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Verification Report

Nuon Energy Romania SRL

Second Periodic Verification of the JI track 1 project Municipal Cogeneration Targoviste (Romania)

Report No. 600500581

20 January 2012

TÜV SÜD Industrie Service GmbH
Carbon Management Service
Westendstr. 199 - 80686 Munich - GERMANY

Industrie Service

Report No.	Date of first issue	Version	Date of this revision	Certificate No.
600500581	05-09-2011	03	20-01-2012	

Subject:	Second Periodic Verification

Executing Operational Unit:

TÜV SÜD Industrie Service GmbH, Carbon Management Service
Westendstrasse 199 - 80686 Munich, Federal Republic of Germany

Project Participant:

Nuon Energy Romania SRL, Frigoriferului Nr 6 Hala 4, Sibiu, România (AIE contractor)

N.V. Nuon Warmte, Utrechtseweg 68, 6812 AH Arnhem, Netherlands

Registration number / Project Title	RO 1000173 / Municipal Cogeneration Targoviste (Romania) Technical Areas: 1.2 /3.1
Monitoring period:	01-01-2009 to 31-12-2009
Published Monitoring Report (version/date)	Version 02 / 12-03-2009
Final Monitoring Report (version/date)	Version 05 / 17-01-2012

Summary:

TÜV SÜD Industrie Service GmbH has performed the second periodic verification for the year 2009 of the JI Track 1 project: "Municipal Cogeneration Targoviste (Romania)" that is approved and registered as JI Track 1 project by the Romanian DFP (http://mmediu.ro/protectia_mediului/schimbari_climatice.htm) and by the JISC (see link: http://ji.unfccc.int/JIITLProject/DB/JZ3NVK4GDR3I7BVX7BWLWLVBY5ZPTD/details. The management of Nuon Energy Romania SRL is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions. A document review, followed by a site visit was conducted to verify the information submitted by the project participant regarding the present verification period. Based on the assessment carried out, the verifier confirms:

- that the project has been implemented and operated in accordance with the description given in the registered PDD (24-05-2004) with the attachment for baseline setting (05-12-2008).
- that the project is completely implemented as described in the PDD with attachment.
- that the monitoring plan complies with the applied methodology (described in PDD with attachment) and the monitoring has been carried out as exactly following the monitoring plan.

Installed equipments essential for generating emission reductions run reliably and the meters are calibrated appropriately. The project is generating emission reductions that are to be issued as ERUs.

The verifier can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion refers to the project's GHG emissions and resulting GHG emission reductions reported, both determined due to the valid and project's baseline, its monitoring plan and its associated documents. Based on the information we have seen and evaluated we confirm that the implementation of the project resulted in **25,809 t CO2e** in **2009**. The figures are lower than the ex-ante estimated figures in the PDD. This is due to a lower heat demand (mainly decrease in connected households but warm weather conditions also) than expected.

Verification team:	CB Release:
• ATL Robert Mitterwallner • Verifier Constantin Zaharia	Thomas Kleiser

Abbreviations

AAU	Assigned Amount Unit
ACM	Approved Consolidated Methodology
AIE	Accredited Independent Entity (also verifier)
CAR	Corrective Action Request
DFP	Designated Focal Point
DVM	Determination and Verification Manual, Annex 4 of JISC 19 report
ER	Emissions reduction
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Greenhouse Gas
IETA	International Emission Trading Association
JI	Joint Implementation
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
PP	Project Participant
PVC	Periodical Verification Checklist
SD	Sustainable Development
TÜV SÜD	TÜV SÜD Industrie Service GmbH, Carbon Management Service
UNFCCC	UN Framework Convention on Climate Change
VER	Verified Emission Reductions
VP	Verification Protocol

Main Documents (referred to in this report)

Methodology (name / version)	Project specific	
Registered PDD:	PDD (24-05-2004) /IRL1/ and attachment to the orginal PDD for baseline setting of the Municipal Cogeneration Târgovişte Project in Romania (05-12-2008) /IRL2/	
	Version	Date
Published Monitoring Report	01	12-03-2010 /IRL3/
Final Monitoring Report	05	17-01-2012 /IRL54/
Project documentation link:	http://ji.unfccc.int/JIITLProject/DB/JZ3NVK4GDR3I7BVX7BWLWLVBY5ZPTD/details	

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1. INTRODUCTION

1.1 Objective

Nuon Energy Romania SRL ordered independent second periodic verification services for the MUNICIPAL COGENERATION TÂRGOVIŞTE (ROMANIA) by TÜV SÜD.

The objective of the verification work is to check the compliance of the project with the requirements of paragraph 62 of the CDM Modalities and Procedures. According to this assessment TÜV SÜD shall:

- ensure that the project activity has been implemented and operated as per the PDD with attachment "MUNICIPAL COGENERATION TÂRGOVIŞTE (ROMANIA)" Version PDD 24-05-2004 with attachment from 05-12-2008, and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place,
- ensure that the published MR and other supporting documents provided are complete and verifiable and in accordance with applicable JI requirements,
- ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the project specific methodology,
- evaluate the data recorded and stored as per Monitoring Plan described in PDD with attachment.
- The official link to the published documents is:

http://www.netinform.net/KE/Wegweiser/Guide22.aspx?ID=5973&Ebene1_ID=50&Ebene2_ID=1901&mode=5

The verified emission reduction figures are lower than the ex-ante estimated figures in the PDD that is due to a lower heat demand (mainly decrease in connected households but warm weather conditions also) than expected. However, this fact does not affect the verification of the project.

1.2 Scope

The verification scope is defined as an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the Accredited Independent Entity. The verification is based on the submitted monitoring report, the determined project design documents including its monitoring plan and re-determination report, initial, first and second periodic verification report, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the JISC and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

TÜV SÜD has, based on the requirements in the DVM applied a risk based approach. The principles of accuracy and completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion.

The verification considers both quantitative and qualitative information on emission reductions.

The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

1.3 GHG Project Description

Project activity:	"MUNICIPAL COGENERATION TÂRGOVIŞTE (ROMANIA)"
UNFCCC registration number:	1096910
Project Participants:	City Hall Târgovişte – Ms. Ana George Bogdan – Vice Mayor (owner of Termica); S.C. Termica S.A. – Mr. Viorel Tabacu – General Manager (operator of the project); S.C. Nuon Energy Romania Srl. – Leo Paulissen (CO_2 credits owner)
Location of the project:	GPS coordinates 44° 54' 59" Nord; 25° 26' 33" East.

The core part of the project was to install new cogeneration facilities with a total capacity of about 6.8 MWe and new heat only boilers with a capacity of 14.0 MWth, as well as to rehabilitate the existing heat transportation networks and an existing heat only boiler with a capacity of 58.2 MWth. The installations found during verification audit were in compliance with the project design. The project intends to solve the heat supply problems in the City of Târgovişte, and to drastically improve the efficiency of electricity and heat production and it produces electricity and heat at lower cost and environmental friendlier than at present. The produced electricity will be partly consumed internally by the beneficiaries of the project and partly sold to a third party, whereas the produced heat will be delivered to the customers of S.C. TERMICA S.A., which is the municipality owned operator of the plant.

The emission reductions are a result of increased efficiency for heat energy generation (including in that the reduced heat transportation losses also) and of electricity generated with low CO_2 emissions.

The distribution lines were equipped with recirculation systems to guarantee the domestic hot water supply for the end consumers. Also several pipelines in this secondary system were replaced

The distribution system, out of the project borders (defined Production-Transportation, Heat Distribution points), does not make part of the CO_2 Monitoring

The improvement of the distribution system leads to a more conservative calculation of emission reductions (as the overall system is more efficient with these measures).

2 METHODOLOGY

2.1 Verification Process

The verification process is based on the approach depicted in the DVM (Annex 4, JISC 19).

Standard auditing techniques have been adopted. The verification team performs first a desk review, followed by an on-site visit which results in a protocol including all the findings. The next step is to close out the findings through direct communication with the PPs and finally prepare the verification report. This verification report and other supporting documents then undergo an internal quality control by the CB "climate and energy" before submission to the host country DFP.

2.2 Verification Team

The appointment of the team takes into account the coverage of the technical areas, sectoral scopes and relevant host country experience for verifying the ER achieved by the project activity in the relevant monitoring period for this verification.
The verification team was consisting of the following members:

Name	Qualification	Coverage of technical area 1.2	Coverage of technical area 3.1	Host country experience
Robert Mitterwallner	ATL	☑	☑	☑
Constantin Zaharia	VER			☑

Robert Mitterwallner is located at TUV SÜD Industrie Service in Munich since 1990 and has a background as auditor for environmental management systems, as expert in environmental permit procedures for industrial plants and as expert for environmental impact studies assessment. He has received training in the JI determination/verification and CDM validation/verification process and applied successfully as GHG Determiner, GHG Validator, GHG Verifier as well as Assessment Team Leader and Technical Reviewer for climate change projects, among others, in the scope energy industries. Moreover, he has been appointed as Auditor for Renewable Energy Certification.

Constantin Zaharia is an environmental expert working as associate for "TÜV SÜD Carbon Management Service". Being a verifier he has already been involved in several JI activities.

2.3 Review of Documents

The Monitoring Report version 02 was submitted by the PP which was made publicly available on the netinform website before the verification activities started. The published MR was assessed based on all the relevant documents as listed earlier. The aim of the assessment in the desk review was to verify the completeness of the data and the information presented in the MR. The compliance check of the MR with respect to the monitoring plan depicted in the PDD with attachment and the project specific methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures was paid. The evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions was also carried out. A complete list of all documents reviewed is available in Annex 2 of this report.

2.4 On-site Assessment and follow-up Interviews

During 24-04-2011, TÜV SÜD performed a physical site inspection and on-site interviews with project stakeholders to:

- confirm the implementation and operation of the project,
- review the data flow for generating, aggregating and reporting the monitoring parameters,
- confirm the correct implementation of procedures for operations and data collection,
- cross-check the information provided in the MR documentation with other sources (raw data),
- check the monitoring equipments against the requirements of the PDD with attachment and the project specific methodology, including calibrations, maintenance, etc.,
- review the calculations and assumptions used to obtained the GHG data and ER,
- Indentify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

The following persons were interviewed during this verification activity:

1. Mr. Popescu Ion, S.C. Termica S.A. General Manager (operator of the project);
2. Mr. Leo Paulissen, General Manager S.C. Nuon Energy Romania Srl. (CO2 credits owner).
3. Mrs. Popa Valentina – Engineer, Environmental Manager, S.C. TERMICA S.A. Targoviste
4. Mrs. Mariana Mindrescu – Technical Director S.C. TERMICA S.A. Targoviste

2.5 Quality of Evidence to Determine Emission Reductions

Among many others the following relevant and reliable evidences have been used by the audit team during the verification process:

1. Operational reports of the Plant including Failure Register;
2. Monitoring report for the year 2009
3. Heat production records;
4. Reports on heat delivered to secondary network;
5. Reports on produced electricity;
6. Gas consumption reports;
7. Invoices of electricity sold to the grid;
8. Invoices of consumed gas
9. Initial and first periodic Verification Report;

Sufficient evidence covering the full verification period in the required frequency is available to validate the figures stated in the final MR. The source of the evidences will be discussed in chapter 3 of this report. Specific cross-checks have been done in cases that further sources were available. All figures in the monitoring report were cross-checked by the audit team against the raw data. The data collection system meets the requirements of the monitoring plan as per the project specific methodology.

2.6 Resolution of Clarification and Corrective and Forward Action Requests

The objective of this phase of the verification process was to resolve any outstanding issues which needed to be clarified for TÜV SÜD's positive conclusion on the GHG emission reduction calculation. The findings raised as Forward Action Requests (FARs) (if any) indicated in previous reports (determination/verification) were clarified during communications between the PP and TÜV SÜD.

To guarantee the transparency of the verification process, the concerns raised, based on the desk review and subsequent on-site audit assessment and follow up interviews, together with the responses given are documented in Annex 1 (verification protocol).

A Corrective Action Request is raised where TÜV SÜD identifies:

- non-conformities in monitoring and/or reporting with the monitoring plan and/or methodology;
- that the evidence provided is not sufficient to prove conformity;
- mistakes in assumptions, data or calculations that impair the ER;
- FARs stated during determination that are not solved until the on-site visit.

A Clarification Request is raised where TÜV SÜD does not have enough information or the information is not clear in order to confirm a statement or data.

A Forward Action Request is raised where TÜV SÜD identifies that monitoring and/or reporting required special attention or adjustments for the next verification period.

Information or clarifications provided as response to a CAR, CL or FAR could also lead to a new CAR.

2.7 Internal Quality Control

As an ultimate step of verification the final documentation including the verification report and the protocol have to undergo an internal quality control by the Certification Body (CB) "climate and energy", i.e. each report has to be finally approved either by the Head of the CB or the Deputy. In case one of these two persons is part of the assessment team the approval can only be given by the other one. If the documents have been satisfactorily approved, the Request for Issuance is submitted to the host country DFP along with the relevant documents.

3 VERIFICATION RESULTS

In the following sections the results of the verification are stated. The verification results relate to the project performance as documented and described in the final Monitoring Report Version 05 / 17-01-2012 for the year 2009. The verification findings are presented below.

3.1 FARs from Previous Verification

There was 1 Forward Action Request raised in the first Verification Report No. 1096910 by TÜV SÜD Industrie Service GmbH: “The Procedure for data collection/storage as part of the SCADA system has to be provided to the Verification team”. The issue has been verified during the second periodic verification and transformed in CL 3. This Forward Action has been solved during the second periodic verification: The Procedure has been included in the Monitoring Report (IRL 54).

3.2 Project Implementation in accordance with the PDD with attachment

The project is fully implemented according to the description presented in the PDD with attachment. The verifier confirms, through the visual inspection that all physical features of the proposed JI project activity including data collecting systems and storage have been implemented in accordance with the PDD with attachment. The project activity is completely operational and the same has been confirmed on-site.

No data and/or variables presented in the MR differ significantly from the stated in the PDD with attachment, which would to cause an increment of the ER in this period or in future periods in relation to the estimates in the PDD with attachment.

Specific to the monitoring period of 2009 was the use of CLU (liquid fuel) between April – November 2009. Because this is a deviation from registered PDD, the TÜV SÜD assessment team asked (CL 4) the PP to consider the DFP opinion regarding this issue.

The official answer from DFP (IRL 45) has been received: “the use of CLU for this period is accepted taking into account the financial problems Termica Targoviste faced in 2009”

However, the amount of CO_2 emissions resulted as a consequence of CLU use in this period, 2,392 kton (IRL48), has been subtracted from the amount of the ERU for 2009, 28,200 kton (IRL 54, 50).

3.3 Compliance of the Monitoring with the Monitoring Plan

The monitoring has been carried out in accordance with the monitoring plan contained in the PDD with attachment. All parameters were monitored and determined as per the Monitoring Plan.

The verification of the parameters required by the monitoring plan is provided as follows:

Data / Parameter:	Heat production total
Data unit:	MWh
Description:	Total annual heat produced through all systems in the project boundaries.
Source of data used:	Monitoring is based on meter readings. There are heat meters installed at every steam boiler and cogeneration engine, see Annex 1 table 3.2.1. All meters are fully functional and properly calibrated.
Means of verification/Comments:	The amount of heat produced was verified by entering randomly selected raw data into calculation of annual totals.
Cross-check	The heat production of the Plant was crosschecked by comparing it to the Reports on produced heat (printouts from SCADA).

Data / Parameter:	Net Electricity production
Data unit:	MWh
Description:	The net electricity produced in the generators within the boundaries of the project.
Source of data used:	Monitoring is based on power meter readings. There are electricity meters installed at every cogeneration engine, see Annex 1 table 3.2.2. All meters are fully functional and properly calibrated.
Means of verification/Comments:	The amount of net electricity produced was verified by entering randomly selected raw data into calculation of annual totals.
Cross-check	The net electricity production of the Plant was crosschecked by comparing it to the Reports on produced heat (printouts from SCADA).

Data / Parameter:	Total gas consumption
Data unit:	Nm^3
Description:	The total volume of gas consumed for the production of energy within the boundaries of the project.
Source of data used:	Monitoring is based on gas meter readings. There is a gas meter installed at the gas supply pipeline, see Annex 1 table 3.2.3. The meter is fully functional and properly calibrated.
Means of verification/Comments:	The amount of gas consumption was verified by entering randomly selected raw data from monthly bills from the gas supplier into calculation sheet.
Cross-check	The gas consumption was crosschecked by comparing it to the Reports on produced heat (printouts from SCADA).

Data / Parameter:	Heat delivered to secondary network
Data unit:	MWh
Description:	The total heat delivered outside the boundaries of the project including make-up water for the secondary network.

Source of data used:	Monitoring is based on heat meter readings. The total heat delivered outside the boundaries of the project is metered at every thermal point in the city in 55 locations. At each thermal point heat is metered by two meters (in total 110 meters): main heat meter and make-up water for the secondary network, see Annex 1 table 3.2.4. The meters are fully functional and properly calibrated.
Means of verification/Comments:	The amount of heat delivered to secondary network was verified by entering randomly selected raw data from the monthly readings into calculation sheet.
Cross-check	The heat delivered to secondary network was crosschecked by comparing it to the Reports on produced heat (printouts from SCADA).

Data / Parameter:	Natural Gas lower Calorific value
Data unit:	KCal/m³
Description:	The Natural Gas lower Calorific value is used to compute the Consumed Energy
Source of data used:	Monitoring is based on the data issued by Romanian Energy Regulatory Authority. The value is a public one established by the national authority in the field in Romania and therefore its level uncertainty could be considered as acceptable
Means of verification/Comments:	The Natural Gas lower Calorific value was verified with the result from the Analysis Report from Distrigaz Sud.
Cross-check	The Natural Gas lower Calorific value was cross-checked from http://www.transgaz.ro/puteri_calorifice.php .

All other parameters used in ERU calculations (such as Specific CO_2 Emissions for gas and lignite, theoretical gas consumption of the gas engines, heat losses in transport network, the gas boiler net efficiency and Electric efficiency lignite fired plant) where fixed in PDD with attachment and do not require monitoring.

3.4 Assessment of Data and Calculation of Greenhouse Gas Emission Reductions

All data has been available and all the parameters have been monitored in accordance with the registered monitoring plan.

The reported data has been cross check against other sources when available as explained above in chapter 3.3.

The verifier confirms that the methods and formulae used to obtain the baseline, project and leakage emissions are appropriate. The same have been done in accordance with the methods and formulae described in the monitoring plan and project specific methodology.

The verifier confirms that all the emission factors and default values (ex-ante values from PDD with attachment) have been correctly justified.

4 SUMMARY OF FINDINGS

The verifier can confirm that the published MR and related documents are complete and verifiable in accordance with the JI requirements. All the findings rose by the verification team, the responses by the PPs and the conclusion from the team are presented in Annex 1.

All together 13 Clarification Requests and one Forward Action Request were issued.

The most important CRs are listed herewith:

CL # 4: A clarification request related to CLU used as fuel between April – November 2009. As response, PP presented the official letter from DFP of Romania which accepted this deviation from PDD (IRL 45). The issue is considered solved for the audit team.

CL # 5: Another clarification request was about the EF for CLU. The PP presented the results of the analyses received from the supplier (IRL 41). The verification team compared also this EF with the default EF for residual oil [IPCC 2006] and found no inconsistency. This issue is considered solved for the audit team.

CAR # 3: A corrective action request related to LCV of NG used in calculation. The PP explained that, starting with 2009, the NG consumption is based on energy units and the values are monthly recalculated. The monthly invoices from Distrigaz have been submitted to the verification team (IRL 10) and the ER calculation file (IRL 50) together with Monitoring Report (IRL 46) were updated to take into account monthly values of LCV for NG. The Monitoring Plan foresees the natural gas consumption in GJ hence there is no need for a revision of it. The issue is considered solved.

CAR # 9 (CB): A corrective action request related to the number of Distribution stations which increased by 26 since 2003. The PP explained that the Distribution stations are not part of the boundaries of the Project. The issue is considered solved.

FAR#1: A Forward Action Request related to “Excel calculations should be protected in order to keep reliability” was. The Project Owner agreed and stated that “This is realised nowadays.” The issue shall be checked and dealt with during the next verification audit.

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5 VERIFICATION STATEMENT

TÜV SÜD Industrie Service GmbH has performed the second periodic verification of the JI track 1 project: "MUNICIPAL COGENERATION TÂRGOVIŞTE (ROMANIA)". The verification is based on the currently valid documentation of the UN Framework Convention on Climate Change (UNFCCC).

The management of S.C. Termica S.A. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions on the basis set out within the project's Monitoring Plan indicated in the PDD from 2004 and the attachment to the PDD and the project specific methodology. The verifier can confirm that:

- the development and maintenance of records and reporting procedures are in accordance with the monitoring plan;
- the project is operated as planned and described in the re-determined PDD with attachment;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements;
- the monitoring plan in Monitoring Report is as per the PDD with attachment;
- the monitoring plan in the PDD with attachment is as per the project specific methodology.

The verified emission reduction figures are lower than the ex-ante estimated figures in the PDD that is due to a lower demand than expected. However, this fact does not affect the verification of the project. Our opinion refers to the project's GHG emissions and resulting GHG emission reductions reported both determined due to the valid project's baseline, its monitoring plan and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement. Verified emissions in the above reporting period to be issued as ERUs:

Reporting period	**From 01-01-2008 to 31-12-2008**
Baseline emissions	56,026 tCO_2e
Project emissions	27,826 tCO_2e
CLU emissions	-2,392 tCO_2e
Leakage emission:	0.0 tCO_2e
Emission reductions:	25,809 tCO_2e

Munich, 20-01-2012

Thomas Kleiser
Certification Body "climate and energy",

Munich, 20-01-2012

Robert Mitterwallner
Assessment Team Leader

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Annex 1
Verification Protocol

Verification Protocol, second periodic

Project Title: Municipal Cogeneration Targoviste
Date of Completion: 2012-01-17
Number of Pages: 52

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Input by audit team in blue colour

Template text in black colour

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See the sent Copy-Document (12-12-2012)

Adresa Quasaro SRL

Verification Protocol, second periodic

Project Title: Municipal Cogeneration Targoviste
Date of Completion: 2012-01-17
Number of Pages: 52

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Checklist is applicable to JI projects – Project Activity No.: 600500581

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1. Project Activity Implementation

1.1. Technology

PDD	Verified Situation	Conclusion
Location (s)		
Description / Address:	*S.C. Termica S.A.* *Centrala Termică Târgovişte Sud* Str. Laminorului nr. 14, Târgovişte, 130089-România	☑
GSP coordinates:	Lat: 44,916389; Long: 25,442500	☑
Technical Equipment – Main Components		
Component 1: *Description*	*One (1) Cogeneration Engine, designated as "Andreea" 0.14 MW electric, located at the above address*	☑
Component 1: *Technical Features*	*Engine MAN, Engine type E2842E, Generator Stamford HC 434 2D, Electric Capacity 145 kW, Qualifying heat capacity 266 kW, commissioning date November 2003*	☑
Component 2: *Description*	*Hot Water Boiler HOB 3, 58.1 MW Thermal, located at the above address*	☑
Component 2: *Technical Features*	*Initial CAF5, Vulcan Bucuresti, Refurbished Hot Water Boiler with 8 Baltur burners 58.1 MW thermal, Commissioning date in the upgraded version November 2005*	☑
Component 3: *Description*	*Hot Water Boiler HOB 4, 15 MW Thermal, located at the above address*	☑
Component 3:	*Danstocker Hot Water Boiler 15.0 MW thermal, Commissioning date October 2005*	☑

PDD	Verified Situation	Conclusion
Technical Features		
Component 4 *Description*	*Nine (9) Cogeneration Engines, 0.81 MW electric, located at the above address*	☑
Component 4: *Technical Features*	*Engine Perkins, Engine type 4016 TESI 140 HC, Generator Newage HC634K, Electric Capacity 0.81 MW electric, Qualifying heat capacity 1,24 MW, Commissioning date August-September 2006*	☑
Operation Status during verification		
Approvals / Licenses N/A	*Licence for the production of power energy, no. 742/08.06.2006 (IRL 35)* *Licence for thermal energy production, no. 28/28.06.2000 (IRL 34)* *Environmental Licence of operation, no. 106/13.11.2006, revised on 07.09.2009 and valid until 31.12.2018.(IRL 39)* *License for thermal energy production, no. 0533/19.05.2009, valid until 19.05.2014, not including thermal energy produced in cogeneration. (IRL 36)* **Clarification Request No.1** Please clarify the validity of the Licenses 28/28.06.2000 and 742/08.06.2006.	CL 1
Actual Operation Status N/A	Under construction ☐ In operation ☒ *for the Engines 1+9, HOB 3 and HOB 4* Out of operation ☐ Reason (when out of operation):	☑
Remarks to Special Operational Status During the Verification Period	*The steam boiler shall be used only for process purposes. It is under refurbishment since 2007. The HOB 6, HOB 7, HOB 8 are designated as peak load boilers and back-*	CAR 1

PDD	Verified Situation	Conclusion
	up boiler for the other boilers and engines. They are in the final stage of construction but they have not reached the stage of testing. However these boilers are not the part of JI project. **Corrective Action Request No.1** "HOB 6 (11.6 MWth), HOB 7 (11.6 MWth) and HOB 8 (11.6 MWth) These are new boilers. Purchased in 2006 to replace HOB2 (29 MWth). These boilers will be commissioned in December 2007". Monitoring Report (IRL 3), page 2. Please clarify the present status (2011).	

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1.2. Organization

PDD	Verified Situation	Conclusion
Project Participant (s)		
Entity / Responsible person:	*City Hall Târgovişte – Ms. Ana George Bogdan – Vice Mayor (owner of Termica)* *S.C. Termica S.A. – Mr. Viorel Tabacu – General Manager (operator of the project)* *S.C. Nuon Energy Romania Srl. – Leo Paulissen (CO_2 credits owner)* **Corrective Action Request No.2** According to "Annual Report 2009.pdf" (IRL 40), a new organisational structure is in place at Nuon Targoviste. Please discuss and include the new organisation scheme of the project in the Monitoring Report.	CAR 2
Project management:	*S.C. Termica S.A. – Mr. Viorel Tabacu – General Manager (operator of the project)* *S.C. Nuon Energy Romania Srl. – Leo Paulissen (CO_2 credits owner)*	☑

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1.3. Quality Management System

PDD	Verified Situation	Conclusion
Quality Management Manual:	The existing but not yet certified Quality Management System does cover operational and management structure of the project relevant organization and staff. The management system is actively used and it is the guiding document for managing the company.	☑
Responsibilities:	*Ms. Mariana Mândrescu - Termica Quality Manager* *Mr. Valentina Popa – Termica Environment Auditor*	☑
Qualification and Training:	*For Ms. Mariana Mândrescu:* *Training of Quality Management acc. to ISO 9001 done in 2005* *Training as Internal Auditor done with QUASARO in 2005* *For Ms. Valentina Popa:* *Training as Internal Auditor done with QUASARO in 2005 and* *Internal Audit for the ISO 14001-ISO 9001 training course done in 2007* **Clarification Request No.2** *Please provide more recent training evidences*	CL 2
Implementation of QM-system	*The system is in operation. The responsibilities are defined. The procedures are known by the operators and responsible people and used in daily activities.*	☑

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1.4. Remaining FARs from last periodic verification

Remaining Requests from Previous Verifications	Summary of project owner response	Audit team conclusion
0 *Written (paper or digital) procedure for data transfer shall replace verbal transfer*	The Project includes an automatic data collection / storage system, part of SCADA system. Data collection is still under verification and can be used for data verification if needed.	The issue has been verified during the second periodic verification. However, **Clarification Request No.3** Please provide this procedure as of para 101 of the DVM.

2. Data Management System

2.1. Description

Structure of raw data archiving				
Describe all the different data collection systems				
Type	Name	Responsible	Procedures	Comments
Raw data collection	*Registers*	*Operators on the field*	*PO-CM-13*	*Raw data are recorded into registers at the beginning of the 12-hours shift and at the end of it and a Shift Report is dated and signed by all people involved. Data are normally each hour recorded (e.g. natural gas meters, heat meters at the Termica premises, electricity meters). The data from Heat Meters outside the Termica are collected once per day. There are further sent for centralization each end of the day (19:00 hours). Data from HOB 3 and Engine 9 were checked during the audit and found in consistency with the officially collected data. See also (IRL 5)*
Raw data storage	*Computer*	*Operators and dispatcher on charge*	*PO-CM-13*	*All raw data are recorded manually. The computerized collection raw data is implemented (SCADA) but it delivers sometimes faulty data and therefore it is not used for the moment for the raw data collection*
Raw data storage	*Computer*	*NUON representatives*	*PO-CM-13*	*All raw data are recorded manually. The computerized collection raw data is implemented (SCADA) but it delivers sometimes faulty data and therefore it is not used for the moment for the raw data collection*

Laboratory results	*N/A*	*N/A*	*N/A*	*No laboratory analysis is done within the company*
Sampling	*N/A*	*N/A*	*N/A*	*There are no samples taken during the raw data recording process*
Accounting	*N/A*	*N/A*	*N/A*	*No accounting information is currently used in calculations*
External data	*Gas calorific power factor*	*Ms. Valentina Popa, Environment Responsible Person*	*DISTRIGAZ SUD chemical analysis internal procedure*	*Monthly invoices from DISTRIGAZ have been provided* **Corrective Action Request No.3** *The monthly NG consumption as included in the invoices (IRL 10) is different compared to the monthly consumptions as written in "Monitoring&EmissionReduction_2009_GasOnly_ Pci modif.xls" (IRL 32).* *In the same time, the calorific value used in "100311 Centralizer Emissions 2009.xls" – 8057 kcal/m^3 - (IRL 30) differs from the calorific value calculated on the monthly values basis and used in "Monitoring&EmissionReduction_2009_GasOnly_ Pci modif.xls" (IRL 32) – 8070.34 kcal/m^3.* *One final version for calculation files is requested together with an updated version of the Monitoring Report.*

	CLU calorific power factor	*Ms. Valentina Popa, Environment Responsable Person*	*Different suppliers provided chemical analyses for CLU (IRL 41).* *The procedure "PO-CM-17"(IRL 31) is in place for the determination of CLU consumption.*	**Clarification Request No.4** *The liquid fuel (CLU) has been not included in the PDD and in the approved Monitoring Plan.* *A decision from DFP of Romania regarding the use of this fuel in the Project is requested.* *Also, the impact of liquid fuel (CLU) on the ERU calculation can't be ignored. A revision of the excel calculation sheet and of the MR is requested*
Cross-check Approach: *Data are each hour recorded (e.g. natural gas meters, heat meters at the Termica premises, electricity meters). The data from Heat Meters outside the Termica are collected once per day. There are further sent for centralization each end of the day (19:00 hours). The risks for material misstatement are reduced by these control measures and the remaining risk is low.* **Further Remarks:** *No further remarks*				

2.2. Raw Data Archiving and Protection measures

Name	Description of data archiving and protection measures	Risks and comments	Concl.
Form a	*N/A*	*N/A*	N/A
Computer a	*The raw data collected from the operators and introduced in the registers are afterwards transmitted verbally by telephone to the Operators from the Control Room. They are stored into the computerized data base in excel. All data of interest for this project are*	*Risks of some data lost is between the daily data delivery because of a computer failure is eliminated by means of recording in several*	☑

	sent once per day to the General Manager, to the Production Manager, and to NUON Energy. They are distributed by e-mail. Also monthly the IT department of Termica is collecting all these data and it is making a supplementary back-up system. *There is only one storing computer in the Control Room.*	*places the data collected manually and recording all these data also into registers, manually.*	
Computer b	*The computer of the General Manager for which is responsible himself*	*The break down of the computer. The data are available on the other listed computers*	☑
Computer c	*The computer of the Technical Manager for which is responsible himself*	*The break down of the computer. The data are available on the other listed computers*	☑
Computer d	*The computer of the Production Manager for which is responsible himself*	*The breakdown of the computer. The data are available on the other listed computers*	☑
Computer e	*The computer of the NUON Energy representative for which is responsible himself*	*The breakdown of the computer. The data are available on the other listed computers*	☑
Form b	*N/A*	*N/A*	N/A
Form c	*N/A*	*N/A*	N/A
Form d	*N/A*	*N/A*	N/A
Invoice	*N/A*	*N/A*	N/A
Form e	*N/A*	*N/A*	N/A
Cross-check Approach: *The raw data are collected in the Control Room and archived on the computer from this room and also, once per day, the data are sent to four other parties for storage. The risks of losing the archived data are moderate.* **Further Remarks:** No further remarks			☑

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2.3. Data transfer

Description of data transfer from raw data archiving to calculation tool			
Name	Description and responsibilities	Risks and comments	Concl.
Form a	*Data transfer from the operator to the Control Room is done verbally by phone and stored electronically*	*Misunderstanding of data or message wrongly interpretation. This risk is eliminated by further data collection and comparison with old data as well as by means of further calculations* *See CL 3*	CL 3
Computer a	*The raw data are collected in the Control Room and archived on the computer from this room. Also, once per day, the data are sent to four other parties for storage.*	*The breakdown of the computer. The data are available on the other listed computers*	☑
Computer b	*The computer of the General Manager for which is responsible himself*	*The breakdown of the computer. The data are available on the other listed computers*	☑
Computer c	*The computer of the Technical Manager for which is responsible himself*	*The breakdown of the computer. The data are available on the other listed computers*	☑
Computer d	*The computer of the Production Manager for which is responsible himself*	*The breakdown of the computer. The data are available on the other listed computers*	☑
Computer e	*The computer of the NUON Energy representative for which is responsible himself*	*The breakdown of the computer. The data are available on the other listed computers*	☑
Form b	*N/A*	*N/A*	N/A

Form c	*N/A*	*N/A*	N/A
Form d	*N/A*	*N/A*	N/A
Invoice	*N/A*	*N/A*	N/A
Form e	*N/A*	*N/A*	N/A
Cross-check Approach: The *misunderstanding of data or messages wrongly interpreted is eliminated by further data collection and comparison with old data as well as further calculations. The computer from the Control Room used for data storage and computation has a password known by the responsible people in charge with these activities. The eventual faulty inserted or managed data can be checked throughout the other back-up systems (the other four computers). The risks for material misstatement are reduced by these control measures and the remaining risk is low.* **Further Remarks:** *See CL 3*			CL 3

2.4. Data Processing

Description of data processing from transferred data to final results in the calculation tool			
Step	Description	Risks and comments	Concl.
Consistency	*There are some changes done since the PDD was developed but they were accepted on the monitoring of 2007. Since then, no further changes were done.*	*No risks with respect to this issue*	☑
Calculation Tool description	*The data collected in the Control Room are further used for calculation. The calculation is done by means of excel data sheets. These calculations are done in parallel by Termica and NUON Energy. Any discrepancy in the final results is immediately dis-*	*There is a small risk to make a mistake in the same way by so that it cannot be seen by all parties because of the wrong reading of the monthly data. The*	☑

	cussed between the two parties. *There are some changes in the calculation formula determined by faulty meters operation which required utilization of mean data for the period of their faulty operation.* *All formulae are clearly described, consistent with the PDD, transparent and using correct units in compliance with the PDD*	*risk is automatically solved either by data interpretations or by future readings.* *The risk is to make some wrong calculations far from reality*	
Transformation from transferred data to useable data	*Procedure in case that data is missing* *Procedure in case that data are incorrect*	*No data can be missed. If data is missing, the registers are available and the data is collected again from these registers.* *Data are compared with previous data and any discrepancy can be either remarked from data collection or from data computation*	☑
Elimination of not plausible data	*Not plausible data are detected by redundant measurements which are consisting of comparison of energy meters located at the entrance and exist of each Thermal Points. This energy meters represents about 95% of delivered energy.*	*A faulty operation of a meter is immediately noticed by analysing the Thermal Point efficiency where the primary and secondary systems are jointed.*	☑
Transformation from useable data to input data for further calculation	*Mean values are used only when faulty data are recorded and the faulty operation of a meter is suspected.*	*In such a case, there is a procedure PO-CM-14 (IRL 14), which describes the way to handle this situation. This procedure presents what is happening when is a faulty data recorded or a meter problem.*	☑
Ex-ante data	*Data are collected in the same way from the beginning of the*	*The additional data collected via new*	☑

	PDD. There are additional meters installed in the last months/years. But this is not changing the calculation.	*meters is not changing the calculation itself but is improving it. No data was assumed at the early stage of the project. They were only based on fewer data collection systems.*	
Default parameter	*The only default parameter is the Gas calorific power and it is given by DISTRIGAZ. Its unit is correct.*	*There is a risk that non-conservative value of this parameter to be used. Actually, this value should always be conservative vis-à-vis this project, considering the fact that a non-conservative value would be in the detriment of DISTRIGAZ, which cannot be the case.*	☑
Formulae check	*Yes.*	*They were checked at the time of PDD development and during the project Re-determination. There are no changes of these formulae in the mean time*	☑
Rounding functions	*Rounding values are used as they were described in the initial PDD and further on accepted in the Re-determination report.*	*The rounding used in the initial PDD was accepted at that time.*	☑
Calculation tool changes and protection measures	*The unauthorized access to the data calculation computer is protected by means of passwords.* *There are only excel calculation sheets which are using formulae agreed at the time of PDD development and project re-determination*	*The electronic protection of data is further secured by storing and handling the same data by several parties in parallel.*	☑
Cross-check Approach: *Faulty similar calculations by both parties may result from calculation or faulty monthly readings. Faulty monthly readings are automatically corrected either by data interpretation or by subsequent data readings* . **Further Remarks:**			☑

2.5. Work Instruction out of protocol Algorithms

Description of data processing from transferred data to final results in the calculation tool			
Step	Description	Risks and comments	Concl.
Methodology formulae	*CO2 emissions reduction from cogeneration, cell F98 =Total CO2 emissions heat and electricity production (Baseline definition), cell F70 - Total CO2 emissions heat and electricity production (cogeneration), cell F94* *Total CO2 emissions heat and electricity production (Baseline definition), cell F70 = CO2 emissions electricity production, cell F68 + CO2 emissions heat production, cell F61* *Total CO2 emissions heat and electricity production (cogeneration), cell F94= CO2 emissions heat production, cell F92 + CO2 emissions cogen plant (electricity & heat production) cell F83*	*Formulae to calculate the baseline emissions were not indicated in the PDD but are part of the Excel Spread Sheet for calculation.* *See CAR 3, CL 4*	CAR 3, CL 4
Describe the use of each formula in the calculation tool	*CO2 emissions reduction from cogeneration, kton, cell F98 =Total CO2 emissions heat and electricity production (Baseline definition), kton, cell F70 - Total CO2 emissions heat and electricity production (cogeneration), kton, cell F94* *Total CO2 emissions heat and electricity production (Baseline definition), kton, cell F70 = CO2 emissions electricity production, kton, cell F68 + CO2 emissions heat production, kton, cell F61* *CO2 emissions electricity production, kton, cell F68= Specific CO2 emissions (from base-line definition), kg CO2/GJ, cell F67 * Lignite consumption, GJ , cell F66 / 10^6* *Lignite consumption, GJ, cell F66 =(Electricity net production, MWhe, cell F63 / Electric efficiency,% (LHV) (from base-line definition), cell F65*3.6)* *Electricity net production, MWhe, cell F63 ='1-20092009!F17+'2-*	*Formulae to calculate the baseline emissions were not indicated in the PDD but are part of the Excel Spread Sheet for calculation.* *See CAR 3, CL 4*	CAR 3, CL 4

	2009'!F17+'3-2009'!F17+'4-2009'!F17+'5-2009'!F17+'6-2009'!F17+'7-2009'!F17+'8-2009'!F17+'9-2009'!F17+'10-2009'!F17+'11-2009'!F17+'12-2009'!F17 *Total CO2 emissions heat and electricity production (cogeneration), kton, cell F94= CO2 emissions heat production, kton, cell F92 + CO2 emissions cogen plant (electricity & heat production), kton, cell F83* *CO2 emissions heat production, kton, cell F92 = (Natural gas consumption new HOB's, GJ, cell F87+ Natural gas consumption degasser, GJ, cell F90)* Specific CO2 emissions, kg CO2/GJ, cell F91/10^6* *Natural gas consumption new HOB's, GJ, cell F87= Gas Consumption HOBs, MWhgas, cell F26*3.6* *Gas Consumption HOBs, MWhgas, cell F26= HOBs, m3, cell D13 * Natural gas LCV / PCI, MJ/m3, cell K18/ 10^3 /3.6* *Natural gas LCV / PCI, MJ/m3, cell K18= Natural gas Lower Calorific Value (LCV) (from natural gas specifications), kcal/m3, cell K17 *4.1868/1000* *Natural gas consumption degasser, GJ, cell F90* = Gas consumption degasser, MWhgas, cell *F30*3.6* Gas consumption degasser, MWhgas, cell *F30 ='1-2009'!D12+'2-2009'!D12+'3-2009'!D12+'4-2009'!D12+'5-2009'!D12+'6-2009'!D12+'7-2009'!D12+'8-2009'!D12+'9-2009'!D12+'10-2009'!D12+'11-2009'!D12+'12-2009'!D12* *Specific CO2 emissions, kg CO2/GJ, cell F91= Specific CO2 emissions (from base-line definition), kg CO2/GJ, cell F60* *CO2 emissions cogeneration plant (electricity & heat production), kton, cell F83= Natural gas consumption cogeneration plant, GJ, kg CO2/GJ, cell F81* Specific CO2 emissions, kg CO2/GJ, cell*		

	F82/10^6 *Natural gas consumption cogeneration plant, GJ, cell F81= Co-generation, MWhgas, cell F11 *3.6* *Cogeneration, MWhgas, cell F11= Cogeneration, m3, cell D11, * cell K18/10^3/3.6* *Cogeneration, m3, cell D11='1-2009'!D11+'2-2009'!D11+'3-2009'!D11+'4-2009'!D11+'5-2009'!D11+'6-2009'!D11+'7-2009'!D11+'8-2009'!D11+'9-2009'!D11+'10-2009'!D11+'11-2009'!D11+'12-2009'!* *Natural gas LCV / PCI, MJ/m3, cell K18= Natural gas Lower Calorific Value (LCV) (from natural gas specifications), kcal/m3, cell K17 *4.1868/1000* *Specific CO2 emissions, kg CO2/GJ, cell F82= Specific CO2 emissions (from base-line definition), cell F60*		
Report any additional calculation use to obtain values use in the formulae	*No additional calculation is required*	*Formulae were not indicated in the PDD but are part of the Excel Spread Sheet for calculation.*	☑

3. Monitoring Plan Implementation

3.1. List of Parameter to be monitored

ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
Instrumentation				
Heat production	*Heat production total*	*Heat production from CAF, from co-generation and from steam boiler*	*Total heat produced through all systems in the project boundaries*	☑
Electricity production	*Net Electricity production*	*Net Electricity production*	*The NETO energy produced in the generators within the boundaries of the project*	☑
Gas consumption	*Total Gas consumption*	*Total Gas consumption*	*The total volume of gas consumed for the production of energy within the boundaries of the project* **Corrective Action Request No.4** *"The total natural gas consumption is measured using 2 gas meters in parallel in the main natural gas supply line." Monitoring Report, page 6 (IRL 3). As checked during the on-site visit, the meters work alternatively and the total gas consumption is the sum of these two readings. As of para 101 of DVM, please includes this explanation in the revised Monitoring Report in order to avoid confusions.*	CAR 4
Heat delivered to secondary	*Total heat delivered to secon-*	*The heat delivered to secondary*	*The total heat delivered outside the boundaries of the project*	☑

ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
network	*dary network*	*network + make-up water primary to secondary*		
Sampling				
N/A	*N/A*	*N/A*	*N/A*	☑
N/A	*N/A*	*N/A*	*N/A*	☑
N/A	*N/A*	*N/A*	*N/A*	☑
N/A	*N/A*	*N/A*	*N/A*	☑
N/A	*N/A*	*N/A*	*N/A*	☑
-				☑
Accounting				
N/A	*N/A*	*N/A*	*The accounting data are used only as a checking toll but not in calculations*	☑
External Data				
-	*Natural Gas lower Calorific value*	*Natural Gas lower Calorific value*	*The Natural Gas lower Calorific value is used to compute the Consumed Energy See CAR 3*	CAR 3
		CLU lower Calorific value	*See CL 4*	CL 4

ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
CO2 Emissions factors for gas and lignite	*Specific CO2 Emissions for gas and lignite*	-	*These factors are used from Romanian national statistics as illustrated in the PDD*	☑
-	*Theoreti-cal gas consump-tion of the gas en-gines*	-	*There was foreseen a meter for this value. Instead of this parameter is taken from the technical documentation of the engines. Actually, because this value is part of the total gas consumption value which will not be influenced by the variation of this parameter.*	☑
Heat trans-portation losses	*Heat losses in transport network*	-	*This value is considered to be 26% in calculations. In the PDD was considered to be 22%. The reason for this difference is that In the meantime the production decreased and the losses are almost the same and consequently higher in percentage estimated initially in the PDD*	☑
The gas boiler net efficiency	*The gas boiler net efficiency*	-	*This factor was assumed at the time of PDD development*	☑
The lignite fired units net effi-ciency	*Electric efficiency lignite fired plant*	-	*This factor was assumed at the time of PDD development*	☑
Others				

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3.2. Monitoring Instrumentation

3.2.1. Instrument i Heat Production

PDD	Verified Situation	Conclusion
Instrumentation Information		
ID-PDD:	*Heat production*	☑
ID-Internal:	*Heat production from CAF, from cogeneration and from steam boiler*	☑
Data to be Measured:	*Total heat produced through all systems in the project boundaries*	☑
Data Logging:	*-*	☑
Archiving of Raw Data:	*The data is hourly recorded*	☑
Measurement Principle:	*One direction*	☑
Period of Operating Time:	*2006 - until now "Contor ET CAF 3 .pdf" (IRL 7, IRL 12)*	☑
Instrument Type:	*Electronic*	☑
Serial Number:	*There are various heat meters. The dates are presented in the " MetersPlant centralizer.xls " (IRL 12)*	☑
Manufacturer Model Nr.:	*There are various heat meters producers. The data are presented in the " Meters Plant centralizer.xls " (IRL 12)*	☑
Specific Location:	*The location of heat meter is presented in the document "DrawingMeter.jpg" (IRL 11)*	☑
Measurement Range:	*The data are presented in the " Meters Plant centralizer.xls " (IRL 12)*	☑
Measurement Unit:	*The dates are presented in the "Meters Plant centralizer.xls " (IRL 12)*	☑
Calibration:	*Last calibration campaign for the heat meters took place in 2006.*	☑

Required Calibration Frequency:	*During the audit, a difference between calibration period a/2 years has been noted. The legal justification for the new calibration period of five years has been provided "Ordin BRML-2 iunie 2006 modificare perioada verificare.jpg" (IRL 37)*	☑
Uncertainty Level:	*The uncertainty for CAF meter has been provided "Contor ET CAF 3 .pdf" (IRL 7). However, in the calibration documents (IRL 7) for the rest of the meters there is only the statement "admitted", without any consideration regarding the uncertainty of the devices.* **Clarification Request No.5** *Official documents regarding the uncertainty of the heat meters used in the plant are requested.*	CL 5
Monitoring & Calculation		
Reading Frequency:	*Continuously*	☑
Recording Frequency:	*Daily*	☑
Trouble Shooting:	*In this case, default values are used based on a formula described in this procedure for different scenarios.* *The dispatcher is responsible to take actions when such faulty operations of the meters are encountered.* *It is an internal Termica procedure "PO-CM-14" (IRL 6) which describes the way of data review and actions to be taken when data are found to be wrong* *Also the NUON representative is double checking the manually recorded data with the ones recorded by Scada system and takes actions and double check both data sources each time when discrepancies are found between these data*	☑

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Inspection Results During Verification			
Operation of Instrumen-tation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	*According to PDD the heat value needs to be recorded continuously*	*The requirements are fulfilled.*	☑
Installation*:* *Manner of execution*	*Description*	*The meters are installed properly and are working normal.*	☑
Functionality:	*The meters are functioning*	-	☑
Quality assurance:	*Two thermal distribution points have been cross-checked with control room readings*	The readings were identical. The data transfer and recording is working appropriately.	☑
Maintenance:	-	-	☑
Cross-check Approach: *The NUON representative is double checking the manually recorded data with the ones recorded by Scada system and takes actions and double check both data sources each time when discrepancies are found between these data.* *The procedure "PO-CM-14" (IRL 6) describes the way of data review and actions to be taken when data are found to be wrong.* **Further Remarks:** *No further remarks.*			☑

3.2.2. Instrument ii Electricity production

Back to 3.1. List of Parameter to be monitored

PDD	Verified Situation	Conclusion
Instrumentation Information		
ID-PDD:	*Electricity production*	☑
ID-Internal:	*Net Electricity production*	☑
Data to be Measured:	*The NETO energy produced in the generators within the boundaries of the project*	☑
Data Logging:	*-*	☑
Archiving of Raw Data:	*The data is hourly recorded*	☑
Measurement Principle:	*Two directional*	☑
Period of Operating Time:	*Begin: 2007* *Until now – folder "BV Contori energie el " (IRL7)*	☑
Instrument Type:	*Electronic*	☑
Serial Number:	*36074899; 36074889*	☑
Manufacturer Model Nr.:	*ACTARIS SL 7000*	☑
Specific Location:	*Electric room "Targoviste 23.03.09 20 kV El.meter 1.jpg" "Targoviste 23.03.09 20 kV El.meter 2.jpg" (IRL 11)*	☑
Measurement Range:	*10000 imp/kWh for P; 10000 imp/kVArh for Q;*	☑
Measurement Unit:	*P=[kWh]; Q=[kVArh]*	☑
Calibration:	*Calibrated 22.05.2007*	☑
Required Calibration Frequency:	*8 years*	☑

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Uncertainty Level:	*0.5 for P; 2 for Q*	☑
Monitoring & Calculation		
Reading Frequency:	*Continuously*	☑
Recording Frequency:	*Hourly*	☑
Trouble Shooting:	*It is an internal Termica procedure "PO-CM-14" which describes the way of data review and actions to be taken when data are found to be wrong.*	☑

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Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	*According to PDD the electricity value needs to be recorded continuously*	*The requirements are fulfilled.*	☑
Installation: *Manner of execution*	*Only few people are allowed to enter this room.*	*The meter is installed properly and is working normal.*	☑
Functionality:	*The meters are functioning*	-	☑
Quality assurance:	*The meter is calibrated and sealed.*	*The calibration certificate has been checked.*	☑
Maintenance:	-	-	☑
Cross-check Approach: There are reports for determining the electric power delivered per month to the electric company (signed by both parts) and also monthly bills sent to the electricity company **Further Remarks:** *No further remarks*			☑

Back to 3.1. List of Parameter to be monitored

3.2.3. Instrument iii Gas consumption

Back to 3.1. List of Parameter to be monitored

PDD	Verified Situation	Conclusion
Instrumentation Information		
ID-PDD:	*Gas consumption*	☑
ID-Internal:	*Total Gas consumption*	☑
Data to be Measured:	*The total volume of gas consumed for the production of energy within the boundaries of the project*	☑
Data Logging:	*-*	☑
Archiving of Raw Data:	*The data is hourly recorded*	☑
Measurement Principle:	*One direction*	☑
Period of Operating Time:	*Begin: 2005* *Until now - folder "BV contoare gaz " (IRL 7)*	☑
Instrument Type:	*Electronic*	☑
Serial Number:	*86854010001; 9559211001*	☑
Manufacturer Model Nr.:	*ACTARIS CORUS PTZ FLUXI 2300*	☑
Specific Location:	*Termica courtyard (IRL 11)*	☑
Measurement Range:	*200- 6500 m3/h; 1 imp=10 m3*	☑
Measurement Unit:	*m3*	☑

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Calibration:	*Last calibration in 2008 – "BV Contor Gaz General Cogen-2008.pdf" (IRL 7)*	☑
Required Calibration Frequency:	*5 years*	☑
Uncertainty Level:	*1 % - "BV Contor Gaz General Cogen-2008.pdf" (IRL 7)*	☑
Monitoring & Calculation		
Reading Frequency:	*Continuously*	☑
Recording Frequency:	*Hourly*	☑
Trouble Shooting:	*It is an internal Termica procedure "PO-CM-14" (IRL 6) which describes the way of data review and actions to be taken when data are found to be wrong*	☑

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	*According to PDD the gas consumption needs to be recorded continuously*	*The requirements are fulfilled.*	☑
Installation: *Manner of execution*	*It was done by DISTRIGAZ*	*The meter is installed properly and is working normal.*	☑
Functionality:	*The meters are functioning*	-	☑
Quality assurance:	*Calibration*		☑
Maintenance:			☑
Cross-check Approach: There are monthly bills sent from the gas company. **Further Remarks:** *No further remarks*			☑

3.2.4. Instrument iv *Heat delivered to secondary network*

PDD	Verified Situation	Conclusion
Instrumentation Information		
ID-PDD:	*Heat delivered to secondary network*	☑
ID-Internal:	*The heat delivered to secondary network + make-up water primary to secondary network*	☑
Data to be Measured:	*The total heat delivered outside the boundaries of the project is metered at every thermal point in the city in 55 locations. At each thermal point heat is metered by two meters (in total 110 meters): main heat meter and make-up water for the secondary network.*	☑
Data Logging:	*It is an internal Termica procedure "PO-CM-14" (IRL 6) which describes the way of data review and actions to be taken when data are found to be wrong*	☑
Archiving of Raw Data:	*The data is recorded daily*	☑
Measurement Principle:	*One direction*	☑
Period of Operating Time:	*Please provide information regarding the commissioning date of the meters.* *2006 – present (IRL 12)*	☑
Instrument Type:	*Provide a list of the heat meters of the secondary network with the following characteristics (instrument type; serial no., manufacturer, specific location, measurement range, measurement unit, calibration date, required calibration frequency, uncertainty level).* *The list of heat meters used has been provided – folder "Buletine aparate_PT" – (IRL42), however, from the documents there is no information regarding the uncertainty or the measurement range of the meters.* **Clarification Request No.6**	CL 6

	An official document regarding the uncertainty and measurement range of the heat meters used in PT is requested	
Serial Number:	Included in the *"Buletine aparate_PT" – (IRL42)*	☑
Manufacturer Model Nr.:	Included in the *"Buletine aparate_PT" – (IRL42)*	☑
Specific Location:	Included in the *"Buletine aparate_PT" – (IRL42)*	☑
Measurement Range:	See CL 6	CL 6
Measurement Unit:	Included in the *"Buletine aparate_PT" – (IRL42)*	☑
Calibration:	Included in the *"Buletine aparate_PT" – (I IRL42)*	☑
Required Calibration Frequency:	Included in the *"Buletine aparate_PT" – (IRL42)*	☑
Uncertainty Level:	See CL 6	CL 6
Monitoring & Calculation		
Reading Frequency:	*Continuously*	☑
Recording Frequency:	*Daily*	☑
Trouble Shooting:	*It is an internal Termica procedure "PO-CM-14" (IRL6) which describes the way of data review and actions to be taken when data are found to be wrong*	☑

Inspection Results During Verification			
Operation of Instrumentation	Method of Verification	Verification Results	Conclusion
Measuring Principle:	*According to PDD the value needs to be recorded continuously*	*The requirements are fulfilled.*	☑
Installation: *Manner of execution*	*Only few people are allowed to enter this room.*	*The meters are installed properly and are working normal.*	☑
Functionality:	*The meters are functioning*	-	☑
Quality assurance:	*Calibration*	Included in the *folder "Buletine aparate_PT" –(IRL 42)*	☑
Maintenance:	*Description*	-	-

3.3. Sampling Information- not applicable

3.4. Accounting information not applicable

3.5. External Data

PDD	Verified Situation	Conclusion
External Data		
ID-PDD:	*The natural gas lower calorific value Is not addressed in the PDD. Over there, the boiler efficiency factor is used instead*	☑
ID-Internal:	*Natural gas lower calorific value*	☑
Description of Data / Data Refers to:	*This value is used to compute the fuel energy inside the project boundaries*	☑
Unit of Data (if appropriate):	*kCal/m3 and further converted in MJ/m3*	☑
Date of Data Income:	*The start of the project*	☑
Source of Data:	*Romanian Energy Regulatory Authority*	☑
Reliability of Data Source:	*The source is reliable*	☑
Is the Data up-to-date?	*See CAR 3*	CAR 3
Uncertainty Level:	*The value is a public one established by the national authority in the field in Romania and therefore its level uncertainty could be considered as acceptable*	☑
Cross-check Approach: *The values of this parameter could vary mainly based on the source of gas (e.g. Romania, Russia, Azerbaijan, etc.).* **Further Remarks:** *No further remarks*		☑

PDD	Verified Situation	Conclusion
External Data		
ID-PDD:	*CO2 Emissions factors for gas and lignite*	☑
ID-Internal:	*CO2 Emissions for gas and lignite*	☑
Description of Data / Data Refers to:	*The CO2 Emissions for gas and lignite are the values of CO2* **Corrective Action Request No.5** *The EF of 77.3 Kg CO2/GJ (cell F91 from Excel calculation – sheet "Total-2009 CLU) must be referenced).* *See also CL 4*	CAR 5
Unit of Data (if appropriate):	*Kg CO2/GJ*	☑
Date of Data Income:	*The date of data income were collected at the beginning of project (PDD development)*	☑
Source of Data:	*IPCC*	☑
Reliability of Data Source:	*The source is reliable*	☑
Is the Data up-to-date?	*Yes. The value is the same at this moment*	☑
Uncertainty Level:	*0 from our point of view*	☑
Cross-check Approach: *The values of this parameter are coming from a very reliable source and they should not vary because of its unit of data Kg CO2/GJ. The value could be accepted as it is all along the project duration* **Risk Classification:** **Further Remarks:** *No further remarks.*		☑

Back to 3.1. List of Parameter to be monitored

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PDD	Verified Situation	Conclusion
External Data		
ID-PDD:	*The lignite fired units net efficiency*	☑
ID-Internal:	*Electric efficiency lignite fired plant* **Corrective Action Request No.6** *A linear reduction of EF from 1.3011 in 2006 to 1.104 in 2012 leads to an EF of 1.2055 in 2009. Please check the value of 101.2 kg CO2/GJ (cell F67) used in baseline calculation. Cell F68: the value is 20.3556 kton and 1.20255 x 17.041 = 20.4926*	CAR 6
Description of Data / Data Refers to:	*This parameter describes the lignite boiler net efficiency*	☑
Unit of Data (if appropriate):	*%*	☑
Date of Data Income:	*The time of PDD development*	☑
Source of Data:	*TRANSELECTRICA S.A. (the National Electricity Transport Company)*	☑
Reliability of Data Source:	*The source could be considered as reliable*	☑
Is the Data up-to-date?	*The value is annually updated considering a conservative scenario*	☑
Uncertainty Level:	*It was considered as acceptable*	☑
Further Remarks: *No further remarks*		☑

3.6. Others Not applicable

4 Data Verification

4.1 Internal Review

Description and performance of internal review			
	Description	Comments	Concl.
Procedure	*There is a internal Termica procedure "PO-CM-14" (IRL 6) which describes the way of data review and actions to be taken when data are found to be wrong* *Also the NUON representative is double checking the manually recorded data with the ones recorded by Scada system and takes actions and double check both data sources each time when discrepancies are found between these data*	*Both ways of checking are assuring the correctness of data for the previous collections.*	☑
Documentation	*Only the faulty operation of the meters is documented based on the Termica internal procedure PO-CM-14 (IRL 6). Other reviews which reveal no problems are limiting themselves to data collection and comparison*	*non*	☑
Responsibilities	*The dispatcher is responsible to take actions when such faulty operations of the meters are encountered.*	*non*	☑
Cross-check Approach: *The only problem remaining is to run more than couple of hours with faulty values. Even in this situation the faulty value will be corrected shortly after its appearance based on the average old values from the last hours of meter operation.* *This situation is reflecting the scenario when normal boiler/engine operation is taking place.* **Further Remarks:** *No further remarks.*			☑

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4.2 Usage of default values

Description and performance of internal review			
	Description	Comments and Results	Concl.
Procedure	*The Termica Internal procedure PO-CM-14 (IRL 6) describes the way to handle the situations when faulty meter indications are encountered. In this case, default values are used based on a formula described in this procedure for different scenarios.*	*The default values are computed based on formulas accepted at the time of PDD development.*	☑
Documentation	*The faulty operation of the meters is documented based on the Termica internal procedure PO-CM-14 (IRL 6).*	*The Metrology department is issuing Faulty Operation reports as per PO-CM-14 (IRL 6).*	☑
Responsibilities	*The dispatcher is responsible to take actions when such faulty operations of the meters are encountered.*	-	☑
Cross-check Approach: *For the gas and heat meters, there is a risk to evaluate too high the heat delivered during the faulty operation of the meter or too low the gas volume used for the production. The risk of default data selection and its calculation should be minimized by the direct relations with the clients considering that the clients will not accept values to high in comparison with the normal ones for the periods of time when the meters are not in operation of revealed faulty values. The same situation is taking place with respect to the gas meters.* **Further Remarks:** *No further remarks*			☑

4.3 Reproducibility

Description and performance of the assessment			
	Description	Comments and Results	Concl.
Procedure	*The calculations were checked by means of verifying the input data collection and transmission.*	*The values were find reproducible based on the raw data*	☑
Cross-check Approach: *As mentioned before, raw data collected are used in calculations and stored by different parties and therefore, the probability of occurrence of mistakes in these processes is highly reduced.* **Further Remarks:** *No further remarks*			☑

4.4 Peculiarities

Description of Peculiarities and unexpected Daily Events during the verification period			
	Description	Comments and Results	Concl.
Performance	*The usual performance of the facility is good. The abnormal operation of the plant is encountered when forced shut-downs occurred because of heating pipes broking down.*	*These events were considered into calculations as losses resulting from differences between the produced energy and delivered one*	☑
Documentation	*These events are documented into Termica daily reports.*	*The result of such an event is to decrease the CO_2 emissions saved and therefore it increases the conservativeness of the approach*	☑
Measures	*Measures are taken to assess the damage causes and to take corrective and preventive measures vis-à-vis such events*	*These measures are mainly technically oriented*	☑
Further Remarks: *No further remarks*			☑

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4.5 Reliability and Plausibility

Description of crosschecks and plausibility checks			
	Description	Comments and Results	Concl.
Performance	*The data are plausible and no faulty should be expected to de found. No discrepancies from the normal trend were found. Some deviations from the smooth variation of data in time were found but they had clear reasons for them.* *Data collected, stored and used for calculation in this project are actually crosschecked through the invoicing department.*	*See CAR 3 and CL 4*	CAR 3, CL 4
Cross-check Approach: *Through invoicing, the risk of increasing the energy delivered values would immediately determine a reaction from the end users of the energy and using lower values of the energy used cannot be done considering the fact that the gas volume is taken from a meter property of the TRANSGAZ which has no interest to accept lower values as they are in reality.* **Forward Action Request No.1** Excel calculations should be protected in order to keep reliability **Further Remarks:** *No further remarks*			FAR 1

4.6 Completeness and Correctness

Description of completeness and correctness			
	Description	Comments and Results	Concl.
Correctness	*All data checked were found to be corrected collected, calculated and stored and further interpreted as for CO2 emission reduction purposes* *See CAR 3*	*non*	CAR 3
Completeness	*All necessary data are there for a complete evaluation of the project results.* *See CL 4*	*non*	CL 4
Further Remarks: -			

5 Additional requirements

Description of additional requirements to be checked			
	Description	Comments and Results	Concl.
e.g. environmental issues	*As checked on site, there is an Environmental Permit (IRL39) issued on 07.09.2009 and valid till 31.12.2018, including CLU as an alternative fuel for CAF 4.*	*The sulphur content of the liquid fuel (CLU), as checked with the laboratory analyses (IRL 41) is less than 1 %*	☑
-	-	-	☑
Cross-check Approach: *This Permit was issued by REPA Pitesti (Regional Environmental Agency) with the number: 106/2009* **Risk Classification:** *The risk is very low* ***Further Remarks:*** *-*			

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6 Data Reporting

Description of the Monitoring Report		
	Comments and Results	Concl.
Compliance with UNFCCC regulations	*All UNFCC regulations are considered within this project* *The verification period is from 01.01.2009 – 31.12. 2009*	☑
Completeness and Transparency	*The data analysed were complete and transparently presented*	☑
Correctness	*All data checked were found to be correctly transfer and interpreted*	☑
Cross-check Approach: *There are several activities running in parallel for raw data collection, data storage and interpretation.* **Risk Classification:** **Further Remarks:** *No further remarks* **Corrective Action Request No.7** *Please include in the Monitoring Report the values used in ER (baseline/project) together with a justification of difference between PDD and ERUs calculated for the year 2009.*		CAR 7

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7 Compilation and Resolutions of CARs, CLs and FARs

Corrective Action Requests by audit team	Summary of project owner response	Audit team conclusion
Corrective Action Request No.1 "HOB 6 (11.6 MWth), HOB 7 (11.6 MWth) and HOB 8 (11.6 MWth) These are new boilers. Purchased in 2006 to replace HOB2 (29 MWth). These boilers will be commissioned in December 2007". See, Monitoring Report, page 2. Please clarify the present status (2011).	The referred boilers are not in use, has still to be commissioned, and make no part of the Project See also the Monitoring report 7-07-2010	In the new Monitoring report 7-07-2011, ver. 3 (IRL 46), the status of these boilers is clearly explained. This issue is closed.
Corrective Action Request No.2 According to "Annual Report 2009.pdf" (IRL 40), a new organisational structure is in place at Nuon Targoviste. Please discuss and include the new organisation scheme of the project in the Monitoring Report.	The management in 2009 did not changed. Since 20 May 2010 Mr. Ion Popescu replaced Mr. Viorel Tabaco as General Manager.	It is clear now that for the verification period, 2009, the management structure at Termica Targoviste was not changed. This issue is closed.
Corrective Action Request No.3 The monthly NG consumption as included in the invoices (IRL 10) is different compared to the monthly consumptions as written in "Monitoring&EmissionReduction_2009_GasOnly_Pci modif.xls" (IRL 32). In the same time, the calorific value used in "100311 Centralizer Emissions 2009.xls" – 8057 kcal/m^3 - (IRL 30) differs from the calorific value calculated on the monthly values	The copies of the available information of gas were given on a USB stick to Mr. Zaharia at 20 May 2011. Gas is not used during the period April till November 2009. USB stick supplied by Mr. M. Mandrescu at 20 May 2011 The monthly Low Caloric values were available at a late stage. The calculation of the CO2 savings are now executed on the	The new calculations file "110714 with monthly gas values Monitoring&EmissionReduction_2009_GasOnly.xls" (IRL 50) and the updated Monitoring Report (IRL 46) were checked and the monthly calorific values are used. This issue is closed

Corrective Action Requests by audit team	Summary of project owner response	Audit team conclusion
basis and used in "Monitoring&EmissionReduction_2009_GasOnly_ Pci modif.xls" (IRL 32) – 8070.34 kcal/m^3. One final version for calculation files is requested together with an updated version of Monitoring Report.	Monthly values Recalculations are executed based on the monthly Low Calorific value. There is very limited difference with the amount calculated with the 8.057kCal/m3 (<0,4%). The monthly values and obtained results are presented in the updated Monitoring Report 2009.	
Corrective Action Request No.4 "The total natural gas consumption is measured using 2 gas meters in parallel in the main natural gas supply line." Monitoring Report, page 6 (IRL 3). As checked during the on-site visit, the meters work alternatively and the total gas consumption is the sum of these two readings. As of para 101 of DVM, please includes this explanation in the revised Monitoring Report in order to avoid confusions.	The Main gasmeters are parallel installed. The procedure to use the readings of the meters are in a procedure. Meters are each other's back up facility. Termica uses a procedure to handle in case of an emerging situation.	This situation has been checked during the on site visit. This issue is closed.
Corrective Action Request No.5 The EF of 77.3 Kg CO2/GJ (cell F91 from Excel calculation – sheet "Total-2009 CLU) must be referenced). See also CL 4	The EF of 77.3 kg/CO2 GJ is mentioned in the CLU /Oil case	As mentioned in the Monitoring Report (IRL 46), the EF for CLU is calculated based on supplier's specifications (IRL 41). The default IPCC EF for "Residual Fuel Oil" is 77.4, with lower value 75.5 and upper 78.8. This issue is settled.
Corrective Action Request No.6 A linear reduction of EF from 1.3011 in 2006 to	The calculation is based , as was done in earlier years, on the increase f the Efficiency of the average electricity Production Capacity in	The calculation is performed according to registered PDD, and the difference is negligible.

Corrective Action Requests by audit team	Summary of project owner response	Audit team conclusion
1.104 in 2012 leads to an EF of 1.2055 in 2009. Please check the value of 101.2 kg CO2/GJ (cell F67) used in baseline calculation. Cell F68: the value is 20.3556 kton and 1.20255 x 17.041 = 20.4926	Romania, which in the PDD is considered linear value obtained between 28% and 33%. For the year 2009 the value of 30,50% is used. Calculation the Gross Energy input of Lignite (17,041/0,3050*3,6=201,143 GJ. Per GJ this means 101,20 kgCO2. This results for the project (in this case ,fueled only by Gas) in 20,3556 kTon CO2 emission. The difference of 1,2055 and 1,20255 might be caused by abbreviations. But in the way this is calculated in line with the efficiency increase it is consistently used.	This issue is closed.
Corrective Action Request No.7 Please include in the Monitoring Report the values used in ER (baseline/project) together with a justification of difference between PDD and ERUs calculated for the year 2009.	See Monitoring Report 07-07-2011	The analyze is performed in the new monitoring Report: 79050 t CO2 in PDD and 28200 t CO2 realized in 2009. The main reason for this difference is gas supply cuts to the Termica during the period April 2009 till November 2009. This issue is closed.

Clarification Requests by audit team	Summary of project owner response	Audit team conclusion
During the on-site visit, the License for thermal energy production, no. 0533/19.05.2009, valid	This was provided by Mrs. Mandrescu, Termica, supported by information given on the USB stick	As clarified with Mrs. Mandrescu, the license, 0533/19.05.2009, valid until 19.05.2014, replaced the rest of the li-

until 19.05.2014, not including thermal energy produced in cogeneration. (IRL 36) has been provided. **Clarification Request No.1** Please clarify the validity of the rest of the licenses. Also clarify the legal requirement for the heat produced in cogeneration.		censes (License for the transport of thermal energy, no. 29/2000, License for the thermal energy distribution, no 30/2000 and License for delivery of thermal energy no. 31/2000). This issue is settled.
Clarification Request No.2 Please provide more recent training evidences.	In a separate document, sent to the Verifier at 22 July 2011 a listing of traning of technical employees of Nuon Energy Romania are supplied	The document has been received (IRL 43). This issue is closed.
Clarification Request No.3 The Project includes an automatic data collection / storage system, part of SCADA system. Please provide this procedure as of para 101 of the DVM.	See clarification in the Monitoring report. Scada is used as a back up and controlling of data.	The procedure has been included in the Monitoring Report (IRL 46). The manual retrieved data together with the collected data from the existent system (dispatching functionality and technical monitoring) supplies the data for the calculation model. This issue is closed.
Clarification Request No.4 The liquid fuel (CLU) has been not included in the PDD and in the approved Monitoring Plan. A decision from DFP of Romania regarding the use of this fuel in the Project is requested. Also, the impact of liquid fuel (CLU) on the ERU calculation can't be ignored. A revision of the ex-	After Consulting the Romanian Ministry of Environment an official letter was sent to to get an official reaction about the position of the utilization of Oil during 2009 at the Termica plant. The inofficial reaction is that they support the pragmatic chosen policy of the Parties of the ERU project, which means the consideration of the oil	The copy of the official letter sent by DFP has been received by the verification team (IRL 45). This is the official answer and the acceptance of CLU used in 2009 as fuel provided by DFP. This issue is closed.

cel calculation sheet and of the MR is requested.	usage in the CO2 emission in the Project. In the Monitoring report the consequences of the CLU-oil utilization are considered leading to a total reduction result of 28,2 kTon CO2 in 2009. Not yet received an answer from the Ministry. Parties accepting a pragmatic approach to prevent the extension of the procedures.	
Clarification Request No.5 Official documents regarding the uncertainty of the heat meters used in the plant are requested.	Clarification and documents are handed over to the Verifier during the technical visit.	The documents have been received (IRL 42). This issue is closed.
Clarification Request No.6 An official document regarding the uncertainty and measurement range of the heat meters used in PT is requested.	Documents are handed over on USB stick	The documents have been received (IRL 42). This issue is closed.
Forward Action Requests by audit team	**Summary of project owner response**	**Audit team conclusion**
Forward Action Request No.1 Excel calculations should be protected in order to keep reliability	This is realised nowadays.	This issue will be checked during the next verification.

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8 Compilation and Resolutions of CARs, CLs and FARs raised by the Certification Body (CB)

Corrective Action Requests by CB	Summary of project owner response	Audit team conclusion
Corrective Action Request No.8 The following corrections are required in the MR "110825 110707 vs 2.2 pdf Monitoring report ERU 04-40-year 2009": 1. First page there is no mention to the day and month. Please complete the title by adding the period (01.01.2009 to 31.12.2009) 2. Page 1. Please delete the sentence "The Re Determination report is dated 2008-12-17 (no.1096909 revision 03,)" 3. Page 2: "This installation operated from December 2003" shall be replaced by "…is in operation from…onwards". A statement regarding the fact that this installation is part of the JI project shall be added 4. Page 2; "…to the original design was discussed and approved by SenterNovem…". Please add the date of this approval. In the same statement, "…it did not fundamentally change the project characteristics." Please justify the additionality of the project due to this chaning.	done done done The project was planned to be started at 1 January of 2006. Due to retardation in the in preparation of the project (financial structuring, contracting) the project started mid 2006. To compensate the estimated CO2 reduction due to time loss of project extra CHP- capacity was accepted from 6,8 to 7,4. The change of number of engines was no issue of discussion. Senter agreed to this modification (end of 2005)	1. Checked in the new Monitoring Report (IRL 51). On the first page there is the mention to period 2. The sentence has been deleted in the new Monitoring Report (IRL 51) 3. The wording has been changed as checked in the new Monitoring Report (IRL 51) 4. The issue is clear. The additionality of the project has been established during the Determination process performed by SenterNovem company 5. The sentence has been added (IRL 51) 6. This issue is clear now 7. The description has been changed and is more precise now (IRL 51) 8. The description has been changed and is more precise now (IRL 51) 9. The explanation has been added to the new Monitoring Report (IRL 51) 10. The statement has been added

Corrective Action Requests by CB	Summary of project owner response	Audit team conclusion
5. Page 2:[HOB 3 (58.1 MWth)] "Old boiler was refurbished". Please add "as part of the project"	Done	the new Monitoring Report (IRL 51)
6. Page 2: The statement "The boiler has no dedicated gas meter" is unclear as this is a contradiction to the sentence before. Please rephrase the statement	The sentence before is mentioning "a heat meter"	The issues 1-10 have been clarified
7. Page 2: "[HOB 4 (15 MWth)]. This boiler is new. Was installed in 2004-2005". Should always be mentioned whether the equipment is part of the reg. project. Same requirement for HOB 4	Done	
8. Page 2: "HOB 6 (11.6 MWth), HOB 7 (11.6 MWth) and HOB 8 (11.6 MWth)". Please specify that these boilers are not part of the project	Is indicated These boilers are willplanned to used be only used during exceptionally cold weather conditions. In the current situation these boilers are only necessary below -15 °C, or as a back-up in case HOB3 fails. If more consumers will be connected this may change. It is a legal requirement to have a back-up system.	
9. Page 2: "The actual capacity on gas fired installations foresees in this requirement." The statement is not clear	As such these boilers are no part of the project. Due to lower Heat demand, Tthe actual capacity on gas fired installations foresees in reserve capacity this requirements.	
10. Page 3: "The consequences for this on the CO2 reduction are not being considered in the PDD as part of the project". Please add the statement that this is a reason for much lower emission reductions achieved in the 2009 year in comparison to the prognosis in the approved and registered PDD	The consequences for this on the CO2 reduc-	

Corrective Action Requests by CB	Summary of project owner response	Audit team conclusion
	tion or are not being considered in the PDD as part of the project. This leads to an extra lower CO2 reduction compared to the approved and registered PDD.	
Corrective Action Request No.9 The statement "Since 2003 26 new stations were installed", MR page 3 (chapter 2.3). Please clarify if this modification is a part of the project.	The Distribution station are a part of the boundaries of the project. A restructuring of the transportation grid occurred to improve perfomances.	The explanation is clear. This issue is closed.
Corrective Action Request No.10 MR, page 4 (chapter 2.4): "The distribution system does not make part of the CO2 Monitoring". This statement is unclear - indirectly it has an influence on the project - but leads to a more conservative calculation of emission reductions (as the overall system is more efficient with these measures). Please make the necessary considerations in the MR.	The distribution System is not part of defined Project and on these grounds make no part of the Project Monitoring.	The explanation has been included in the new MR (IRL 51). This issue is closed.
Corrective Action Request No.11 MR, page 21. Please start a new page with the chapter **F**	MR has been revised.	The chapter F is on a new page in the Monitoring Report ver. 4 (IRL 51). This issue is closed.

Corrective Action Requests by CB	Summary of project owner response	Audit team conclusion

Clarification Requests by CB	Summary of project owner response	Audit team conclusion
Clarification Request No.7 MR, page 11: "The Projected Emission Values in the baseline on 26 % baseline setting (5 December 2008). The information provided by this sentence is unclear. Please clarify	Related with the verification process for the period 2006-2008, the setting heat losses in the T-systems by a percentage was discussed and changed to 26%. This was approved by TuVSuD, (5 December 2008).	This issue has been discussed during the initial verification (IRL 15). This issue is closed.
Clarification Request No.8 MR, page 9, chapter 3.5.: "The company uses a Quality Manual that was developed according ISO 9001 2001". • Is the company itself ISO 9001 certified? • "Two internal auditors were trained externally by Quasaro". Please explain what is Quasaro?	**See the sent Copy-Document (12-12-2012)** **Adresa Quasaro SRL** Bd. Gheorghe Şincai nr. 9A bl. 3A, etaj 7, ap. 21-22 CP 040312, Sector 4, Bucureşti Tel.: +40-21-330.8377; Fax: +40-21-330.8442 Email: office@quasaro.ro	The documents have been provided (IRL 52 and 53). This issue is closed.

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Annex 2
Information Reference List

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in JI Context)
		Onsite interview carried out by TÜV SÜD: Validation Team: Robert Mittewallner, ATL, TÜV SÜD Constantin Zaharia, Verifier, TÜV SÜD Interviewed Persons: Mr. Viorel Tabacu, S.C. Termica S.A. General Manager (operator of the project); Mr. Leo Paulissen, General Manager S.C. Nuon Energy Romania Srl. (CO2 credits owner). Mr. Ioan Isaila – Engineer, Nuon Energy Romania Mrs. Mariana Mindrescu – Technical Director S.C. TERMICA S.A. Targoviste	24-04-2011	*See Participation List*
1.	Nuon	Erupt 4 - Final PDD;	24-05-2004	http://ji.unfccc.int/JIITLProject/DB/JZ3NVK4GDR3I7BVX7BWLWLVBY5ZPTD/details; Registration Number: RO 1000173
2.	Nuon	Attachment of the final PDD	5-12-2008	
3.	Nuon	Monitoring Report for the year 2009	02-03-2011	Version 02
4.	Nuon	BA Gaze 2009	30-03-2011	Natural gas analyzes
5.	Nuon	Procedura PO-CM-13 “Municipal Cogeneration Targoviste ”	No date	
6.	Nuon	Procedura PO-CM-14 „Modalitati de stabilire a consumurilor energetice si de apa“	No date	
7.	Nuon	BV CT SUD	30-03-2011	Calibration for electricity, thermal energy and gas
8.	TUV SUD	Final Verification Report Targoviste_pre JI	21-04-2011	
9.	TUV SUD	Verification Protocol 08 Targoviste DHS	21-04-2011	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in JI Context)
10.	Nuon	Facturi gaze	30-03-2011	Gas invoices of Distrigaz
11.	Nuon	DrawingMeters.jpg	24-03-2011	Meters location
12.	Nuon	Meters Plant Centralizer.xls	24-03-2011	Excel file
13.	TÜV SÜD	List of Audit participants	24-04-2009	
14.	TÜV SÜD	Final Verification Report Targoviste_pre JI.pdf	28-04-2009	
15.	TÜV SÜD	Re-determination report	17-12-2008	No. 1096909
16.	Romanian DFP	LoA	20-05-2004	
17.	NL DFP	Declaration of Approval	16-04-2004	
18.	TÜV SÜD	Photo report	04-2011	
19.	Nuon	General plan map of the plant “Plan general”	No date	
20.	Nuon	Detailed map of the Plant “Plan amplasare in zona”	No date	
21.	Nuon	Environmental Impact Assessment Report	No date	
22.	Nuon	Final Startup Report for cogeneration units “Proces verbal final de punere in functiune” No. 3605	No date	
23.	Nuon	Documents of reception at finishing works “Proces verbal de receptie la terminarea lucrarilor” No.2867	No date	
24.	Nuon	Documents of reception at finishing works “Proces verbal de receptie la terminarea lucrarilor” No.24292	No date	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in JI Context)
25.	Nuon	Document for changing the measurement units “Proces verbal de schimbare a mijloacelor de masurare”	No date	
26.	Nuon	Certificat de absolvire Mariana Mandrescu “Auditori intern pentru sistemul calitatii”	No date	Training certificate
27.	Nuon	Certificat Popa Valentina Lidia “Auditor intern pentru sisteme de management de mediu”	No date	Training certificate
28.	Nuon	Certificat Mariana Mandrescu “Managementul calitatii ISO 9001:2000”	No date	Training certificate
29.	Nuon	Certificat de absolvire Popa Valentina Lidia “Auditori intern pentru sistemul calitatii”	No date	Training certificate
30.	Nuon	100311 Centralizer Emissions 2009.xls	11-03-2011	Excel calculation
31.	Nuon	PO-CM-17 -Stabilire consumuri CLU.doc	31-03-2011	Measurement procedure for CLU consumption
32.	Nuon	Monitoring&EmissionReduction_2009 GasOnly_PCI modif.xls	No date	Excel calculation
33.	Nuon	Electricity license production	No date	
34.	Nuon	Thermal energy license production	No date	
35.	Nuon	Licence for the production of power energy	No date	
36.	Nuon	Licenta ANRSC.pdf	07-02-2011	Licence for the thermal energy distribution
37.	BRML	Ordin BRML-2 iunie 2006 modificare perioada verificare	23-03-2011	Regulation for extended calibration period
38.	Nuon	Licence for the delivery of thermal energy	No date	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in JI Context)
39.	Nuon	Autorizatie integrata 2009 revizuita.pdf	07-01-2011	Integrated Environmental Authorization Termica Sud
40.	Nuon	Annual Report 2009.pdf	02-03-2011	General Presentation of the year 2009.
41.	Nuon	CLU	17-04-2011	Analyzes and consumption for CLU
42.	Nuon	Buletine aparate_PT	30-03-2011	Calibration/uncertainty/measurement range for the metering system.
43.	Nuon	110411 Training technical personal 2009 Nuon Energy Romania.doc	22-07-2011	Training evidences for 2009
44.	Nuon	110708 vs 0 4 Letter for the MInistry- CO2-2009-v 1- 110630.doc	22-07-2011	Official letter for DFP regarding CLU use during the year 2009.
45.	Ministry of Env.	Acceptance for CLU used in 2009	16-08-2011	Official answer of the DFP regarding the acceptance for CLU used in 2009
46.	Nuon	110825 110707 vs 2.2 pdf Monitoring report ERU 04-40-year 2009	26-08-2011	Final Monitoring Report version 03
47.	Nuon	Attachment to the orginal PDD (dated 25 May 2004)	05-12-2008	ER calculation based on 26% losses in heat transportation
48.	Nuon	100218 MonitoringEmissionReduction_2009_CLU only.xls	26-08-2011	Spreadsheet for ER calculation for CLU only
49.	Distrigaz	110714 L Cal Values Gas Pci_2009.xls	26-08-2011	Monthly calorific values for natural gas for 2009
50.	Nuon	110714 with monthly gas values Monitoring&EmissionReduction_2009_GasOnly.xls	26-08-2011	Spreadsheet for ER calculation for NG only
51.	Nuon	111212 vs 3 send Monitoring report ERU 04-40-year 2009	18-12-2011	Monitoring Report, ver. 4
52.	Nuon	111212 Clar no 8 Raspuns clarificare 8	18-12-2011	Answer to CL#8. Quasaro

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53.	AEROQ	ISO 14001 Termica	18-12-2011	
54.	Nuon	Monitoring report for 2009	16-01-2012	Monitoring Report, ver. 5
55.	Nuon	Brief Senter 25 April 2006 9 de machine.jpeg	16-01-2012	Copy of Senter Novem with the approval of the application of engine 9.