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Determination Report

DETERMINATION OF THE JI TRACK-1 PROJECT: "IMPLEMENTATION OF STEAM-GAS TURBINE UNITS AT THE CHP OF JSC "MOSENERGO"

REPORT NO. 600500958

26 April 2012

TÜV SÜD Industrie Service GmbH
Carbon Management Service
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Subject: Determination of a JI track-1 project

Accredited TÜV SÜD Unit:	**TÜV SÜD Contract Partner:**
TÜV SÜD Industrie Service GmbH Certification Body “climate and energy” Westendstr. 199 80686 Munich Germany	TÜV SÜD Industrie Service GmbH Certification Body “climate and energy” Westendstr. 199 80686 Munich Germany
Project Participants: OJSC «Mosenergo»	Project Site(s): Moscow and Moscow region, Russian Federation

Project title: Implementation of steam-gas turbine units at the CHP of JSC “Mosenergo”

Applied methodology / Version:	JI specific approach	**Scope(s):** 1 **TA(s):** 1.1

First PDD Version:		**Final PDD version:**	
Date of issuance:	01/2012	Date of issuance:	20/04/2012
Version No.:	01	Version No.:	03
Publishing date:	15/03/2011		

Estimated Annual Emission Reduction: 1 746 318 tCO_2e

Assessment Team Leader:	**Technical Reviewer(s):**
Olena Maslova	Javier Castro
Further Assessment Team Members:	Yutaka Yoshida
Determiner:	**Responsible Certification Body Members:**
Igor Kachan	Thomas Kleiser
Technical Expert:	
Maxim Krivosheev	

Summary of the Determination Opinion:

☒ 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 all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the JI as well as all the requirements set by host country (Russian Federation) for approving projects under JI track 1. Hence, TÜV SÜD will recommend the project for further approval and registration by the DFP of Russian Federation.

☐ The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence, TÜV SÜD will not recommend the project for registration by the DFP of the host country as a JI track-1 project and will inform the project participants and the DFP of Russian Federation on this decision.

Abbreviations

AIE	Accredited Independent Entity
CAR	Corrective Action Request
CL	Clarification Request
CHP	Combined heat and power
DFP	Designated Focal Point
DVM	Determination and Verification Manual
EF	Emission Factor
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
ERUs	Emission Reduction Unit(s)
FAR	Forward Action Request
GHG	Greenhouse gas(s)
GWP	Global Warming Potential
GT	Gas Turbine
IRL	Information Reference List
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
KP	Kyoto Protocol
LLC	Limited Liability Company
MP	Monitoring Plan
NGO	Non Governmental Organization
PDD	Project Design Document
PP	Project Participant
SG	Steam Generator
ST	Steam Turbine
TÜV SÜD	TÜV SÜD Industries Service GmbH
UPS	Unified Power System
UNFCCC	United Nations Framework Convention on Climate Change

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1 INTRODUCTION

1.1 Objective

The determination objective is an independent assessment by a Third Party (Accredited Independent Entity, AIE) of a proposed project activity against all defined criteria set for the registration under the Joint Implementation scheme (JI).

The assessment involves the evaluation of the project basis and design identified in the Project Design Document (PDD) using the defined criteria outlined by the registration under the Joint Implementation scheme (JI). Determination is part of the JI project cycle and results in a conclusion by the executing AIE on whether or not a project activity is valid to be submitted for approval to the Designated Focal Point DFP of the host country. The ultimate decision on the registration of a proposed project activity rests with the Parties involved.

The project activity discussed by this determination report has been submitted under the project title: *Implementation of steam-gas turbine units at the CHP of JSC “Mosenergo”.*

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of JI project activities the scope is set by:

- The Kyoto Protocol, in particular § 6
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Further COP/MOP decisions with reference to the JI (e.g. decisions 9/CMP.1)
- Decisions by the JISC published under http://ji.unfccc.int
- Specific guidance by the JISC published under http://ji.unfccc.int
- Guidelines for Completing the Project Design Document (JI-PDD)
- The applied approved CDM methodology(s)
- The technical environment of the project (technical scope)
- Internal and national standards on monitoring and QA/QC
- Technical guideline and information on best practice

The Determination is not meant to provide any consultancy towards the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

Once TÜV SÜD receives an initial PDD version, it is made publicly available on TÜV SÜD’s website, which initiates a 30 day global stakeholder consultation process. In case of any request a PDD might be revised and the final PDD will form the basis for the final evaluation as presented in this report. Information on the initial and on the final PDD version is presented on page 1.

The purpose of a determination is to demonstrate compliance or non-compliance of the project with all stated and valid JI requirements. Additionally, the purpose of a determination is to enable the registration of JI projects, which is only a part of the JI project cycle. Therefore, TÜV SÜD cannot be held liable by any party for decisions made, or not made, based on the determination opinion that go beyond this purpose.

2 METHODOLOGY

The project assessment applies standard auditing techniques to assess the correctness of the information provided by the PPs. The assessment is based on the latest version of Joint Implementation Determination and Verification Manual. The work starts with appointment of team covering the technical scope(s), sectoral scope(s) and relevant host country experience for evaluating the JI project activity. Once the project is made public available, members of the team carry out the desk review, follow-up actions, resolution of issues identified and finally preparation of the determination report. The prepared determination report and other supporting documents then undergo an internal quality control by the CB “climate and energy” before submission to the DFP of the host country.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. TÜV SÜD has developed a methodology-specific protocol customized for the project. The protocol demonstrates, in a transparent manner, the project criteria (requirements), discussion on each criterion by the assessment team, and the results from determining the identified criteria.

The determination protocol serves the following purposes:

- To organize the details and provision of clarifications on the requirements of which a JI project is expected to meet
- To elucidate how a particular requirement has been determined as well as to document the results of the determination and any adjustments made to the project design document.

The determination protocol consists of three tables. The different columns in these tables are described in the figure below. The completed determination protocol is enclosed in Annex 1 to this report.

Determination Protocol Table 1: Conformity of Project activity and PDD				
Checklist Topic / Question	**Reference**	**Comments**	**Initial PDD (published version)**	**Final PDD**
The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further sub-divided. The lowest level constitutes a checklist question / criterion.	*Gives reference to documents where the answer to the checklist question or item is found in case the comment refers to documents other than the PDD.*	*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. In some cases sub-checklist are applied indicating yes/no decisions on the compliance with the stated criterion. Any **Request** has to be substantiated within this column.*	*Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (☑), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (see below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification. **Forward action request (FAR)** to highlight issues related to project implementation that requires review during the first verification.*	*Conclusions are presented in the same manner based on the assessment of the final PDD version and further documents including assumptions presented in the documentation.*

Determination Protocol Table 2: Compilation and Resolutions of CARs, CRs and FARs			
	Comments and Results	Ref	Conclusion and IRL
Issue	*Corrective Action, Clarification or Forward Action Requests.*	*Reference to the checklist question number in Table 1*	*Final conclusions and relevant references.*
Response	*The responses given by the client or other project participants during communication with the determination team.*		
Assessment	*Summary of the discussion and revision of project documentation together with the determination team's responses*		

In case of a denial of the project activity more detailed information on this decision will be presented in Table 3.

Determination Protocol Table 3: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action requests	**Id. of CAR/CL 1**	**Explanation of the Conclusion for Denial**
If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.	*Identifier of the Request.*	*This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion with a clear reference to the requirement which is not complied with.*

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body “climate and energy”. The composition of an assessment team has to be approved by the Certification Body (CB) ensuring that the required skills are covered by the team. The CB TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL)
- Greenhouse Gas Determiner / Verifier (GHG-DET / GHG-V)
- Greenhouse Gas Determiner, Trainee (T)
- Technical Experts (E)

It is required that the sectoral scope(s) and technical area(s) linked to the methodology as well as host country expertise are covered by the assessment team.

The Determination team was consisting of the following experts (the responsible Assessment Team Leader in written in bold letters):

Name	Qualification	Coverage of technical scope	Coverage of technical area	Host country experience
Olena Maslova	**ATL**	☐	☐	☑
Igor Kachan	GHG-DET	☐	☐	☑
Maxim Krivosheev	E	☑	☑	☑

Olena Maslova is assessment team leader and GHG auditor (Determiner/Validator/Verifier) in the "Carbon Management Service" department of TÜV SÜD Industrie Service GmbH in Munich, Germany. She is chemical engineer and focal point for projects in Eastern Europe. Due to her further master degree at the university of applied science in the Federal Republic of Germany she is also familiar with Germany's current environmental legislation. Olena Maslova is specializing in the assessment of CDM / JI projects in the sector of chemical industries and waste handling and disposal. In this project she functioned as project manager and lead auditor.

Igor Kachan is employee of TÜV SÜD Ukraine. He has Ph.D. in chemistry and he was appointed as GHG Determiner of the Carbon Management Service Department of TÜD SÜD Industry Service GmbH. He worked as a lecturer (for 5 years) and research engineer/scientist (for 5 years). He had successfully completed IRCA registered Lead Auditor Training Courses: Environmental Management Systems and Quality Management Systems. He was involved in the determination/verification of more than thirty JI projects pertaining to various sectoral scopes: 1, 2, 3, 4, 5, 8, 9, and 13.

Maxim Krivosheev is the technical experts of TÜV SÜD Ukraine (scope 1, technical area 1.1). He is a thermal power engineer. He has Master's degree in Heat and Power Engineering. He is Member of Russian/Ukraine Association of Engineers for Heating, Ventilation, Air-Conditioning, Heat Supply and Building Thermal Physics. Key skills and experience: heat-and-power engineering, HVAC engineering, thermal physics, building engineering systems surveys, witnessing commissioning, construction supervision, power generation plants designing (including cogeneration power stations).

Technical Reviewer: **Javier Castro, Yutaka Yoshida.**

2.2 Review of Documents

The first version of the PDD was submitted to the AIE in March 2012. The PDD and additional background documents related to the project design and baseline, as well as emission reduction calculation, were reviewed to verify the correctness, credibility and interpretation of the presented information, furthermore a cross-check between information provided and information from other sources have been done as initial step of the determination process. A complete list of all documents and proofs reviewed is attached as Annex 2 to this report.

2.3 Follow-up Interviews

On March 21-23, 2012 TÜV SÜD performed interviews and physical site inspection with project stakeholders to confirm relevant information and to resolve issues identified in the first document review. The table below provides a list of all persons interviewed in this context:

Name	Organisation
Mr Igor Dolinin	JSC "Mosenergo", Director of CHP-27

Mr Igor Gavrilov	JSC “Mosenergo”, Deputy chief engineer of CHP-27, head of operational ac-
Mr Sergej Guschin	JSC “Mosenergo”, Deputy chief engineer of CHP-27, head of production de-
Mr Vladimir Maximov	JSC “Mosenergo”, Assistant director of CHP-27
Mr. Artur Ivanov	JSC “Mosenergo”, Head of project group of CHP-27
Mr Ruslan Mareev	JSC “Mosenergo”, Chief of wholesale market of electric power and accounting
Mr Petr Bublej	JSC “Mosenergo”, Head of ecology department of JSC “Mosenergo”
Ms Evgeniya Baydakova	CJSC “National Carbon Sequestration Foundation” (Moscow), Senior Expert
Mr Semen Serebryanskij	JSC “Mosenergo”, Chief engineer of CHP-26
Mr Ivan Bondaletov	JSC “Mosenergo”, Deputy chief engineer of CHP-26
Mr Sergej Starchikov	JSC “Mosenergo”, Deputy chief engineer of CHP-26
Mr Vladimir Solodkov	JSC “Mosenergo”, Head of standardization service department of CHP-26
Mr Yevgenij Kuklin	JSC “Mosenergo”, Lead engineer-metrologist of CHP-26
Ms Vera Ostrovnaya	JSC “Mosenergo”, Lead environmental engineer of CHP-26
Ms Olga Detneva	JSC “Mosenergo”, Environmental engineer (I category) of CHP-26
Mr Alexander Aleksan-rovich	JSC “Mosenergo”, Lead specialist of automatic control system group of CHP-26
Ms Natalya Kozlova	JSC “Mosenergo”, Lead specialist of accounting group of CHP-26
Mr Viktor Konovalov	JSC “Mosenergo”, Director of CHP-21
Mr Yurij Gromov	JSC “Mosenergo”, Lead engineer of CHP-21
Mr Mikhail Bogatov	JSC “Mosenergo”, Head of standardization service department of CHP-21
Ms Irina Pleshkova	JSC “Mosenergo”, Lead environmental engineer of CHP-21

2.4 Cross-check

During the determination process, the team has made reference to the available information related to similar projects or technologies as the proposed JI track-1 project activity. Project documentation has also been reviewed against the proposed JI specific approach applied for baseline setting and monitoring to confirm the appropriateness of formulae and correctness of calculations.

2.5 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination is to resolve the requests for corrective actions, clarifications, and any other outstanding issues which need to be clarified for TÜV SÜD`s conclusion on the project design. The CARs and CLs raised by TÜV SÜD are resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the determination process, the concerns raised and responses that have been given are documented in more detail in the determination protocol in Annex 1.

The final PDD version 03 dated 20/04/2012 serves as the basis for the final assessment presented.

2.6 Internal Quality Control

Internal quality control is the final step of the determination process and is conducted by the CB “climate and energy”. The CB checks the final documentation, which includes the determination report and annexes. The completion of the quality control indicates that each report submitted has been approved either by the head of the CB or the deputy (a veto person is used if necessary). In projects where either the Head of the CB or his/her deputy is part of the assessment team, the approval is given by the one not serving on the project team.

After confirmation by the PP, the determination opinion and relevant documents are to be submitted to the DFP of host country by the client for approval according to the JI track 1 procedure.

3 SUMMARY

The assessment work and the main results are described below in accordance with the DVM reporting requirements. The reference documents indicated in this section and Annex 1 are stated in Annex 2.

3.1 Approval

The dedicated project participant is OJSC «Mosenergo» from Russian Federation. The host Party Russian Federation meets the requirements to participate in the JI.

In accordance with Russian legislation, the approval of the project is only possible after a positive expert opinion is issued by AIE chosen by the applicant. This document can only be issued after positive determination of the project.

The PPs are going to apply for LoAs from the Host party on the basis of the TÜV SÜD’s determination opinion in accordance with the Host party procedures for approving of JI projects (refer to FAR1).

The Sponsor party will be defined after the project approval by the Ministry of Economic Development and Trade of the Russian Federation.

3.2 Participation

The dedicated project participant from Russian Federation is OJSC «Mosenergo». The participation of OJSC «Mosenergo» in the Project was confirmed by the audit team during on-site inspection (see the list of persons interviewed – chapter 2.3 of the present report).

The project participant form the Sponsor party will be defined after the project approval by the Ministry of Economic Development and Trade of the Russian Federation.

3.3 Project design document

The PDD is compliant with relevant form and guidance as provided by the UNFCCC JISC.

TÜV SÜD concludes that the guidelines for the completion of the PDD in their most recent version have been followed. Relevant information has been provided by the PP in the applying PDD sections. Completeness was assessed through the checklist included to Annex 1.

3.4 Project description

The following situation as per PDD was verified during the on-site mission of the assessment team. The project scenario includes the installation of additional energy generating facilities at OJSC “Mosenergo”: SGTU-420 at CHP-26, two SGTU-450 units at CHP-27, and SGTU-450 at CHP-21. Before the project implementation all CHPs of the enterprise exploited steam-power generating units which are commonly used in the Host country. The decision about the installation of four SGTUs in the framework of JI project was made on 17/02/2005 (IRL 70). The starting date of the project is 27/11/2007 which is the date of SGTU №3 commissioning at CHP-27 (IRL 94).
As a result of the project implementation, the electricity is generated by the new power-generating units of CHPs of OJSC “Mosenergo” (which use modern energy efficient technology). The produced by SGTUs electricity will replace the electricity generated by the existing and new facilities of the UPS Center where old less efficient technologies prevails. The newly commissioned SGTUs will also produce heat energy which otherwise would be covered by the existing and newly installed gas boiler houses.
The project implementation will results in reduction of fuel combustion by the power stations of the UPS Center, which has less fuel combustion efficiency in comparison with the project, that will lead

to reduction of greenhouse gases emissions and pollutant emissions in Moscow and Moscow region.

The information presented in the PDD on the technical design is consistent with the actual planning and implementation of the project activity as confirmed by:

- Review of data and information (see annex 2) using sectoral knowledge and expertise of the assessment team, cross check the same with other sources available in the respective technical literature, official publications, etc.
- The on-site visit has been performed and relevant stakeholders and personnel with knowledge of the project were interviewed, in case of doubt further cross checks through additional interviews have been done.
- Finally information related to similar technologies and projects registered as the JI project activity have been used to confirm the accuracy and completeness of the project description.

Taking into account the above mentioned, TÜV SÜD confirms that the project description as presented in the PDD is sufficiently accurate and complete in order to comply with the requirements of the JI Track-1.

3.5 Baseline and monitoring methodology

3.5.1 Applicability of the selected methodology and baseline identification

The PPs have defined a project specific methodological approach (JI specific approach) in accordance with Appendix B of the JI guidelines.
The baseline is determined by listing and describing plausible scenarios on the basis of conservative assumptions and selecting the most plausible one. The key factors, such as economic situation and availability of funds (including investment barrier), local availability of technologies and equipment, local availability of fuel and its prices were considered for identification of the baseline scenario.
The list of plausible alternative scenarios to the project activity is complete and no reasonable alternative scenarios have been excluded.
The baseline scenario has been identified based on the assumption that if the project was not implemented (additional electricity and heat energy would not be supplied to the grid by the project), the third parties would cover the energy demand by using the outdated existing capacities and/or installing the new energy units.
As a result of the baseline identification procedure provided in the final PDD, the baseline scenario has been defined as the situation when:
- electricity is generated by the other existing plants and the other new energy units of UPS Center;
- heat is generated by the newly constructed boilers and the other existing boiler equipment of the Moscow region.
The information presented in the PDD has been determined by a first document review of all the data, further confirmation based on the on-site visit and a final step by cross checking the information with similar relevant projects and/or technologies. The sources referenced in the PDD have been quoted correctly. Transparent and documented evidences were provided to assessment team within on-site visit and further assessment activity. Based on conservative interpretation of collected audit evidences, TÜV SÜD considers that the identified and described above baseline scenario is reasonable.
TÜV SÜD confirms that all relevant JI requirements, including relevant national and sectoral policies and circumstances, have been identified correctly and taken into account in the definition of the baseline scenario.

A verifiable description of the baseline scenario has been included to the PDD.
The methodology-specific protocol, included in the Annex 1, documents the assessment process. The results of the compliance check as well as relevant evidence are detailed in the protocol and the information reference list.
TÜV SÜD can confirm that the chosen baseline and monitoring project specific approach is applicable to the project activity.
In conclusion TÜV SÜD confirms that:

1. All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
2. All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
3. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
4. Relevant national and sectoral policies and circumstances are considered and listed in the PDD;
5. The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed JI project activity.

3.5.2 Project boundary

The project boundary was assessed considering information gathered from the physical site inspection, interviews, and secondary evidence received on the design of the project.
Project boundaries are set in the PDD in accordance with JI specific approach developed for the present project.
The physical boundaries of the project include SGTU-420 at CHP-26, two SGTU-450 units at CHP-27, and SGTU-450 at CHP-21 of OJSC “Mosenergo”.
The description of emission sources including justification of gases included/excluded in/from the project boundaries is provided in complete manner in schematic form (Diagram B 3.1: Boundaries of the project) and in the Table B 3.1 of the PDD, and can be considered as complete and correct.
The same have been validated during the determination process using standard audit techniques.
Emission sources, not addressed by the applied JI specific approach and expected to contribute more than one percent of the overall expected average annual emission reductions, have not been identified.
For further details on TÜV SÜD’s observations on-site refer to the Annexes 1 and 2.
Hence, TÜV SÜD confirms that the identified boundary and the selected sources and gases as documented in the PDD are justified for the project activity.

3.5.3 Algorithm and/or formulae used to determine emission reductions

TÜV SÜD has assessed the calculations of project emissions, baseline emissions and emission reductions. There are no leakage emissions. Corresponding calculations were carried out based on calculation spreadsheets as presented in the ERUs calculation model (IRL 93).

The parameters and equations presented in the PDD and further documentation have been compared with the information and requirements presented in the methodology based on the developed JI specific approach. The equation comparison has been made explicitly following all the formulae presented in the calculation files.

The estimation of ERUs presented in the PDD is considered reasonable based on the documentation and references reviewed, as well as, the result of the interviews. Detailed information on the verification of the parameters used in the equations can be found in Annex 1. The algorithms for the determination of the baseline, project, and leakage are discussed in the following sections.

3.5.3.1 Baseline Emissions

For the determination of the baseline emissions, the emissions from the generation of energy by the UPS Center and the emissions from the generation of heat energy by the gas boiler houses are to be calculated as per the proposed JI specific approach.

The emissions from the generation of electricity are to be accounted based on the greenhouse gas emission factor for the electrical grid of the UPS Center and electric supply from by four new SGTUs installed by the project.

The emissions from the heat energy generation are to be accounted based on the value of total heat energy output from the SGTUs under the project and efficiency of the gas-boilers. The last one is fixed ex-ante 92 %. The value was taken from the approved baseline and monitoring methodology “Introduction of a new primary district heating system” AM0058, version 3.1. This approach is considered conservative as the value for new natural gas fired boilers is used.

The baseline emissions were estimated ex-ante in accordance with the formulae set defined in the section D 1.1.4 of the PDD using the actual values of heat and electricity output for 2008-2011 and envisaged output for 2012 (same formulae will be used for baseline emissions monitoring).

The estimated baseline emissions can be confirmed, as the same have been replicated by the audit team using the raw data obtained within the site visit. The assessment team considered that the approach based on continuous measurements of the key indicators - heat and electricity output - is correct, reasonable and applicable to the specific project.

Detailed information on the verification of the project specific methodology can be found in the Annex 1 to this report.

3.5.3.2 Project emissions

The project emissions were estimated ex-ante in accordance with the formulae set defined in the section E.1. of the PDD. This estimation is based on the actual values of natural gas consumption at by SGTUs (set in tones of equivalent fuel), net calorific value of fuel equivalent and emission factor for natural gas combustion.
The estimated project emissions can be confirmed, as the same have been replicated by the audit team using the raw data obtained within the site visit. Detailed information on the verification of the parameters used in the equations can be found in the Annex 1.

3.5.3.3 Leakage

The average fuel utilization factor for all power stations of the UPS Center and regional gas boiler houses is generally lower in comparison with the one for SGTUs installed in the framework of the project. Thus for regeneration of the same amount of energy more natural gas would be consumed in the absence of the project. Therefore leakage of natural from the pipeline would be greater in the absence of the project. However, as gas pipelines are situated outside the project boundary, the leakage is conservatively assumed be zero.

3.5.3.4 Emission Reductions

TÜV SÜD has assessed the calculations of project emissions, baseline emissions, leakage and emission reductions. Corresponding calculations were carried out based on calculation spreadsheets as presented in the Excel calculation model with calculations of Baseline emission, Project emission and Emission Reductions (IRL 93).

The calculation of the baseline emissions, project emissions, and the emission reductions, respectively, can be considered as correct. The baseline and project emissions are calculated in the PDD in transparent manner and using conservative assumptions.

Therefore based on the calculations in the project documentation it is expected that the project will lead to a reduction of GHG emissions of 8 731 589 tCO_2e in the period from January 1, 2008 until December 31, 2012.

3.6 Additionality

In accordance with “Guidance on criteria for baseline setting and monitoring” version 03, PPs demonstrated additionality by “provision of traceable and transparent information showing that the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to reductions of anthropogenic emissions by sources of GHGs”.

For this propose the investment analysis and common practice analysis were performed. The approach used in the PDD has been assessed based on a document review and interviews on-site with plants representatives. The additionality was discussed principally with Mr Petr Bublej (Head of ecology department of JSC “Mosenergo”), Mr Ruslan Mareev (Chief of wholesale market of electric power and accounting department of JSC “Mosenergo”), Mr Igor Dolinin (Director of CHP-27), and Mr Viktor Konovalov (Director of CHP-21) in order to further confirm the presented documents and figures. A complete set of documents that have been presented to further substantiate the additionality of the proposed project activity which have been thoroughly reviewed by TÜV SÜD is referred to in the Annex 2 of the present report.

Finally, the data, rationales, assumptions, justifications, and documentation provided have been verified using local knowledge as well as sectoral and financial expertise. This information was also confirmed through the following documentation:

· Equipment purchase and construction contracts (IRL 34, 49, 51, 62, 66, 94)

· JI consideration (IRL 70)

· Preliminary assessment of the investment project (IRL 101)

· Confirmation of the interest rate for the project (IRL 95, 96, 100)

Based on the aforementioned approach, TÜV SÜD confirms that the documentation provided is appropriate for this project. For further details regarding timeline and JI consideration as well as additionality demonstration, please refer to the Annex 1 of this report.

3.7 Monitoring plan

The assessment team has checked all the parameters presented in the monitoring plan (MP) proposed JI specific approach for monitoring. The monitoring plan MP presented in the latest version of the PDD complies with the requirements of the Guidance on criteria for baseline setting and monitoring version 03.

The quality assurance procedures have been audited by the assessment team through document review and interviews with the relevant personnel; this information together with a physical inspection allows the assessment team to confirm that the MP is feasible within the project design. The major parameters to be monitored have been discussed with the PPs especially regarding the location of the meters, the data management, and in general the quality assurance and quality control procedures to be implemented in the context of the project.

All the audit evidences proving the appropriateness of monitoring provisions undertaken by the PPs were provided to the assessment team and have been considered as sufficient. For details please refer to Annex 2 of this report.

Hence, it is expected that the PPs will be able to implement the monitoring plan and the emission reductions achieved can be reported ex-post and verified.

3.8 Local stakeholder consultation

The statement has been provided in the final PDD, chapter G. The DFP (host) and the local authority confirmed a simplified approval procedure for this project due to its obviously positive environmental effects. According to this, the project can be approved without invitation of further local stakeholders.

This fact has also been verified with information obtained during interviews.

3.9 Environmental impacts

The project was developed, approved and implemented in full accordance with the Town-Planning Code of Russian Federation. As per the current applicable rules and regulations there is no requirement to develop EIA documentation as part of the specific JI project. In the framework of the present project PPs received the approval from the State Environmental Expert Examination which allows the expansion of the CHPs and installation of four SGTU.

TÜV SÜD host country experts and the further assessment team members are familiar with local laws and regulations, can confirm that the project complies with environmental legislation in Russian Federation.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOs

TÜV SÜD published the project documents on TÜV SÜD’s own website and invited comments by the Parties, stakeholders and non-governmental organizations during a period of 30 days.

The following table presents all key information on this process:

<table>
<tr><td colspan="2">Webpage:
http://www.netinform.net/KE/Wegweiser/Guide22.aspx?ID=8184&Ebene1_ID=50&Ebene2_ID=3168&mode=5</td></tr>
<tr><td colspan="2">Starting date of the stakeholder consultation process:
2012-03-15</td></tr>
<tr><td>Comment submitted by:
- (no comments received)</td><td>Issues raised:
-</td></tr>
<tr><td colspan="2">Response by TÜV SÜD:
-</td></tr>
</table>

Industrie Service

5 DETERMINATION OPINION

TÜV SÜD has performed a determination of the following proposed JI project activity:

"Implementation of steam-gas turbine units at the CHP of JSC "Mosenergo"

Standard auditing techniques have been used for the determination of the project. Methodology-specific checklists and protocol customised for the project have been prepared to carry out the audit and present the outcome in a transparent and comprehensive manner.

The review of the project design documentation, and further audit evidences and references, as well as subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria in the protocol. In our opinion, the project meets all relevant UNFCCC requirements for the JI as well as all the requirements set by host country (Russian Federation) for approving projects under JI Track 1. Hence, TÜV SÜD will recommend the project for further approval and registration by the DFP of the host country.

An analysis, as provided by the JI specific approach, demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions as specified within the final PDD version.

The determination is based on the information made available to TÜV SÜD, as well as the engagement conditions detailed in this report. The determination has been performed following the JI requirements. The only purpose of this report is its use during the registration process as part of the JI Track 1 project cycle. TÜV SÜD cannot be held liable by any party for decisions made, or not made, based on the determination opinion beyond this purpose.

Munich, 26/04/2012

Thomas Kleiser
Certification Body "climate and energy"
TÜV SÜD Industrie Service GmbH

Munich, 26/04/2012

Olena Maslova
Assessment Team Leader

Industrie Service

Annex 1: Determination Protocol

Industrie Service

Table 1: Requirements Checklist

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
A. General description of project activity				
A.1. Title of the project activity				
A.1.1. Does the used project title clearly enable identification of the unique JI activity?	1	The title "Implementation of steam-gas turbine units at the CHP of JSC "Mosenergo" is indicated in the section A.2 of the PDD.	☑	☑
A.1.2. Are the sectoral scope(s) to which the project pertains clearly identified? Is this information consistent with further chapters of the PDD?	1	The sectoral scope is indicated in the section A.1 of the PDD: 1 - Energy industries (renewable/non-renewable sources) This information is consistent with further chapters of the PDD.	☑	☑
A.1.3. Is there any indication concerning the revision number and the date of the revision?	1, 6	The revision number is indicated on the page 2 of the PDD. **Corrective Action Request 1** The **date** of the document must be indicated in the section A.1. of the PDD *as per GUIDELINES FOR USERS OF THE JOINT IMPLEMENTATION PROJECT DESIGN DOCUMENT FORM, version 04*. In the PDD version 01 only month and year of completion is stated.	**CAR**	☑
A.1.4. Is this consistent with the time line of the project's history?	1, 6, 8, 20, 29, 49, 66, 67	The project's history was discussed during the site-visit and the respective documentary evidences were provided to the audit team. **Corrective Action Request 2** Brief summary of the project's history, **including its JI component**, as well as the situation existing prior to the starting date of the project is missing in the PDD section A.2 *as per GUIDELINES FOR USERS OF THE JOINT IMPLEMENTATION PROJECT DESIGN DOCUMENT FORM, version 04.* The documentary evidences must be provided to the verification team and referenced in the PDD.	**CAR CL**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		Clarification Request 1 The statement in the section A.2. of the PDD "The project objectives: Increase in the demand for energy generation in order to gain additional profit." contradict the results of financial analysis and must be clarified. This statement also contradicts the project's task ("...increase **the generating capacities** of OJSC "Mosenergo", see section A .2. of the PDD version 01) as the project aims **to produce** and not to consume energy. The statement that "…project scenario involves the installation of **additional generating facilities**" contradicts the established baseline: "Electricity for the city of Moscow and the Moscow region is generated at the ESD Center and after the project implementation **the same amount of electricity** will be generated at the newly commissioned SGTUs". The same contradiction is in the section A.4.2 of the PDD. This shall be clarified.		
A.2. Description of the project activity				
A.2.1. Is the description delivering a transparent overview of the project activities?	1	**Clarification Request 2** The interpretation of the abbreviations SGTU, CHP, ESD, CCHP, CCHP, GRES must be provided when first mentioned in the text (alternatively the list of abbreviations must be prepared). **Corrective Action Request 3** The PDD version contains Russian wording, it shall be assure that all words are presented in English as request by the *JI guidelines*.	**CL CAR**	☑
A.2.2. What proofs are available demonstrating that the project description is in compliance	1, 10-	In order to confirm of the specific fuel consumption for the electric and heat supply at the SGTUs of OJSC "Mosenergo" for the years	**CAR CL**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
with the actual situation or planning?	13, 16-19, 27, 50, 53, 56, 57, 64,	2008 – 2012 PPs have provided the technical reports of the CHPs (forms “3-TEX” and “ТЭП” for the period 2008 – 2011). **Corrective Action Request 4** The specific fuel consumption parameters indicated in section A.2 of the PDD version 01 in not consistent with those in the form «3-TEX» and must be revised accordingly. The forms «3-TEX» and “ТЭП” for the period 2008 – 2011 for CHP-27 are to be provided to the audit team for review. The specific fuel consumption for the heat supply for SGTU-420 at CHP-26 is not presented in the PDD version 01. However, the equipment was operational during 2011. The corrections are to be made in the PDD. The PDD version 01 indicates: - start of construction for CHP-21 January of 2006 which is before the pre-project approval; - ending of equipment supply date for CHP-26 which is before the pre-project approval. The dates indicated in the schedule of the project implementation (section A.4.2 of the PDD version 01) do not correspond to those observed onsite and must be revised accordingly. The traceable reference for the applied value of “fuel consumption for the electric supply at the ESD Center” is to be included in the PDD. The information regarding the reserve fuel for CHP-21 must be indicated in the PDD. **Clarification Request 3** The following confirmatory documentation are to be provided to the audit team: commissioning acts for SGTU-450 at CHP-21,		

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		SGTU-420 at CHP-26, and two units SGTU-450 at CHP-27; the equipment certificates for GTE-160 turbogroups OJSC "Silovye mashiny" (CHP- 27), T-125/150-7.4 steam turbine (CHP- 27) OJSC "Silovye mashiny", generators TZFG-160-2MUZ and TNo.FA-160-2UZ OJSC "Silovye mashiny" and waste heat recovery boiler Pr-224/51-7.70/0.58-509/206 (P-107) OJSC "IK "ZIOMAR". The installed capacity of each equipment shall be included in the section A.4.2 of the PDD.		
A.2.3. Is the information provided by these proofs consistent with the information provided by the PDD?	1	Please see CAR in the item A.2.2 above.	**CAR**	☑
A.2.4. Is all information presented consistent with details provided by further chapters of the PDD?	1, 2	**Clarification Request 4** Explain the inconsistency between the amounts of envisaged greenhouse gas emissions reduction in the section in 2008-2012 A.2. and the amounts provided in the section A.4.3.1, E.5, E.6 of the PDD version 01, as well as supplementary Excel file containing ERUs calculations.	**CL**	☑
A.3. Project participants and project approvals by Parties involved				
A.3.1. Is the form required for the indication of project participants correctly applied?	1	Yes, the form required for the indication of project participants is correctly applied.	☑	☑
A.3.2. Is the participation of the listed entities or Parties confirmed by each one of them?	1	During on-site audit the representatives of JSC "Mosenergo" confirmed their participation in the "Implementation of steam-gas turbine units at the CHP of JSC "Mosenergo" Project.	☑	☑
A.3.3. Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in par-	1	Yes, the information on PPs is consistent throughout the PDD and Annex 1.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
ticular annex 1)?				
A.3.4. Is each of the legal entities listed as project participants in the PDD authorized by a Party involved, which is also listed in the PDD, through: - A written project approval by a Party involved, explicitly indicating the name of the legal entity? Or - Any other form of project participant authorization in writing, explicitly indicating the name of the legal entity?	1	In accordance with Russian legislation, the approval of the project is only possible after a positive expert opinion is issued by AIE chosen by the applicant. This document can only be issued after positive determination of the project. **Forward Action Request 1** LoAs by the Parties involved containing the authorization of project participants are to be provided to the AIE for review at the stage of the first verification.	**FAR**	**FAR**
A.3.5. Have the DFPs of all parties listed as involved in the PDD provided written project approvals?	1	See above, item A.3.4.	**FAR**	**FAR**
A.3.6. Does the PDD identify at least the host Party as a “Party involved”?	1	Russian Federation is indicated in the PDD as the Host Party		
A.3.7. Has the DFP of the host Party issued a written project approval?	1	See above, item A.3.4.	**FAR**	**FAR**
A.3.8. Are all the written project approvals by Parties involved unconditional?	1	See above, item A.3.4.	**FAR**	**FAR**
A.4. Technical description of the project activity				
A.4.1. **Location of the project activity**				
A.4.1.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	1	The information provided on the location of the project activity, identifying the project implementation site, was confirmed during the on-site visit. **Corrective Action Request 5** Two figures on the pages 4 and 5 of the PDD version 01 have the	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		same reference number - A.3. PDD shall be corrected. The geographical coordinates of CHP-27 are not available in the PDD version 01and must be provided.		
A.4.1.2. How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	1	**Clarification Request 5** The agreement of "Mosenergo" on electricity/heat supply with system operator must be submitted to the audit team for review.	CL	☑
A.4.2. **Technology(ies) to be employed, or measures, operations or actions to be implemented by the project activity**				
A.4.2.1. Does the technical design of the project activity reflect current good practices?	1	Yes, the technical design of the project activity reflects current good practices for the Host Party.	☑	☑
A.4.2.2. Does the description of the technology to be applied provide sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance?	1	It is clearly stated in the PDD that GHG emission reductions will be achieved due to: - replacement the electricity generated at the ESD Center where less efficient technologies (than the proposed one) are used; - replacement of the heat energy from heating stations which are less efficient in comparison with the project technology. **Clarification Request 6** The functional scheme in the section A.4.2 must be clarified to reflect the situation observed during site-visit. The scheme has to contain all flows (including their directions). The interpretation of the abbreviations VK, CCP, KS, GTU, WHB, ST, N, H must be clarified in the text of PDD. The documentary evidences must be submitted to confirm the statement in the PDD concerning the increasing of heat capacity of OJSC "Mosenergo" by 1165 Gcal/h.	CL	☑
A.4.2.3. Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(s)?	1, 22-	The project activity includes the installation of the equipment produced in Russian Federation (SGTU-450) as well as equipment of foreign production (SGTU-420) in accordance with project design.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
	25, 34, 49, 55, 61, 65			
A.4.2.4. Is the technology implemented by the project activity environmentally safe?	15, 35-37,	The implemented technology is recognized as the most environmentally friendly not only in Russia but also in Europe. Natural gas is used as the main and reserve fuel for SGTUs which minimizes pollutants emission into the atmosphere. The following documents were checked during onsite mission: 2 tp (air) – Information about the protection of the atmosphere, 2 tp (wastes) – Information about the formation, decontamination, transportation and disposal of production and consumer wastes, 2 tp (water resources) – Information on water use	☑	☑
A.4.2.5. Is the information provided in compliance with actual situation or planning?	1	**Clarification Request 7** The value "00" is indicated for heating load for SGTU-450 unit at CHP-21. Please clarify the source and provide evidences for the following parameters indicated in the Tables A-4-1 and A-4-4: - Number of hours of use - Electricity output - Specific fuel consumption - Heating load - Heat power output - Specific fuel consumption - Fuel consumption The effective use of SGTU-450 unit at CHP-21 (based on Electricity output indicated in the PDD) is around 90% of the time at full capacity. However, in the other plants - 95%.	**CL**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		The same is observed for heating load fo SGTU-450 at CHP-27. The provided value is a 100% use at full capacity, but the rest are around 95%. Please clarify the reason for this.		
A.4.2.6. Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in the host country?	1, 22, 25,	In accordance with project design, the project uses state of the art technology – installation of steam-gas turbine units. This was confirmed during onsite mission by the verification team. The technology allows reaching more than 55% efficiency coefficient of electricity generation.	☑	☑
A.4.2.7. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1	Further efficiency increasing in fuel using for energy generation can be reached only by increasing of fuel burning temperature. Currently there are no such widespread technologies in energy sector worldwide.	☑	☑
A.4.2.8. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	38-48	It was observed onsite that the implementation of the project technologies was accompanied by extensive initial training in the context of operation and maintenance of equipment, monitoring system, data acquisition, reporting and unexpected events procedures. The training certificates were provided to the audit team.	☑	☑
A.4.2.9. Is information available on the demand and requirements for training and maintenance?	38-48	The information was available during site mission. The training certificates were provided to the audit team for review.	☑	☑
A.4.2.10. Is a schedule available for the implementation of the project and are there any risks for delays?	1, 21, 29, 34, 49, 51, 62, 66,	According to the available schedule all the stages of project were already implemented. Please also refer to CAR in the item A.2.2 above.	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
	67			
A.4.3. **Brief Explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reduction would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances**				
A.4.3.1. Is there a brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reduction would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances?	1	Yes, brief and clear explanation on how the anthropogenic emissions of greenhouse gases are to be reduced by the proposed JI project is presented in the section A.4.3 of the PDD. **Corrective Action Request 6** The annually average electricity supply 10,168 million kWh is indicated in the section A.4.3. of the PDD, which is inconsistent with the sum of electricity output for units stated in the section A.4.2. The corrections are needed.	☑	☑
A.4.3.2. Is the explanation transparent, feasible and – if based on calculations – mathematical correct calculated?	1	The explanations are transparent, clear and feasible.	☑	☑
A.4.4. **Estimated amount of emission reductions over the chosen crediting period**				
A.4.4.1. Is the form required for the indication of projected emission reductions correctly applied?	1	Yes, the PDD uses the correct form in the chapter A.4.3.1.	☑	☑
A.4.4.2. Are the figures provided consistent with other data presented in the PDD?	1, 2	The figures provided are consistent with other data presented in the chapter E and supporting file - Excel spreadsheet.	☑	☑
A.4.4.3. Is the annual average of estimated emission reductions calculated by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period and multiplying by twelve?	1, 2	Yes, the annual average of estimated emission reductions presented in the PDD is calculated by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period and multiplying by twelve	☑	☑
A.4.5. **Project approval by the Parties involved**				

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
A.4.5.1. Is the state of endorsement or approval by the host party clearly defined and a Letter of Endorsement (LoE), Letter of Approval (LoA) or any alternative statement of authorization available?		Letter of Approval from the host and buyer country will be applied for after the determination of the project will be finalized. See above, item A.3.4.	**FAR**	**FAR**
A.4.5.2. Is the state of endorsement or approval by any other parties e.g. investing parties clearly defined and a Letter of Endorsement (LoE), Letter of Approval (LoA) or any alternative statement of authorization available?		See above, item A.3.4.	**FAR**	**FAR**
B. Baseline				
B.1. Description and justification of the baseline chosen				
B.1.1. Does the PDD explicitly indicate which of the following approaches is used for indentifying the baseline? - JI specific approach - Approved CDM methodology approach	1, 6	JI specific approach is used for identification of the baseline. This is clearly stated in the PDD. **Corrective Action Request 7** The reference to *Guidelines for users of the JI PDD Form (Version 03)* is provided in the section B.2. of the PDD. However, the new issue *Version 04* is already available. PDD should be reworked accordingly.	☑	☑
B.1.2. Only if JI specific approach is used, does the PDD provide a detailed theoretical description and justification of the baseline chosen in a complete and transparent manner taking into account §23 of DVM v.1?	1, 2	**Corrective Action Request 8** The current baseline scenario envisages that the SGTUs installed under project will **substitute electricity** from ESD Center and **heat** form regional boiler houses. However, it does not consider increasing of energy demand in Russia (http://minenergo.gov.ru/press/doklady/1439.html?sphrase_id=196613, http://www.so-ups.ru/index.php?id=1203) and Moscow region in particular and capacity expansion of existing/new stations of ESD Center and boiler houses/CHPs of the region.	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		The influence of this key factor must be taken into account in baseline setting and baseline emission calculation model as per *Guidance on criteria for baseline setting and monitoring" (version 03).*		
B.1.3. Only if selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are used, are the selected elements supplementary developed by the project proponents in line with §23 of DVM v.1?	1	Not applicable.	☑	☑
B.1.4. If a multi-project emission factor is used, does the PDD provide appropriate justification?	1	Not applicable.	☑	☑
B.1.5. Does the PDD provide a justification of the applicability of the methodological approach chosen with a clear and transparent description?	1	Yes. The PDD provides clear justification of the applicability of the methodological approach chosen.	☑	☑
Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)				
B.1.6. Is there any indication of a date when the baseline was determined?	1	See section B.4. of the PDD. Date of baseline setting: 31/01/2012	☑	☑
B.1.7. Is this consistent with the time line of the PDD history?	1	Generally, the date of baseline setting is consistent with the time line of the PDD history. However, the final resolution is pending the response to CAR in the item A.1.4 above.	**CAR**	☑
B.1.8. Is the information on the person(s) / entity (ies) responsible for the application of the baseline and monitoring methodology pro-	1	The information on the persons and entity responsible for the application of the baseline and monitoring methodology is consistent with the actual situation.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
vided consistent with the actual situation?				
B.1.9. Is information provided whether this person / entity is also considered a project participant?	1	PDD clearly indicates that Closed Joint-Stock Company "National Carbon Sequestration Foundation" is not the project participant.	☑	☑
Approved CDM methodology only : justification of the choice of the methodology and why it is applicable to the project activity				
B.1.10. Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	1	Not applicable.	☑	☑
B.1.11. Is the applied version the most recent one and / or is this version still applicable (within the 2 months after the meth revision) when the PDD is submitted for publication?	1	Not applicable.	☑	☑
B.1.12. Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	1	Not applicable.	☑	☑
*Integrate the required amount of sub-checklists on **the applicability criteria** as given by the applied methodology (project specific methodology, selected elements or combinations of the CDM methodologies and tools, approved CDM methodology) and comment on at least every line answered with "No";*				
B.1.13. Criterion 1: Local availability of technologies, equipment, experience and know-how	1	The use of the existing equipment for the generation of energy (baseline scenario) is a general practice in Russia and does not require upgrading and training of personnel.	☑	☑

Applicability checklist	Yes / No
Criterion discussed in the PDD?	Yes
Compliance provable?	Yes
Compliance verified?	Yes

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
B.1.14. Criterion 2: Economic situation and availability of funds (including investment barrier)	1	The baseline scenario does not require any additional investment. Applicability checklist: Criterion discussed in the PDD? Yes; Compliance provable? **No**; Compliance verified? Yes **Corrective Action Request 9** The following statement shall be referenced in the PDD "For the implementation of the project it is necessary to raise 38% borrowed funds, which amounts to 20 billion rubles. It is a significant amount which is very problematic to raise in Russia. The high interest rates of Russian banks significantly affect the implementation of this alternative scenario" (section B.1) to confirm the significant impact of availability of funds (including investment barrier) on the project.	☑	☑
B.1.15. Criterion 2: Price and availability of fuel	1	For the operation of the CHPs of OJSC "Mosenergo" under the baseline scenario no change in fuel consumption will occur. Applicability checklist: Criterion discussed in the PDD? Yes; Compliance provable? **No**; Compliance verified? Yes **Clarification Request 8** Clarify the contradiction of the statement about significant impact of price and availability of fuel with the project activity description in throughout the PDD (it is mentioned that the new plants requires less gas than the ESD Center plants).	☑	☑
B.2. Identification of the baseline scenario				
B.2.1. Only if approved CDM methodology is	1	Not applicable.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
used: Are all explanations, descriptions and analyses pertaining to the baseline in the PDD made in accordance with the referenced approved CDM methodology?				
B.2.2. Have all technically feasible baseline scenario alternatives to the project activity been identified and discussed by the PDD? Why can this list be considered as being complete?	1	Two alternatives to the project activity were identified in the PDD: alternative scenario 1. continuation of the current situation (no project); alternative scenario 2. realization of the project (installation of SGTU units at the CHP of OJSO "Mosenergo") without registration as a joint implementation project mission. Both of them were discussed with PPs during the onsite mission and found to be realistic and feasible.	☑	☑
B.2.3. Does the project identify correctly and exclude those options not in line with regulatory or legal requirements?	1	Both scenarios are in line with applicable laws of the Host Party. That is why no one of the identified scenarios was excluded.	☑	☑
B.2.4. Have applicable regulatory or legal requirements been identified?	1	The existing regulations in Russia do not require implementation any technologies for CHPs. There are no subsidies available for technologies implemented in the framework of the project.	☑	☑
B.2.5. Is the baseline identified appropriately as a result?	1, 2, 6 10-13, 33, 50, 53, 56, 57, 59	**Corrective Action Request 10** The source for "electric and heat energy supply from the CHPs according to alternative scenario 2" for years 2008-2012 stated in the Table B 1.1 of the PDD must be clearly explained and evidences are to be provided to the audit team. Correct tabular form as per *Guidelines for users of the JI PDD Form (Version 04)* should be used for key indicators and variables used for determining the baseline in the section B.1. of the PDD. Russian text in the tables must be replaced. The data on energy generation from the SGTUs under the project and consumption of electric power for the SGTUs for 2008-2011 as well as heat output from the SGTUs for 2008-2011 do not cor-	**CAR CL**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		respond to those observed onsite (forms "3-ТЕХ" and "ТЭП"). They must be corrected accordingly and must be taken into account in ERUs calculations. The source of data for all parameters applied must be clearly stated in the PDD. It was revealed that the sources were different for different CHPs. However, this is not indicated in the PDD version 01. QA/QC procedures for these parameters must be described: applicable regulations must be referenced in the PDD. The Assessment report (referenced in the PDD http://www.ebrd.com/downloads/sector/eecc/Validation_report_Russia.pdf) does not contain any values of EF, hence the raw data for EF calculation are to be provided and verified. Alternatively evidences of the approval EF at national level are to be submitted. **Clarification Request 9** The section B.1. of the PDD contains the following statement: "Alternative Scenario 1, *namely the continuation of the current situation (no project): electric generation at the ESD Center at the same level is* **the baseline"**. Please clarify why the heat generation is not considered in this Alternative Scenario. It was revealed onsite that in 2011 about 10% the energy from the SGTU-420 at CHP-26 under the project was generated before 1 July of 2011 (date of official commissioning of the unit). Please clarify which value was applied for ERUs estimation for this unit in 2011. The documentary evidence for "efficiency of the gas boiler" applied must be submitted to the assessment team for review.		
B.3. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the JI project (assessment and demonstration of additionality):				
Integrate questions concerning the determination of the additionality as provided by the methodology applied or insert the module provided when				

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
applying the "additionality tool"				
B.3.1. Does the PDD indicate which of the following approaches for demonstrating additionality is used? a) Provision of traceable and transparent information showing the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to ERs; b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances has additionality; c) Application of the most recent version of the Tool for the demonstration and assessment of additionality or any other method for proving additionality approved by the CDM Executive Board.	1, 5	It is clearly stated in the PDD that the approach of provision of traceable and transparent information showing that the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to ERs. **Corrective Action Request 11** The reference to of "Guidance on criteria for baseline setting and monitoring" (version 03.1) is provided in the section B.2. of the PDD version 01. However, the latest issue of the document is version 03. Section B.2 must be adjusted accordingly.	**CAR**	☑
B.3.2. Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	1, 5-6	The PP calculates a project post tax IRR and NPV. As per DVM paragraph 28 the PPs chosen JI specific approach and doesn't apply Additionality tool. The JI specific stepwise approach is described in the PDD version 01. It includes: determination and description of the approach, application of the determined approach and proof of additionality of the basis of the obtained results. The extract form the protocol of the meeting about project approval and carbon incomes consideration was presented to the audit team during onsite visit.	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
		Corrective Action Request 12 PDD doesn't give clear information related to the early consideration of the carbon incomes when the investment decision was taken. It is not clear from the PDD if the discount rate 15% as a benchmark for the NPV is it internal benchmark or it is a the required return based on the public available information for the similar projects with similar risk (supporting documentation must be submitted if necessary). The key assumption/approach used for financial model calculation – supporting Excel file - must be clearly presented in the PDD. Operational and maintenance cost and fuel cost should be separately presented in the PDD to ensure transparency. The input data in the excel sheet are not soured, including depreciation rate for different assets. In Excel sheet income tax payment is presented as profit and must be revised. Sensitivity analysis is not clearly presented in PDD. The table showing payback period and NPV in % should be adjusted. The sensitivity analysis shall be prepared separately for electricity price and heat price to reflect the influence of these key factors of project's additionality.		
B.3.3. If the approach c) was chosen (additionality tool), are all explanations, descriptions and analyses made in accordance with the selected tool/method?	1	Not applicable.	☑	☑
B.3.4. In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)?	1	Not applicable.	☑	☑
B.3.5. In case of Option I (simple cost analysis): Is it demonstrated that the activity pro-	1	Not applicable.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
duces no economic benefits other than JI income?				
B.3.6. In case of Option II (investment comparison analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1	Not applicable.	☑	☑
B.3.7. In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1	Not applicable.	☑	☑
B.3.8. In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity?	1	Not applicable.	☑	☑
B.3.9. In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?	1	Not applicable.	☑	☑
B.3.10. In case of applying step 3 (barrier analysis) of the additionality tool: Is a complete list of barriers developed that prevent the different alternatives to occur?	1	Not applicable.	☑	☑
B.3.11. In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and significance of these barriers?	1	Not applicable.	☑	☑
B.3.12. In case of applying step 3 (barrier analysis): Is it transparently shown that the execu-	1	Not applicable.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
tion of at least one of the alternatives is not prevented by the identified barriers?				
B.3.13. Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD?	1,	The common practice analysis is performed. The information regarding the commissioning of combined cycle electric generating plants in Russia by 2005 is provided in the PDD. **Corrective Action Request 13** The references III and VII (page 24 of the PDD version 01) are invalid and must be revised. The common practice analysis does not take into account the installation of gas-turbine unit at the Northwestern CHP in 2000 http://www.sztec.ru/about/story/. This section must be reworked accordingly. **Clarification Request 10** Two contradicting statement are in the PDD: - “Installed capacity of the SGTU units at the thermal power stations of Russia amounted to 2004 MW, or 0.95 % of the total capacity of the thermal power stations.” - “Capacity of the power stations of the united energy system of Russia in 2005 amounted to 212 GW. Thus, the share of the SGTU was 0.52 %.” Please clarify.	**CAR CL**	☑
B.3.14. If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component (step 4b)?		**Clarification Request 11** The common practice analysis shows that a number of similar activities are identified in the Host Party. Please explain why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive.	**CL**	☑
B.3.15. Is it appropriately explained how the approval of the project activity will help to overcome the economic and financial hurdles or other identified barriers (step 5)?	1	Not applicable.	☑	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Pub-lished PDD</th><th>Final PDD</th></tr>
<tr><td>B.3.16. Only if approved CDM methodology is used: Are all explanations, descriptions and analysis with regard to additionality made in accordance with selected methodology?</td><td>1</td><td>Not applicable.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.3.17. Are sufficient additionality proofs provided?</td><td>1</td><td>See CARs and CLs in the items B.3.1 – B.3.16 above.</td><td><u>CAR</u>
<u>CL</u></td><td>☑</td></tr>
<tr><td>B.3.18. Is the additionality demonstrated appropriately as a result?</td><td>1</td><td>See CARs and CLs in the items B.3.1 – B.3.16 above.</td><td><u>CAR</u>
<u>CL</u></td><td>☑</td></tr>
<tr><td colspan="5">B.4. Description of how the definition of the project boundary is applied to the project</td></tr>
<tr><td>B.4.1. If the JI specific approach is used: Does the project boundary defined in the PDD encompass all anthropogenic emissions by sources of GHGs that are:

a) Under the control of the project participants?
b) Reasonably attributable to the project?
c) Significant?</td><td>1</td><td><table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Is a definition of the boundary based on case-by-case assessment acc. to §32 (a) of DVM?</td><td>Yes</td></tr><tr><td>Is the delineation of the boundary described by using a figure/flow chart?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>No</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table><u>Clarification Request 12</u>
Some sources of baseline and project GHG emissions were excluded "in accordance with the calculation". Please clarify this statement and provide reference.
Explain how the boundaries of the project can be applied for the baseline scenario (figure B 3.1)
<u>Corrective Action Request 14</u></td><td><u>CAR</u>
<u>CL</u></td><td>☑</td></tr>
</table>

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<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Pub-lished PDD</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>As per Guidance on criteria for baseline setting and monitoring” (version 03) PDD shall appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected.</td><td></td><td></td></tr>
<tr><td>B.4.2. Only if the approved CDM methodology is used: Is the project boundary defined in accordance with the approved CDM methodology?</td><td>1</td><td>Not applicable.</td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">Integrate the required amount of sub-checklists for sources and gases as given by the methodology applied and comment on at least every line answered with “No” Replace blue text</td></tr>
<tr><td>B.4.3. Source:
Description of Source: Combustion of fuel for the generation of energy in the ESD Center
Gas(es): CO2
Type: Baseline Emissions</td><td>1</td><td><table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.4.4. Source
Description of Source: Combustion of fuel at the regional thermal power stations
Gas(es): CO2
Type: Baseline Emissions</td><td>1</td><td><table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
B.4.5. Source Description of Source: Combustion of fuel at the regional thermal power stations Gas(es): CO2 Type: Project Emissions	1	<table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table>	☑	☑
B.4.6. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by / indication included to the PDD (plant specific flow diagram)?	1, 5	**Corrective Action Request 15** The boundaries of the project should be clearly identified on the diagram B 3.2 in order to reflect only the facilities installed in the framework of the present project.	**CAR**	☑
B.5. Further baseline information, including the date of baseline setting and the name(s) of the person(s)/entity(ies) setting the baseline:				
B.5.1. Are the name(s) of the person(s)/entity(ies) whom setting the baseline available?	1	Yes, see section B.4 of the PDD.	☑	☑
B.5.2. Is the date of baseline setting available?	1	Date of baseline setting: 31/01/2012	☑	☑
C. Duration of the project activity / crediting period				
C.1. Starting date of the project:				
C.1.1. Is the project's starting date clearly defined in the PDD and reasonable?	1, 3	**Corrective Action Request 16** The starting date of the project must be defined in the PDD taking into account that this only can be the date on which the implementation or construction or real action of the project begins as per *GLOSSARY OF JOINT IMPLEMENTATION TERMS, Version 03.* PDD. The documentary evidence are to be provided to the audit team.	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
C.1.2. Is the starting date of the project after the beginning of 2000?	1	Yes, the project started after the beginning of 2000. However, see CAR in the item C.1.1 above.	☑	☑
C.2. Expected operational lifetime of the project:				
C.2.1. Is the expected operational lifetime of the project clearly defined in the PDD in years and months and reasonable?	1, 22-25, 32, 54, 55, 61, 65	**Clarification Request 13** As the project includes installation of a number of equipment with various operational lifetimes, please clarify how the expected operational lifetime of the project was defined. The starting date of the project operation in the section C.2. is inconsistent with those mentioned in the act of commissioning and section A of the PDD. Please explain.	**CL**	☑
C.3. Length of the crediting period:				
C.3.1. Is the assumed crediting period clearly defined in the PDD in years and months and reasonable?	1	Yes. The assumed crediting period is 5 years or 60 months.	☑	☑
C.3.2. Is the starting date of the crediting period on or after the date of the first emission reductions generated by the project?	1	The starting date of the crediting period is after the date of the first emission reductions generated by the project, when the first SGTU -450 was commissioned at CHP-27.	☑	☑
C.3.3. Does the PDD state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and doesn't extend beyond the operational lifetime of the project?	1	Yes. The PDD states that the crediting period for issuance of ERUs starts on 01.01.2008. Resolution is pending the response to CL in the item C.2.1. above.	**CL**	☑
C.3.4. If the crediting period extends beyond 2012, does the PDD state that the extension is subject to the host Party approval? Are the estimates of ERs presented separately for those until 2012 and those after 2012?	1	Not applicable.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
D. Monitoring plan				
D.1. Description of monitoring plan chosen:				
D.1.1. Does the PDD explicitly indicate which of the following approaches is used? - JI specific approach - Approved CDM methodology approach	1, 5	The monitoring plan was developed based on the JI Specific approach in accordance with *Guidelines for the implementation of Article 6 of the Kyoto Protocol* and *Guidance on criteria for baseline setting and monitoring, Version 03*.	☑	☑
D.1.2. If the monitoring plan indicates overlapping monitoring periods during the crediting period, is the underlying project composed of clearly identifiable components for which emission reductions can be calculated independently?	1	No overlapping of the monitoring periods during the crediting period is indicated.	☑	☑
D.1.3. If the monitoring plan indicates overlapping monitoring period during the crediting period, can monitoring be performed independently for each of these components (i.e. the data/parameters monitored for one component are not dependent on/effect data/parameters to be monitored for another component)?	1	No overlapping of the monitoring periods during the crediting period is indicated.	☑	☑
D.1.4. If the monitoring plan indicates overlapping monitoring periods during the crediting period, does the monitoring plan ensure that monitoring is performed for all components and that in these cases all the requirements of the JI guidelines and further guidance by the JISC regarding monitoring are met?	1	No overlapping of the monitoring periods during the crediting period is indicated.	☑	☑
D.1.5. If the monitoring plan indicates over-	1	No overlapping of the monitoring periods during the crediting period is indicated.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
lapping monitoring period during the crediting period, does the monitoring plan explicitly provide for overlapping monitoring periods of clearly defined project components, justify its need and state how the conditions mentioned above are met?				
D.1.6. Is the uncertainty of key parameters described and, where possible, is in uncertainty range at 95% confidence level for key parameters for the calculation of ERs provided?	1	**Corrective Action Request 17** The uncertainty level of the key parameters for monitoring is to be estimated and clearly described in the PDD section D.2.	**CAR**	☑
D.1.7. Does the monitoring plan identify a national or international monitoring standard incl. a reference to its detailed description, if such applied to the project?	1	The monitoring of the key parameters of the project was carried out in accordance with internal rules and standards.	☑	☑
D.1.8. Are the statistical techniques used in a conservative manner?	1	The statistical techniques were correctly used for calculation weighted average NCV of natural gas.	☑	☑
D.1.9. Does the monitoring plan present the QA/QC procedures for the monitoring process?	1	**Corrective Action Request 18** QA/QC procedures for all the parameters monitored must be in complete manner described in the section D.2 and regulations applicable for metering equipments must be referenced.	**CAR**	☑
D.1.10. Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	1, 9	**Forward Action Request 2** In accordance with internal order, Mosenergo has established the responsibilities and the authority regarding the monitoring activities in the company. The assessment team can confirm that responsibilities were also allocated at the CHPs. However, the internal orders must be prepared and approved at each of the CHPs in the framework of the project. This will be cheeked during the first verification.	**FAR**	**FAR**

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
D.1.11. Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type?		**Clarification Request 14** Scheme D.1-1 must be adjusted in such way that to give clear understanding of the monitoring points location. Clarify why the oxidation factor for calculating the emissions from burning of natural gas in not taken into account.	**CL**	☑
D.1.12. Does the monitoring plan provide, in tabular form, a complete compilation of the data to be collected for its application incl. data that are measured / sampled and data collected from other sources, but not including data that are calculated with equations?	1, 5	**Corrective Action Request 19** No, not all measured/sampled and data collected from other sources necessary for baseline and project emission calculation are included to the MP in tabular form. The emission factor for natural gas is missing and must be added. The grid emission factor is missing in the compilation of the parameters not monitored throughout the crediting period and determined only once. Some calculated parameters, such as specific fuel consumption for electricity output at SGTUs, are included in the compilation. This must be corrected in accordance with *Guidance on criteria for baseline setting and monitoring, version 03.* The section D.1 must also be corrected accordingly (see page 34 of the PDD version 01)	**CAR**	☑
D.1.13. Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project?	1	Yes, such statement is included in the monitoring plan. The audit group obtained an access to all data necessary for ERUs monitoring and calculating. **Forward Action Request 3** The internal orders indicating that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project must be issued and must be checked during the first verification as per *Guidance on criteria for baseline setting and monitoring, version 03, paragraph 42.*	**FAR**	**FAR**
JI specific approach only *(project specific methodology or selected elements or combinations of approved CDM methodologies or methodological tools)*				

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
D.1.14. Does the monitoring plan describe all relevant factors/ key characteristics to be monitored, all decisive factors for the control and reporting of project performance and the period in which they will be monitored?	1	**Corrective Action Request 20** The emission factor for natural gas, density of natural gas according to Gazprom data, calorific value of standard fuel and global warming potential of methane are not included in the monitoring of baseline/project emissions and leakage. However, these parameters are used in ERUs calculation.	**CAR**	☑
D.1.15. If default values are used: - Are accuracy and reasonableness carefully balanced in their selection? - Do the default values originate from recognized sources? - Are the default values supported by statistical analyses providing reasonable confidence levels? - Are the default values presented in a transparent manner?	1	**Corrective Action Request 21** The data sources must be provided in the section D and clearly referenced (and submitted to the audit team) for the following parameter: - Emission factor for NG, EF_{NG} - $\eta_{gas\ boiler\text{-}house}$ coefficient efficiency of gas boiler-house - EF_{grid} Emission factor for electric power plant of the ESD Center - Average net calorific value of natural gas - Coefficient of losses from extraction and transportation of natural gas - Specific fuel consumption for electricity output at the ESD Center	**CAR**	☑
D.1.16. For those values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?	1	See CARs in the items D.1.1.3 and D.1.1.4 below.	**CAR**	☑
D.1.17. For other values: - Does the monitoring plan clearly indicate the precise references from which these values are taken? - Is the conservativeness of the values provided justified?	1	See CAR in the item D.1.15 above.	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
D.1.18. For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	1	**Corrective Action Request 22** The procedures to be followed if expected monitored data are unavailable must be added to the monitoring plan.	**CAR**	☑
D.1.19. Is the use of parameter, coefficients, variables, etc. consistent between the baseline and monitoring plan?	1	Yes. The use of parameter, coefficients, and variables is consistent between the baseline and monitoring plan.	☑	☑
D.1.20. Does the monitoring plan draw on the list of standard variables contained in appendix B of “Guidance on criteria for baseline setting and monitoring”?	1, 5	Some standard variables contained in appendix B of “Guidance on criteria for baseline setting and monitoring” are used in the monitoring plan.	☑	☑
D.1.21. Does the monitoring plan explicitly and clearly distinguish: a) Data and parameters that are not monitored throughout the crediting period, but are determined only once and thus remain fixed throughout the crediting period, and that are available already at the stage of determination? b) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination? c) Data and parameters that are monitored throughout the crediting period?	1	Yes, the monitoring plan explicitly and clearly distinguishes such data and parameter in the section D of the PDD version 01. However, please CAR in the item D.1.12 above. **Corrective Action Request 23** The following parameters cannot be fixed as any improvement of the ESD Center is affecting the baseline and shall be taken into account: - Greenhouse gas emission factor from the regional energy system - Specific natural gas consumption for heat output at the CHP of ESD Center - Efficiency of thermal stations	**CAR**	☑
D.1.22. Does the monitoring plan describe the methods employed for data monitoring (incl. its frequency) and recording?	1	Yes. The monitoring plan describes the methods employed for data monitoring and recording, including its frequency.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
D.1.23. Does the monitoring plan elaborate all algorithm and formulae used for the estimation/calculation of baseline emission and project emission or direct monitoring of emission reductions from the project, leakage, as appropriate?	1	**Corrective Action Request 24** Formulae for calculation of NCV_{CHP-26}, $SFC_{SGTU\ CHP-21}$, $SFC_{SGTU\ CHP-26}$, $SFC_{SGTU\ CHP-27\ №3}$, $SFC_{SGTU\ CHP-27\ №4}$ are missing in the monitoring plan and must be added to the PDD.	**CAR**	☑
Approved CDM methodology approach only				
D.1.24. Are all explanations, descriptions and analyses pertaining to monitoring in the PDD made in accordance with referenced approved CDM methodology?	1	Not applicable	☑	☑
D.1.25. Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	1	Not applicable	☑	☑
D.1.26. Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	1	Not applicable	☑	☑
D.1.27. Is the operational and management structure clearly described and in compliance with the envisioned situation?	1	Not applicable	☑	☑
D.1.28. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	1	Not applicable	☑	☑
D.1.29. Are the specific performance characteristics of the monitoring system chosen by the project listed in the PDD?	1	Not applicable	☑	☑

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<tr><td>D.1.30. Is information on the margins of errors and the cumulative error for the complete measurement system provided in the PDD?</td><td>1</td><td>Not applicable</td><td>☑</td><td>☑</td></tr>
<tr><td>D.1.31. Is the inclusion of external accredited services providers for calibration and function tests foreseen in the planning of the project?</td><td>1</td><td>Not applicable</td><td>☑</td><td>☑</td></tr>
<tr><td>D.1.32. Is the monitoring plan established appropriately as a result?</td><td>1</td><td>Not applicable</td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">D.2. Data and parameters not monitored</td></tr>
<tr><td colspan="5">Integrate the required amount of sub-checklists for parameters not monitored acc. to the methodology applied (e.g. permitted operating ranges acc. to AM0034) and comment on any line answered with “No”.</td></tr>
<tr><td>D.2.1. Parameter Title: Emission factor for NG, EF NG</td><td>1</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>No</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table>See CARs in the item D.1.15 and D.1.9.</td><td><u>CAR</u></td><td>☑</td></tr>
</table>

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<tr><td>D.2.2. Parameter Title: $\eta_{\text{gas boiler-house}}$ coeffi-cient efficiency of gas boiler-house</td><td>1</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Ye</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided for estimation?</td><td>Pending</td></tr><tr><td>Has this value been verified?</td><td>Pending</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>No</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table>See CARs in the item D.1.15 and D.1.9.</td><td><u>CAR</u></td><td>☑</td></tr>
<tr><td>D.2.3. Parameter Title: $\mathbf{EF}_{\text{grid}}$ Emission factor for electric power plant of the ESD Center</td><td>1</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided for estimation?</td><td>Pending</td></tr><tr><td>Has this value been verified?</td><td>Pending</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>No</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table>See CARs in the item D.1.15 and D.1.9.</td><td><u>CAR</u></td><td>☑</td></tr>
</table>

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<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Pub-lished PDD</th><th>Final PDD</th></tr>
<tr><td>D.2.4. Parameter Title: Average net calorific value of natural gas (Gazprom data)</td><td>1</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided for estimation?</td><td>Pending</td></tr><tr><td>Has this value been verified?</td><td>Pending</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>No</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table>See CARs in the item D.1.15 and D.1.9.</td><td><u>CAR</u></td><td>☑</td></tr>
<tr><td>D.2.5. Parameter Title: Coefficient of losses from extraction and transportation of natural gas</td><td>1</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided for estimation?</td><td>Pending</td></tr><tr><td>Has this value been verified?</td><td>Pending</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>No</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table>See CARs in the item D.1.15 and D.1.9.</td><td></td><td></td></tr>
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<tr><td>D.2.6. Parameter Title: Specific fuel consumption for electricity output at the ESD Center</td><td>1</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided for estimation?</td><td>Pending</td></tr><tr><td>Has this value been verified?</td><td>Pending</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>No</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table>See CARs in the item D.1.15 and D.1.9.</td><td><u>CAR</u></td><td>☑</td></tr>
<tr><td colspan="5">D.3. Monitoring of the emissions in the <u>project</u> scenario and the <u>baseline</u> scenario:</td></tr>
<tr><td colspan="5">D.3.1. Data to be collected in order to monitor emissions from the <u>project</u> and how these data will be archived:</td></tr>
<tr><td>D.3.1.1. Is the list of parameters collected in order to monitor emissions from the project in chapter D.1.1. considered to be complete with regard to the requirements of the applied methodology?</td><td>1</td><td>Yes, the list of parameters collected in order to monitor emissions from the project in chapter D.1.1. is complete with regard to the requirements of the applied methodology</td><td>☑</td><td>☑</td></tr>
<tr><td>D.3.1.2. Is the data provided in this section in consistency with data as presented in other chapters of the PDD?</td><td>1</td><td>Yes. The data is consistent throughout the PDD.</td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">Integrate the required amount of sub-checklists for monitoring parameter and comment on any line answered with “No”</td></tr>
</table>

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<tr><td>D.3.1.3. Parameter Title: FC _{SGTU CHP} Natural gas consumption at SGTU</td><td>1</td><td>
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>No</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>No</td></tr>
<tr><td>Correct value provided for estimation?</td><td>No</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>No</td></tr>
<tr><td>Correct reference to standards?</td><td>Yes</td></tr>
<tr><td>Indication of accuracy provided?</td><td>No</td></tr>
<tr><td>QA/QC procedures described?</td><td>No</td></tr>
<tr><td>QA/QC procedures appropriate?</td><td>No</td></tr>
</table>
<u>Corrective Action Request 25</u>
The actual source of data, data units and recording frequency for FC _{SGTU CHP} natural gas consumption at SGTU must be indicated in the section D.1.1.1 of the PDD and QA/QC procedures must be clearly described in the section D.2 for this parameter.
</td><td><u>CAR</u></td><td>☑</td></tr>
<tr><td>D.3.1.4. Parameter Title: NCV_{NG, CHP} . NCV of natural gas consumption at SGTU</td><td>1</td><td>
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>No</td></tr>
<tr><td>Correct value provided for estimation?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>No</td></tr>
</table>
</td><td><u>CAR</u></td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		Correct reference to standards? — Yes Indication of accuracy provided? — **No** QA/QC procedures described? — **No** QA/QC procedures appropriate? — **No** **Corrective Action Request 26** The actual source of data for **$NCV_{NG, CHP}$** .of natural gas must be indicated in the section D.1.1.1 of the PDD and QA/QC procedures must be clearly described in the section D.2 for this parameter.		
D.3.2. **Description of formulae used to estimate project emissions (for each gas, source etc.; emissions in units of CO_2 equivalent**				
JI specific approach only				
D.3.2.1. Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of project emissions?	1	**Corrective Action Request 27** The period for project emissions and emission reductions calculation must be clarified in the PDD section D.1.1.2 and D.1.14. Also see CAR in the item D.1.23.	**CAR**	☑
D.3.2.2. Is the underlying rationale for the algorithms/formulae explained?	1, 2	**Clarification Request 15** Clarify using of the multiplier 4,1868/1000000 in the formulae D.1-4 and D.1-9.	**CL**	☑
D.3.2.3. For the equations presented: - Are consistent variables, equation formats, subscripts etc. used? - Are all equations numbered? - Are all variables, with units indicated defined?	1	Yes, all variables, equation formats, and subscripts are consistent. All equations are numbered and units indicated are correctly defined.	☑	☑
D.3.2.4. Is the conservativeness of the algorithms/procedures justified?	1	See CAR and CL in item D.3.2.1 and D.3.2.2 above.	**CAR** **CL**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
D.3.2.5. To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	1	See CARs in the item D.3.1.3 and D.3.1.4 above.	**CAR**	☑
D.3.2.6. Is it justified that the procedure is consistent with standard technical procedures in the sector?	1	The procedures are genially consistent with standard technical procedures in the sector.	☑	☑
D.3.2.7. Are implicit and explicit key assumptions explained in a transparent manner?	1	See CAR and CL in item D.3.2.1 and D.3.2.2 above.	**CAR CL**	☑
D.3.2.8. Is it clearly stated which assumptions and procedures have significant uncertainty associated with them, and how such uncertainty is to be addressed?	1	See CARs in the items D.1.9, D.3.2.1 and D.3.2.2 above.	**CAR**	☑
Approved CDM methodology approach only				
D.3.2.9. Are the formulae required for the determination of project emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1	Not applicable	☑	☑
D.3.2.10. Are the formulae required for the derivation of a moving average emission factor correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1	Not applicable	☑	☑
D.3.2.11. Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1	Not applicable	☑	☑
D.3.3. **Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the**				

<table>
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<tr><td colspan="5">project boundary, and how such data will be collected and achieved:</td></tr>
<tr><td>D.3.3.1. Is the list of parameters monitored in chapter D.1.3. considered to be complete with regard to the requirements of the applied methodology?</td><td>1</td><td>Yes, the list of parameters collected in order to monitor emissions from the project in chapter D.1.3. is complete with regard to the requirements of the applied methodology</td><td>☑</td><td>☑</td></tr>
<tr><td>D.3.3.2. Is the data provided in this section in consistency with data as presented in other chapters of the PDD?</td><td>1</td><td>Yes. The data is consistent throughout the PDD.</td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">Integrate the required amount of sub-checklists for monitoring parameter and comment on any line answered with "No"</td></tr>
<tr><td>D.3.3.3. Parameter:
$EG_{SGTU\ CHP}$ Electricity generation by SGTU</td><td>1, 2, 10-13, 33, 50, 53, 56, 57, 59</td><td>
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>No</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
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<tr><td>Measurement method correctly described?</td><td>No</td></tr>
<tr><td>Correct reference to standards?</td><td>Yes</td></tr>
<tr><td>Indication of accuracy provided?</td><td>No</td></tr>
<tr><td>QA/QC procedures described?</td><td>No</td></tr>
<tr><td>QA/QC procedures appropriate?</td><td>No</td></tr>
</table>
<u>Corrective Action Request 28</u>
The actual source of data and data units for $EG_{SGTU\ CHP}$ Electricity generation by SGTU must be indicated in the section D.1.1.3 of the PDD and QA/QC procedures must be clearly described in the section D.2 for this parameter. The correct value from the form "3-ТЕХ"/ "ТЕП" should be used for ERUs estimation.</td><td><u>CAR</u></td><td>☑</td></tr>
</table>

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<tr><td>D.3.3.4. Parameter:
EC_{aux SGTU CHP} Consumption of electric power for the SGTU</td><td>1, 2, 10-13, 33, 50, 53, 56, 57, 59</td><td>
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>No</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>No</td></tr>
<tr><td>Correct value provided for estimation?</td><td>No</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>No</td></tr>
<tr><td>Correct reference to standards?</td><td>Yes</td></tr>
<tr><td>Indication of accuracy provided?</td><td>No</td></tr>
<tr><td>QA/QC procedures described?</td><td>No</td></tr>
<tr><td>QA/QC procedures appropriate?</td><td>No</td></tr>
</table>
<u>Corrective Action Request 29</u>
The actual source of data and data units for EC_{aux SGTU CHP} Consumption of electric power for the SGTU must be indicated in the section D.1.1.3 of the PDD and QA/QC procedures must be clearly described in the section D.2 for this parameter. The correct value from the form “3-ТЕХ”/ “ТЕП” should be used for ERUs estimation.
</td><td><u>CAR</u></td><td>☑</td></tr>
<tr><td>D.3.3.5 Parameter:
HO_{SGTU, CHP,} Heat output from the SGTU</td><td>1, 2, 10-13, 33, 50, 53, 56, 57, 59</td><td>
<table>
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<tr><td>Data unit correctly expressed?</td><td>No</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Y s</td></tr>
<tr><td>Source clearly referenced?</td><td>No</td></tr>
<tr><td>Correct value provided for estimation?</td><td>No</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
</table>
</td><td><u>CAR</u></td><td>☑</td></tr>
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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		Measurement method correctly described? **No** Correct reference to standards? Yes Indication of accuracy provided? **No** QA/QC procedures described? **No** QA/QC procedures appropriate? **No** **Corrective Action Request 30** The actual source of data for $HO_{SGTU, CHP}$, Heat output from the SGTU must be indicated in the section D.1.1.3 of the PDD and QA/QC procedures must be clearly described in the section D.2 for this parameter. The correct value from the form "3-TEX"/ "ТЕП" should be used for ERUs estimation.		
D.3.4. **Description of formulae used to estimate baseline emissions (for each gas, source etc.; emissions in units of CO_2 equivalent)**				
JI specific approach only				
D.3.4.1. Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of baseline emissions?	1	**Corrective Action Request 31** The period for baseline emissions and emission reductions calculation must be clarified in the PDD section D.1.1.2 and D.1.14. Also see CAR in the item D.1.23.	CAR	☑
D.3.4.2. Is the underlying rationale for the algorithms/formulae explained?	1	**Clarification Request 16** Clarify and provide justification for using of $\eta_{gas\ boiler\text{-}house}$ – efficiency of the gas-boiler.	CL	☑
D.3.4.3. For the equations presented: - Are consistent variables, equation formats, subscripts etc. used? - Are all equations numbered? - Are all variables, with units indicated defined?	1	**Clarification Request 17** The units for the following interconnected parameters are not consistent (formulae D.1-17 and 118): BE_{heat} – emissions from the generation of heat energy on the existing equipment of CHP-26, additional heat energy which is generated by the SGTU unit under the project HO_{SGTU} – total output of heat energy from the SGTUs under the project	CL	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		EF_{NG} – CO2 emission factor for natural gas		
D.3.4.4. Is the conservativeness of the algo-rithms/procedures justified?	1	See CAR and CL in the items D.3.4.1 - D.3.4.2 above.	**CAR CL**	☑
D.3.4.5. To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	1	See CARs in the items D.3.3.3 - D.3.3.5 above.	**CAR**	
D.3.4.6. Is it justified that the procedure is con-sistent with standard technical procedures in the sector?	1	The procedures are genially consistent with standard technical procedures in the sector.	☑	☑
D.3.4.7. Are implicit and explicit key assump-tions explained in a transparent manner?	1	See CARs in the items D.3.4.1 - D.3.4.3 above.	**CAR**	☑
D.3.4.8. Is it clearly stated which assumptions and procedures have significant uncertainty associated with them, and how such uncer-tainty is to be addressed?	1	See CARs in the items D.1.9 above.	**CAR**	☑
D.3.4.9. Is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions of the baseline en-sured?	1	The procedure is consistent with the respective explanations in the section B.1 of the PDD.	☑	☑
D.3.5. **Estimated Leakage**				

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D.3.5.1. Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?	1, 5	**Corrective Action Request 32** As per *Guidance on criteria for baseline setting and monitoring" (version 03).* PDD shall appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected. The statement that project "assumes reduction of natural gas consumption in ESD Center due to less specific fuel consumption for electricity output from CHPs of OJSC "Mosenergo" is at variance with this fact that more amount of natural gas will be consumed by CHPs as a result of SGTUs installation. The proposed approach for leakage calculation leads to emissions reductions in the framework of the project. However, the loose of the natural gas during transportation is not under control of PPs and thus cannot be considered as emission source attributable to the project as per *Guidance on criteria for baseline setting and monitoring" (version 03).* Moreover, negative leakage is not possible as per DVM page 60 paragraph 6. The PDD shall be revised accordingly. **Clarification Request 18** PDD version 01 contains the algorithm for calculation of leakage as a result of difference in fuel consumption for the electric supply between the ESD Center and the total consumption of fuel for the electric supply from the CHPs branches of OJSC "Mosenergo". However, heat generation is not taken into account. This should be explained. Clarify why the parameters $EC_{aux\ SGTU}$ - consumption of electric power for the SGTUs auxiliaries (CHP-21, CHP-26 and CHP-27) are to be monitored for leakage estimation.	**CAR CL**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		Clarify if values for "coefficient of losses from extraction and transportation of natural gas" indicated in the section D.1.3.1.of the PDD were taken from the internal report or they were confirmed by a third party. The traceable reference is to be provided. The document "Conception of technical politics in the Russia at period to 2030" confirming the applied value of specific fuel consumption for electricity output at the ESD Center shall be provided for the audit team for review.		
D.3.5.2. Does the PDD provide a procedure for an ex ante estimate of leakage?	1	Yes. The procedure is presented in section E of the PDD.	☑	☑
D.3.5.3. Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1, 2	**Clarification Request 19** Explain why the algorithm for **SFC** $_{SGTU\ CHP}$ calculation was not included in the monitoring plan.	**CL**	☑
D.3.5.4. Only if approved CDM methodology is used: Are the leakage and the procedure for its estimation defined in accordance with the approved CDM methodology?	1	Not applicable.	☑	☑
D.3.6. **Monitoring of environmental impacts of the project**				
D.3.6.1. Is the information on the collection and archiving of information on the environmental impacts of the project included in the PPD and the references to the relevant host Party regulation(s) are provided?	15, 35-37	For monitoring of environmental impact of the project OJSC "Mosenergo" annually submit reports to the Federal Service for the Oversight of Natural Resources. To confirm this the following documents were checked during on-site mission: 2 tp (air) – Information about the protection of the atmosphere, 2 tp (wastes) – Information about the formation, decontamination, transportation and disposal of production and consumer wastes,	☑	☑

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		2 tp (water resources) – Information on water use		
E. Estimation of greenhouse gas emission reductions				
E.1. Estimation of emission reductions based on assessment of the baseline and project emission / direct assessment of emission reductions				
E.1.1. Does the PDD indicate which of the following approaches it chooses? a) Assessment of emissions in the baseline scenario and in the project scenario? b) Direct assessment of emission reductions	1	**Corrective Action Request 33** The clear and transparent explanation of the approach for assessment of the baseline and project emission is to be provided in the section E of the PDD.	**CAR**	☑
E.1.2. Does the PDD provide ex ante estimates of - Project and baseline emissions (for a) / emission reductions (in case of direct assessment b)? - Leakage, as applicable? - Emission reductions adjusted by leakage (for a)?	1, 2, 10-13, 33, 50, 53, 56, 57, 59	**Corrective Action Request 34** The amounts of fuel consumption at SGTUs for 2008-2011, electricity output from SGTUs for 2008-2011, heat output from SGTUs for 2008-2011 must be corrected in accordance with the data included in the forms "3-ТЕХ"/"ТЭП". The baseline/project/leakage/ERUs estimates in the supporting Excel file, as well as those indicated in the PDD, must be recalculated and corrected accordingly.	**CAR**	☑
E.1.3. Are the estimates given - On a periodic basis? - At least from the beginning until the end of the crediting period? - On a source-by-source basis? - In tones of CO2 equivalent using global warming potentials defined by decision 2/CP.3	1	The estimates are given - on annual basis - for the whole crediting period - for each gas/source - In tones of CO2 equivalent using global warming potentials defined by decision 2/CP.3	☑	☑

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or as subsequently revised in accordance with Article 5 of the Kyoto Protocol?				
E.1.4. Are key factors influencing the baseline emissions and the activity level of the project and the emissions (e.g. those listed in § 23 (b) (i)-(vii) of the DVM) as well as risks associated with the project taken into account, as appropriate?	1	See CAR form the item E.1.2 above.	**CAR**	☑
E.1.5. Are data sources used for calculating the estimates clearly identified, reliable and transparent?	1	**Clarification Request 20** The following data sources must be referenced and submitted to the assessment team for review: - Efficiency of gas boiler - Emission factor for natural gas - Electricity output from ESD Center - Coefficient of losses from extraction and transportation of natural gas - Specific fuel consumption for electricity output in ESD Center	**CL**	☑
E.1.6. Are emissions factors (incl. default emission factors) used for calculating the estimates selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	1	See CL in the item E.1.5 above.	**CL**	☑
E.1.7. Is the estimation based on conservative assumptions and the most plausible scenarios in a transparent manner?	1, 2	**Corrective Action Request 35** The algorithms of project/baseline emissions and leakage estimation are not consistent with those used in the supplementary Excel model and must be revised.	**CAR**	☑
E.1.8. Are the estimates of project emissions, baseline emissions and leakage consistent throughout the PDD?	1	Yes. The estimates of project emissions, baseline emissions and leakage are consistent throughout the PDD.	☑	☑

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E.1.9. Are the estimates of project emissions, baseline emissions and leakage transparent, feasible and mathematically correct calculated?	1	See CAR in the item E 1.7 above.	**CAR**	☑
E.1.10. If the calculation of the baseline emission is to be performed ex post, does the PDD include an illustrative ex ante emissions calculation?	1	PDD includes an illustrative ex ante emissions calculation.	☑	☑
E.1.11. Is the projection of estimated project emissions, baseline emissions and leakage based on the same procedures as used for future monitoring?	1	See CAR in the item E.1.1 above.	**CAR**	☑
E.1.12. Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?	1	PDD describes an assessment of the potential leakage. See CAR and CL from the item D.3.5.1. above.	**CAR**	☑
E.1.13. Only if approved CDM methodology approach is used, is the estimation of ERs made in accordance with the approved CDM methodology?	1	Not applicable	☑	☑
E.1.14. Are the formulae required for the determination of emission reductions correctly presented?	1, 2	**Corrective Action Request 36** The formulae required for baseline/project emissions, leakage and emission reductions estimation are to be included and explained in the section E of the PDD.	**CAR**	☑
E.1.15. Will the project result in fewer GHG emissions than the baseline scenario?	1, 2	Yes. The project will result in fewer GHG emissions than the baseline scenario.	☑	☑
E.1.16. Is the projection in line with the envi-	1	As the project has been already implemented at the time of de-	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
sioned time schedule for the project's implementation and the indicated crediting period?		termination, PPs used the actual data from the enterprise. The projection is also line with the indicated crediting period.		
E.1.17. Is the form/table required for the indication of projected emission reductions correctly applied?	1	The indication of projected emission reductions presented in the correct tabular format. **Corrective Action Request 37** The Russian text must be translated when indicating Total of ERUs in the section E.6. of the PDD.	**CAR**	☑
F. Environmental impacts				
F.1. Documentation on the analysis of the environmental impacts, including transboundary impacts				
F.1.1. Does the PDD list and attach documentation on the analysis of the environmental impacts (e.g. EIA) of the project, including transboundary impacts, in accordance with procedure as determined by the host Party?	1	In accordance with Russian law, in case of capacity expansion there is no requirement to develop EIA documentation as part of the project designing. It was observed onsite that the project design for four SGTUs included in the project were developed and approved in accordance with the Town-Planning Code of Russian Federation. **Corrective Action Request 38** The information in the PDD section F.1 now contains inaccurate statement about conducted EIA. During onsite mission the audit team revealed that no EIA was prepared for the present project. This is in line with environmental Russian legislation in force. However, the section F.1 shall be reworked accordingly.	**CAR**	☑
F.1.2. Are the respective host Party requirements for an Environmental Impact Assessment (EIA) clearly referenced in the PDD?	1	**Corrective Action Request 39** The references to all relevant rules related to EIA are to be included in the PDD and to be attached to the PDD to comply with the requirements of the *Guidelines for users of the JI PDD form version 04.*	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
F.1.3. Has the EIA conducted been approved by the host Party?	1	Not applicable	☑	☑
F.1.4. If the EIA indicates that the environmental impacts are considered significant by the project participants or/and the host party, does the PDD provide conclusion and all references to supporting documentation of an EIA undertaken in accordance with the procedures as required by the host Party?	1	Not applicable	☑	☑
G. Stakeholders' comments				
G.1. Brief description how comments by local stakeholders have been invited and compiled				
G.1.1. Have relevant stakeholders been consulted?	1	Although neither EIA nor stakeholder consultation is mandatory for the current project according to Russian law, the PPs voluntary conducted consultation for each SGTUs. The evidences were presented to the assessment tem onsite.	☑	☑
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	1	See item G.1.1 above.	☑	☑
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	See item G.1.1 above.	☑	☑
G.2. Summary of the comments received				
G.2.1. If stakeholder consultation was undertaken in accordance with procedure as required by the host Party, does the PDD provide:	1	PDD states that no were comments received. This was confirmed during onsite mission.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
(a) A list of stakeholders from whom comments on the projects have been received, if any? (b) The nature of the comments? (c) A description on whether and how the comments have been addressed?				
G.3. Report on how due account was taken of any comments received				
G.3.1. Has due account been taken of any stakeholder comments received?	1	No were comments received. This was confirmed during onsite mission.	☑	☑
G.3.2. If the AIE received comments on the PDD and any supporting information from Parties, stakeholders and UNFCCC accredited observers within the 30-day period, did the AIE promptly acknowledge the receipts of the comments?	1	No comments have been received within the 30 days commenting period.	☑	☑
H. Annexes 1 – 3				
H.1. Annex 1: Contact Information				
H.1.1. Is the information provided consistent with the one given under section A.3?	1	Yes, the information provided consistent with the one given under section A.3.	☑	☑
H.1.2. Is the information on all private participants and directly involved Parties presented?	1	Yes, the information on all private participants and directly involved Parties is presented.	☑	☑
H.2. Annex 2: Baseline information				
H.2.1. Does Annex 2 of the PDD provide key elements of the baseline and any supporting documentation/information?	1	Annex 2 of the PDD contains key elements of the baseline in tabular form.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
H.2.2. If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	1	**Corrective Action Request 40** The tables in the Annex 2 are already presented in the chapter B.1 of the PDD. Only additional information assuring transparency of the baseline shall be included in the Annex 2.	**CAR**	☑
H.2.3. Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	1	See CAR from the item H.2.2. above.	**CAR**	☑
H.3. Annex 3: Monitoring information				
H.3.1. If applicable: Does Annex 3 provide useful information enabling a better understanding of the envisioned monitoring provisions?	1	It is clearly stated in the Annex 3 that the detailed description of the monitoring plan is presented in section D of the PDD.	☑	☑
H.3.2. If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	1	Not applicable	☑	☑
H.3.3. Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	1	Not applicable	☑	☑
H.3.4. Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	1	Not applicable	☑	☑

Table 2 Resolution of Corrective Action and Clarification Requests

Corrective Action Requests by audit team			
	Comments and Results	Ref	Conclusion and IRL
Issue	**Corrective Action Request 1** The **date** of the document must be indicated in the section A.1. of the PDD *as per GUIDELINES FOR USERS OF THE JOINT IMPLEMENTATION PROJECT DESIGN DOCUMENT FORM, version 04*. In the PDD version 01 only month and year of completion is stated.	A.1.3	The issue is closed. IRL 68.
Response	Corrected.		
Assessment	The PDD version 02 contains the date of document completion in the section A.1: April 13, 2012		
Issue	**Corrective Action Request 2** Brief summary of the project's history, **including its JI component**, as well as the situation existing prior to the starting date of the project is missing in the PDD section A.2 *as per GUIDELINES FOR USERS OF THE JOINT IMPLEMENTATION PROJECT DESIGN DOCUMENT FORM, version 04.* The documentary evidences must be provided to the verification team and referenced in the PDD.	A.1.4.	The issue is closed. IRL 68, 70.
Response	Corrected. See p 3 of PDD. See file «Protocol»		
Assessment	The brief summary of the project's history as well as the situation existing prior to the starting date of the project was included in the PDD version 02. The assessment team confirms that the information is consistent with the situation observed during onsite visit. The extract from the minutes of the meeting on capital construction at OJSC "Mosenergo" was checked. It confirms the statement in the PDD version 02 regarding decision making in 2005 about implementation of SGTUs on 3 CHPs of OJSC "Mosenergo" with use of JI mechanism.		
Issue	**Corrective Action Request 3** The PDD version contains Russian wording, it shall be assured that all words are presented in English as request by the *JI guidelines*.	A.2.1.	The issue is closed. IRL 68.
Response	Corrected		
Assessment	The Russian wording was translated into English in the PDD version 02.		
Issue	**Corrective Action Request 4**	*A.2.2.*	The issue is

	The specific fuel consumption parameters indicated in section A.2 of the PDD version 01 in not consistent with those in the form «3-TEX» and must be revised accordingly. The forms «3-TEX» and “ТЭП” for the period 2008 – 2011 for CHP-27 are to be provided to the audit team for review. The specific fuel consumption for the heat supply for SGTU-420 at CHP-26 is not presented in the PDD version 01. However, the equipment was operational during 2011. The corrections are to be made in the PDD. The PDD version 01 indicates: - start of construction for CHP-21 January of 2006 which is before the pre-project approval; - ending date of equipment supply for CHP-26 which is before the pre-project approval. The dates indicated in the schedule of the project implementation (section A.4.2 of the PDD version 01) do not correspond to those observed onsite and must be revised accordingly. The traceable reference for the applied value of “fuel consumption for the electric supply at the ESD Center” is to be included in the PDD. The information regarding the reserve fuel for CHP-21 must be indicated in the PDD.		closed. IRL 68. 71-74, 10-13, 16-19, 27, 50, 53, 56, 57, 64,
Response	**Response #1** Corrected. See p.2-3,7 **Response #2** Corrected. See p.29		
Assessment	**Conclusion on response #1** The specific fuel consumption parameters indicated in section A.2 of the PDD version 02 are now consistent with those indicated in the forms «3-TEX» and “ТЭП”. The specific fuel consumption for the heat supply for SGTU-420 at CHP-26 for 2011 is now presented in the PDD version 02 and corresponds to the values indicated in the forms «3-TEX». The information regarding the reserve fuel for CHP-21 was indicated. However, the ending date of equipment supply for CHP-27, Unit #3 indicated in the section A.4.2 is inconsistent with those stated in the Table A.2.4. **Conclusion on response #2** The ending date of equipment supply for CHP-27, Unit #3 indicated in the section A.4.2 is consistent throughout the PPD version 03 and the confirmatory documentation.		
Issue	**Corrective Action Request 5** Two figures on the pages 4 and 5 of the PDD version 01 have the same reference number - A.3. PDD shall be corrected. The geographical coordinates of CHP-27 are not available in the PDD version 01 and must	A.4.1.1	The issue is closed. IRL 68.

	be provided.		
Response	Corrected. See p.6		
Assessment	The figures numbering was corrected in the PDD visions 02. The geographical coordinates of CHP-27 were added to the PDD version 02. The information provided on the location of the CHP-27 is in line with those confirmed during the on-site visit.		
Issue	**Corrective Action Request 6** The annually average electricity supply 10,168 million kWh is indicated in the section A.4.3. of the PDD, which is inconsistent with the sum of electricity output for units stated in the section A.4.2. The corrections are needed.	A.4.3.1.	The issue is closed. IRL 68.
Response	Corrected on 11,987. See p.10		
Assessment	The annually average electricity supply is indicated on the p.10. of the PDD version 02 is now consistent with the sum of electricity output for units stated in the section A.4.2.		
Issue	**Corrective Action Request 7** The reference to *Guidelines for users of the JI PDD Form (Version 03)* is provided in the section B.2. of the PDD. However, the new issue *Version 04* is already available. PDD should be reworked accordingly.	B.1.1.	The issue is closed. IRL 6, 68.
Response	Corrected. See p.12		
Assessment	The reference to the latest valid version of the *Guidelines for users of the JI PDD Form* was provided in the section B.2. of the PDD version 02. The corrected PDD was found to be in compliance with the *Guidelines for users of the JI PDD Form (Version 04).*		
Issue	**Corrective Action Request 8** The current baseline scenario envisages that the SGTUs installed under project will **substitute electricity** from ESD Center and **heat** form regional boiler houses. However, it does not consider increasing of energy demand in Russia (http://minenergo.gov.ru/press/doklady/1439.html?sphrase_id=196613, http://www.so-ups.ru/index.php?id=1203) and Moscow region in particular and capacity expansion of existing/new stations of ESD Center and boiler houses/CHPs of the region. The influence of this key factor must be taken into account in baseline setting and baseline emission calculation model as per *Guidance on criteria for baseline setting and monitoring" (version 03).*	B.1.2.	The issue is closed. IRL 68.
Response	Corrected		
Assessment	The description of the baseline scenario in the PDD version 02 was corrected in order to reflect the current situation observed onsite and to consider the increasing of energy de-		

	mand in Moscow and Moscow region. The baseline is based on the assumption that in the absence of the project the third parties would cover increased energy demand.		
Issue	**Corrective Action Request 9** The following statement shall be referenced in the PDD "For the implementation of the project it is necessary to raise 38% borrowed funds, which amounts to 20 billion rubles. It is a significant amount which is very problematic to rise in Russia. The high interest rates of Russian banks significantly affect the implementation of this alternative scenario" (section B.1) to confirm the significant impact of availability of funds (including investment barrier) on the project.	B.1.14.	The issue is closed. IRL 92, 95
Response	**Response #1** Corrected. The reference was added. **Response #2** Credit rate for Mosenergo projects in 2005 had the following floating interest rate: Mosprime rate + margin of bank (4%) In Russia, banks use Mosprime rates. This rate was created in Russia by analogy of Libor rates. In December 2005 3 month Mosprime and Libor had the following rates: Mospripe 3m=6.41% (http://www.cbr.ru/hd_base/mosprime.asp?date_req1=23.12.2005&r1=1&date_req2=31.12.2005&C_month=12&C_year=2005&x=27&y=7) Libor 3m = 2.49%(http://www.pmfd.ru/libor/?actual_date=23.12.2005). So, Mosprime rate is higher than Libor rate in 2.5 times. See file "Credit rates" and file "Interest rate for Mosenergo"		
Assessment	**Conclusion on response #1** Provided link in PDD http://vz.ru/economy/2012/1/12/553026.html Is dated 12.01.2012 and it wasn't available at the moment of decision. **Conclusion on response #2** The information provided in the references (PDD version 03, PP's responses #2, IRL 95) confirm the statement regarding interest rates in Russia at the moment of decision making about JI project implementation. The issue is closed.		
Issue	**Corrective Action Request 10** The source for "electric and heat energy supply from the CHPs according to alternative scenario 2" for years 2008-2012 stated in the Table B 1.1 of the PDD must be clearly explained and evidences are to be provided to the audit team.	B.2.5.	The issue is closed. IRL 92, 93. 71-74, 10-13, 50, 56-60,

	Correct tabular form as per *Guidelines for users of the JI PDD Form (Version 04)* should be used for key indicators and variables used for determining the baseline in the section B.1. of the PDD. Russian text in the tables must be replaced. The data on energy generation from the SGTUs under the project and consumption of electric power for the SGTUs for 2008-2011 as well as heat output from the SGTUs for 2008-2011 do not correspond to those observed onsite (forms “3-TEX” and “ТЭП”). They must be corrected accordingly and must be taken into account in ERUs calculations. The source of data for all parameters applied must be clearly stated in the PDD. It was revealed that the sources were different for different CHPs. However, this is not indicated in the PDD version 01. QA/QC procedures for these parameters must be described: applicable regulations must be referenced in the PDD. The Assessment report (referenced in the PDD http://www.ebrd.com/downloads/sector/eecc/Validation_report_Russia.pdf) does not contain any values of EF, hence the raw data for EF calculation are to be provided and verified. Alternatively evidences of the approval EF at national level are to be submitted.		91-93
Response	**Response #1** Corrected. See p 17-27 **Response #2** Values in Table B.1.1 are calculated by summation of electricity output and heat output from SGTU 450 of CHP21, SGTU 420 of CHP 26 , SGTU 450 №3 of CHP 27 and , SGTU 450 №4 of CHP 27 from forms 3-teh, forms TEPf and model 15506 for 2008-2012. Given values of EF recommended at national level. See file “Letter to Pluzhnikov ” and “Letter from Pluzhnikov”		
Assessment	**Conclusion on response #1** The key factors influencing the baseline were presented in the PDD version 02 in tabular form as per *Guidelines for users of the JI PDD Form (Version 04).* The data on energy electric power generation/consumption as well as heat output from the SGTUs of for 2008-2011 were reviewed against those stated in the forms “3-TEX”, “ТЭП”, “Model 15506”and found to be consistent. The data sources are correctly references in the PDD version 02. QA/QC procedures were clearly described in the PDD version 02. The following documents were submitted to confirm QA/QC procedures: - SSM. Automated information and measuring system of commercial energy metering. Test		

	procedure № 38899-08 approved by FGUP “VNIIMS” in august of 2008. - procedure MP 4218-010-42968951-2006. The evidence of the EF approval is to be submitted to the verification team. The sources for “electric and heat energy supply from the CHPs according to alternative scenario 2” for years 2008-2012 stated in the Table B 1.1 of the PDD are still not explained. **Conclusion on response #2** The data in the Table B.1.1 (PDD version 03) was checked against the raw data and is confirmed by the assessment team. The Letter #Д07и-480 dated 13.04.2012 from the Deputy Head of Energy and Environment department of The Ministry of Economic Development of the Russian Federation was submitted to the assessment team. The document confirms the validity of the coefficients used in the PDD version 03 from the Final Report “Baseline Study for Russia” dated 14/10/2010 prepared by Lahmeyer International for European Bank for Reconstruction and Development.		
Issue	**Corrective Action Request 11** The reference to of “Guidance on criteria for baseline setting and monitoring” (version 03.1) is provided in the section B.2. of the PDD version 01. However, the latest issue of the document is version 03. Section B.2 must be adjusted accordingly.	B.3.1.	The issue is closed. IRL 68.
Response	Corrected		
Assessment	The section B.2 of the PDD version 02 was adjusted in accordance with the latest issue of “Guidance on criteria for baseline setting and monitoring” (version 03).		
Issue	**Corrective Action Request 12** PDD doesn’t give clear information related to the early consideration of the carbon incomes when the investment decision was taken. It is not clear from the PDD if the discount rate 15% as a benchmark for the NPV is it internal benchmark or it is a the required return based on the public available information for the similar projects with similar risk (supporting documentation must be submitted if necessary). The key assumption/approach used for financial model calculation – supporting Excel file - must be clearly presented in the PDD. Operational and maintenance cost and fuel cost should be separately presented in the PDD to ensure transparency. The input data in the excel sheet are not soured, including depreciation rate for different assets. In Excel sheet income tax payment is presented as profit and must be revised.	B.3.2.	The issue is closed. IRL 92, 95-101

	Sensitivity analysis is not clearly presented in PDD. The table showing payback period and NPV in % should be adjusted. The sensitivity analysis shall be prepared separately for electricity price and heat price to reflect the influence of these key factors of project’s additionality.		
Response	**Response #1** Corrected. See file “Preliminary assessment”, “Investment analysis Mosenergo” **Response #2** See file “Risk premium”, “Gas prices”, “Electricity prices”, “Heat prices”, “Interest rate for Mosenergo”, “Scenario conditions of development of electric power and holding of RAO "UES OF RUSSIA" in 2006-2010” (p.21,yellow marker) Interest rate for Mosenergo - 10.4% (According to the Mosprime rate in December 2005 – 6.4%+4%(margin), see file “Credit rate”)- was added to the profit before tax.See file “Investment analysis Mosenergo v3.” All 4 SGTUs have the same group of equipment. The passports of project equipment give the evidence of this fact. Depreciation rate is calculated on the base of lifetime of equipment – 15 years = 100%/15=6.7% (lifetime of gas turbine unit of all 4 SGTUs). Investment was made in several years. That is why first 3 year depreciation calculated according with the sum of investment for these years. And then depreciation is fixed according to the depreciation rate – 6.7% from the whole sum of investment.		
Assessment	**Conclusion on response #1** The provided extract from Protocol 17 from 17-02-2012 shows that the carbon incentives were considered when the investment decision was taken. However, the protocol doesn’t refer to expected return or investment analysis calculations so it is difficult to accept that the provided to the assessment team “Preliminary assessment” was discussed, or the benchmark of 18% was considered. The benchmark (discount rate for NPV calculation) in v.2 of PDD is changed from 15% (in v.1) to 18%. The benchmark is calculated as interest rate plus risk rate. Interest rate is based on Central Bank of Russian Federation for the moment of decision making - 13%, which can be cross checked with other sources (http://www.tradingeconomics.com/russia/interest-rate) as applicable at the moment of decision 17.02.2005. PPs should provide copy of Investment management, Sheremet V.V., 1998, Volume 2, p.151, Table 13.5.1, row “New investment-category 1” for the risk premium of 5%. Other-		

	wise, evidence that the applied approach was used for similar projects in Russia, is to be provided to the determination team. The clear and traceable references to the electricity/heat/gas prices are to be provided to ensure transparency and to perform cross-check. The PP refers to depreciation rate as integral (6,7%) not by different assets. This must be clearly explained and justified on the basis of documentary evidences (invoices for different SGTUs). In case of bank credits the interest should be calculated in the income tax calculation (Profit before tax) as per Paragraph 11 of the *Guidelines on the assessment of Investment Analysis (EB 62, Annex 5)*. The documentary evidence of bank credit interest rate shall be provided for review. The inflation rate applied for Investment analysis must be referenced and data sources are to be submitted to the assessment team. **Conclusion on response #2** The evidence for the considered benchmark was proved by PPs. The document "Preliminary assessment of the Investment Projects" approved by the investment department of Mosenergo was provided. The interest rate was included in calculation of profit before tax as per Paragraph 11 of the *Guidelines on the assessment of Investment Analysis (EB 62, Annex 5)*. The documentary evidence of bank credit interest rate was also provided to the assessment team. Electricity/heat/gas prices used in the Excel model were referenced. Clear and reliable source is the web-site of Federal State Statistics Service of Russian Federation. The cross-check of the data sources for inflation rate applied for Investment analysis was performed by assessment team. The integral depreciation rate used for Investment analysis calculation can be considered as appropriate. This is proved by the clarification provided by PPs and technical specification of the installed equipment (lifetime of gas turbine unit of all SGTUs is 15 years).		
Issue	**Corrective Action Request 13** The references III and VII (page 24 of the PDD version 01) are invalid and must be revised. The common practice analysis does not take into account the installation of gas-turbine unit at the Northwestern CHP in 2000 http://www.sztec.ru/about/story/. This section must be reworked accordingly.	B.3.13	The issue is closed. IRL 68.
Response	Corrected.		

Assessment	The common practice analysis was reworked. The revised PDD version 02 now contains traceable references and takes into account all similar activities in the Host country.		
Issue	**Corrective Action Request 14** As per *Guidance on criteria for baseline setting and monitoring" (version 03)* PDD shall appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected.	B.4.1	The issue is closed. IRL 92, 93.
Response	**Response #1** Corrected. See file "AM0058", p 27, table 2. And file "Concept 2030" p.88, Annex 1, row 8-column 6. **Response #2** Corrected. Leakages are neglected now.		
Assessment	**Conclusion on response #1** The reference to CDM methodology "AM0058", p 27, table 2. is irrelevant. The applicability of the reference to the document "Concept 2030" p.88, Annex 1, row 8-column 6. in the context of assessment of the potential leakage shall be explained. **Conclusion on response #2** The issue is closed based on the due amendments made in the PPD version 03.		
Issue	**Corrective Action Request 15** The boundaries of the project should be clearly identified on the diagram B 3.2 in order to reflect only the facilities installed in the framework of the present project.	B.4.6	The issue is closed. IRL 68.
Response	Corrected		
Assessment	The boundaries of the project in the PDD version 02 correctly include one SGTU-420 unit and three SGTU-450 units of OJSC "Mosenergo".		
Issue	**Corrective Action Request 16** The starting date of the project must be defined in the PDD taking into account that this only can be the date on which the implementation or construction or real action of the project begins as per *GLOSSARY OF JOINT IMPLEMENTATION TERMS, Version 03.* PDD. The documentary evidence are to be provided to the audit team.	C.1.1	The issue is closed. IRL 92-94.
Response	**Response #1** Corrected **Response #2** See files "Acts of acceptance"		
Assessment	**Conclusion on response #1** The date 27/11/2007 which is the date of commissioning of Unit №3 CHP-27 was chosen as		

	the starting date of the project. This is in line with *GLOSSARY OF JOINT IMPLEMENTATION TERMS, Version 03.* However, the act of acceptance for Units №3 and №4 CHP-27 must be submitted to confirm the stated date. **Conclusion on response #2** The acts of acceptance for Units №3 and №4 CHP-27 were reviewed. The assessment team can confirm the correctness of the information provided in the PDD version 03.		
Issue	**Corrective Action Request 17** The uncertainty level of the key parameters for monitoring is to be estimated and clearly described in the PDD section D.2.	D.1.6	The issue is closed. IRL 68.
Response	Corrected. See p 59		
Assessment	The uncertainty level for the key parameters (Natural gas consumption, NCV of natural gas, Electricity generation, Consumption of electric power) was described in the PDD version 02.		
Issue	**Corrective Action Request 18** QA/QC procedures for all the parameters monitored must be in complete manner described in the section D.2 and regulations applicable for metering equipments must be referenced.	D.1.9	The issue is closed. IRL 68, 76-78
Response	Corrected. See p 58		
Assessment	The applicable regulations were submitted to the assessment team for review. The references to applicable QA/QC procedures were provided in the PDD version 02.		
Issue	**Corrective Action Request 19** No, not all measured/sampled data and data collected from other sources necessary for baseline and project emission calculation are included to the MP in tabular form. The emission factor for natural gas is missing and must be added. The grid emission factor is missing in the compilation of the parameters not monitored throughout the crediting period and determined only once. Some calculated parameters, such as specific fuel consumption for electricity output at SGTUs, are included in the compilation. This must be corrected in accordance with *Guidance on criteria for baseline setting and monitoring, version 03.* The section D.1 must also be corrected accordingly (see page 34 of the PDD version 01)	D.1.12	The issue is closed. IRL 92, 93.
Response	**Response #1** Corrected. **Response #2** Corrected. Leakages is neglected now. This coefficient is deleted.		
Assessment	**Conclusion on response #1**		

	The efficiency of gas boiler houses (from CDM methodology AM0058) can be conservatively fixed. "Greenhouse gas emission factor from the regional energy system" is included in the compilation of parameters not monitored throughout the crediting period, but determined only once (PDD version 02, section D.1). However, this parameter is neither mentioned in other sections of the PDD nor used in the calculations. The emission factor for electric power plant of the UPS Center is still missing in the compilation. Coefficient of methane losses from extraction and transportation of natural gas cannot be fixed as the actual data form Gazprom reports are available annually. Otherwise, fixed but conservative value for 2012 (not annual average) which is not available at the time of baseline setting shall be used. **Conclusion on response #2** The approach of ERUs calculation in the PDD version 03 does not foresee leakage calculation. The monitoring of the coefficient of methane losses from extraction and transportation of natural gas was excluded from the monitoring plan.		
Issue	**Corrective Action Request 20** The emission factor for natural gas, density of natural gas according to Gazprom data, calorific value of standard fuel and global warming potential of methane are not included in the monitoring of baseline/project emissions and leakage. However, these parameters are used in ERUs calculation.	D.1.14	The issue is closed. IRL 68.
Response	Corrected. See p 54		
Assessment	The emission factor for natural gas, calorific value of standard fuel and global warming potential of methane were included in the monitoring of baseline/project emissions and leakage, PDD version 02.		
Issue	**Corrective Action Request 21** The data sources must be provided in the section D and clearly referenced (and submitted to the audit team) for the following parameter: - Emission factor for NG, EF_{NG} - $\eta_{gas\ boiler\text{-}house}$ coefficient efficiency of gas boiler-house - EF_{grid} Emission factor for electric power plant of the ESD Center - Average net calorific value of natural gas - Coefficient of losses from extraction and transportation of natural gas - Specific fuel consumption for electricity output at the ESD Center	D.1.15	The issue is closed. IRL 91-93.

Response	**Response #1** Corrected. See p 43-48, 50-54. **Response #2** Corrected. Leakages is neglected now. This coefficient is deleted. See file “See file “Letter from Pluzhnikov ”		
Assessment	**Conclusion on response #1** The data sources were provided in the section D of the PDD version 02. The evidence of “emission factor for electric power plant of the ESD Center” approval shall be submitted to the assessment team. Coefficient of methane losses from extraction and transportation of natural gas cannot be fixed as the actual data form Gazprom reports are available annually. Otherwise, fixed but conservative value for 2012 (not annual average) which is not available at the time of base-line setting shall be used. **Conclusion on response #2** The Letter #Д07и-480 dated 13.04.2012 from the Deputy Head of Energy and Environment department of The Ministry of Economic Development of the Russian Federation was submitted to the assessment team. The document confirms the validity of the coefficients used in the PDD version 03 from the Final Report “Baseline Study for Russia” dated 14/10/2010 prepared by Lahmeyer International for European Bank for Reconstruction and Development. The approach of ERUs calculation in the PDD version 03 does not foresee leakage calculation. The monitoring of the coefficient of methane losses from extraction and transportation of natural gas was excluded from the monitoring plan.		
Issue	**Corrective Action Request 22** The procedures to be followed if expected monitored data are unavailable must be added to the monitoring plan.	D.1.18	The issue is closed. IRL 68.
Response	Done. See p. 59.		
Assessment	The statement was added to the PDD version 02 that all measuring devices have duplicates. They can be used in case of failure of the primary meters. This was confirmed by the determination team during onsite visit.		
Issue	**Corrective Action Request 23** The following parameters cannot be fixed as any improvement of the ESD Center is affecting the baseline and shall be taken into account: - Greenhouse gas emission factor from the regional energy system	D.1.21	The issue is closed. IRL 79, 91-93.

	- Specific natural gas consumption for electricity output at the CHP of ESD Center - Efficiency of thermal stations		
Response	**Response #1** - Greenhouse gas emission factors from the regional energy system are developed on the base of “Tool to calculate the emission factor for an electricity system” (version 02). This methodology include build margin. So, these factors are determined for the future periods and recommended by coordinator of realization Kyoto protocol mechanisms in Russia Federation – Ministry of economic and development. - Value of specific natural gas consumption for electricity output at the CHP of ESD Center for leakages calculation is conservative for the whole credit period because it corresponds to new introduced energy facility, presented in Conception of technical politics in the Russia at period to 2030. Baseline assumes also old less effective facilities. - The value of efficiency of thermal stations is conservative for the whole credit period because it corresponds to new introduced gas boilers, presented in CDM methodology AM0058 . Baseline assumes also old less effective facilities. **Response #2** See file “Letter from Pluzhnikov ””		
Assessment	**Conclusion on response #1** Based on information provided in the scientific research “Conception of technical politics in the Russia at period to 2030” the assessment team can conclude that PPs use the most conservative value – for CHPs with SGTUs. Taking into account this fact the present value of specific natural gas can be fixed in the PDD for ERUs monitoring within the period 2008-2012. The approach of using fixed value (92%) of gas boilers efficiency from CDM methodology AM0058 is conservative. In the real conditions heat demand would be covered not only by new gas boilers but also by old and new CHPs which have lower efficiency of heat production. Thus the conservative fixed value 92% can be accepted. The evidence of the EF approval is to be submitted to the verification team. **Conclusion on response #2** The Letter #Д07и-480 dated 13.04.2012 from the Deputy Head of Energy and Environment department of The Ministry of Economic Development of the Russian Federation was submitted to the assessment team. The document confirms the validity of the coefficients used in the PDD version 03 from the Final Report “Baseline Study for Russia” dated 14/10/2010 prepared by Lahmeyer International for European Bank for Reconstruction and Develop-		

	ment.		
Issue	**Corrective Action Request 24** Formulae for calculation of NCV_{CHP-26}, $SFC_{SGTU\ CHP-21}$, $SFC_{SGTU\ CHP-26}$, $SFC_{SGTU\ CHP-27\ №3}$, $SFC_{SGTU\ CHP-27\ №4}$ are missing in the monitoring plan and must be added to the PDD.	D.1.23	The issue is closed. IRL 68.
Response	Corrected. $SFC_{SGTU\ CHP-21}$, $SFC_{SGTU\ CHP-26}$, $SFC_{SGTU\ CHP-27\ №3}$, $SFC_{SGTU\ CHP-27\ №4}$ was deleted from calculations. These parameters are not needed anymore		
Assessment	The parameters were excluded from the monitoring plan.		
Issue	**Corrective Action Request 25** The actual source of data, data units and recording frequency for **$FC_{SGTU\ CHP}$** natural gas consumption at SGTU must be indicated in the section D.1.1.1 of the PDD and QA/QC procedures must be clearly described in the section D.2 for this parameter.	D.3.1.3	The issue is closed. IRL 68.
Response	Corrected		
Assessment	The actual information regarding the source of data, data units and recording frequency for natural gas consumption was indicated in the section D.1.1.1 as well as QA/QC procedures were described and clearly referenced in the section D.2 of the PDD version 02.		
Issue	**Corrective Action Request 26** The actual source of data for $NCV_{NG,\ CHP}$ of natural gas must be indicated in the section D.1.1.1 of the PDD and QA/QC procedures must be clearly described in the section D.2 for this parameter.	D.3.1.4	The issue is closed. IRL 68.
Response	Corrected		
Assessment	The actual information regarding the source of data, data units and recording frequency for NCV of natural gas was indicated in the section D.1.1.1 as well as QA/QC procedures were described and clearly referenced in the section D.2 of the PDD version 02.		
Issue	**Corrective Action Request 27** The period for project emissions and emission reductions calculation must be clarified in the PDD section D.1.1.2 and D.1.14.	D.3.2.1	The issue is closed. IRL 68.
Response	Corrected.		
Assessment	The monthly calculation of project/baseline emissions and emission reductions is envisaged in the monitoring plan, PDD version 02. This can be achieved taking into account that the period of monitoring of the monitored key parameters is not less than monthly.		
Issue	**Corrective Action Request 28** The actual source of data and data units for $EG_{SGTU\ CHP}$. Electricity generation by SGTU must be indicated in the section D.1.1.3 of the PDD and QA/QC procedures must be clearly	D.3.3.3	The issue is closed. IRL 68, 69

	described in the section D.2 for this parameter. The correct value from the form "3-TEX"/ "ТЕП" should be used for ERUs estimation.		
Response	Corrected.		
Assessment	The actual information regarding the source of data and data units for electricity generation by the SGTUs was indicated in the section D.1.1.3 as well as QA/QC procedures were described and clearly referenced in the section D.2 of the PDD version 02. The correct values were used for ERUs estimation.		
Issue	**Corrective Action Request 29** The actual source of data and data units for $EC_{aux\ SGTU\ CHP}$ Consumption of electric power for the SGTU must be indicated in the section D.1.1.3 of the PDD and QA/QC procedures must be clearly described in the section D.2 for this parameter. The correct value from the form "3-TEX"/ "ТЕП" should be used for ERUs estimation.	D.3.3.4	The issue is closed. IRL 68, 69
Response	Corrected.		
Assessment	The actual information regarding the source of data and data units for Consumption of electric power for the SGTU was indicated in the section D.1.1.3 as well as QA/QC procedures were described and clearly referenced in the section D.2 of the PDD version 02. The correct values were used for ERUs estimation.		
Issue	**Corrective Action Request 30** The actual source of data for $HO_{SGTU,\ CHP,}$ and heat output from the SGTU must be indicated in the section D.1.1.3 of the PDD and QA/QC procedures must be clearly described in the section D.2 for this parameter. The correct value from the form "3-TEX"/ "ТЕП" should be used for ERUs estimation.	D.3.3.5	The issue is closed. IRL 68, 69
Response	Corrected.		
Assessment	The actual information regarding the source of data, data units and recording frequency for heat output from the SGTUs was indicated in the section D.1.1.3 as well as QA/QC procedures were described and clearly referenced in the section D.2 of the PDD version 02. The correct values were used for ERUs estimation.		
Issue	**Corrective Action Request 31** The period for baseline emissions and emission reductions calculation must be clarified in the PDD section D.1.1.2 and D.1.14. Also see CAR in the item D.1.23.	D.3.4.1	The issue is closed. IRL 68.
Response	Corrected.		
Assessment	The monthly calculation of project/baseline emissions and emission reductions is envisaged in the monitoring plan, PDD version 02. This can be achieved taking into account that the		

	period of monitoring of the monitored key parameters is not less than monthly.		
Issue	**Corrective Action Request 32** As per *Guidance on criteria for baseline setting and monitoring" (version 03).* PDD shall appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected. The statement that project "assumes reduction of natural gas consumption in ESD Center due to less specific fuel consumption for electricity output from CHPs of OJSC "Mosenergo" is at variance with this fact that more amount of natural gas will be consumed by CHPs as a result of SGTUs installation. The proposed approach for leakage calculation leads to emissions reductions in the framework of the project. However, the loose of the natural gas during transportation is not under control of PPs and thus cannot be considered as emission source attributable to the project as per *Guidance on criteria for baseline setting and monitoring" (version 03).* Moreover, negative leakage is not possible as per DVM paragraph 63. The PDD shall be revised accordingly.	D.3.5.1.	The issue is closed. IRL 92-93.
Response	**Response #1** Corrected. See p 49-56. There are some Russian project that leads to negative leakage. The following projects have successfully passed the process of determination and were approved by the host party. These projects included leakage under the baseline as additional emission reductions: The utilization of associated petroleum gas of the Yarayner oilfield of JSC "Gazpromneft-Noyabrskneftegaz"(http://ji.unfccc.int/JIITLProject/DB/FV6Y1Z5R5DGF2WINGORJLBGLZP7PAM/details) The utilization of associated petroleum gas (APG) of the Sugmut oilfield JSC "Gazpromneft - Noyabrskneftegaz" taking into account the effective use of APG of the Romanovo oilfield (http://ji.unfccc.int/JIITLProject/DB/QL5FSMIYDGYSTILZX8XC6GDKJWKKKJ/details) **Response #2** Corrected. Leakage is assumed be equal to zero as conservative. See PDD, p.46		
Assessment	**Conclusion on response #1** To confirm the appropriateness of the proposed approach for leakage estimation, please provide solid evidence that all electricity and heat generated within the project would otherwise generated on the old facilities but not on the newly commissioned units. No negative leakage in the projects (see references provided above) is envisaged within the proposed registered JI specific approaches.		

	The emissions outside the project boundary, which would have occurred without project activity, are not under control of PPs and thus cannot be considered as emission source attributable to the project. However, emissions outside the project boundary occurred due to the project implementation (due to increasing of natural gas consumption) can be considered as leakage as well as can be neglected (if their volume is less than 1% of baseline and project emissions difference). **Conclusion on response #2** The PDD version 03 and ERUs calculation model were was checked against the information provided by the PPs. The assessment team can confirm the consistency and correctness of the approach applied.		
Issue	**Corrective Action Request 33** The clear and transparent explanation of the approach for assessment of the baseline and project emission is to be provided in the section E of the PDD.	E.1.1	The issue is closed. IRL 68.
Response	Corrected		
Assessment	The approach for project emission estimation is based on the following parameters: - the natural gas consumption at the SGTUs - net calorific value of fuel equivalent - emission factor for natural gas combustion The approach is clearly presented in the PDD version 02. The cross-reference baseline emissions estimation was added to the section E of the PDD version 02.		
Issue	**Corrective Action Request 34** The amounts of fuel consumption at SGTUs for 2008-2011, electricity output from SGTUs for 2008-2011, heat output from SGTUs for 2008-2011 must be corrected in accordance with the data included in the forms “3-ТЕХ”/”ТЭП”. The baseline/project/leakage/ ERUs estimates in the supporting Excel file, as well as those indicated in the PDD, must be recalculated and corrected accordingly.	E.1.2	The issue is closed. IRL 68, 69
Response	Corrected		
Assessment	The amounts of fuel consumption, electricity output and heat output from were corrected must be corrected in accordance with the raw data (Model 15506, form 3-ТЕХ, ТЭП). ERUs estimates were recalculated taking into account these data.		
Issue	**Corrective Action Request 35** The algorithms of project/baseline emissions and leakage estimation are not consistent with	E.1.7	The issue is closed. IRL 68,

	those used in the supplementary Excel model and must be revised.		69
Response	Corrected		
Assessment	The algorithms for project/baseline emission and leakage estimation provided in the PDD version 02 is consistent with those used in the supplementary Excel model.		
Issue	**Corrective Action Request 36** The formulae required for baseline/project emissions, leakage and emission reductions estimation are to be included and explained in the section E of the PDD.	E.1.14	The issue is closed. IRL 68.
Response	Corrected		
Assessment	The approach for project emission estimation was added to the PDD version 02. The cross-references for baseline emissions and leakage estimation was added to the section E of the PDD version 02.		
Issue	**Corrective Action Request 37** The Russian text must be translated when indicating Total of ERUs in the section E.6. of the PDD.	E.1.17	The issue is closed. IRL 68.
Response	Corrected		
Assessment	All Russian wordings in the section E.6. of the PDD version 02 were replaced with English text.		
Issue	**Corrective Action Request 38** The information in the PDD section F.1 now contains inaccurate statement about conducted EIA. During onsite mission the audit team revealed that no EIA was prepared for the present project. This is in line with environmental Russian legislation in force. However, the section F.1 shall be reworked accordingly.	F.1.1.	The issue is closed. IRL 75.
Response	Corrected		
Assessment	The information provided in the PDD version 02 was found to be in compliance with the current situation concerning EIA observed during onsite visit. This is in compliance with Town-Planning Code of the Russian Federation.		
Issue	**Corrective Action Request 39** The references to all relevant rules related to EIA are to be included in the PDD and to be attached to the PDD to comply with the requirements of the *Guidelines for users of the JI PDD form version 04.*	F.1.2.	The issue is closed. IRL 68.
Response	Corrected		
Assessment	The relevant references were added to the section F of the PDD version 02.		
Issue	**Corrective Action Request 40**	H.2.2.	The issue is

	The tables in the Annex 2 are already presented in the chapter B.1 of the PDD. Only additional information assuring transparency of the baseline shall be included in the Annex 2.		closed. IRL 68.
Response	Corrected		
Assessment	The duplicated tables were removed from the Annex 2 of the PDD version 02. All information regarding the baseline is presented in the section B of the PDD. This is stated in the Annex 2.		
Clarification Requests by audit team			
	Comments and Results	Ref	Conclusion and IRL
Issue	**Clarification Request 1** The statement in the section A.2. of the PDD "The project objectives: Increase in the demand for energy generation in order to gain additional profit." contradict the results of financial analysis and must be clarified. This statement also contradicts the project's task ("...increase **the generating capacities** of OJSC "Mosenergo", see section A .2. of the PDD version 01) as the project aims **to produce** and not to consume energy. The statement that "…project scenario involves the installation of **additional generating facilities**" contradicts the established baseline: "Electricity for the city of Moscow and the Moscow region is generated at the ESD Center and after the project implementation **the same amount of electricity** will be generated at the newly commissioned SGTUs". The same contradiction is in the section A.4.2 of the PDD. This shall be clarified.	A.1.4	The issue is closed. IRL 92.
Response	**Response #1** The statements were corrected, baseline was changed. **Response #2** Corrected. See PDD p.2.		
Assessment	**Conclusion on response #1** The PDD version 02 is still contains the following statements (Section A.2): "The project objectives: Increase in the demand for energy generation" Please clarify how the project aimed to produce energy will influence the energy demand. **Conclusion on response #2** The inconsistency was eliminated in the PDD version 03.		
Issue	**Clarification Request 2**	A.2.1	The issue is

	The interpretation of the abbreviations SGTU, CHP, ESD, CCHP, CCHP, GRES must be provided when first mentioned in the text (alternatively the list of abbreviations must be prepared).		closed. IRL 92.
Response	**Response #2** Annex 5 with List of abbreviations was added.		
Assessment	**Conclusion on response #1** The response is not provided. **Conclusion on response #2** The issue is closed based on due amendments made in the PDD version03.		
Issue	**Clarification Request 3** The following confirmatory documentation are to be provided to the audit team: commissioning acts for SGTU-450 at CHP-21, SGTU-420 at CHP-26, and two units SGTU-450 at CHP-27; the equipment certificates for GTE-160 turbogroups OJSC "Silovye mashiny" (CHP- 27), T-125/150-7.4 steam turbine (CHP- 27) OJSC "Silovye mashiny", generators TZFG-160-2MUZ and TNo.FA-160-2UZ OJSC "Silovye mashiny" and waste heat recovery boiler Pr-224/51-7.70/0.58-509/206 (P-107) OJSC "IK "ZIOMAR". The installed capacity for each equipment shall be included in the section A.4.2 of the PDD.	A.2.2	The issue is closed. IRL 68, 84-90
Response	Done. See files in folder "Certificates. CHP 27"		
Assessment	The installed capacity for each SGTU was provided included in the section A.4-1, A.4-2, A.4-3 of the PDD. The issue is closed based on the documents submitted by PPs and necessary correction made in the PDD version 02.		
Issue	**Clarification Request 4** Explain the inconsistency between the amounts of envisaged greenhouse gas emissions reduction in the section in 2008-2012 A.2. and the amounts provided in the section A.4.3.1, E.5, E.6 of the PDD version 01, as well as supplementary Excel file containing ERUs calculations.	A.2.4	The issue is closed. IRL 68.
Response	There was a mistake. Corrected.		
Assessment	Inconsistency was eliminated in the PDD version 02.		
Issue	**Clarification Request 5** The agreement of "Mosenergo" on electricity/heat supply with system operator must be submitted to the audit team for review.	A.4.1.2.	The issue is closed. IRL 79.
Response	See file "Contract ODU"		
Assessment	The audit team can confirm that the project proponents can implement the project on the		

	basis of the submitted agreement on electricity supply.		
Issue	**Clarification Request 6** The functional scheme in the section A.4.2 must be clarified to reflect the situation observed during site-visit. The scheme has to contain all flows (including their directions). The interpretation of the abbreviations VK, CCP, KS, GTU, WHB, ST, N, H must be clarified in the text of PDD. The documentary evidences must be submitted to confirm the statement in the PDD concerning the increasing of heat capacity of OJSC "Mosenergo" by 1165 Gcal/h.	A.4.2.2.	The issue is closed. IRL 80-82.
Response	Corrected. The scheme was changed. Heat capacity will increase on 1136.7 Gcal/h. Information about heat capacity of SGTUs is presented in section A4.2. These values confirmed by information from working project (see folder "OPZ")		
Assessment	The PDD version 02 includes new functional scheme of the SGTU. The titles of units are clarified in the PDD. The heat capacity is conformed buy the audit tem on the basis of technical executive summary for CHPs.		
Issue	**Clarification Request 7** The value "00" is indicated for heating load for SGTU-450 unit at CHP-21. Please clarify the source and provide evidences for the following parameters indicated in the Tables A-4-1 and A-4-4: - Number of hours of use - Electricity output - Specific fuel consumption - Heating load - Heat power output - Specific fuel consumption - Fuel consumption The effective use of SGTU-450 unit at CHP-21 (based on Electricity output indicated in the PDD) is around 90% of the time at full capacity. However, in the other plants - 95%.	A.4.2.5.	The issue is closed. IRL 81-83, 92.
Response	**Response #1** This information was corrected according with information from working project (see folder "OPZ") **Response #2** Corrected. Maximal capacity is indicated now. The values in Tables A-4-1 and A 4-4 are corresponding to the values in working projects for SGTUs construction (see files in folder		

	"OPZ"). These values correspond to the best condition of SGTU work.		
Assessment	**Conclusion on response #1** It is not clear from the PDD what kind of "capacity" (maximum, nominal etc) is indicated in the PDD version 02. It is not clear for which period of time the values of "Fuel consumption", "Electricity output" and "Heat power output" are provided. **Conclusion on response #2** The data provided in the PDD version 03 was cross-cheeked against the technical executive summary for CHPs and was forum to be consistent.		
Issue	**Clarification Request 8** Clarify the contradiction of the statement about significant impact of price and availability of fuel with the project activity description in throughout the PDD (it is mentioned that the new plants requires less gas than the ESD Center plants).	B.1.15	The issue is closed. IRL 92.
Response	**Response #1** Corrected. Impact of price and availability of fuel were considered from the point of view of organization that implements project – OJSC "Mosenergo" **Response #2** Corrected. See PDD, p.14		
Assessment	**Conclusion on response #1** No corrections were provided in the PDD version 02. **Conclusion on response #2** The issue is closed based on due amendments made in the PDD version 03.		
Issue	**Clarification Request 9** The section B.1. of the PDD contains the following statement: "Alternative Scenario 1, *namely the continuation of the current situation (no project): electric generation at the ESD Center at the same level is* **the baseline"**. Please clarify why the heat generation is not considered in this Alternative Scenario. It was revealed onsite that in 2011 about 10% the energy from the SGTU-420 at CHP-26 under the project was generated before 1 July of 2011 (date of official commissioning of the unit). Please clarify which value was applied for ERUs estimation for this unit in 2011. The documentary evidence for "efficiency of the gas boiler" applied must be submitted to the assessment team for review.	B.2.5	The issue is closed. IRL 56-60, 64, 92
Response	**Response #1** Corrected. Efficiency of the gas boiler was taken from AM0058.		

	Response #2 All data for calculation were taken from model 15506 that reflects the parameters of SGTU operation after official commissioning.		
Assessment	**Conclusion on response #1** The description of the baseline was adjusted to reflect an actual situation with energy demand in the region. The applied value for efficiency of the gas boiler was correctly referenced in the PDD version 02. No clarification regarding the value applied for SGTU-420 at CHP-26 for ERUs estimation in 2011 was provided. **Conclusion on response #2** The data provided in the PDD version 03 was cross-checked against the raw date observed onsite. The assessment team can confirm that the data is consistent.		
Issue	**Clarification Request 10** Two contradicting statement are in the PDD: - "Installed capacity of the SGTU units at the thermal power stations of Russia amounted to 2004 MW, or 0.95 % of the total capacity of the thermal power stations." - "Capacity of the power stations of the united energy system of Russia in 2005 amounted to 212 GW. Thus, the share of the SGTU was 0.52 %." Please clarify.	B.3.13	The issue is closed. IRL 92.
Response	**Response #1** Corrected **Response #2** Corrected. See PDD p27-28		
Assessment	**Conclusion on response #1** Contradiction is still presented in the PDD version 02. (p 30-31) **Conclusion on response #2** The issue is closed based on due amendments made in the PDD version 03.		
Issue	**Clarification Request 11** The common practice analysis shows that a number of similar activities are identified in the Host Party. Please explain why the existence of these activities does not contradict the claim that the proposed project activity is financially/economically unattractive.	B.3.14	The issue is closed. IRL 68.
Response	Project of implementation SGTU at Dzerzhinskaya CHP was realized as JI project. At present time approving of the project by the host party is carrying out.		

	The similar projects to the proposed activity was constructed during the time that RAO UES as a monopolistic company still existed. It was the biggest energy company almost fully controlled by the state. (see p.31)		
Assessment	The audit team has cross-checked the provided information against the publicly available information (web sites of UNFCCC and Sberbank) and can confirm the correctness of the provided response.		
Issue	**Clarification Request 12** Some sources of baseline and project GHG emissions were excluded "in accordance with the calculation". Please clarify this statement and provide reference. Explain how the boundaries of the **project** can be applied for the **baseline scenario** (figure B 3.1)	B.4.1	The issue is closed. IRL 68.
Response	Corrected.		
Assessment	The boundaries of the project were adjusted so that to reflect the actual situation observed onsite. IPCC Guidelines for National Greenhouse Gas Inventories, 2006 was referenced as the basis for exclusion of some emission sources. This was found to be reasonable.		
Issue	**Clarification Request 13** As the project includes installation of a number of equipment with various operational lifetimes, please clarify how the expected operational lifetime of the project was defined. The starting date of the project operation in the section C.2. is inconsistent with those mentioned in the act of commissioning and section A of the PDD. Please explain.	C.2.1.	The issue is closed. IRL 92.
Response	**Response #1** The least operational lifetime of equipment was chosen – operational lifetime of GTU – 15 years. Date of the project was corrected. **Response #2** Operational lifetime of the project differs from operational time of GTU because of different date of Commissioning of 4 SGTUs. From the date of first SGTU commissioning till the date of end of lifetime of last SGTU 18 years and 8 months will pass.		
Assessment	**Conclusion on response #1** The operational lifetime stated in the PDD version 02 is 18 years and 8 months or 224 months. This contradicts the response of PPs. **Conclusion on response #2** The operational lifetime starts form the time of 1st unit operation starts and ends on 01.07.2026, which corresponds to the time of lifetime ending of the last installed unit		

	(01/07/2011). The issue is closed based on due information provided by PPs.		
Issue	**Clarification Request 14** Scheme D.1-1 must be adjusted in such way that to give clear understanding of the monitoring points location. Clarify why the oxidation factor for calculating the emissions from burning of natural gas in not taken into account.	D.1.11	The issue is closed. IRL 92.
Response	**Response #1** Oxidation factor_from burning of natural gas is taken equal to 1 according with IPCC 2006 "Guidelines for National Greenhouse Gas Inventories", Volume 1, Chapter 1, Table 1.4. (see p 39) **Response #2** Corrected .see PDF file "Mosenergo v3"		
Assessment	**Conclusion on response #1** Scheme D.1-1 in the PDD version 02 still does not contain monitoring points location. **Conclusion on response #2** The issue is closed based on due amendments made in the PDD version 03.		
Issue	**Clarification Request 15** Clarify using of the multiplier 4,1868/1000000 in the formulae D.1-4 and D.1-9.	D.3.2.2	The issue is closed. IRL 68.
Response	**4,1868*10^$^{-6}$ –** factor of conversion from Kcal to TJ.		
Assessment	The issue is closed based on the adjustments made in the PDD version 02.		
Issue	**Clarification Request 16** Clarify and provide justification for using of $\eta_{\text{gas boiler-house}}$ **–** efficiency of the gas-boiler.	D.3.4.2.	The issue is closed. IRL 68.
Response	The data is taken from approved CDM methodology - AM 0058, version 03.1. This value of efficiency corresponds to New natural gas fired boiler (w/o condenser). This way is conservative.		
Assessment	The using of $\eta_{\text{gas boiler-house}}$ value from approved CDM methodology AM0058 is considered to be conservative.		
Issue	**Clarification Request 17** The units for the following interconnected parameters are not consistent (formulae D.1-17 and 118): BE_{heat} **–** emissions from the generation of heat energy on the existing equipment of CHP-26, additional heat energy which is generated by the SGTU unit under the project	D.3.4.3.	The issue is closed. IRL 68.

	HO_{SGTU} – total output of heat energy from the SGTUs under the project **EF_{NG} –** CO2 emission factor for natural gas		
Response	Corrected		
Assessment	The corrections made in the PDD version 02 are considered to be appropriate.		
Issue	**Clarification Request 18** PDD version 01 contains the algorithm for calculation of leakage as a result of difference in fuel consumption for the electric supply between the ESD Center and the total consumption of fuel for the electric supply from the CHPs branches of OJSC "Mosenergo". However, heat generation is not taken into account. This should be explained. Clarify why the parameters $EC_{aux\ SGTU}$ - consumption of electric power for the SGTUs auxiliaries (CHP-21, CHP-26 and CHP-27) are to be monitored for leakage estimation. Clarify if values for "coefficient of losses from extraction and transportation of natural gas" indicated in the section D.1.3.1.of the PDD were taken from the internal report or they were confirmed by a third party. The traceable reference is to be provided. The document "Conception of technical politics in the Russia at period to 2030" confirming the applied value of specific fuel consumption for electricity output at the ESD Center shall be provided for the audit team for review.	D.3.5.1.	The issue is closed. IRL 92.
Response	**Response #1** $EC_{aux\ SGTU}$ - consumption of electric power for the SGTUs auxiliaries (CHP-21, CHP-26 and CHP-27) are to be monitored for leakage estimation for EO calculation. Reference were given in section B1 and D 1.3.1 See file "Conception of technical politics in the Russia at period to 2030" **Response #2** Leakages is neglected now		
Assessment	**Conclusion on response #1** Pending the response to CAR32 above **Conclusion on response #2** The issue was closed due to change in the change of ERUs calculation model. Negative leakage was excluded from calculations.		
Issue	**Clarification Request 19** Explain why the algorithm for **$SFC_{SGTU\ CHP}$** calculation was not included in the monitoring plan.	D.3.5.3.	The issue is closed. IRL 68.
Response	This parameter is not needed anymore.		
Assessment	The parameter $SFC_{SGTU\ CHP}$ was excluded from the calculation model in the PDD version		

	02.		
Issue	**Clarification Request 20** The following data sources must be referenced and submitted to the assessment team for review: - Efficiency of gas boiler - Emission factor for natural gas - Electricity output from ESD Center - Coefficient of losses from extraction and transportation of natural gas - Specific fuel consumption for electricity output in ESD Center	E.1.5	The issue is closed. IRL 68, 79
Response	See the following files: See file "AM0058" , p 27, table 2 Reference: IPCC 2006, volume 2, chapter 1, table 1.4. See calculation in file "Mosenergo ERU v.2" and file "Methane leakage" See file ""Concept 2030" p.88, Annex 1, row 8-column 6.		
Assessment	The provided references and documents for: - Efficiency of gas boiler - Emission factor for natural gas - Specific fuel consumption for electricity output in ESD Center were cross-cheeked and were found to be reasonable. The parameter "Electricity output from ESD Center" was removed from the PDD version 02.		
Forward Action Requests by audit team			
	Comments and Results	Ref	Conclusion and IRL
Issue	**Forward Action Request 1** LoAs by the Parties involved containing the authorization of project participants are to be provided to the AIE for review at the stage of the first verification.	A.3.4.	To be checked during the first verification.
Response	LoAs by the Parties involved containing the authorization of project participants will be provided.		
Assessment	LoAs are to be checked during the verification process.		
Issue	**Forward Action Request 2** In accordance with internal order, Mosenego has established the responsibilities and the authority regarding the monitoring activities in the company. The assessment team can confirm that responsibilities were also allocated at the CHPs. However, the internal orders must	D.1.10	To be checked during the first verification.

	be prepared and approved at each of the CHPs in the framework of the project. This will be cheeked during the first verification.		
Response	Internal orders will be prepared by Mosenergo.		
Assessment	Internal orders are to be checked during the verification process.		
Issue	**Forward Action Request 3** The internal orders indicating that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project as per DVM v.1 §36 must be issued and must be checked during the first verification as per *Guidance on criteria for base-line setting and monitoring, version 03, paragraph 42.*	D.1.13	To be checked during the first verification.
Response	Internal orders will be prepared by Mosenergo.		
Assessment	Internal orders are to be checked during the verification process.		

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

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

Annex 2: Information Reference List

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author / Editor / Issuer	Additional Information (Relevance in JI Context)
	03/2012	On-site interviews conducted on March 21-23, 2012 in Moscow, Russia at JSC “Mosenergo” by auditing team of TÜV SÜD. - List of participants **Determination Team:** Ms Olena Maslova — TÜV SÜD Industrie Service GmbH, Assessment Team Leader (headquarters) Mr Igor Kachan — TÜV SÜD Ukraine LLC, GHG Auditor (on-site) Mr Maxim Krivosheev — TÜV SÜD Ukraine LLC, CMS Expert (on-site) **Interviewed persons at JSC “Mosenergo:** Mr Igor Dolinin — JSC “Mosenergo”, Director of CHP-27 Mr Igor Gavrilov — JSC “Mosenergo”, Deputy chief engineer of CHP-27, head of operational activities department Mr Sergej Guschin — JSC “Mosenergo”, Deputy chief engineer of CHP-27, head of production department Mr Vladimir Maximov — JSC “Mosenergo”, Assistant director of CHP-27 Mr. Artur Ivanov — JSC “Mosenergo”, Head of project group of CHP-27 Mr Ruslan Mareev — JSC “Mosenergo”, Chief of wholesale market of electric power and accounting department Mr Petr Bublej — JSC “Mosenergo”, Head of ecology department of JSC “Mosenergo” Ms Evgeniya Baydakova — CJSC “National Carbon Sequestration Foundation” (Moscow), Senior Expert Mr Semen Serebryanskij — JSC “Mosenergo”, Chief engineer of CHP-26 Mr Ivan Bondaletov — JSC “Mosenergo”, Deputy chief engineer of CHP-26 Mr Sergej Starchikov — JSC “Mosenergo”, Deputy chief engineer of CHP-26 Mr Vladimir Solodkov — JSC “Mosenergo”, Head of standardization service department of CHP-26 Mr Yevgenij Kuklin — JSC “Mosenergo”, Lead engineer-metrologist of CHP-26 Ms Vera Ostrovnaya — JSC “Mosenergo”, Lead environmental engineer of CHP-26 Ms Olga Detneva — JSC “Mosenergo”, Environmental engineer (I category) of CHP-26 Mr Aleksanrovich Alexander — JSC “Mosenergo”, Lead specialist of automatic control system group of CHP-26 Ms Natalya Kozlova — JSC “Mosenergo”, Lead specialist of accounting group of CHP-26 Mr Viktor Konovalov — JSC “Mosenergo”, Director of CHP-21 Mr Yurij Gromov — JSC “Mosenergo”, Lead engineer of CHP-21 Mr Mikhail Bogatov — JSC “Mosenergo”, Head of standardization service department of CHP-21 Ms Irina Pleshkova — JSC “Mosenergo”, Lead environmental engineer of CHP-21		
1.	02/2012	Published Project Design Document of JI project “Implementation of steam-gas turbine units at the		Published PDD

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author / Editor / Issuer	Additional Information (Relevance in JI Context)
		CHP of JSC “Mosenergo””, version 1.		
2.	02/2012	Excel file “Mosenergo ERU” ERUs calculation model		
3.	16/10/2009	Glossary of JI terms, version 3	UNFCCC	
4.	15/06/2006	JI PDD form, version 01	UNFCCC	
5.	14/09/2011	Guidance on criteria for baseline setting and monitoring, version 03.	UNFCCC	
6.		Guidelines for Users of the Joint Implementation Project Design Document Form, version 04.	UNFCCC	
7.	24/07/2008	Letter of putting into operation (Energy unit No. 11 (ПГУ-450Т))	Mosenergo	CHP-21
8.	05/03/2011	Order of the working group appointment for CHP-21	Mosenergo	CHP-21
9.	24/02/2011	Order of the working group appointment for Mosenergo	Mosenergo	
10.	2008	Annual operation technical report (Total indexes, ST, SG, WHB, SGTU (GT, HRSG))	Mosenergo	CHP-21
11.	2009	Annual operation technical report (Total indexes, ST, SG, WHB, SGTU (GT, HRSG))	Mosenergo	CHP-21
12.	2010	Annual operation technical report (Total indexes, ST, SG, WHB, SGTU (GT, HRSG))	Mosenergo	CHP-21
13.	2011	Annual operation technical report (Total indexes, ST, SG, WHB, SGTU (GT, HRSG))	Mosenergo	CHP-21
14.	2011	Information about atmospheric air protection during 2011 year	Mosenergo	CHP-21
15.	2011	Information about wastes formation, usage, processing, transportation and placement during 2011 year	Mosenergo	CHP-21
16.	2008	Monthly gas consumption data	Mosenergo	CHP-21
17.	2009	Monthly gas consumption data	Mosenergo	CHP-21
18.	2010	Monthly gas consumption data	Mosenergo	CHP-21
19.	2011	Monthly gas consumption data	Mosenergo	CHP-21
20.	25/01/2007	Positive conclusion about construction project (Unit No. 11 expansion)	Russian State Committee of Construction and Housing complex	CHP-21
21.	03/11/2006	Order for confirmation of the results of state ecological expertise of construction project (Unit No. 11	Federal Service	CHP-21

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author / Editor / Issuer	Additional Information (Relevance in JI Context)
		expansion)	for Ecological, Technological and Nuclear inspectorate	
22.	2008	Unit No. 11 (ПГУ-450) service instruction	Mosenergo	CHP-21
23.	2009	Gas turbine unit (ГТЭ-160) service instruction	Mosenergo	CHP-21
24.	2009	HRSG Пр-224/51-7,7/0,58-509/206 (П-116) service instruction	Mosenergo	CHP-21
25.	2007	HRSG passport	Machine-building plant “ЗиО-Подольск”	CHP-21
26.	27/10/2011	Metrological expertise of natural gas meter station No. 014831/449	State regional center of metrology “Rostest-Moskva”	CHP-21
27.	23/03/2012	Annual gas consumption data (2008-2011 years)	Mosenergo	CHP-21
28.	25/12/2007	Record of “Rules of gas distribution and gas consumption systems safety” knowledge testing	Mosenergo center of personnel trainings	CHP-21
29.	17/01/2006	Decision of construction project (Unit No. 11 expansion) agreement	Dmitrovskoe municipal foundation municipal meeting	CHP-21
30.	20/11/2008	Automatic system of electricity commercial account calibration	Federal State enterprise “All-Russian scientific institute of metrological services”	CHP-21
31.	01/07/2010	Certificate of laboratory measurements condition	Federal State	CHP-21

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author / Editor / Issuer	Additional Information (Relevance in JI Context)
			enterprise “All-Russian scientific institute of metrological services”	
32.	2007	ST T-125/150-7,4 service instruction	St. Peterburg metal plant	CHP-21
33.	23/03/2012	Annual energy performance indexes for electricity and heat supply	Mosenergo	CHP-21
34.	01/02/2007	Turnkey contract for construction and installation works (Unit No. 8 ПГУ-420)	Mosenergo; Alstom LLC, Alstom ltd., OJSC “EMAlliance”	CHP-26
35.	10/01/2012	Information about water use during 2011 year	Mosenergo	CHP-26
36.	10/01/2012	Information about atmospheric air protection during 2011 year	Mosenergo	CHP-26
37.	17/01/2012	Information about wastes formation, usage, processing, transportation and placement during 2011 year	Mosenergo	CHP-26
38.	13/08/2010	Mr. Sergey Starchikov Certificate of SGTU technology training	Alstom educational center of power stations	CHP-26
39.	20/01/2011	Mr. Vladimir Travin Certificate of generator operation and maintenance (MICOM) training	Alstom educational center of power stations	CHP-26
40.	20/01/2011	Mr. Vladimir Panchenko Certificate Basics of EGATROL 8 automation	Alstom educational center of power stations	CHP-26
41.	20/01/2011	Mr. Alexander Calagov Certificate of GT operation and systems of fuel gas supply	Alstom educational center of power stations	CHP-26

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author / Editor / Issuer	Additional Information (Relevance in JI Context)
42.	06/08/2010	Mr. Vladimir Tutarinov Certificate of operation and maintenance of power equipment	Alstom educational center of power stations	CHP-26
43.	20/01/2011	Mr. Michael Lipatov Certificate of SGTU main equipment operation and maintenance	Alstom educational center of power stations	CHP-26
44.	20/01/2010	Mr. Igor Zhuravlev Certificate of SGTU main equipment operation and maintenance	Alstom educational center of power stations	CHP-26
45.	20/01/2011	Mr. Alexander Mansvetov Certificate of SGTU main equipment operation and maintenance	Alstom educational center of power stations	CHP-26
46.	20/01/2011	Mr. Evgeniy Milovanov Certificate of SGTU main equipment operation and maintenance	Alstom educational center of power stations	CHP-26
47.	20/01/2011	Mr. Alexey Pankov Certificate of SGTU main equipment operation and maintenance	Alstom educational center of power stations	CHP-26
48.	20/01/2011	Mr. Alexander Pimenov Certificate of SGTU main equipment operation and maintenance	Alstom educational center of power stations	CHP-26
49.	14/09/2006	Decision of construction project (Unit No. 8) agreement	Zapadnoe Birulevo municipal foundation municipal meeting	CHP-26
50.	08/2011	Monthly operation technical report (Total indexes, ST, SG, WHB, SGTU (GT, HRSG), Energy performance indexes)	Mosenergo	CHP-26
51.	01/07/2011	Certificate of complete construction acceptance	Mosenergo	CHP-26

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author / Editor / Issuer	Additional Information (Relevance in JI Context)
52.	29/12/2011	Acceptance certificate of results of generation equipment parameters identification	Mosenergo	CHP-26
53.	2011	Monthly gas consumption data (July – December 2011)	Mosenergo	CHP-26
54.	22/03/2012	Gas Turbine Unit GT-26 Passport	Alstom (Switzerland) Ltd	CHP-26
55.	22/03/2012	Generator 50WY21Z-05 Passport	Alstom (Switzerland) Ltd	CHP-26
56.	12/2011	Monthly operation technical report (Total indexes, ST, SG, WHB, SGTU (GT, HRSG), Energy performance indexes) (December 2011)	Mosenergo	CHP-26
57.	07/2011	Monthly operation technical report (Total indexes, ST, SG, WHB, SGTU (GT, HRSG), Energy performance indexes) (July 2011)	Mosenergo	CHP-26
58.	2011	Energy efficiency and operation modes regular report	Mosenergo	CHP-26
59.	11/2011	Monthly operation technical report (Total indexes, ST, SG, WHB, SGTU (GT, HRSG), Energy performance indexes) (November 2011)	Mosenergo	CHP-26
60.	10/2011	Monthly operation technical report (Total indexes, ST, SG, WHB, SGTU (GT, HRSG), Energy performance indexes) (October 2011)	Mosenergo	CHP-26
61.	22/03/2012	HRSG R-92983PS Passport	Machine-building plant “ZiO- Podolsk”	CHP-26
62.	09/06/2011	Putting into operation permission	Moscow committee of state construction surveillance	CHP-26
63.	01/07/2010	Certificate of laboratory measurements condition (chemical laboratory)	Federal State enterprise “All-Russian scientific institute of metrological services”	CHP-26

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author / Editor / Issuer	Additional Information (Relevance in JI Context)
64.	09/2011	Monthly operation technical report (Total indexes, ST, SG, WHB, SGTU (GT, HRSG), Energy performance indexes) (September 2011)	Mosenergo	CHP-26
65.	2010	Turbogenerator G-8 50WY23Z-109 technical passport	Alstom (Switzerland) Ltd	CHP-26
66.	04/05/2008	Positive expert conclusion of State expertise for capital construction of Unit No. 8 (ПГУ-420). Part 1	Federal Agency of Construction and Housing complex	CHP-26
67.	04/05/2008	Positive expert conclusion of State expertise for capital construction of Unit No. 8 (ПГУ-420). Part 2	Federal Agency of Construction and Housing complex	CHP-26
68.	13/04/2012	Project Design Document of JI project “Implementation of steam-gas turbine units at the CHP of JSC “Mosenergo””, version 02.		
69.	13/04/2012	Excel file “Mosenergo ERU v.2” ERUs calculation model		
70.	17/02/2005	Extract from the minutes of the meeting on capital construction at OJSC “Mosenergo”	Mosenergo	CHP- 27
71.	07/01/2009	Annual operation technical report «ТЭП» for 2008	Mosenergo	CHP- 27
72.	11/01/2010	Annual operation technical report «ТЭП» for 2009	Mosenergo	CHP- 27
73.	15/01/2011	Annual operation technical report «ТЭП» for 2010	Mosenergo	CHP- 27
74.	10/01/2012	Annual operation technical report «ТЭП» for 2011	Mosenergo	CHP- 27
75.	29/12/2004	Town-Planning Code of the Russian Federation	State Duma	Regulatory document
76.	06/10/2006	Procedere MP 4218-010-42968951-2006 for heat meters calibration.	“VNIIMS”	Technical regulations.
77.	2001	Procedure № 38899-08 for electric meters calibration	“VNIIMS”	Technical regulations.

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author / Editor / Issuer	Additional Information (Relevance in JI Context)
78.	2003	Procedure KRAU 1.456.001 MI and ZI2.838.009 D2 for gas meters calibration.	“VNIIMS”	Technical regulations.
79.	2008	Concept of technical politics in the Russia at period to 2030.	RAO UES Russia	Scientific study
80.	10/11/2008	Agreement ОДУ-198 #21556-11	Mosenergo	Electricity supply
81.	12/2007	Technical executive summary for CHP-26	Mosenergo	CHP-26
82.	2005	Technical executive summary for CHP-27	Mosenergo	CHP-27
83.	2006	Technical executive summary for CHP-21	Mosenergo	CHP-21
84.	30/06/2008	Commissioning act SGTU-450 at CHP-21	Mosenergo	CHP-21
85.	01/07/2011	Commissioning act SGTU-420 at CHP-26	Mosenergo	CHP-26
86.	-	Technical passport GTE-160 turbo groups	Silovye mashiny	CHP- 27
87.	-	Technical passport Steam turbine	Silovye mashiny	CHP- 27
88.	2007	Technical passport Generator TZFG-160-2MUZ	Silovye mashiny	CHP- 27
89.	2008	Technical passport Generators TNo.FA-160-2UZ	Silovye mashiny	CHP- 27
90.	-	Waste heat recovery boiler Pr-224/51-7.70/0.58-509/206	IK “ZIOMAR”	CHP- 27
91.	13/04/2012	Letter #Д07и-480 dated 13/04/2012 from the Deputy Head of Energy and Environment department	Ministry of Economic Development of the Russian Federation	EF grid confirmation
92.	20/04/2012	Project Design Document of JI project “Implementation of steam-gas turbine units at the CHP of JSC “Mosenergo””, version 03.		Final PDD
93.	20/04/2012	Excel file “Mosenergo ERU v.3” ERUs calculation model		Final calculation model
94.	27/11/2007 19/12/2008	Acts of acceptance for Units №3 and №4 CHP-27	Mosenergo	CHP-27
95.	06/05/2010	Official note.	Department of investment of	Confirmation of

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author / Editor / Issuer	Additional Information (Relevance in JI Context)
			Mosenergo	interest rate
96.	1998	Investment management	Publishing house „Visshaya Shkola“	Handbook for specialists
97.	2005	Print screen of official web site “Gas prices”	Federal State Statistics Service	Official State Information
98.	2005	Print screen of official web site “Electricity prices”	Federal State Statistics Service	Official State Information
99.	2005	Print screen of official web site “Heat prices”	Federal State Statistics Service	Official State Information
100.	2005	Scenario conditions of development of electric power	UES OF RUSSIA	Techno-economic regulations of Russia
101.	-	Preliminary assessment of the Investment Projects	Mosenergo	Financial indicators