and sites all over Europe. He has received extensive training in the CDM and JI validation processes and participated already in several CDM and JI project assessments.

The audit team covers the above mentioned requirements as follows:

- Knowledge of Kyoto Protocol and the Marrakech Accords (ALL)
- Environmental and Social Impact Assessment (KLEISER/KONRADL)
- Skills in environmental auditing (ALL)
- Quality assurance (ALL)
- Energy generation technologies (KLEISER/NÜRNBERGER)
- Oil and gas production as well as stripped-casing head has exploitation and utilization (KLEISER/KONRADL)
- Monitoring concepts (ALL)
- Political, economical and technical random conditions in host country (KONRADL/KLEISER).

In order to have an internal quality control of the project, a team of the following persons has been composed by the certification body "climate and energy":

- Werner Betzenbichler (head certification body "climate and energy")
- Mr. Michael Rumberg (deputy certification body "climate and energy")

1.3 GHG Project Description

The Ukrainian JI project "Rehabilitation of the district heating system of Crimea" is aimed to the rehabilitation and replacement of the existing heat generating and heat distribution equipment in the Autonomous Republic of Crimea (without the City of Sevastopol) and furthermore landfill gas recovery from the municipal landfill of Simferopol and utilization of the landfill gas in chosen boiler houses. The main measures to improve the existing district heating system are

- Replacement of low efficient boilers by new higher efficient, in many cases combined with a fuel switch from oil to gas.
- Combustion improvement by upgrading the boiler´s burner
- Installation of heat-utilizers
- Replacement of heat exchangers
- Improvement of the network (installation of new pre-insulated pipes)
- Installation of 6 CHPs for heat and power production
- Landfill gas extraction and utilization in the closest boiler house

Thus the project will improve district heating system efficiency remarkably, contribute to fuel-saving and thus lead to a significant reduction of greenhouse gas emissions.

The project is submitted to the Austrian CDM/JI Programme for evaluation.

The starting date of the project activity was October 1st, 2004. The last measures will be finalised in December 2008. The starting date of the crediting period is defined as January 1st, 2005, the crediting period is scheduled for 5 years until December 31st, 2012. Only the emissions reductions of the project in the period 2008 - 2012 shall be accounted.

The generated ERUs will be supplied by Leasing Enterprise "Krymteplocomunenergo" in Simferopol.

The project documentation has been developed by the "Institute of Engineering Ecology" together with SEC "Biomass", both located in Kiev.

2 METHODOLOGY

In order to ensure transparency, a determination protocol was customised for the project, according to the Validation and Verification Manual (VVM). 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 consists for this project of three tables. The different columns in these tables are described in Figure 1.

The completed determination protocol is enclosed in Annex 1 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 sub-divided. 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".*

2.1 Review of Documents

The project participants submitted a PDD comprising baseline study and monitoring plan in June 2005. A review for all these documents has been performed in order to identify all issues for discussion during the follow-up interviews on-site and by phone or email. Subsequently revised project documentation, additional background documents related to the national regulations in the energy sector in Ukraine, requirements for stakeholder consultation and EIA and information concerning social and environmental impacts of the project have been submitted in July 2005 which have undergone renewed document review. In August 2005 the final PDD with completed baseline study and monitoring plan and additionally final documents such as "Technical Description" and a "Business Plan" have been submitted to TÜV SÜD.

2.2 Follow-up Interviews

In the period from June 16th, 2005 until June 18th, 2005 TÜV SÜD performed interviews with project participants and stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Leasing Enterprise "Krymteplocomunenergo" as project owner, representatives of the "Institute of Engineering Ecology" and SEC "Biomass" as project developer and technical consultant and further representatives of further involved companies in the project (German company SVT) have been interviewed face-to-face or via e-mails.

The main topics of the interviews are summarised in Table 1. The complete and detailed list of all persons interviewed will be enclosed in Annex 2 as Information Reference List.

Table 1: Interview topics

Interviewed organisation	Interview topics
Leasing Enterprise "Krymteplocomunenergo"	Project design, baseline, monitoring plan, environmental impacts, stakeholder comments, additionality, monitoring procedures, calibration of the measurement equipment, documentation, archiving of data, approval procedures, starting date of the project, crediting period
SEC "Biomass", "Institute of Engineering Ecology" and SVT	Baseline, monitoring plan, environmental impacts, stakeholder comments, approval of the projects, environmental impacts, stakeholder comments, national and sectoral policy; approval procedures, monitoring plan, responsibilities, archiving of data

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 in order to achieve a positive conclusion during the assessment process. Clarification Requests raised by TÜV SÜD have been resolved totally by the revision of the project documentation submitted August 2005. Furthermore additional documents have been submitted separately in order to provide the required evidences. 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 Annex 1.

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 desk review of the original project design documents and the findings from interviews during the follow up visit are summarised. A much more detailed record of these findings can be found in the Final Determination Protocol in Annex 1.

2) Where TÜV SÜD has 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 and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Annex 1. Furthermore in some topics the given information was not comprehensive enough so that the determination team required Additional Information.

3) Where Clarification and Corrective Action Requests have been issued, the response by the project participants to resolve these requests is summarized in the determination report.

4) The conclusions of the determination are presented consecutively.

3.1 Project Design

3.1.1 Findings

A project documentation consisting of a baseline study and a monitoring plan as well as information concerning the requirement of an EIA study, stakeholder consultation and of a business plan has been submitted in June 2005 to the audit team.

The project's spatial boundaries and the components of the project are not completely and transparently described overall in chapter D1.3 of the PDD (version for the Austrian JI/CDM programme. There are some inconsistencies in the PDD concerning involved sites, used fuel at the different sites and considered measures for improvement of the district heating system in this project. Also the question of considering the electricity production is not described definitely and finally.

The project boundaries include three types of emission reductions: Carbon dioxide emission reductions in the district heating grid by improving the efficiency of the system, Methane emission reductions from the Simferopol landfill by utilization of methane in boiler houses and again carbon dioxide emission reductions by reducing the electricity consumption from the grid as the project provides an own electricity production in parts.

The employed technology does reflect current good practice in the host country and hence the project uses state of the art technology. The utilization of the landfill´s methane, the renewing of the district heating system and the installation of 6 CHPs for heat and electricity production are

standard procedures in Ukraine and staff is trained, or will be trained and will hence have the required experience in operating such a system.

Ukraine has not appointed a national focal point to UNFCCC so far. The date of ratification of the Kyoto Protocol was April 12th, 2004. A national focal point will be appointed soon. The future responsible person is already nominated.

The project is approved verbally by the responsible national Ukrainian government representatives, namely the Ministry of Environmental Protection of Ukraine and State Committee of Ukraine for Housing and Municipal Economy, and by the responsible regional/local authorities. But no formal, written letter of approval for the project as a whole is available up to now.

The approval of the Austrian government is not existent in writing, but the set-up of the Austrian JI/CDM programme can be seen as an indication of such an approval.

In the PDD October 1st, 2004 is outlined as starting date of the project. Thus first measures are already implemented and could be viewed during the on-site visits. The time schedule is clearly defined (Chapter A 5 of the Austrian PDD) and the project is full in line with the envisaged time schedule. The operational lifetime of the project is clearly displayed as 25 years. The crediting period is defined as being from January 1st, 2008, lasting 5 years until December 31st, 2005. This period is in accordance with the first commitment period defined in the Kyoto Protocol. Sales of emission reductions (AAUs, not ERUs) prior to 2008 is not proposed.

3.1.2 Issued CARs/CRs

Outstanding Issue No. 1:

Documents demonstrating the approval of the project(s) from both countries (Austria and Ukraine) have to be presented to the audit team or rather to the persons in charge for the Austrian JI/CDM programme.

Response:

The approval by the two governments is beyond the time schedule of this determination. It will be based on a positive determination opinion in this final determination report.

Outstanding Issue No. 2:

National guidelines and procedures (G&P) are currently available for Austria, but not for Ukraine. It has been indicated that these will be developed and published until the end of this year.

Response:

The guidelines are still not available. But according to current decisions of the national Ukrainian cabinet JI guidelines and procedures are to be finalised and approved in November 2005 and will be integrated in a specific law on JI.

Outstanding Issue No. 3:

Currently Ukraine has only submitted the First National Communications in the framework of the Kyoto Protocol to UNFCCC. Further National Communications are still pending.

Response:

This issue is outside of the influence of the project partners.

Outstanding Issue No. 4:

The host Party has not in place a national registry in accordance with Article 7, paragraph 4 of the Kyoto Protocol.

Response:

This issue can not be answered by now as such as the JI system is still under development in Ukraine. According to the given information the process will be finalised in November 2005 in all likelihood.

Corrective Action Request No. 1:

The information concerning the project boundaries should be corrected, elaborated more detailed and illustrated via additional figures.

Response:

The required information was included in the final PDD version and in associated annexes and appendices. For further details see annex 1 "Determination Protocol" to this Final validation report.

Clarification Request No. 1:

The responsibilities in the project should be described more detailed in the project documentation. Furthermore it should be elaborated more detailed in which way staff will be trained for the operation of the new equipment.

Response:

The responsibilities for the monitoring could be found out during the on-site visit and have been confirmed by the new submitted documents with more detailed information. The responsibility for the project lies totally in the hand of Leasing Enterprise "Krymteplocomunenergo".

Additional information required No. 3:

The spatial level of data (sources for example for emission factors, efficiency of old (and new) equipment etc.) should be explained more detailed.

Response:

The issue has been solved by submitting additional information with the revised PDD.

Corrective Action Request No. 3

It should be demonstrated and argued that there are no requirements by the national legislation or local authorities to switch from oil to gas or to renew boilers older than 25 years (for security reasons).

Response:

The required information was given during the on-site audits and is included in the revised PDD. For further information see annex 1 to this PDD.

Additional Information required No. 5:

The major risks for the project should be determined, elaborated in detail and summarized in a separate paragraph.

Response:

The discussion of the risks has been integrated in the final PDD as appendix 1 "Business Plan" and is supported by further annexes. The discussion is deemed to be plausible and sufficient.

Additional Information required No. 6:

A separate list with information concerning used literature, sources of background data etc. should be added to the PDD.

Response:

The required information is included in the final PDD.

3.1.3 Conclusion

The four outstanding issues are beyond the time horizon of the determination and must be considered as being outstanding. Otherwise the required clarifications have been solved and the project fulfils the belonging criteria set for the approval of JI-projects.

3.2 Baseline and Additionality

3.2.1 Findings

The Austrian JI/CDM Programme foresees that the project applies an already approved baseline methodology for CDM projects in case such a methodology is available for the project type assessed herewith. For this project two baseline methodologes have been applied which already have been implemented in further projects. For the first part of the project which refers

to the improvement of the efficiency of the district heating system the methodology of JI Project "District heating system rehabilitation of Chernigiv Region", submitted to Dutch ERUPT-4, and validated by TUEV-IS was applied and for the second part "Landfill gas utilization" a methodology following the methodology of JI Project "Methane Capture at the Odessa MSW Landfill", submitted to Dutch ERUPT-5, has been used. This proceeding is a practicable approach as both methodologies already have been validated positively in the context of JI projects.

Thus the project developer has subsequently applied the generic baseline methodology as defined for the Austrian JI/CDM Programme and also in the ERUPT guidelines.

The baseline is established in a project specific manner and refers to the consumption, the specific carbon emission factors and the low heating values of the utilized fuels on the one hand and the methane density in the landfill gas and the annual carbon emission factor in the Ukrainian electricity grid on the other hand.

Carbon emission factor for the Ukrainian on annual basis are adopted correctly from the SENTER TOR (ERUPT 4 and 5) and guidelines, further parameters are adopted from international standard literature.

The baseline does take into account the major national and/or sectoral policies, macro-economic trends and political developments. Relevant key factors are described in a clear and transparent manner and their impact on the baseline and the project risk is evaluated in the main. The description includes economic, legal, political and technological factors. But currently the argumentation is not adequate ensured as the business plan is not completed and the argumentation in the PDD is not conclusive and assured enough. Furthermore some background information concerning the national policy is still missing.

The discussion and selection of the baseline methodology per se is considered to be transparent although the project developer does not refer to any specific project type defined in the guidelines mentioned above. All data used is specified and documented.

The data level regarding installation specific parameters, fuel consumption and operation modes is plant specific whereas the methane ensity in the landfill gas is taken over from ACM001.

The calculations given in the project documentastion are plausible given the technical equipment to be installed. But no evidence has been given until now whether the prognosed amount of methane used for electricity generation is a realistic and conservative one. Sources to prove this should be added. Thus the baseline discussion is not complete in total and not transparent enough.

The baseline represent a likely scenario in the non project case as it conforms to all legal requirements and the prevailing practice in the Ukrainian district heating and landfill sector.

The assessment team has found convincing evidence that demonstrates that the project is not a business as usual project in the district haeting and landfill sector in Ukraine and even Europe.

It is demonstrated plausibly that the project is combined with significant investment costs for the investing company. Thus without JI-revenues the project would not be feasible for the investing company or it´stimetabe had to be set back at least.

Without the pre-financing using the Kyoto Mechanisms and selling the prospective ERUs to a tender in advance the project with it´s provided schedule would be too risky and thus not feasible for the project owwner and investor.

To be fully in line with the requirements of the CDM assessment tool for demonstration of additionality which also is applied for JI projects nevertheless further information needs to be given. Further information has to be added in the revised "Business Plan".

3.2.2 Issued CARs/CRs

Additional Information required No. 1:

The theoretical discussion and selection of the baseline methodology is plausible, but not considered as transparent and complete in total. Additional information is required.

Response:

The discussion concerning the selection of the baseline and the applicability of the chosen baseline methodologies (one for district heating, one for the landfill site) has been conducted during the on-site audits and is considered and included in the final PDD with supporting assured with supporting documentation in the annexes. The open questions could be solved completely.

Additional Information required No. 2:

The baseline has to be adjusted and must be based on more conservative assumptions and calculations.

Response:

The baseline has been adjusted; all emission sources are considered in the revised version.

Clarification Request No 2**:**

The baseline of the project is the "business as usual" scenario. The discussion and determination of the chosen baseline should be elaborated more detailed.

Response:

The required information has been submitted via additional annexes (worksheets). These excel sheets contain all required data and information.

Corrective Action Request No. 2

The forecasted methane emissions of the municipal landfill of Simferopol should be proven or at least assured in a better way.

Response:

Detailed information concerning the characteristics of the municipal landfill of Simferopol has been submitted to the validator which demonstrates the correctness of the chosen approach and calculations. Thus the baseline scenario concerning the landfill site could be confirmed.

Additional information required No. 4:

Information/figures concerning the investment comparison analysis should be added

Response

Detailed economic figures have been submitted as annex "Business Plan" to the validator.

3.2.3 Conclusion

All responses given to the indicated CARs and CRs are resolving the belonging issues. All required additional information was added to the PDD directly or in the form of annexes. The project fulfils the criteria on baselines as set for the approval of JI-projects.

3.3 Monitoring Plan

3.3.1 Findings

The Austrian JI/CDM programme foresees that the project applies an approved monitoring methodology for CDM projects in case such a methodology is available for the project type assessed herewith. In this projec the methodology of JI Project "District heating system rehabilitation of Chernigiv Region", submitted to Dutch ERUPT-4, and validated by TUEV-IS was applied has been used for the field "District Heating", for the part "Landfill gas utilization" a methodology following the methodology of JI Project "Methane Capture at the Odessa MSW Landfill", submitted to Dutch ERUPT-5, has been used. This proceeding is a practicable approach as both methodologies already have been validated positively in the context of JI projects.

The monitoring methodology does reflect current good practice and is supported by the monitored and recorded data. The monitoring provisions are in line with the project boundaries. The proposed monitoring methodology is considered to be a comprehensive approach given the project type. The provisions are consistent with the project boundaries. But the mornitoring plan st not detailed enough currently and has to be deepened in some postions.

Two kinds of emissions, CO_2-emissions and CH_4-emissions are of relevance for this type of project. Direct on-site emissions CO_2-emissions occur by burning fossil fules in the boiler houses, direct off-site emissions CO_2-emissions occur by electricity production on mostly fossil fuels for the national Ukranian electricity grid. Off-site methane emissions occur at the municipal landfill site of Simferopol. So, as a minimum, the quantity of fossil fuels consumed by the boiler houses, the quantity of methane captured at the landfill and consumed in boiler houses or just flared, the electricity produced and the average inside temperatures in the heating season which influence the heat demand have to be monitored.

Significant leakage emissions are not to be expected. Thus the monitoring of leakage effects is not required. But this has to be demonstrated more re-traceably.

Parameters outside the project boundaries can be included in the monitoring plan to assess the plausibility of the results. The monitoring methodology is clear and user friendly. The monitoring provisions are in line with the project boundaries.

The choice of the indicators is mostly reasonable and all indicated GHG parameters can be monitored and/or measured.

A monitoring of the baseline emissions is required. The adjustment of the baseline emissions (ex post determination of the baseline) via monitored data is possible, foreseen and demonstrated/explained traceably and plausibly in the PDD. But the adjustment also must be elaborated more detailed.

Negative environmental impacts requiring a monitoring provision are not expected.

Procedures for calibration of monitoring equipment should be identified and procedures for the maintenance of monitoring equipment and installations should be described.

Possible uncertainties are known, but respective procedures for dealing with these uncertainties should be worked out more detailed and transparently until the date of the first verification.

The monitoring methodology allows for conservative, transparent, accurate and complete calculation of the ex post GHG emissions.

The current and future responsibilities and quality assurance procedures have been explained during the visit on site in a plausible manner but not specific written documentation has been submitted so far.

3.3.2 Issued CARs/CRs

Clarification Request No. 3:

The PDD should be adjusted in order to demonstrate the monitoring concept more detailed.

Response:

A separate monitoring plan has been submitted to the validator, furthermore the chapter "Monitoring" in the PDD has been elaborated more detailed. All parameters which have to be monitored are described in detail. The monitoring concept is deemed to be appropriate.

Additional Information required No. 8:

The necessity for monitoring further parameters (own electricity consumption, landfill emissions) should be assed.

Response:

This issue is addressed in the revised project documents. A monitoring of further parameters is possible and is scheduled.

Clarification Request No. 4:

After completing the monitoring plan it should be explained and proven whether or whether not a monitoring of parameters outside the project boundaries is necessary (especially for the purpose of cross checks).

Response:

See answer above.

Clarification Request No. 5:

Information should be added whether the monitoring concept can be integrated in an ISO 9001 system (if it is planned to install such a system)).

Response:

Currently there is no ISO9001 system existing for the Crimean District heating system but medium-term the installation of such a system and the integration of the project specific monitoring measures are aimed at and eligible.

Clarification Request No. 6:

Possible monitoring errors or uncertainties and the influence on the emissions reductions should be addressed and discussed.

Response:

Additional information required No. 9

After completing the monitoring plan this issue should be addressed again and also discussed more detailed in the PDD. Evidence should be given that the leakage effects amount to less than 1 % of the calculated and expected emissions reductions.

Response:

This issue was discussed during the on-site visit and is considered in the revised PDD via sensitivity studies (as annex)..

Clarification Request No. 7:

The issue "monitoring manual" for this complex project should be discussed.

Response:

According to the information on-site the preparation of a project specific monitoring manual is projected until the start of the first crediting period.

3.3.3 Conclusion

All responses given to the indicated CARs, CRs and AIs resolve the belonging issues. The project fulfils the criteria on monitoring as set for the approval of JI-projects.

3.4 Calculation of GHG Emissions

3.4.1 Findings

The project's spatial boundaries are currently not clearly enough described in the PDD.

The list with participating boiler houses and a map demonstrating their locations should be added to the PDD. Thus the description currently is not complete (missing detailed information).

Regarding emission sources all aspects are covered. Only CO_2 emissions have correctly been identified as relevant for the project.

The PDD gives a complete and transparent calculation of the project GHG emissions, but the calculations need to be adjusted after completing the information required above.

Leakage calculations are not requested, as they are plausibly considered as being low.

The calculation is based on spreadsheets, which have been submitted as hard-copy only until now. No underlying formula has been delivered so far. The related spreadsheets should be submitted to the validator. Meanwhile the spreadsheets already could be checked during the on-site audits. Some small corrections have been required.

All data is based either on default values or on the activity level of the project. Both components have been verified during the determination process. But the underlying assumptions and parameters are not supported by clearly referenced sources.

Thus currently the calculations have been checked and occurred not to be conservative totally.

The calculations should be proved and adjusted and based on more conservative assumptions, if necessary.

Under the assumption that the project scenario is not identical to the baseline scenario, the project will result in fewer GHG emissions than the baseline scenario.

3.4.2 Issued CARs/CRs

Additional Information required No. 7:

A differentiation between generated ERUs (2008 - 2012) in accordance with the first commitment period defined in the Kyoto Protocol and generated AAUs in the period before should be added to the calculations if the selling of AAUs is intended.

Response:

A selling of AAUs is not scheduled. Thus only the emission reductions for the crediting period 2008 - 2012 are described and considered in the calculations in the PDD. This is an appropriate approach.

Additional Information required No. 11:

A discussion concerning uncertainties should be included in the PDD.

Response:

The required additional information was included in the final PDD and additional annexes as well as in the final "Feasibility Study" and "Technical Description". The required open issue is solved in the final PDD.

Response:

The issue is solved. The required information has been submitted to the validator and is considered in the revised PDD and annexes.

3.4.3 Conclusion

All responses given to the indicated CARs/CRs and AIs are resolving the belonging issues. The project fulfils the criteria on baselines as set for the approval of JI-projects.

3.5 Environmental Impacts

3.5.1 Findings

The description of the environmental impacts is sufficient.

Due to the project type and legislative frame conditions Environemental Impact Assessment has to be carried out site-specific according to the projected measures. The Environmental Impact Assessment (EIA) for the different subprojects will be conducted by local appropriate accredited local authorities. Already existing EIAs have been submitted to the validator.

Furthermore, according to the CDM requirements, a description and analysis of the ennvironmental impact of the project during the phase of construction and after the implementation is given in chapters B 1 and B 2 of the PDD (Austrian JI/CDM programme format). The information has to be elaborated a little bit more detailed.

The project complies with the environmental legislation in Ukraine. All required licenses and contracts to start with the project are available so far.

3.5.2 Issued CARs/CRs

Additional Information required No. 10:

Additional information concerning social and environmental effects (and possibly their monitoring) should be added to the PDD).

Response:

A monitoring of social and environmental effects is projected.

Additional Information required No. 12:

The procedure how to conduct environmental impact assessments (for the sub-projects) should be added to the PDD. Examples should be added as annex.

Response:

The issue "Environmental Impact Assessment" could be solved finally. The Ukrainian legislation requires site-specific EIAs so that the project (under the aspect "Environment" has to be seen as sum of a lot of small singular projects. An EIA is required for each subproject. First examples for conducted EIAs have been submitted to the validator. The EIAs are carried out by eligible accredited local or regional authorities.

3.5.3 Conclusion

The response given to the indicated AI is resolving the belonging issues. The project fulfils the criteria on Environmental Impact Assessment as set for the approval of JI-projects. A further voluntary monitoring of environmental and socio-economic impacts is possible and designated.

3.6 Local stakeholder process

3.6.1 Findings

The project has already been made public in the context of the overall project concept. The single sub-projects will be made public according to the national and regional regulations.

There have been no negative comments concerning the project currently, which would have required any further action directly related to the specific projects assessed herewith. Only positive estimation have been received by the involved institutions.

3.6.2 Issued CARs/CRs

Information should be given concerning the process of inviting stakeholders to comment on the project.

3.6.3 Conclusion

Additional Information required No. 13:

The project fulfils the criteria on stakeholders involvement as set for the approval of JI-projects.

Response:

The required information has been submitted to the validator in separate annexes.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The project documents have been made public available via TÜV SÜD´s website for calling on stakeholders to comment CDM/JI projects www.netinform.net module "climate and energy" in the period from July 13th, 2005 until August 12th, 2005. The publishing has been announced worldwide via Climate-L server. This is a widespread approach used for many such Global Stakeholder Processes.

No comments have been received.

Industrie Service

5 FINAL DETERMINATION OPINION

TÜV SÜD has performed a determination of the Rehabilitation of the district heating system of Crimea", JI Project, Ukraine submitted by Leasing Enterprise "Krymteplocomunenergo " located in Simferopol. The determination was performed on the basis of relevant JI criteria.

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 meets all relevant UNFCCC requirements for JI under the prerequisite that all four outstanding issues are resolved.

Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of emission reductions of 711.346 tons CO_2 during intended crediting period from 2008-2012 represents a realistic estimation using the assumptions given by the project documents. As these figures will depend on the future performance of the project, this confirmation gives no guarantee on the realisation.

The determination is based on the information made available to us and the engagement conditions detailed in this report. The determination has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as JI project. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the determination opinion, which will go beyond that purpose.

Munich, 2005-09-30

Werner Betzenbichler

Head of Certification Body "Climate and Energy"

Munich, 2005-09-30

Thomas Kleiser

Responsible Project Manager

Industrie Service

Determination Protocol

Table 1 Mandatory Requirements for Joint Implementation (JI) Project Activities

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
1. The project shall have the approval of the Parties involved	Kyoto Protocol Article 6.1 (a)	**O1**	**Outstanding Issue No. 1:** a.) A formal Letter of Approval (LoA) / Letter of No Objection has not yet been signed by the Ukrainian Government regarding the provided JI project. But the process for signing the (LoA) has already been started. According to the information given on-site all concerned national and regional authorities have confirmed their assistance and the endorsement for the project. **A required document for this approval will be the "Final Determination Report" including this Determination Protocol and an Information Reference List.** b. The formal Letter of Approval (LoA) of the Austrian government also is not existent in writing, but the admission of

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** MoV = Means of Verification, DR= Document Review, I= Interview

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
			the project to the Austrian JI/CDM programme (first step) can be seen as a demonstration of interest to supply this letter of approval in written form with existence of a positive validation opinion. So the "Final Determination Report" including Determination Protocol and Information Reference List is also an inevitable requirement by the Austrian government (Austrian DNA for the submission a written letter of approval. **Documents demonstrating the approval of the project(s) from both countries (Austria and Ukraine) have to be presented to the audit team or rather to the persons in charge for the Austrian JI/CDM programme.**
2. Emission reductions, or an enhancement of removal by sinks, shall be additional to any that would otherwise occur	Kyoto Protocol Article 6.1 (b)	See below	Table 2, Section B.2
3. The sponsor Party shall not aquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7	Kyoto Protocol Article 6.1 (c)	☑	Austria fulfils all obligations as requested.

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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
4. The acquisition of emission reduction units shall be supplemental to domestic actions for the purpose of meeting commitments under Article 3	Kyoto Protocol Article 6.1 (d)	☑	The project is additional to domestic actions in Austria.
5. Parties participating in JI shall designate national focal points for approving JI projects and have in place national guidelines and procedures for the approval of JI projects	Marrakech Accords, JI Modalities, §20	**O2**	Austria has designated a National Focal Point (department 54 of the Austrian Ministry of Life) and has in place national guidelines and procedures (G&P) for the approval of JI projects in the framework of the Austrian CDM/. The Directive for the Austrian JI/CDM Programme was published on December 3rd, 2003. It was amended on November 4th, 2004. **Outstanding Issue No. 2:** The Ukrainian Government has not officially indicated a national focal point (NFP) / Designated National Authority (DNA) at UNFCCC Executive Board until now and has not issued national guidelines and procedures (G&P) for the approval of JI projects currently.

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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
			After a stop in all JI activities dated May 6th, 2005 Ukraine re-started his JI activities in August 2005. In calendar week 33, 2005 the Ukrainian cabinet approved a National Action plan to fulfil the Kyoto Protocol. This plan sets out tasks and deadlines for achieving track 1eligibility by Ukraine. JI guidelines and procedures are to be finalised and approved in November 2005 and will be integrated in a specific law on JI. So it can be expected with the utmost probability that these procedures will be installed until the end of 2006 and herewith before the starting date of the crediting period (January 1st, 2008). The board which will be responsible for the approval of JI projects in Ukraine is already appointed since 2004. The appointment has been renewed in a decree issued by president Yushenko in Calendar week 37, 2005. The contact person for JI projects

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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
			is Mr. Heorhiy Veremiychyk at the Ministry for Environment Protection of Ukraine. Probably he will be nominated as National Focal Point in the nearby future. This issue is out of the influence of the project owner.
6. The host Party shall be a Party to the Kyoto Protocol	Marrakech Accords, JI Modalities, §21(a)/24	☑	The Ukraine is a Party (Annex I Party) to the Kyoto Protocol and has ratified the Kyoto Protocol at April 12th, 2004.
7. The host Party's assigned amount shall have been calculated and recorded in accordance with the modalities for the accounting of assigned amounts	Marrakech Accords, JI Modalities, §21(b)/24	**O3**	This issue can not be answered concluding. The Ukraine´s assigned amount is 100% of emissions in 1990. **Outstanding Issue No. 3:** Currently Ukraine has only submitted the First National Communications in the framework of the Kyoto Protocol to UNFCCC. Further National Communications are still pending. This issue is out of the influence of the project owner.

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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
8. The host Party shall have in place a national registry in accordance with Article 7, paragraph 4	Marrakech Accords, JI Modalities, §21(d)/24	**O4**	**Outstanding issue No. 4:** This issue can not be answered by now as such as the JI system is still under development in Ukraine (see also comment under mandatory requirement No. 5). The process will be finalised in November 2005 in all likelihood. This issue is out of the influence of the project owner.
9. Project participants shall submit to the independent entity a project design document that contains all information needed for the determination	Marrakech Accords, JI Modalities, §31	☑	A project documentation consisting further information such as a baseline study, a monitoring plan, information concerning an EIA, concerning stakeholder consultations and concerning the financial background of the project has been submitted in a first version in June 2005. During the on-site audits (June 16th until June 18th, 2005 the auditor was allowed to view all relevant documents and also to visit selected sites.
10. The project design document shall be made publicly available and Parties, stakeholders and UNFCCC accredited observers shall be invited to, within 30 days, provide comments	Marrakech Accords, JI Modalities, §32	☑	The project documents have been made public available via TÜV SÜD´s website for calling on

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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
			stakeholders to comment CDM/JI projects www.netinform.net module "climate and energy" in the period from July 13th, 2005 until August 12th, 2005. The publishing has been announced worldwide via Climate-L server. This is a widespread approach used for many such Global Stakeholder Processes. No comments have been received.
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out	Marrakech Accords, JI Modalities, §33(d)	See below	Table 2, Section F
12. The baseline for a JI project shall be the scenario that reasonably represents the GHG emissions or removal by sources that would occur in absence of the proposed project	Marrakech Accords, JI Modalities, Appendix B	See below	Table 2, Section B.2

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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
13. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, JI Modalities, Appendix B	See below	Table 2, Section B.2
14. The baseline methodology shall exclude to earn ERUs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, JI Modalities, Appendix B	See below	Table 2, Section B.2
15. The project shall have an appropriate monitoring plan	Marrakech Accords, JI Modalities, §33(c)	See below	Table 2, Section D

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Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. General Description of Project Activity					
A.1. Project Boundaries					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	1-8, 9, 10-13, 23, 24, 25	DR, I	The spatial boundaries of the project are described in chapter D 1.3. The project boundaries include hereby two types of emission reductions: • Reducing CO_2 emissions from combustion of different fuels (in most cases oil, besides natural gas, bitumen etc.) in boiler houses (for heat and hot water production) by realisation of efficiency measures (replacement of low efficient outmoded boilers, upgrade of boiler burners, installation of heat utilisers, minimization of pipeline length etc.) • Reducing CH4 emissions of the municipal landfill of Simferopol by utilizing parts of the methane produced at the landfill in municipal boiler houses.	**CAR1**	☑

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Currently the project boundaries are not clearly defined. There is some confusing and conflicting information: - In the general description of the project (Chapter A2.1) the aspect of utilization of the methane from the municipal landfill in Simferopol is missing, although the aspect of the planned installation of 6 CHP plants for combined heat and electricity production is missing. - The information concerning methane utilization from the municipal landfill first and CHP plants first appear under D1.3 (project boundaries). - The figures in chapter D1.3 and D3.1 are not clear in all issues. **Corrective Action Request No. 1:** The information concerning the project boundaries should be corrected, elaborated more detailed and illustrated via additional figures.		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			The information concerning the project boundaries should be corrected, elaborated more detailed and illustrated via additional figures. This means in detail: Therefore a list (table, as word document) with all boiler houses included in the project should be added as annex to the PDD. In this list the following information should be given: Current status: • Currently (2003) used equipment (with all relevant technical specifications of the boilers including the age of the boilers and last general maintenance) at the boiler houses integrated in the project • Type of fuel used at the different sites (2003) • Information concerning the products (heat, hot water only, also electricity?), main consumers). Future Status (after realisation of the project):		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			• Envisaged future equipment in the boiler houses • Future type of fuel used • Products (also electricity at one place) • At which sites a minimization of the pipeline length is planned? The figures in Chapter D1.3 and D3.1 should be elaborated more transparent and understandable. It should be checked whether the own consumption of total new equipment (CHP plants) should be taken into account in calculating the emission reductions. It should be explained whether the issue of electricity production (at the CHP plants) is taken into account or not in the calculation of the emission reductions. It should be explained in which way the influence of pipeline replacement and length minimization is taken into account in the emission reductions. A map showing all involved sites should be added to the PDD.		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	1-8, 9, 10-13, 23, 24, 25	DR, I	The description of the relevant components and facilities used to mitigate GHGs is not correctly described in total (see information given above). Components and facilities used to mitigate GHG emissions should be elaborated more detailed.	**CAR1**	☑
A.2. Technology to be employed					
A.2.1. Does the project design engineering reflect current good practices?	1-8, 9, 10-17, 23, 24, 25, 35-39	DR, I	Yes, the employed technology does reflect current good practice concerning the installation and operation of heat (and electricity) generation plants. The envisaged measures (new boilers, burners, rehabilitation of pipelines, installation of new pipelines, reducing the pipeline length, methane utilization of the municipal landfill) will lead to a considerable improvement of the efficiency of the district heating system and to a remarkable reduction of the fuel consumption. Furthermore methane from the municipal landfill will used for heat production instead of being emitted into the atmosphere.	☑	☑
A.2.2. Does the project use state of the art technology or would the technology result in a significantly	1-8, 9,	DR, I	The project uses state of the art technology. The technologies used are already ap-	☑	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
better performance than any commonly used technologies in the host country?	10-13, 23, 24, 25		proved technologies especially in countries of the Western Europe, North America and Japan.		
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1-8, 23	DR, I	It is not likely that the project technology will be substituted by a more efficient technology during the crediting period as the technology applied is considered to be operational for at least 25 years.	☑	☑
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	1-8, 23, 47	DR, I	During the visit on site it was reported that staff responsible for the new equipment needs to be trained. It is evident that in this stage of the project concrete training and education plans can not be provided finally. **<u>Clarification Request No. 1:</u>** Nevertheless the responsibilities in the project should be described more detailed in the project documentation. Furthermore it should be elaborated more detailed in which way staff will be trained for the operation of the new equipment. It has to be clarified in detail:	**CR1**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Which company will be responsible for the new equipment and which department of Krymteplocomunenergo will be responsible for the future training activities and the education of the staff. Which role has the supplier of the new equipment in this process? Which company is responsible for the maintenance? Which measures are planned for the training of the staff? Which is the role of the project developer?		
A.2.5. Does the project make provisions for meeting training and maintenance needs?	1-8, 23, 35, 47	DR, I	See comment above.	**CR1**	☑
B. Project Baseline					
B.1. Baseline Methodology					
B.1.1. Is the discussion and selection of the baseline methodology transparent?	1-8, 10-28	DR, I	The project developer has applied two baseline methodologies: • for the improvement of the district heating system a generic baseline methodology as defined for the Austrian CDM/JI-programme (see: http://www.ji-cdm-austria.at or	**AI1**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			http://www.klimaschutzprojekte.at). and • for the emissions of the landfill the methodology "ACM001" (approved methodology by the UNFCCC Methodology Panel) **Additional Information required No. 1:** The theoretical discussion and selection of the baseline methodology is plausible, but not considered as transparent and complete in total. Additional information is required. In detail this means: • The reference to the the Austrian CDM/JI-programme (http://www.ji-cdm-austria.at or http://www.klimaschutzprojekte.at) should be explained more detailed. • It should be argued whether the aspect "electricity production (6 CHP plants)" is considered in the calculations or not, and if yes, whether the own electricity consumption of the new equipment is taken into ac-		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			count. • It is not clearly described whether a sale of produced electricity to the regional grid is possible and envisaged. • The equipment in baseline case is not described detailed enough until now. • Evidence for the assumed methane emissions at the landfill site should be submitted to the validator (description of the characteristics of the landfill site should be added as annex).		
B.1.2. Does the baseline methodology specify data sources and assumptions?	1-8	DR, I	See above! Data which are used to calculate baseline emissions are not applied correctly in any case. Not all included processes are described detailed enough until now (landfill site, electricity production, methane utilization, efficiencies). **Additional Information required No. 2:** As mentioned already above The baseline has to be adjusted and must be based on more conservative assumptions and calcu-	**AI2**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			lations. This means in detail: All sources and effects have to be included. Fundamentals for the calculations must be added as annexes necessarily, sources must be documented re-traceably and plausibly. Excel-Sheets with the underlying rationales should be submitted to the validator.		
B.1.3. Does the baseline methodology sufficiently describe the underlying rationale for the algorithm/formulae used to determine baseline emissions (e.g. marginal vs. average, etc.)	1-8, 10-17	DR, I	See above.	**AI2**	☑
B.1.4. Does the baseline methodology specify types of variables used (e.g. fuels used, fuel consumption rates, etc)?	1-8, 26-28, 42,43	DR, I	Yes, but not detailed enough. See comments above.	**AI2**	☑
B.1.5. Does the baseline methodology specify the spatial level of data (local, regional, national)?	1-8 44, 46, 47	DR, I	Not in total. **Additional information required No. 3:** The spatial level of data (sources for example for emission factors, efficiency of old	**AI 3**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			(and new) equipment etc.) should be explained more detailed.		
B.2. Baseline Determination					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	1-8, 9, 10-17, 23-27, 33, 35	DR, I	Not in total. **Clarification Request No 2:** The baseline of the project is the "business as usual" scenario. The discussion and determination of the chosen baseline should be elaborated more detailed. This means in detail: Cogent and demonstrative reasons should be given in the PDD (maybe the lifetime of the existing equipment, national legislation etc.) that the continuation of the current practice is a realistic scenario. Moreover further information should be added to demonstrate that in the last years (period 2000-2003) no major improvements of the district heating system have been conducted (information concerning renewed	**AI 1-3, CR 2**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			boilers, renewed pipelines, major maintenance works etc.).		
B.2.2. Has the baseline been determined using conservative assumptions where possible?	1-8, 9, 10-17, 23-27, 33, 35	DR, I	Not totally. **<u>Corrective Action Request No. 2</u>** The forecasted methane emissions of the municipal landfill of Simferopol should be proven or at least assured in a better way. In detail this means: • Currently no assured evidence is given for the appearance of the described methane emissions of the landfill site. Assured evidence for the appearance of the forecasted emissions should be given. • The baseline scenario (see also A1 1-3, CR2) is not elaborated detailed enough until now.	**CAR2**	
B.2.3. Has the baseline been established on a project-specific basis?	1-8, 9, 10-17, 23-27, 33, 35,	DR, I	See above!	**AI1-3, CR2, CAR2**	☑

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
	37, 39, 42, 43				
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	1-8, 44, 46, 47	DR, I	Not in total until now! **Corrective Action Request No. 3** It should be demonstrated and argued that there are no requirements by the national legislation or local authorities to switch from oil to gas or to renew boilers older than 25 years (for security reasons). The specific significance of factors as relevant national and/or sectoral policy, macro-economic trends and political aspirations (in this case for example the likely cogeneration law and the possible influence on the project) should be elaborated more detailed and a compendium of the implemented considerations should be included.	**CAR3**	☑
B.2.5. Is the baseline determination compatible with the available data?	1-8, 26, 27, 28, 35	DR, I	Yes, under taking into account the implementation of the clarification and corrective action requests given above.	☑	☑

B.2.6. Does the selected baseline represent a likely scenario in the absence of the project?	1-8, 47	DR, I	Yes, under taking into account the implementation of the clarification and corrective action requests given above. It should be plausibly and re-traceably demonstrated that the baseline represents the most likely scenario in the non project case. The baseline scenario conforms to all legal requirements and the prevailing practice in the Ukrainian heat (and electricity) generation sector.	☑	☑
B.2.7. Is it demonstrated that the project activity itself is not a likely baseline scenario?	1-8, 47	DR, I	Yes, the assessment team has found convincing evidence that demonstrates that the project is not a business as usual project. But in order to be in line with the requirements of the assessment tool for demonstration of additionality further information needs to be given concerning the "Impact of JI Registration". **<u>Additional information required No. 4:</u>** Information/figures concerning the investment comparison analysis should be added. This means in detail: A detailed cash flow analyses including IRR, NPV with and without influence of cash inflows from selling AAUs/ERUs (9/2005 –	**AI 4**	☑

			2012) should be presented for the project. Evidence should be given regarding the consideration of JI during the phase of considering project realization. The influence of JI registration should be described and argued more detailed and transparent. The extended business plan should be added to the PDD (as confidential annex).		
B.2.8. Have the major risks to the baseline been identified?	1-8, 47	DR, I	This is not a specific question in the question list of the Austrian/CDM/JI programme. **Additional Information required No. 5:** Nevertheless the major risks should be determined, elaborated in detail and summarized in a separate paragraph.	**AI5**	☑
B.2.9. Is all literature and sources clearly referenced?	1-8, 47	DR, I	No. **Additional Information required No. 6:** A separate list with information concerning used literature, sources of background data etc. should be added to the PDD. For example: Which data have been used to determine the baseline (efficiency, heat generation and consumption etc., reference	**AI6**	☑

			year etc.). The baseline emissions depend strongly on meteorological conditions – it has to be demonstrated that the baseline scenario Is a representative scenario and does not overestimate the emissions).		
C. Duration of the Project/ Crediting Period					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	1-8, 47	DR, I	Yes. In chapter A 5 a detailed time schedule for the project implementation and information concerning the lifetime of the equipment is given.	☑	☑
C.1.2. Is the project's crediting time clearly defined?	1-8	DR, I	Yes, the crediting period is defined as being from September 1st 2005 – December 31st, 2012. **Additional Information required No. 7:** Nevertheless a differentiation between generated ERUs (2008 – 2012) in accordance with the first commitment period defined in the Kyoto Protocol and generated AAUs in the period before should be added to the calculations if the selling of AAUs is intended.	**AI 7**	☑

D. Monitoring Plan					
D.1. Monitoring Methodology					
D.1.1. Does the monitoring methodology reflect good monitoring and reporting practices?	1-8, 9, 10-17, 47	DR, I	The project developer has applied a generic monitoring methodology as for example outlined in the ERUPT and in the Austrian CDM/JI tender guidelines. But the obtained information is not sufficient until now. **Clarification Request No. 3:** In detail: a. Common information is required: Which parameters have to be measured to calculate the project emissions and to re-calculate the baseline emissions (ex post calculation. b. Detailed information for each site is required: Information concerning measurement equipment/measured parameters/measuring points at each site involved in the project should be added (as an annex) to the PDD. The information which is the current situation/ which will be the future information (concerning the measurement) at each site should be given in the PDD (as an annex). Which parameters can be measured, which	**CR3**	☑

			have to be calculated/ calculation is done in which way information also should be given concerning calibration frequencies and measurement (calculation accuracy, information concerning responsibilities and further information concerning procedures in emergency cases. The procedure and different steps of the reporting process should be explained.		
D.1.2. Is the selected monitoring methodology supported by the monitored and recorded data?	1-8,, 10-16	DR, I	Currently this cannot be confirmed in total. As already explained above more detailed information concerning required parameters, measurement equipment and monito ring system has to be given. **<u>Additional Information required No. 8:</u>** The necessity for monitoring further parameters (own electricity consumption, landfill emissions) should be assed. In detail: - the own electricity consumption of the new equipment (6 CHPs) has to be monitored. - a (voluntary) procedure can be installed to monitor the emissions of the landfill periodically. This question should be addressed and discussed in the PDD.	**CR 3, AI 8**	☑

			Information concerning data storage and storage duration should be adjusted. The monitoring has to be adjusted.		
D.1.3. Are the monitoring provisions in the monitoring methodology consistent with the project boundaries in the baseline study?	1-8		See above!	**CR3, AI5-7**	☑
D.1.4. Have any needs for monitoring outside the project boundaries been evaluated and if so, included as applicable?	1-8	DR, I	This should be discussed again if all parameters which have to be monitored are clearly described. **Clarification Request No. 4:** After completing the monitoring plan it should be explained and proofed whether or whether not a monitoring of parameters outside the project boundaries is necessary (especially for the purpose of cross checks).	**CR 4**	☑
D.1.5. Does the monitoring methodology allow for conservative, transparent, accurate and complete calculation of the ex post GHG emissions?	1-8	DR, I	Yes, under the assumption that the clarifications and corrections demonstrated above will be taken into account.	☑	☑
D.1.6. Is the monitoring methodology clear and user friendly?	1-8,	DR, I	Yes, under the pre-condition that the required CRs and CARs will be solved. The monitoring methodology will be integrated in future reporting and quality assurances structures.	**CR 5**	☑

			Clarification Request No. 5: Information should be added whether the monitoring concept can be integrated in an ISO 9001 system (if it is planned to install such a system)). Independent from this the monitoring system, frequencies of reporting, internal review phases and adjustment procedures should be demonstrated more detailed (which positions are responsible for the different steps of monitoring).		
D.1.7. Does the methodology mitigate possible monitoring errors or uncertainties addressed?	1-8	DR, I	This issue is not addressed. **Clarification Request No. 6:** Possible monitoring errors or uncertainties and the influence on the emissions reductions should be addressed and discussed.	**CR6**	☑
D.2. Monitoring of Project Emissions					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	1-8, 10-16, 20-29	DR, I	As explained before currently not all parameters are integrated into the monitoring plan. The collection and archiving of all required data should be elaborated more detailed.	**CR 3-6, AI 3-5**	☑

D.2.2. Are the choices of project GHG indicators reasonable?	1-8	DR, I	Yes. Only CO2 and methane emissions are relevant in this project. This is described correctly in the PDD.	☑	☑
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	1-8	DR, I	Yes, see above	☑	☑
D.2.4. Will the indicators enable comparison of project data and performance over time?	1-8, 47	DR, I	Yes, a comparison of project data and performance over time is possible. Further Information how this comparison can be arranged should be added to the PDD.	☑	☑
D.3. Monitoring of Leakage					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1-8	DR, I	No. leakage is addressed and discussed in the PDD. As a result a monitoring of leakage effects is not deemed to be reasonable. **Additional information required No. 9** After completing the monitoring plan this issue should be addressed again and also discussed more detailed in the PDD. Evidence should be given that leakage effects amount to less than 1 %of the calculated and expected emissions reductions.	**AI 9**	☑
D.3.2. Have relevant indicators for GHG leakage been included?	1-8	DR, I	See comment above.	**AI 9**	☑
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1-8	DR, I	See comment above.	**AI 9**	☑

D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	1-8	DR, I	See comment above.	**AI 9**	☑
D.4. Monitoring of Baseline Emissions					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining the baseline emissions during the crediting period?	1-16, 26-28, 42, 43	DR, I	Yes. The needed parameters are nominated in the PDD, are planned to be measured in the monitoring plan and will be collected and archived according to the information given in the PDD. Under the pre-condition that the required CRs and CARs will be solved this question can be answered positively.	☑	☑
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1-8	DR, I	See comments above	☑	☑
D.4.3. Will it be possible to monitor the specified baseline indicators?	1-8	DR, I	See comments above	☑	☑
D.5. Monitoring of Social and Environmental Impacts					
D.5.1. Does the monitoring plan provide for the collection and archiving of relevant data on social and environmental impacts?	1-8	DR, I	No, the monitoring of environmental and social parameters currently is not addressed in the PDD. **Additional Information required No. 10:** Additional information concerning social and environmental effects (and possibly their monitoring) should be added to the PDD). The positive socio-economic effects and positive environmental effects of the envis-	**AI 10**	☑

			aged project should be demonstrated more detailed.		
D.5.2. Will it be possible to monitor the specified impact indicators?	1-8	DR, I	See comment above	☑	☑
D.6. Project Management Planning					
D.6.1. Is the authority and responsibility of project management clearly described?	1-8	DR, I	No. The current and future responsibilities and quality assurance procedures have been explained during the visit on site in a plausible manner but not specific written documentation has been submitted so far. **Clarification Request No. 7:** The issue "monitoring manual" for this complex project should be discussed. It should be mentioned that a project management manual will be developed until the starting date of the crediting period at the latest with certain information on the project management, monitoring responsibilities, training courses etc.. Also written working instructions should be developed until this date. First examples therefore should be integrated in the PDD.	**CR7**	☑
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	1-8	DR, I	See comment above.	**CR7**	☑

D.6.3.	Are procedures identified for training of monitoring personnel?	1-8, 35	DR, I	See comment above.	**CR7**	☑
D.6.4.	Are procedures identified for emergency preparedness where emergencies can result in unintended emissions?	1-8, 35	DR, I	See comment above.	**CR7**	☑
D.6.5.	Are procedures identified for calibration of monitoring equipment?	1-8, 35	DR, I	See comment above.	**CR7**	☑
D.6.6.	Are procedures identified for maintenance of monitoring equipment and installations?	1-8, 35	DR, I	See comment above.	**CR7**	☑
D.6.7.	Are procedures identified for monitoring, measurements and reporting?	1-8, 35	DR, I	See comment above.	**CR7**	☑
D.6.8.	Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	1-8, 35	DR, I	See comment above.	**CR7**	☑
D.6.9.	Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1-8, 35	DR, I	See comment above.	**CR7**	☑
D.6.10.	Are procedures identified for internal audits of GHG project compliance with operational re-	1-8, 35	DR, I	See comment above.	**CR7**	☑

	quirements where applicable?					
D.6.11.	Are procedures identified for project performance reviews?	1-8, 35	DR, I	See comment above.	**CR7**	☑
D.6.12.	Are procedures identified for corrective actions?	1-8, 47	DR, I	See comment above.	**CR7**	☑
E. Calculation of GHG Emissions by Source						
E.1. Predicted Project GHG Emissions						
E.1.1.	Are all aspects related to direct and indirect GHG emissions captured in the project design?	1-8, 9, 10-19, 23-28, 35, 47	DR, I	Yes, under the pre-condition that all CARs and CRs are solved and taken into account.	☑	☑
E.1.2.	Are the GHG calculations documented in a complete and transparent manner?	1-19, 47	DR, I	Currently this can not be confirmed. **Corrective Action Request No. 4:** In the calculation the following items are not considered and integrated or not discussed totally: • Own electricity consumption of the new equipment • Evidence for methane emissions at the landfill is not given re-traceably	**CAR 4**	☑

			enough until now. Background information concerning the calculations has to be added. • Some values in the calculation sheets (for the CHPs, for influence of new pipelines) seem to be wrong and have to be checked. These aspects should be considered and, if necessary, taken into account in the GHG calculations.		
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	1-17, 26-28, 35, 47	DR, I	No, this can not be confirmed finally until now.	**CAR 3, CAR4**	☑
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	1-8	DR, I	No. **Additional Information required No. 11:** A discussion concerning uncertainties should be included in the PDD.	**AI 11**	☑
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	1-8	DR, I	Yes.	☑	☑

E.2. Leakage Effect Emissions					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	1-8	DR, I	See above (AI 7). This issue should be discussed more detailed after completing the list with parameters which have to be monitored.	**AI 9**	☑
E.2.2. Have these leakage effects been properly accounted for in calculations?	1-8, 9, 35	DR, I	See comment above	**AI 9**	☑
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	1-8, 9, 35	DR, I	See comment above	**AI 9**	☑
E.2.4. Are the calculations documented in a complete and transparent manner?	1-8, 9, 35	DR, I	See comment above	**AI 9**	☑
E.2.5. Have conservative assumptions been used when calculating leakage?	1-8, 9, 35	DR, I	See comment above	**AI 9**	☑
E.2.6. Are uncertainties in the leakage estimates properly addressed?	1-8, 9, 35	DR, I	See comment above	**AI 9**	☑
E.3. Baseline Emissions					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	1-8, 10-17	DR, I	Not in total (see comments above).	**CAR 1-3, CR 1-6, AI1-5**	☑
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	1-8, 10-17	DR, I	No, see above.	**CAR 1-2, CR 1-2, AI1-3**	☑

E.3.3. Are the GHG calculations documented in a complete and transparent manner?	1-8, 10-17	DR, I	No. See comments above.	**CAR 1-3, CR 1-6, AI1-5**	☑
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	1-8, 10-17	DR, I	No. See comments above.	**CAR 1-3, CR 1-6, AI1-7**	☑
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	1-8, 10-17	DR, I	No. See comments above.	**CR6**	☑
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	1-8, 10-17, 30, 31, 47	DR, I	No, see comments above.	**CAR 1-5, CR 1-7**	☑
E.4. Emission Reductions					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	1-8, 10-17, 35, 47	DR, I	Yes.	☑	☑
F. Environmental Impacts					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	1-8, 9, 20,	DR, I	Not sufficiently until now.. For each subproject a project specific envi-	**AI 12**	☑

	29, 30, 35-36, 40-41, 45		ronmental impact assessment is required. The procedure how to conduct these EIAs should be explained in the PDD. First examples should be added as an annex. **Additional Information required No. 12:** The procedure to conduct environmental impact assessments (for the sub-projects) should be added to the PDD. Examples should be added as annex. The underlying national regulations and requirements and the necessity to carry out an EIA as a basic requirement for the final approval of the project should be explained more detailed.		
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	1-8, 9, 20, 29, 30, 35-36, 40-41, 45	DR, I	Yes. See also comment above.	☑	☑
F.1.3. Will the project create any adverse environmental effects?	1-8, 9, 20, 29,	DR, I	No.	☑	☑

	30, 35-36, 40-41, 45				
F.1.4. Are transboundary environmental impacts considered in the analysis?	1-8, 9, 20, 29, 30, 35-36, 40-41, 45	DR, I	No trans-boundary environmental impacts are to be expected. This should be noted in the PDD.	☑	☑
F.1.5. Have identified environmental impacts been addressed in the project design?	1-8	DR, I	Yes,	☑	☑
F.1.6. Does the project comply with environmental legislation in the host country?	1-8, 35, 47	DR, I	Yes. See comment above.	☑	☑
***G.* Stakeholder Comments**		DR, I			
G.1.1. Have relevant stakeholders been consulted?	1-8, 36, 41	DR, I	There are currently no concrete regulations in Ukraine how to conduct such a stakeholder process and how to obtain stakeholder comments.	**AI 13**	☑

			Nevertheless there have been a lot of efforts to invite stakeholders to comment on the project. The project has been presented to local, regional and state authorities and was also published via newspapers and other media. **Additional Information required No. 13:** Information should be given concerning the process of inviting stakeholders to comment on the project. In detail this means: • Publishing date, copy of information publicly given concerning the project Invitation Letter • List of participants • Summary of feedback of public consultation process (via public hearings/email) All only if information is available!		

G.1.2.	Have appropriate media been used to invite comments by local stakeholders?	1-8, 36, 41	DR, I	Yes, the projects have been made public in the context of the overall project of plant installation via meetings, articles in newspapers, reports and personal discussion with authorities. See comments above!	**AI 13**	☑
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?	1-8, 36, 41	DR, I	A project specific stakeholder process is not required by the national regulations/laws. But the consultation of affected public authorities is a requirement for the approval of the project.	☑	☑
G.1.4.	Is a summary of the stakeholder comments received provided?	1-8, 36, 41	DR, I	Only positive comments have been received.	☑	☑
G.1.5.	Has due account been taken of any stakeholder comments received?	1-8, 36, 41	DR, I	There have been no comments, which would have required any further action directly related to the specific project assessed herewith. "Krymteplocomunenergo" will continue the interaction with public and private stakeholders during the implementation of the project.	☑	☑

TABLE 3 RESOLUTION OF CORRECTIVE ACTION AND CLARIFICATION REQUESTS

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
Corrective Action Request No. 1: The information concerning the project boundaries should be corrected, elaborated more detailed and illustrated via additional figures. This means in detail: The equipment within the project boundaries should be specified more detailed. Therefore a list (table, as word document) with all boiler houses included in the project should be added as annex to the PDD. In this list the following information should be given: Current status: • Currently (2003) used equipment (with all relevant technical specifications of the boilers including the age of the boilers and last general maintenance) at the boiler houses integrated in the project • Type of fuel used at the different sites (2003) • Information concerning the products (heat, hot water only, also electricity?), main consumers).	A.1.1., A.1.2., E.3.1.–E.3.4., E.3.6.	The required information was included in the final PDD version and in associated annexes and appendices. In detail: The project concept was tightened, some of the "critical" warranted have been taken out from the project. All required lists/tables (equipment, status, fuel used, heat production etc. have been submitted as annexes to the validator.	☑

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
Future Status (after realisation of the project): • Envisaged future equipment in the boiler houses • Future type of fuel used • Products (also electricity at one place) • At which sites a minimization of the pipeline length is planned? The figures in Chapter D1.3 and D3.1 should be elaborated more transparent and understandable. It should be checked whether the own consumption of total new equipment (CHP plants) should be taken into account in calculating the emission reductions. It should be explained whether the issue of electricity production (at the CHP plants) is taken into account or not in the calculation of the emission reductions. It should be explained in which way the influence of pipeline replacement and length minimization is taken into account in the emission reductions. A map showing all involved sites should be added to the PDD.			

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
Clarification Request No. 1: The responsibilities in the project should be described more detailed in the project documentation. Furthermore it should be elaborated more detailed in which way staff will be trained for the operation of the new equipment. It has to be clarified in detail: Which company will be responsible for the new equipment and which department of Leasing Enterprise "Krymteplocomunenergo" will be responsible for the future training activities and the education of the staff. Which role has the supplier of the new equipment in this process? Which company is responsible for the maintenance? Which measures are planned for the training of the staff? Which is the role of the project developer?	A.2.4., A.2.5., E.3.1.–E.3.4., E.3.6.	The responsibilities for the monitoring could be found out during the on-site visit and have been confirmed by the new submitted documents with more detailed information. The responsibility for the project lies totally in the hand of Leasing Enterprise "Krymteplocomunenergo".	☑
Additional Information required No. 1: The theoretical discussion and selection of the baseline methodology is plausible, but not considered as transparent and complete in total. Additional information is required. In detail this means: • The reference to the Austrian CDM/JI-programme (http://www.ji-cdm-austria.at or	B.1.1., B.2.1., B.2.3.	The discussion concerning the selection of the baseline and the applicability of the chosen baseline methodologies (one for district heating, one for the landfill site) has been conducted during the on-site audits and is considered and included in the final PDD with supporting assured with supporting documentation in the annexes. The open questions could be solved completely.	☑

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
http://www.klimaschutzprojekte.at) should be explained more detailed. • It should be argued whether the aspect "electricity production (6 CHP plants)" is considered in the calculations or not, and if yes, whether the own electricity consumption of the new equipment is taken into account. • It is not clearly described whether a sale of produced electricity to the regional grid is possible and envisaged. • The equipment in baseline case is not described detailed enough until now. Evidence for the assumed methane emissions at the landfill site should be submitted to the validator (description of the characteristics of the landfill site should be added as annex).			
Additional Information required No. 2: The baseline has to be adjusted and must be based on more conservative assumptions and calculations. This means in detail: • All sources and effects have to be included. Fundamentals for the calculations must be added as annexes necessarily, sources must be docu-	B.1.2.-B.1.4, B.2.1, B.2.3.	The baseline has been adjusted; all emission sources are considered in the revised version.	☑

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
mented re-traceably and plausibly. Excel-Sheets with the underlying rationales should be submitted to the validator.			
Additional information required No. 3: The spatial level of data (sources for example for emission factors, efficiency of old (and new) equipment etc.) should be explained more detailed.	B.1.5., B.2.1., B.2.3., D.2.1.	The issue has been solved by submitting additional information with the revised PDD.	☑
Clarification Request No 2: The baseline of the project is the "business as usual" scenario. The discussion and determination of the chosen baseline should be elaborated more detailed. This means in detail: Cogent and demonstrative reasons should be given in the PDD (maybe the lifetime of the existing equipment, national legislation etc.) that the continuation of the current practice is a realistic scenario. Moreover further information should be added to demonstrate that in the last years (period 2000-2003) no major improvements of the district heating system have been conducted (information concerning renewed boilers, renewed pipelines, major maintenance works etc.).	B.2.1., B.2.3., E.3.1.-E.3.4., E.3.6.	The required information has been submitted via additional annexes (worksheets). These excel sheets contain all required data and information.	☑

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
Corrective Action Request No. 2 The forecasted methane emissions of the municipal landfill of Simferopol should be proven or at least assured in a better way. In detail this means: • Currently no assured evidence is given for the appearance of the described methane emissions of the landfill site. Assured evidence for the appearance of the forecasted emissions should be given. • The baseline scenario (see also A1 1-3, CR2) is not elaborated detailed enough until now.	B.2.2., E.3.1.-E.3.4., E.3.6.	Detailed information concerning the characteristics of the municipal landfill of Simferopol has been submitted to the validator which demonstrates the correctness of the chosen approach and calculations. Thus the baseline scenario concerning the landfill site could be confirmed.	☑
Corrective Action Request No. 3 It should be demonstrated and argued that there are no requirements by the national legislation or local authorities to switch from oil to gas or to renew boilers older than 25 years (for security reasons). The specific significance of factors as relevant national and/or sectoral policy, macro-economic trends and political aspirations (in this case for example the likely co-generation law and the possible influence on the project) should be elaborated more detailed and a compendium	B.2.4., E.1.2., E.1.3., E.3.1., E.3.3., E.3.4., E.3.5.	The required information was given during the on-site audits and is included in the revised PDD. For further information see annex 1 to this PDD.	

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
of the implemented considerations should be included.			
Additional information required No. 4: Information/figures concerning the investment comparison analysis should be added. This means in detail: A detailed cash flow analyses including IRR, NPV with and without influence of cash inflows from selling AAUs/ERUs (9/2005 – 2012) should be presented for the project. Evidence should be given regarding the consideration of JI during the phase of considering project realization. The influence of JI registration should be described and argued more detailed and transparent. The extended business plan should be added to the PDD (as confidential annex).	B.2.7., D.2.1-	Detailed economic figures have been submitted as annex "Business Plan" to the validator.	☑
Additional Information required No. 5: The major risks for the project should be determined, elaborated in detail and summarized in a separate paragraph.	B.2.8., D.1.3., D.2.1.	The discussion of the risks has been integrated in the final PDD as appendix 1 "Business Plan" and is supported by further annexes. The discussion is deemed to be plausible and sufficient.	☑

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
Additional Information required No. 6: A separate list with information concerning used literature, sources of background data etc. should be added to the PDD. For example: Which data have been used to determine the baseline (efficiency, heat generation and consumption etc., reference year etc.). The baseline emissions depend strongly on meteorological conditions – it has to be demonstrated that the baseline scenario Is a representative scenario and does not overestimate the emissions).	B.2.9., D.1.3.	The required information is included in the final PDD.	☑
Additional Information required No. 7: A differentiation between generated ERUs (2008 – 2012) in accordance with the first commitment period defined in the Kyoto Protocol and generated AAUs in the period before should be added to the calculations if the selling of AAUs is intended.	C.1.2., D.1.3.	A selling of AAUs is not scheduled. Thus only the emission reductions for the period 2008 – 2012 are described and considered in the calculations in the PDD. This is an appropriate approach.	☑
Clarification Request No. 3: The PDD should be adjusted in order to demonstrate the monitoring concept more detailed. In detail: Common information is required :	D.1.1., D.1.2., D.1.3. D.2.1., E.3.1., E.3.3., E.3.4., E.3.6.	A separate monitoring plan has been submitted to the validator, furthermore the chapter "Monitoring" in the PDD has been elaborated more detailed. All parameters which have to be monitored are described in detail. The monitoring concept is deemed to be appropriate.	☑

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
Which parameters have to be measured to calculate the project emissions and to re-calculate the baseline emissions (ex post calculation. Detailed information for each site is required: Information concerning measurement equipment/ measured parameters/measuring points at each site involved in the project should be added (as an annex) to the PDD. The information which is the current situation/ which will be the future information (concerning the measurement) at each site should be given in the PDD (as an annex). Which parameters can be measured, which have to be calculated/ calculation is done in which way information also should be given concerning calibration frequencies and measurement (calculation accuracy, information concerning responsibilities and further information concerning procedures in emergency cases. The procedure and different steps of the reporting process should be explained.			
Additional Information required No. 8: The necessity for monitoring further parameters (own electricity consumption, landfill emissions) should be assed. In detail:	D.1.2.	This issue is addressed in the revised project documents. A monitoring of further parameters is possible and is scheduled.	☑

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
It has to be checked whether - the own electricity consumption of the new equipment (6 CHPs) has to be monitored. - a (voluntary) procedure can be installed to monitor the emissions of the landfill periodically. This question should be addressed and discussed in the PDD. Information concerning data storage and storage duration should be adjusted. The monitoring plan has to be adjusted.			
Clarification Request No. 4: After completing the monitoring plan it should be explained and proven whether or whether not a monitoring of parameters outside the project boundaries is necessary (especially for the purpose of cross checks).	D.1.4., D.2.1., E.3.1., E.3.3., E.3.4., E.3.6.	See above.	☑
Clarification Request No. 5: Information should be added whether the monitoring concept can be integrated in an ISO 9001 system (if it is planned to install such a system)). Independent from this the monitoring system, frequencies of reporting, internal review phases and adjustment	D.1.6., D.2.1., E.3.1., E.3.3., E.3.4., E.3.6	Currently there is no ISO9001 system existing for the Crimean District heating system but medium-term the installation of such a system and the integration of the project specific monitoring measures are aimed at and eligible.	☑

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
procedures should be demonstrated more detailed (which positions are responsible for the different steps of monitoring).			
Clarification Request No. 6: Possible monitoring errors or uncertainties and the influence on the emissions reductions should be addressed and discussed.	D.1.7., D.2.1., E.3.1., E.3.3.-E.3.6	This issue was discussed during the on-site visit and is considered in the revised PDD via sensitivity studies (as annex).	☑
Additional information required No. 9 After completing the monitoring plan this issue should be addressed again and also discussed more detailed in the PDD. Evidence should be given that leakage effects amount to less than 1 %of the calculated and expected emissions reductions.	D.3.1. – D.3.4., E.2.1.-E.2.6.	The required evidence has been given via extensive additional documentation in the annexes (concerning calculations, landfill etc.).	☑
Additional Information required No. 10: Additional information concerning social and environmental effects (and possibly their monitoring) should be added to the PDD). The positive socio-economic effects and positive environmental effects of the envisaged project should be	D.5.1.	A monitoring of social and environmental effects is projected.	☑

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
demonstrated more detailed.			
Clarification Request No. 7: The issue "monitoring manual" for this complex project should be discussed. It should be mentioned that a project management manual will be developed until the starting date of the crediting period at the latest with certain information on the project management, monitoring responsibilities, training courses etc.. Also written working instructions should be developed until this date. First examples therefore should be integrated in the PDD.	D.6.1.- D.6.12., E.3.6.	According to the information on-site the preparation of a project specific monitoring manual is projected until the start of the first crediting period.	☑
Corrective Action Request No. 4: In the calculation the following items are not considered and integrated or not discussed totally: • Own electricity consumption of the new equipment • Evidence for methane emissions at the landfill is not given re-traceably enough until now. Background information concerning the calculations has to be added.	E.1.1., E.1.2.-	The required additional information has been submitted to the validator. Own electricity consumption is considered in the calculations.	☑

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
• Some values in the calculation sheets (for the CHPs, for influence of new pipelines) seem to be wrong and have to be checked. These aspects should be considered and, if necessary, taken into account in the GHG calculations.			
Additional Information required No. 11: A discussion concerning uncertainties should be included in the PDD.	E.1.4.	The issue is solved. The required information has been submitted to the validator and is considered in the revised PDD and annexes.	☑
Additional Information required No. 12: The procedure how to conduct environmental impact assessments (for the sub-projects) should be added to the PDD. Examples should be added as annex. The underlying national regulations and requirements and the necessity to carry out an EIA as a basic requirement for the final approval of the project should be explained more detailed.	F.1.1.	The issue "Environmental Impact Assessment" could be solved finally. The Ukrainian legislation requires site-specific EIAs so that the project (under the aspect "Environment" has to be seen as sum of a lot of small singular projects. An EIA is required for each subproject. First examples for conducted EIAs have been submitted to the validator. The EIAs are carried out by eligible accredited local or regional authorities.	☑
Additional Information required No. 13: Information should be given concerning the process of inviting stakeholders to comment on the project.	G.1.1.-G.1.2.	The required information has been submitted to the validator in separate annexes.	☑

Draft report clarifications and corrective action requests by validation team and additional information required by validation team	Ref. to checklist	Summary of project owner response	Validation team conclusion
In detail this means: • Publishing date, copy of information publicly given concerning the project Invitation Letter • List of participants • Summary of feedback of public consultation process (via public hearings/email) All only if information is available!			

Industrie Service

Information Reference List

Reference No.	Document or Type of Information
1.	On-site interview concerning project history and development as well as project participants with representatives of the project owner and project developers conducted on June 16th in Sevastopol (conference room) by TÜV SÜD auditor Validation team on-site: Thomas Kleiser — TÜV Industrie Service GmbH TÜV SÜD Group Interviewed persons: Michail Scheiman — Chief Engineer of Leasing Enterprise “Krymteplocomunenergo”; Deputy General Director of Leasing Enterprise “Krymteplocomunenergo”; Alexander Filonenko — PDD Developer, SEC “Biomass”, Kiev Ditmitr Paderno — Vice-Director of Institute of Engineering Ecology , Kiev Alexander Sigal — Director of Institute of Environmental Engineering, Kiev Vladimir Gomon — SVT - Institute for Energy and Technology”, Bous, Germany
2.	On-site interview at different (projected) project sites concerning technical equipment (technical characteristics, age of the equipment, status, repair periods, time off, maintenance efforts), baseline and project scenario, additionality, environmental impact assessment, stakeholder consultation, characteristics of landfill conducted on June 16th and June 17th by TÜV SÜD auditor Validation team on-site: Thomas Kleiser — TÜV Industrie Service GmbH TÜV SÜD Group Interviewed persons(permanent presence) : Michail Scheiman — Chief Engineer of Leasing Enterprise “Krymteplocomunenergo”; Deputy General Director of Leasing Enterprise “Krymteplocomunenergo”; Alexander Filonenko — PDD Developer, SEC “Biomass”, Kiev Ditmitr Paderno — Vice-Director, Institute of Engineering Ecology , Kiev (temporary)

Reference No.	Document or Type of Information
	Further interviewed persons at different project sites: At site "Melas": June 16th) Jurij Kaschin — Head of district heating in Yalta District of "Krymteplocomunenergo" At site "Gaspra" (June 16th) Jurij Kaschin — Head of district heating in Yalta District of "Krymteplocomunenergo" At site "Malyi Majak (June 17th) Vitaliy Padalka — Chief Engineer Valerij Sidorenko — Technician At site "Glynky 66", Simferopol (June 17th) Genadij Kovalenko — Head of District heating system in Kyivskyj region At site "Gaidarstr.", Simferopol (June 17th) Sergej Abramenko — Chief Engineer; Engineer on Environmental Protection Municipal landfill of Simferopol (June 17th) Vladimir Filimonov — Director of Simferopol landfill
3.	On-site interview concerning baseline and project scenario, implementation and realisation of the project, envisaged time schedule and current situation, risks, business plan and sensitivity studies, feasibility study, technical description, rights on ERUs , stakeholder process and environmental issues as well as monitoring aspects with representatives of the project owner and project developers conducted on June 17th in the office of Leasing Enterprise "Krymteplocomunenergo" in Simferopol by TÜV SÜD auditor

Reference No.	Document or Type of Information
	Validation team on-site: Thomas Kleiser — TÜV Industrie Service GmbH TÜV SÜD Group Interviewed persons: Michail Scheiman — Chief Engineer of Leasing Enterprise "Krymteplocomunenergo"; Deputy General Director of Leasing Enterprise "Krymteplocomunenergo"; Alexander Filonenko — PDD Developer, SEC "Biomass", Kiev Sergej Zhukovskiy — Head of Production and Technological Department
4.	On-site interview concerning project background, political and economical situation in the region, GHG calculations and monitoring plan – check of the calculations – in Ecology Educational Center in Miskhor Validation team on-site: Thomas Kleiser — TÜV Industrie Service GmbH TÜV SÜD Group Interviewed persons: Alexander Filonenko — PDD Developer, SEC "Biomass", Kiev
5.	Project Idea Note of "Rehabilitation of the district heating system of Crimea", JI Project, Autonomous Republic of Crimea, Ukraine, dated June 10th, 2005, submitted by SEC "Biomass"
6.	Draft PDD with baseline scenario and monitoring plan for "Rehabilitation of the district heating system of Crimea" JI project, dated June 16th, 2005, submitted by SEC "Biomass" during the on-site audits
7.	Draft PDD with baseline scenario and monitoring plan for "Rehabilitation of the district heating system of Crimea" JI project, dated July 13th, 2005, submitted by SEC "Biomass" during the on-site audits, published in the Global Stakeholder Process in the period from July 13th to August 12th
8.	Final PDD with baseline scenario and monitoring plan and annexes for "Rehabilitation of the district heating system of Crimea" JI project,

Reference No.	Document or Type of Information
	dated August 16th, 2005, submitted by SEC "Biomass"
9.	Draft Determination Protocol, dated July 3rd, 2005, submitted be auditing team of TÜV SÜD to SEC "Biomass" as project developer
10.	Annex 1; "Boilers final" to the Final PDD, submitted August 15th, 2005 by SEC "Biomass"
11.	Annex 2, "Networks" to the Final PDD, submitted August 15th, 2005 by SEC "Biomass"
12.	Annex 3.1, "Landfill" to the Final PDD, with included calculations, submitted August 15th, 2005 by SEC "Biomass"
13.	Annex 3.2, "Landfill" to the Final PDD, with landfill background information and characteristics, submitted August 15th, 2005 by SEC "Biomass"
14.	Annex 4, "Sensitivity (analysis)" to the Final PDD, submitted August 15th, 2005 by SEC "Biomass"
15.	Annex 5.1 and 5.2, "Fuel consumption per months in 2003 and 2004", to the Final PDD, submitted August 15th, 2005 by SEC "Biomass"
16.	Annex 6, "Boilers and Networks" to the Final PDD, submitted August 15th, 2005 by SEC "Biomass"
17.	Annex 7, 7.1, 7.2, 7.3, 7.4, 7.5 "losses in the networks" to the Final PDD, submitted August 15th, 2005 by SEC "Biomass"
18.	Annex 8, "Letter of intent concerning the purchase of 6 cogeneration plants by enterprise company ´Escado´", submitted August 16th, 2005 by SEC "Biomass"
19.	Annex 9, "Information concerning the the process of approval of utilization of methane emissions from municipal solid waste at Communal Enterprise "Polygon-XXI" in the city of Simferopol, according to the project at boiler house of LE "Krymteplocomunenergo" at the address: 66 Glynky in the Simferopol city, negotiations between the municipality of Simferopol and Leasing Enterprise "Krymteplocomunenergo", submitted August 16th, 2005 by SEC "Biomass"
20.	Annex 10, "EIA (Environmental Impact Assessment to the Final PDD, submitted August 16th, 2005 by SEC "Biomass"
21.	Annex 11, "Business Plan" to the Final PDD, submitted August 16th, 2005 by SEC "Biomass"
22.	Appendix 1, "Business Plan" with detailed calculations and sensitivity study, submitted August 15th, 2005 by SEC "Biomass"
23.	Appendix 2, Part 1 - 4, "Technical description", submitted August 15th, 2005 by SEC "Biomass"
24.	List of "Major heat energy consumers", submitted August 15th, 2005 by SEC "Biomass"
25.	Deutz: Technical description of new equipment in the boiler houses", submitted August 15th, 2005 by SEC "Biomass"
26.	.xls sheets: "Information on boiler houses at basis and report", submitted August 15th, 2005 by SEC "Biomass"

Reference No.	Document or Type of Information
27.	xls sheest: "Information on fuel consumption and heat delivery", submitted August 15th, 2005 by SEC "Biomass"
28.	xls sheets: "Detailed Information on measuring equipment", submitted August 15th, 2005 by SEC "Biomass"
29.	References and information concerning necessary licenses and permits, submitted August 15th, 2005 by SEC "Biomass"
30.	different EIAs for a big number of sites, submitted August 15th, 2005 by SEC "Biomass"
31.	Annex "Parameters", submitted July 27th, 2005 by SEC "Biomass"
32.	Meteorological Background Data (2003), submitted June 17th, 2005 during the on-site audits by Leasing Enterprise "Krymteplocomunenergo"
33.	Heat generation, fuel and electricity consumption for several sites (on daily and monthly basis for Melas, Gaspra, Malyi Majak and Glynky Nr. 66, submitted during the on-site audits by Leasing Enterprise "Krymteplocomunenergo" on June 17th, 2005
34.	Environmental Impact assessment and project description for the site Sudak, submitted June 17th, 2005 during the on-site audits by Leasing Enterprise "Krymteplocomunenergo"
35.	E-mail with answers to all open issues, additional information requests, clarification requests and corrective action requests in the Draft Determination Protocol, submitted 15th August, 2005 by SEC "Biomass" (with reference to the submitted final documents)
36.	Information concerning invitation and implementation of the (local) public stakeholder process with feedback from consultations, submitted August 15th, 2005 by SEC "Biomass"
37.	Validation and Verification Manual, IETA/World Bank (PCF), http://www.vvmanual.info
38.	Austrian JI/CDM programme, http://www.ji-cdm-austria.at or http://www.klimaschutzprojekte.at
39.	Erupt 4 and 5 Tender, Terms of Reference - ERUPT4- www.senternovem.nl
40.	Annex 1-1; Environmental Impact Assessment; submitted August 8th, 2005 by SEC "Biomass"
41.	List of invited stakeholders and involved authorities during the approval process for the project; viewed by the auditor during the on-site audits and integrated in the final PDD, submitted SEC "Biomass
42.	Final PDD with baseline and monitoring plan for "Rehabilitation of District heating system for Chernigiv Region, submitted May 13th, 2004 by JSC "Oblteplocomunenergo"
43.	Final Validation report to "Rehabilitation of District heating system for Chernigiv Region, submitted May 13th, 2004 submitted by TÜV SÜD on May 25, 2004

Reference No.	Document or Type of Information
44.	Study: “Calculation of specific consumption of fuel and energy”, National Energy Institute, 2004
45.	Emission Permits and Penalties for different boiler houses, 2003 and 2004, submitted by Leasing Enterprise “Krymteplocomunenergo during the on-site audits on June 17th, 2005
46.	Declaration: “On making changes to certain laws of Ukraine as to taxation issues, Ministry of Transport and Energy, Ukraine, 2004
47.	Different e-mails with answers to all open issues, clarification requests and corrective action requests in the Draft Determination Protocol, submitted by Alexander Filonenko, SEC “Biomass” in July and August 2005 to the TÜV SÜD validator