VERIFICATION REPORT

"TIMISOARA COMBINED HEAT AND POWER REHABILITATION FOR CET SUD LOCATION" IN ROMANIA

(ITL Project ID: RO1000021)

Verification Period:
12 November 2007 to 31 December 2007 (voluntary period) and for the JI period 01 January 2008 to 31 December 2009

REPORT NO. 2010-9453

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DET NORSKE VERITAS

VERIFICATION REPORT

Date of first issue: 20 January 2011		Project No.: PRJC-272256-2010-CCS-CZE
Recommended for approval K.V.Raman	Approved by Ole A. Flagstad	Organisational unit: Climate Change and Evnironmental Services
Client: Swedish Energy Agency		Client ref.: Kenneth Mőllersten

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Summary:

DNV Climate Change Services AS (DNV) has performed the verification of the emission reductions reported for the "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location Project in Romania" (ITL Project ID RO1000021 – JI Track 1 project) for the period 12 November 2007 to 31 December 2007 (voluntary period) and for the period 01 January 2008 to 31 December 2009.

In our opinion, the GHG emission reductions reported for the project in the monitoring reports (MR for 2007 of version 07 dated 10 April 2011 and the MR for 2008 and 2009 of versions 06 dated 29 March 2011) are fairly stated. The GHG emission reductions were calculated correctly on the basis of the monitoring plan contained in the Project Design Document version 02, of October 2006.

Hence, DNV is able to verify that the emission reductions from the "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location" Project in Romania, during the period 12 November 2007 to 31 December 2007 **(voluntary period)** amount to 19 984 tonnes of CO_2 equivalent and for the period 01 January 2008 to 31 December **2009** (JI period) amount to 93 038 tonnes of CO_2 equivalent.

Report No.: 2010-9453	Subject Group: Environment
Report title: "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location" in Romania	
Work carried out by: Lumír Němeček, Zuzana Andrtová	
Work verified by: Kakaraparthi Venkata Raman	
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Indexing terms

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Table of Content *Page*

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CH_4	Methane
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CHP	Combined Heat and Power
DNV	Det Norske Veritas
ERU	Emission reduction units
FAR	Forward Action Request
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
LoA	Letter of approval
MR	Monitoring report
N_2O	Nitrous oxide
NPG	National Power Grid
PDD	Project Design Document
RES	Renewable Energy Source
tCO_2e	Tonnes of CO_2 equivalents
UNFCCC	United Nations Framework Convention on Climate Change
GWP	Global Warming Potential

1 INTRODUCTION

Swedish Energy Agency has commissioned DNV Climate Change Services AS (DNV) to carry out the verification of the emission reductions reported for the "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location" Project in Romania (the project) in the period 12 November 2007 to 31 December 2007 (voluntary period) and for the JI period 01 January 2008 to 31 December 2009. This report contains the findings from the verification and a verification statement for the certified emission reductions.

1.1 Objective

Verification is the periodic independent review and *ex post* determination by an Accredited Independent Entity (AIE) of the monitored reductions in GHG emissions that have occurred as a result of a Joint Implementation (JI) project activity during a defined verification period.

The objective of this verification was to verify the emission reductions reported for the "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location" Project in Romania for the period 12 November 2007 to 31 December 2007 (voluntary period) and for the JI period 01 January 2008 to 31 December 2009.

DNV is an Independent Entity accredited by the Joint Implementation Supervisory Committee (JISC) for all sectoral scopes.

1.2 Scope

The scope of the verification is:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that reported emission reductions are complete and accurate in order to be certified.

1.3 Description of the Project Activity

Project Parties:	Romania and Sweden
Title of project activity:	Timisoara Combined Heat and Power Rehabilitation for CET Sud Location Project in Romania,
ITL Project ID:	ITL project number: RO1000021
CDM baseline and monitoring methodology	ACM0002 (version 04)
Project Entity:	SC Colterm SA

	Episcop Joseph Lonovici 4, Timisoara, Timis County
	300092 Romania
	AurelMatei, +40 256 435726, prod@colterm.ro
Location of the project activity:	The project is located in Timisoara City, which is the administrative centre of the Timis County located in the western part of Romania and situated at 571 km far from Bucharest
Project's JI crediting period:	1 January 2008 to 31 December 2012
Period verified in this verification:	12 November 2007 to 31 December 2007 (voluntary period) and for the JI period 01 January 2008 to 31 December 2009 (post registered period).

1.4 Methodology for Determining Emission Reductions

The project activity is the upgrade of the pre-project baseline heat production facility at CET Timisoara Sud with cogeneration capacity. The activity improves the system efficiency, thereby resulting in a) decreased consumer costs and b) reducing the GHG emissions impact of the activity on the environment.

According to the JI Supervisory Committee (JISC), Guidance on criteria for baseline setting and monitoring a baseline may be established in accordance with appendix B to decision 9/CMP.1. The selected elements of baseline and monitoring methodologies approved by the CDM Executive Board may be used, as appropriate

The project activity cogeneration unit generates electricity that is supplied to the grid (self consumption deducted). The extracted heat is supplied to the district for heating purpose. As the new electricity generation capacity is connected to the power grid; the project falls into the prescriptions of ACM0002, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" with respect to the estimation of emission reductions arising in the external grid. For reason that ACM0002 is intended for projects generating electricity using renewable energy resources (while this project is a fossil-based CHP project), the ACM0002 cannot be applied without modification. However since the project has been registered by JISC as a Track 1 project (UNFCCC JI web page) using the modified ACM0002 as described in the registered PDD, DNV accepts the application of ACM0002 calculation methodology for the emission reductions.

The geographical boundaries of the project are limited to the area of Timisoara city in Timis County, Romania. The project's system boundaries include the boilers, back pressure steam turbines, pressure reduction stations, heat exchangers, hot water boilers and the heat and electricity generation and consumption component.

The project emissions are based on the monitoring of the volume of fuels (coal and natural gas) used, amount of heat supplied to the district, and the amount of electricity generated and exported to the grid and electricity consumption from the grid.

The baseline emissions calculations are based on the volume of fuels used, amount of heat supplied and amount of electricity consumed and the electricity supplied to the grid through the project activity.

As the project is a CHP activity, therefore two different approaches has been used to estimate the baseline emissions: one for heat generation and one for electricity generation.

The monitoring methodology for determining baseline emissions builds on measuring of:

- Volume of NG consumed $FF_{NG,P}$ (m^3)
- Volume of lignite consumed $FF_{LI,P}$ (t)
- District heat supplied to primary network $Q_{DH,P}$ (Gcal)
- Electricity production in project plant $E_{G,P}$ (MWh)
- Electricity supplied to national grid by the project plant $E_{EX,P}$ (MWh)
- Electricity imported from the national grid $E_{IM,P}$ (MWh)

2 METHODOLOGY

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. These include:

i) SC Colterm SA excel sheets included in the Monitoring reports /4/;

ii) Yearly Internal operation book 2007 – 2009 /7/

iii) Monthly Monitoring parameters sheets 2007 – 2009 /7/

iv) Invoices for coal, gas, heat and electricity provided by SC Colterm SA 2007 – 2009 /9//10//11//12/;

v) Calibration records /13//14//15//16/;

vi) Heat production licence /21/

vii) Electricity production licence /22/

Verification team

				Type of involvement						
Role	***Last Name***	***First Name***	***Country***	Administrative	Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	TA1.1 competence
Team leader (JI verifier)	Andrtová	Zuzana	Czech Republic	✓	✓		✓	✓		
Assessor under training	Němeček	Lumír	Czech Republic		✓	✓	✓			✓
Technical Reviewer	Kakaraparthi	Venkata Raman	India						✓	✓

Duration of verification

Preparations: *From 09 December 2010 to 10 December 2010*

On-site verification: *From 14 and 15 December 2010*

Reporting, calculation checks and QA/QC: *From 17 December 2010 to* 11 April 2011

2.1 Review of Documentation

Key documents provided by project participant reviewed before site visit were Project design document (PDD) /1/, Baseline Study /2/, Monitoring plan /3/, Determination report /6/ and Monitoring reports version 1 /4/ including 3 excel files (2007, 2008, 2009) used for calculation of emissions reductions /5/, and National JI Track I Procedure /41/.

2.2 Site Visit

The SC Colterm SA - CET Sud location was visited by DNV on 14 and 15 December 2010. Data monitoring and meetings on the Timisoara Combined Heat and Power Rehabilitation for CET Sud Location Project in Romania with SC Colterm's responsible persons were arranged on the company headquarters and on the CET Sud site.

During the site visit the local records as Internal operation book 2007 – 2009, Monthly Internal operation book 2007 – 2009, Monthly Monitoring parameters sheets 2007 – 2009, Invoices for coal, gas, heat and electricity provided by SC Colterm SA 2007 - 2009; calibration protocols for measurement devices /13//14//15//16/, Operating licences for heat and electricity production and ISO certificates 9001, 14001 and 18001.

The site visit covered:

- Investigation of whether all relevant equipment as per the PDD has been installed and works as anticipated /1//3//4/.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures /1//3/.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed /1//3/.
- The duly calibration of all metering equipment was checked and the operator has provided evidence that all metering equipment was duly calibrated /13//14//15//16/.
- The monitoring processes, routines and documentations were audited to check their proper application /1//3//7//8/ .
- The monitoring data were checked completely /7//8//9//10//11//12/.

The personnel interviewed are summarized in the table below:

Name	Organization and position	Topic of interview
Thomas Bosse	Project Grue + Hornstrup A/S, project manager	Monitoring report aspects

Borges		
Boris Bobu	SC Energy Serv SRL, Operations director	All aspects of the plant operation, data monitoring and reporting
Aurel Matei	SC Colterm SA, General manager	Opening meeting, agenda of the site visit
Daniel Sponor	SC Colterm SA, Head of production	All aspects of the plant operation, data monitoring and reporting, invoicing
Barboni Valeriu	SC Colterm SA, Head CET Timisoara Sud of south power plant	All aspects of the plant operation, data monitoring and reporting, invoicing
Sergiu Andra	SC Colterm SA, Head of investment	All aspects of the plant operation, data monitoring and reporting
Daniel Vaida	SC Colterm SA, Project manager	All aspects of the plant operation, data monitoring and reporting, invoicing
Nedeleu Rica	SC Colterm SA Production dep. of CET Timisoara Sud	All aspects of the plant operation, data monitoring and reporting, invoicing
Diana Lintia	SC Colterm SA, Environmental protection dep.	Invoicing
Jenica Jorga	SC Colterm SA, Environmental protection dep.	Invoicing
Florin Staicu	SC Colterm SA, Metrology and I&C	Metrology, measuring equipment, calibration protocols,

During this site visit, representative of DNV interviewed above mentioned key personnel of the plant and verified that the plant rehabilitation was realized according to PDD /1/ and Monitoring plan /3/. It was verified that the plant has been under full operation and electricity and heat have been really supplied into the district heating and electricity grid.

A cross-check between information provided in the monitoring report and data provided by the SC Colterm SA (plant operation books, inventories, purchase records and invoices of gas, coal and electricity /7//8//9//10//11//12/) has been done as well as the check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD and the Monitoring plan.

The site visit activities have covered the review of calculations and assumptions made in determining the GHG data and emission reductions.

QC/QA procedures have been provided under the ISO 9001, 14001: and 18001 standards /17//18//19/.

Agenda of the site visit

14 December 2010

Information about project – changes from PDD, status of implementation, environmental impact monitoring (Project manager)

Plant visit

Review of the site - Physical verification of technology employed and meters (including documentation) used for measurement of

- Volume of natural Gas consumed
- Volume of lignite consumed
- Cogeneration heat supplied
- Cogeneration electricity consumed in own plant
- Cogeneration electricity supplied to NPG

Review of emission reduction calculation - Measuring devices, calibration records, installation and calibration protocols

- Volume of natural Gas consumed
- Volume of lignite consumed
- Cogeneration heat supplied
- Cogeneration electricity consumed in own plant
- Cogeneration electricity supplied to NPG

14 December 2010

Review of emission reduction calculation - continuing (Project manager, person responsible for data)

- Review of records related metrology requirements for measurement devices, primary data utilization (Data management system - Collection, Documentation, Archiving, Upgrade, Responsibility)
- Review of Monitoring report calculation – raw data, data flow, GHG emissions reduction calculation, HW/ SW,
- Training requirements

2.3 Reporting of Findings

A corrective action request (CAR) is issued, where:

i. Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
ii. Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
iii. Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CL) shall be raised if information is insufficient or not clear enough to determine whether the applicable JI requirements have been met.

A forward action request (FAR) is issued for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

Five CARs, four CLs were identified during the site visit. The issues related to

- Content of monitoring reports,
- formal mistakes and non conformities between Monitoring report and excel sheets,

- quality of monitoring reports, group of consumer included to the emission reduction calculation and the demonstration of calibration procedures.

3 VERIFICATION FINDINGS

This section summarises the findings from the verification of the emission reductions reported for the "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location Project in Romania" for the period 12 November 2007 to 31 December 2007 (voluntary period) and for the JI period 01 January 2008 to 31 December 2009.

3.1 Remaining Issues, CARs, FARs from Previous Validation or Verification

No remaining issues from determination were identified /6/.

3.2 Project Implementation

Currently CET Timisoara SUD is fully under operation. While the PDD states the installed capacity as 18 MW, the installed rated capacity is 19.4 MW, as verified from the Monitoring Reports Timisoara Combined Heat and Power Rehabilitation for CET SUD Location, (2007, 2008, 2009 - Versions 05) dated 14 February 2011 /4/ and verified during the site visit.

The turbine started commercial operation in 12 November 2007, thus emission reductions were accounted for only 2 months in the voluntary period of 2007 (November and December), i.e the pre-registration period.

The project activity

- produces heat in hot water and steam boilers for supply to the centralised heating system of Timisoara and also
- produces electricity in the new backpressure turbine EKOL E-R19.7-14,3 feeding by steam produced in 3 steam boilers and supplying electricity into the local distribution company ENEL and then to the National power grid. When no electricity is supplied to the grid the CET Timisoara SUD own consumption is from the grid.

Monitoring is provided by central monitoring system SCADA, which hourly read data from individual meters and is a source of input values for Yearly Operating Books (monthly summaries) and with Monthly monitoring parameters summaries approved by the Head of CET Timisoara Sud.

The project corresponds with the PDD /1/ and the Determination report /6/, nevertheless the following changes have been done:

- While the PDD states the installed capacity as 18 MW, the installed rated capacity is 19.7 MW. During the feasibility study phase it was envisaged to install a 18 MW cogeneration unit, however during the procurement phase, based on the technical aspects from the Tender Documents, Colterm TPP received several offers out of which a 19.7 MW unit was selected.

- Volume of lignite consumed:

  As per the PDD, monitoring of lignite consumption is to be based on invoices and through boiler weighing machines. This only provides information on the quantities of lignite purchased by the power plant (lignite pits) and not the lignite actually consumed by the boilers on a monthly basis. Hence, the lignite consumption is carried out in accordance with the procedure PO - CLT – A – 2313 /23/ and .P05_Lignite Consumption Estimation/34/ (annex of MRs /4/) i.e it is determined by reading the index of the weighing scale installed on the belt no.7, which feeds to the boilers. This is done by the operator in the control room of the reloading station of every shift. The data are registered in the shift report by the shift foreman.

  The lignite receipt at the plant is weighed for each batch and summarized on a daily basis..

  The calorific content, humidity and the ashes of the coal are determined daily, by analyzing the coal samples in the internal laboratory.

  Details about how to determine the physic-chemical characteristics of the coal can be found in the operational procedure PO-CLT-A-34 – "Determination of the caloric content of the solid fuels"/25/. Details about how to receive the coal are found in the operational procedure PO-CLT-A-30 – "Coal receiving and weighing"/26/.

  DNV observes that the lignite receiving, analysis methods and the accounting procedures are as per the internal procedures PO-CLT-A-34 – "Determination of the caloric content of the solid fuels"/25/. Details about how to receive the coal are found in the operational procedure PO-CLT-A-30 – "Coal receiving and weighing"/26/. Hence DNV can confirm that the deviation in the monitoring of lignite consumption procedure includes all the necessary steps and procedures for the coal consumption assessment; it is acceptable and provides sufficient results which were discussed and confirmed during the site visit.

- District heat supplied to primary network:

  As per the PDD, the heat supplied by the project is to be measured in GJ where as, this is metered in Gcal as the instrument/SCADA system (CALEC MB) uses Gcal as the output unit. This deviation in DNV opinion is acceptable as the unit in GJ can be calculated from Gcal.

- Electricity consumed by the own plant (Auxiliary consumption).

  The electricity consumed on-site is not directly metered as described within the Monitoring Plan, but calculated by subtracting the energy supplied to the grid from the quantity of electricity produced and the quantity of electricity imported from the grid

- Electricity production

  The electricity production as monitoring parameter was not included in the initial Monitoring Plan, however is required under the existing set up in order to calculate emission reductions.

  Under the original Feasibility study issued in 2003 as well as the PDD /1/ the project technology consisted of installing a backpressure steam turbine of about 18 MW in CET

Timisoara Sud to process the steam produced in the steam boiler, increasing the energy efficiency. Project was completed in April 2007 and the rated capacity of newly installed turbine has been 19.7 MW.

All the above mentioned changes correspond with the Annex 2 of 22nd meeting of JISC. DNV can confirm that that the physical location, emission sources, baseline scenario of the project has not changed and the changes are consistent with the JI specific approach and CDM methodology upon which the determination was prepared for the project. From the technical point of view these changes do not create any specific problems and are acceptable. Hence DNV confirms that the conditions defined by the paragraph 33 of the JI guidelines (Data used share reliable and provide a transparent picture of the emission reductions or enhancements of net removals monitored.) are still met for the project and the original determination opinion does not change.

According to the PDD (Version 2, October 2006 page 13) the total investment costs for a 18 MW turbine were estimated at 5 433 661 Euros. In comparison, the real costs for the 19.7 MW turbine, which was installed were 6 145 402 Euros.

The change in turbine capacity is not expected to alter the projects additionality due to an increase in the costs connected to the capacity increase. A comparison of the estimated investment costs/MW capacity (18 MW turbine) and the actual investment costs / MW capacity (19.7 MW turbine) shows that the specific investment costs for the actual turbine (19.7 MW) are with 311 949 Euros 4.5% higher than the specific investment costs for the estimated turbine (18 MW), respectively.

3.3 Completeness of Monitoring

The monitoring procedures are described in the PDD /1/ and in Monitoring plan /3/.

Monitored Parameters

1. Volume of NG consumed

   Volume of NG consumed is determined under JI Project Procedures

   - "PO2_Data Transfer" /24/ and
   - CET Timisoara Internal Procedure "PO – CLT – A – 23 Power Plant Planning and Monitoring of Energy production and Consumption"/23/.

   Measured data is logged on a monthly basis in accordance with

   - JI Project Procedures "PO2_Data Transfer" /24/.

2. Volume of lignite consumed

   The lignite consumption is calculated/determined under:

   - JI Project Procedures PO5_Coal Consumption Estimation /34/ and
   - CET Timisoara Internal Procedure "PO – CLT – A – 23 Power Plant Planning and Monitoring of Energy production and Consumption" /23/

   The calculated data is logged on a monthly basis in accordance with

- JI Project Procedure "PO2_Data Transfer" /24/.
  This procedure defines several steps for the lignite hourly/daily/monthly/annual estimation/calculation process, as follows:
  - Quantity of Lignite - Hourly Consumption for Hot Water Boilers
  - Quantity of Lignite - Hourly Consumption for Steam Boilers
  - Quantity of Lignite - Total Daily/Monthly Consumption
  - Power Plant Lignite Stock - Yearly Check-up

Details about how to determine the physics-chemical characteristics of the coal can be found in the

- CET Timisoara Internal Procedure PO-CLT-A-34 – "Determination of the caloric content of the solid fuels"/25/.

Details about how to receive the coal are found in the

- CET Timisoara Internal Procedure PO-CLT-A-30 – "Coal receiving and weighing"/26/.

3. District heat supplied to primary network
   Heat supplied to the primary network of the District Heating System by the power plant is determined under
   - JI Project Procedure "PO2_Data Transfer" and
   - CET Timisoara Internal Procedure "PO – CLT – A – 23 Power Plant Energy Consumption Planning and Monitoring Process" /23/.

   The measured data is logged on a monthly basis under the
   - JI Project Procedure "PO2_Data Transfer" /24/.
4. Electricity production
   The electricity production is determined under
   - JI Project Procedure "PO2_Data Transfer" and
   - CET Timisoara Internal Procedure "PO – CLT – A – 23 Power Plant Energy Consumption Planning and Monitoring Process" /23/

   The measured data is logged on a monthly basis in accordance with
   - JI Project Procedure "PO2_Data Transfer" /24/.
5. Electricity supplied to national grid
   The electricity supplied to national grid is determined under
   - JI Project Procedure "PO2_Data Transfer" /24/ and
   - CET Timisoara Internal Procedure "PO – CLT – A – 23 Power Plant Energy Consumption Planning and Monitoring Process"/23/

   The measured data is logged on a monthly basis in accordance with
   - JI Project Procedure "PO2_Data Transfer" /24/.
6. Electricity imported from national grid
   The electricity imported from the national grid is determined in accordance with

- JI Project Procedure "PO2 - Data Transfer" /24/ and
- CET Timisoara Internal Procedure "PO -CLT - A - 23 Power Plant Energy Consumption Planning and Monitoring Process" /23/

The measured data is logged on a monthly basis in accordance with

- JI Project Procedure "PO2_Data Transfer" /24/.

In accordance with the above mentioned changes the following parameters have been monitored:

Data variable	Data type	Data unit	Measured (m), calculated (c), estimated (e)	2007	2008	2009
$FF_{NG,P}$	Volume of NG consumed	m^3	m	8 880 000	23 927 980	21 291 022
$FF_{LI,P}$	Quantity of lignite consumed	t	e/c	74 690	154 937.90	184 608
$Q_{DH,P}$	District heat supplied to primary network	Gcal	m	162 467	384 528	390 279
$E_{G,P}$	Electricity generation in project	MWh	m	10 992	22 578.17	35 893
$E_{EX,P}$	Electricity supplied (exported) to national grid	MWh	m	5 470	9 703	17 888
$E_{IM,P}$	Electricity imported from national grid	MWh	m	2 014.149	9 385.507	4 670.26

As can be seen within the MRs, the new turbine subject to the JI project was in operation as follows:

2008 - 01.01 – 01.03.2010 and 11.11 – 31.12.2010

2009 - 01.01 – 07.04.2010 and 05.11 – 31.12.2010

During the above operating periods, the monthly electricity production as well as the electricity imported/exported from/to the grid are presented in the table above.

The main reasons for the big difference in terms of "Electricity imported from national grid" between the years 2008 and 2009 are:

- Duration of yearly operation periods,
- Weather conditions which influence the value of the district heat delivered to the Timisoara centralized District Heating System and consequently the value of the "Electricity production" (the turbine being operated in a pure cogeneration regime)

- The very low value of the "Electricity production" and accordingly the very high value of "Electricity imported from national grid" in March 2008 compared with the similar month in 2009 due to a forced shut-down,

The description of calibration procedures for the meters is included the table under para 9 "Accuracy of Emission Reduction Calculations" and in Monitoring plan /3/. Calibration procedures have been correctly as well as in time provided by authorised laboratories. All the Calibration protocols /13//14//15//16/ were evidenced by DNV during the site visit.

The CET Timisoara Sud PRAM – AMC (I & C) Laboratory staff is in charge with the activities related to the normal maintenance and repair process of the measuring and control equipment. The measuring and control equipment is repaired and tested using calibrated measurement standard equipment.

The calibration activities for the power plant equipment subject to periodic calibration verification are carried out in licensed laboratories specifically dedicated to these activities.

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	**Volume of natural gas consumed**
Measuring frequency:	continuously
Reporting frequency:	monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Natural Gas Measuring System FR 01 type which includes the Flow computer ROFAR (which displays NG consumption) No.12 / 1999, range 2500-19000 SMC/h, 1.5%, calibration every 2 years, includes the following parts: • NG Flow Computer ROFAR01Rokura-Farming, 0.25 %, calibration every 2 years • Absolute Pressure Transducer SPMC 731 Endress-Hauser No: 4NY0011, range 0 ÷ 7 bar abs.,0,3%, calibration every 2 years • Differential Pressure Transducer – 2 pcs., SPMD 235 Endress-Hauser – No 4SQ0041, 4SQ0045, range 0 ÷ 63 mbar, 0.1%, calibration every 2 years • Thermal Resistance, Tst 264, No. 4J001731, range -20 ÷ +60 °C, cl. B, calibration every 2 years
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment	Not defined in the PDD Error of measurement of 1.5% is acceptable and represents the good monitoring practise /42/

represent good monitoring practise?	
Calibration frequency /interval:	2 years
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Validity of the calibration protocols is defined for 2 yrs /13/
Company performing the calibration:	SC FARMING OANA SERV. S.R.L. /13/
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is (are) calibration(s) valid for the whole reporting period?	Yes Calibration protocols dated 12 October 2006 and 24 October 2008 /13/ The turbine, subject to the JI project, was in operation in 2008 from 01 January – 01 March 2010 and from 11 November – 31 December 2010. During the period 12 October – 24 October 2008 the unit was not in operation.
If applicable, has the reported data been cross-checked with other available data?	Yes.
How were the values in the monitoring report verified?	Crosschecked with invoices, Yearly Operating Books (monthly summaries) and with Monthly monitoring parameters summaries approved by the Head of CET Timisoara Sud.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, checked by invoices. PP is also certified under ISO 9001, 14001 and 18001 /18//19//20/
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	**Quantity of lignite consumed**
Measuring frequency:	continuously
Reporting frequency:	monthly
Is measuring and reporting frequency in	Yes

accordance with the monitoring plan and monitoring methodology? (Yes / No)	
Type of monitoring equipment:	Frequency (AEM 54), voltage (MIO, accuracy 1.5%) height of lignite layer metering – recalculating to the TJ consumption
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Steam Boilers – Each boiler is fitted with a system AER type, consisting in 4 (four) frequency convertors ACS ACS-CP-A / ACS550-01-015A-4 type (ABB), one for each coal conveyor belt (Redler belt): Outlet Signal 4 – 20 mA, Resolution 0.1%, Accuracy ± 1%, serial numbers: 399/2005/N-3, calibration frequency 1 year . In the Steam Boilers Control Room there are 4 (four) control panels for each boiler, one panel/coal conveyor belt, fitted with frequency meters types: ACS-CP-A / ACS550-01-015A-4, serial numbers 399/2005/N-3, 400/2005/N-3, calibration frequency 1 year. Hot water Boilers – Each boiler is fitted with voltage meter, type M10 - serial numbers: 1143/92, 11359/98, 1362/92, 1363/92, Output Signal 0 – 250V, Accuracy 1.5%, Calibration frequency 1 year. The monitoring equipment is the standard equipment using in the industrial facilities with the sufficient accuracy representing good monitoring practise
Calibration frequency /interval:	yearly
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Not defined in the PDD Calibration is provided by the internal I&C laboratory during the beginning of the heating season, it represents good monitoring practise
Company performing the calibration:	Internal I&C and laboratory, using of measuring etalons calibrated by external licensed laboratories such as BRML Timisoara and INM Bucuresti,
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes /16/
Is(are) calibration(s) valid for the whole reporting period?	Yes For the metering systems related to "Quantity of lignite consumed" only periodic internal verification activities are required The Romanian Legal Authority in charge with calibration, verification and type tests of measuring instruments is Romanian Bureau of

	Legal Metrology (BRML). The related legislation in force which deals with calibration, verification and type tests of measuring instruments is Ordinance (Ordin) 48/2010 issued by BRML published within Official Gazette (Monitorul Oficial) 181/22.03.2010 /43/, which contains also the "Official List of measuring instruments subject to periodic calibration and verification" . (The above Ordinance came in force at 22.03.2010 and replaced the previous legislation, namely Ordinance (Ordin) 27/2004). Metering systems similar with "The metering systems related to Quantity of lignite consumed" for the following hot water and steam boilers: - HWB -1 (Hot Water Boiler) - HWB - 2 (Hot Water Boiler) - SB – 1 (Steam Boiler) - SB – 2 (Steam Boiler) - SB – 3 (Steam Boiler) are not part of the "Official List of measuring instruments subject to periodic calibration and verification" according with Ordinance (Ordin) 48/2010. However the Government Decision 1660/2005 stipulates that those measuring instruments which are not included in the Official List of the measuring instruments to be periodically calibrated and verified can be calibrated and verified according to specific procedures. Accordingly these measuring instruments are subject to periodic verification as per Power Plant Internal Procedure no. 4-02-77, every year, according with the "Power Plant Annual Planned Repair Program". Indeed some time these activities are performed at intervals longer than 12 calendar months due to the various constrains in planning the repair and maintenance activities. Taking into account the valid legislation and its incorporation into the "Power Plant Annual Planned Repair Program" under which the measuring instruments are subject to periodic verification every year, DNV has found to be this procedure acceptable.

	Verification dates of individual systems - Related Measuring Equipment: • **HWB -1 (Hot Water Boyler)** 02-31 May.2007, 01-30 November2008, 01-31 October2009 • **HWB - 2 (Hot Water Boyler)** 04-13 June 2007, 4-10 January 2008, 01-31 October 2009 • **SB – 1 (Steam Boiler)** 01-31 October 2007, 05-28 February 2008, 01-31 May2009 • **SB – 2 (Steam Boiler)** 09-24 July2007, 14-17 January 2008, 01-31 October2009 • **SB – 3 (Steam Boiler)** 24-30 August 2007, 25-29 January 2008, 01-31 October2009
If applicable, has the reported data been cross-checked with other available data?	Yes.
How were the values in the monitoring report verified?	Crosschecked with invoices from suppliers, Yearly Operating Books (monthly summaries) and with Monthly monitoring parameters summaries approved by the Head of CET Timisoara Sud /7//8//12/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, checked by invoices. PP is certified under ISO 9001, 14001 and 18001 /18//19//20/
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	**District heat supplied to the primary network**
Measuring frequency:	continuously
Reporting frequency:	monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Computer for thermal energy CALEC MB, Aquametro AB,, 4253547 / 02

	Accuracy class: EN 1434-1/OIML Cl. 4, Measuring and calculation error:≤0.5%at ΔT≥3K, typ. 0.3%, calibration frequency 4 years Water Flow Meter SONOFLO (Danfoss) SONO 3000 Cod: 085F5017, serial number 030411N277, accuracy ± 0.5 % for water flows ranked from (0.15 – 10)m^3/s Ultrasonic sounder 2 pcs., SONO 3200 Cod: 085/B5301, calibration frequency 4 years Thermal Resistance PT100TPK-1141 Pt 100, 4 wires connection, calibrationn frequency 4 years
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Not defined in the PDD Above mentioned accuracy is acceptable and represents the good monitoring practise /42/.
Calibration frequency /interval:	4 yrs - Under the calibration protocol issued by authorised metrology laboratory AS INTERNATIONAL. S.R.L., dated 1 September-2006 /15/
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Not defined in the PDD Yes, validity of calibration certificate is 4 yrs /15/
Company performing the calibration:	AS INTERNATIONAL. S.R.L. /15/
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes /15/
Is(are) calibration(s) valid for the whole reporting period?	Yes 1 September 2006 - 1 September 2010 /15/
If applicable, has the reported data been cross-checked with other available data?	Yes.
How were the values in the monitoring report verified?	Crosschecked with Yearly Operating Books (monthly summaries) and with Monthly monitoring parameters summaries approved by Head of CET Timisoara Sud.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	PP is certified under ISO 9001, 14001 and 18001 /18//19//20/
In case only partial data are available because activity levels or non-activity	NA

parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	**Electricity imported/supplied from/to National Grid**
Measuring frequency:	Continuously
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Bi-directoral Contor electricity meter, Electronic Meter, ABB A1R-L+, MG002672802 U = 2x(96-528)V, I=0,05-20A, Class 0,5 error ±0,25%, calibration frequency 10 years
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Not defined in the PDD Above mentioned accuracy is acceptable and represents the good monitoring practise /42/.
Calibration frequency /interval:	10 yrs
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Not defined in the PDD Yes, validity of calibration certificate is 10 yrs /14/
Company performing the calibration:	ABB ROMETRICS S.R.L. /14/
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes calibration protocols dated 12 October 2006 and 24 October 2008 /14/s
If applicable, has the reported data been cross-checked with other available data?	Yes.
How were the values in the monitoring report verified?	Crosschecked with invoices, Yearly Operating Books (monthly summaries) and with Monthly monitoring parameters summaries approved by the Head of CET Timisoara Sud.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct	Yes, checked by invoices. PP is certified under ISO 9001, 14001 and 18001 /18//19//20/

transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	**Electricity produced**
Measuring frequency:	Continuously
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	No – deviation, newly established
Type of monitoring equipment:	Multifunctional Power Logic system Merlin Gerin PM 500, serial number 31059, 0 – 25 MWh Accuracy: • Voltage: 140 to 480 V, Ac 0.5% • Current: 0.1 to 2xIn, Ac 0.5 %, • Power PF=0.5L to 0.8 C 1% of value, • Power Factor 0.5<PF<11%, • Frequency:45 to 65 Hz 0.1%, • Energy Active IEC 61036 class 1, • Energy Reactive IEC 61268 class 2, calibration frequency 1 year
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Not defined in the PDD Above mentioned accuracy is acceptable and represents the good monitoring practise /42/.
Calibration frequency /interval:	yearly
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Not defined in the PDD but according to the PP internal procedures, the metering systems related to "Electricity produced" are performed during the Turbo-generator Planned Annual Repair Activity. It represents good monitoring practise.

Company performing the calibration:	Internal I&C and laboratory, using measuring etalons calibrated by external licensed laboratories such as BRML Timisoara and INM Bucuresti
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes. For the metering systems related to "Electricity produced" only periodic internal verification activities are required Verification dates of related measuring equipment: 13 April 2007 (Commissioning Tests), 01-30 April 2008, 01-31 May 2009. According to the PP internal procedures, the metering systems related to "Electricity produced" are performed during the Turbo-generator Planned Annual Repair Activity. In 2008 and 2009 this activity was planned indeed after the first period of the heating season, respectively in April 2008 (turbine shut down 01March2010) and in May 2009 (turbine shut down 07April2009)
If applicable, has the reported data been cross-checked with other available data?	Yes. See bellow
How were the values in the monitoring report verified?	Crosschecked with Yearly Operating Books (monthly summaries) and with Monthly monitoring parameters summaries approved by the Head of CET Timisoara Sud.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	PP is certified under ISO 9001, 14001 and 18001 /18//19//20/
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

3.4 Accuracy of Emission Reduction Calculations

All used data were of a high quality to assure accurate calculation. It is evidenced that the whole monitoring system was fully operational during the monitoring period. The calibration results ensure the correct functionality of all the necessary equipment pertinent to the project activity. DNV received access to all relevant documentation needed to verify the emission reduction calculation. All used information was traceable and appropriately archived.

The obtained data are transferred from raw data files to final calculation spreadsheets, which were presented during site visit and the part of the Monitoring reports. Two potential risks for this processing of data exist only. This is the failure of some measurement device (no failures of measuring equipment have been found), which was discussed in chapter 3.3, and human interference to files in time of data processing. The interference was excluded, when raw data and data from final monitoring report was compared. The formulas in monitoring report corresponds /5/ with provided evidences and monitoring plan /3/ .

For the voluntary period of 12 November 2007 to 31 December 2007 (for voluntary credits) the emissions are as follows:

Project emissions	68 583	tCO_2
Baseline emissions	88 567	tCO_2
Emission Reductions	**19 984**	**tCO_2**

For the **post registration period of 1 January 2008 to 31 December 2008** (corresponding with Kyoto) the emissions are as follows:

Project emissions	157 877	tCO_2
Baseline emissions	201 434	tCO_2
Emission Reductions	**43 558**	**tCO_2**

For the **post registration period of 1 January 2009 to 31 December 2009** (corresponding with Kyoto) the emissions are as follows:

Project emissions	167 967	tCO_2
Baseline emissions	217 447	tCO_2
Emission Reductions	**49 480**	**tCO_2**

Total 2007 (voluntary) 19 984 tCO_2

Total 2008- 2009: 93 038 tCO_2

The PDD estimates for the years 2008 and 2009 together are in total 69 342 tCO_2. The verified emission reductions are lower than the estimate due to the required changes within the monitoring plan as described within the MRs.

3.5 Quality of Evidence to Determine Emission Reductions

At present monitoring is provided partially by central monitoring system SCADA, (Simantic PCS7, manufactured by SIEMENS) whose implementation is in progress. The activities

related to SCADA system (hard and soft) maintenance, check, control and upgrade activities are performed regularly by dedicated Colterm staff specifically trained SCADA manufacturer. Hourly read data from individual meters are recorded in power plant Daily Operation Parameters Data Sheets /8/, which are the source of input values for Yearly Operating Books/7/ (monthly summaries) and with Monthly monitoring parameters /8/ summaries approved by the Head of CET Timisoara Sud. All necessary documentation is collected, referenced and aggregated and is easily accessible in spreadsheets. Measurements are performed by properly calibrated equipment, and the key data can also be cross-checked via other sources, such as invoices, daily reports and meters available in the operators control room. No assumptions are used that have any material influence on reported emission reductions".

All measurement and analytical instruments are calibrated regularly by authorised third part and as per the documented procedures used by the plant operators.

All instruments have a valid calibration covering the whole monitoring period. DNV confirms the all instruments are working within the specified error ranges as per certificates. The calibration certificates were provided as evidence of the work performed. The accuracy and calibration interval of the monitoring equipment is in accordance with the relevant guidance provided by the CDM Executive Board /43/ and is controlled and calibrated in accordance with the specifications of the local standards and per the manufacturer specification. The monitoring system and instruments as well as the applied QA/QC scheme (i.e. calibration, maintenance, etc.), following supplier recommendations, represent good monitoring practice.

All meters and measuring equipment necessary for the project activity are located at the combined heat and power plant as per registered project documentation and according to the monitoring plan.

3.6 Management System and Quality Assurance

The quality assurance and quality control procedures in terms of equipment operation and maintenance as well as data reporting are covered by the documented procedures.

Local operators, instrumentation engineers and calibration personnel of the system have been trained by equipment suppliers and qualified internally. Data handling solutions involve redundancy, data manipulation protection, integrity check as well as proper archiving.

Quality assurance procedures are supported by the annual training activities of JI personnel. DNV received and checked the training protocols for 2007, 2008 and 2009 /36//37//38/. These protocols cover the JI and QA/QC areas. As per Romanian National Procedure, local EPAs are required to carry out semi-annual QA checks and prepare annual reports. Local EPAs attended and checked the training session on December 16th, 2010.

SC Colterm SA has obtained the following ISO certifications

- ISO 9001 issued by SRAC CERT S.R.L. valid by 5 November 2012 /18/
- 14001 issued by SRAC CERT S.R.L. valid by 5 November 2012 /19/
- 18001 issued by SRAC CERT S.R.L. valid by 5 November 2012 /20/

As a result of the JI project activity the following operational forms and procedures were issued:

Forms:

- F01_Monthly QA Check List Colterm /27/
- F02_Semi Annual QA Check List EPA /28/
- F03_Monthly JI Monitoring Data Record /29/

Procedures

- P01_Records and Documents Keeping /30/
- P02_Data transfer /31/
- P03_Monthly QA check Colterm /32/
- P04_Semi-Annual QA check EPA /33/
- P05_Coal consumption estimation /34/
- Annex Data Transfer /35/

The monitoring process consists of the following process steps:

1. Collection
2. Documentation
3. Archiving
4. GHG emissions reduction calculation
5. Verification"

DNV can confirm that SC Colterm SA provided all above mentioned ISO certifications as an evidence that it fulfils the requirements of these standards concerning organisation, environmental system and occupational health and safety aspects and that they cover power management processes, production and sale/supply of electric power, production, transportation, distribution and supply of heat power and supply of cold water. DNV also physically checked operational forms and procedures mentioned above.

4 VERIFICATION STATEMENT

DNV Climate Change Services AS has performed the verification of the emission reductions reported for the "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location" project in Romania (UNFCCC Registration Reference No. RO1000021) for the period 12 November 2007 to 31 December 2007 (voluntary period) and for the JI period 01 January 2008 to 31 December 2009.

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project.

It is DNV's responsibility to express an independent verification statement on the reported GHG emission reductions from the project. DNV does not express any opinion on the selected baseline scenario or on the validated and registered PDD.

DNV conducted the verification on the basis of the monitoring plan contained in the registered Project Design Document of version 02, of October 2006 and the monitoring reports (MR for 2007 of version 07 dated 10 April 2011 and the MR for 2008 and 2009 of versions 06 dated 29 March 2011). The verification included i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and ii) the collection of evidence supporting the reported data.

DNV's verification approach draws on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. DNV planned and performed the verification by obtaining evidence and other information and explanations that DNV considers necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions of the "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location Project in Romania" (ITL project ID RO1000021) for the period 12 November 2007 to 31 December 2007 (voluntary period) and for the JI period 01 January 2008 to 31 December 2009 are fairly stated in the monitoring reports of 2007, 2008 and 2009.

The GHG emission reductions were calculated correctly on the basis of the approved CDM baseline and monitoring methodology AM00002 (version 04) and the monitoring plan contained in the registered PDD of version 02, of October 2006.

Hence, DNV is able to verify that the emission reductions from the "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location" project in Romania during the period 01 November 2007 to 31 December 2007 (voluntary period) amount to 19 984 tonnes of CO_2 equivalent and for the JI period of 01 January 2008 to 31 December 2009 amount to 93 038 tonnes of CO_2 equivalent.

Prague and Oslo, 9 May 2011.

Zuzana Andrtová
JI Verifier
DNV Prague, Czech republic

Ole A. Flagstad
JI Service Responsible,
DNV Climate Change Services AS


DNV

REFERENCES

Documents provided by the Project Participants that relate directly to the GHG components of the project. These have been used as direct sources of evidence for the periodic verification conclusions, and are usually further checked through interviews with key personnel.

/1/ SC Colterm SA and SC Eninvest SA: Project Design Document - "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location", October 2006.

/2/ SC Colterm SA and SC Eninvest SA: Baseline Study – "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location" (Annex 2 to PDD), January 2006

/3/ SC Colterm SA and SC Eninvest SA: Monitoring Plan - "Timisoara Combined Heat and Power Rehabilitation for CET Sud Location" (Annex 3 to PDD), January 2006

/4/ SC Colterm SA and Grue + Hornstrup AlS in cooperation with EnergyServ: Monitoring Reports Timisoara Combined Heat and Power Rehabilitation for CET SUD Location, monitoring reports (MR for 2007 of version 07 dated 10 April 2011 and the MR for 2008 and 2009 of versions 06 dated 29 March 2011).

/5/ SC Colterm SA and Grue + Hornstrup AlS in cooperation with EnergyServ: Excel sheets for the Emissions calculation 2007 – 2009, dated 29 March 2011

/6/ DNV: Determination report No. 2006-0423, revision 03 dated 15 January 2007

/7/ SC Colterm SA Yearly Production Internal Reports 2007 - 2009

/8/ SC Colterm SA: Monthly and daily monitoring parameters summaries approved by the Colterm director 2007 - 2009

/9/ SC Colterm SA: Natural gas invoices 2007 - 2009

/10/ SC Colterm SA: Electricity supplied to national grid – invoices 2007 - 2009

/11/ SC Colterm SA: Electricity imported from National Grid – invoices 2007 - 2009

/12/ SC Colterm SA: Deliveries of lignite – invoices 2007 – 2009, including yearly summary

/13/ SC FARMING OANA SERV. S.R.L. Calibration protocol on natural gas meter No:0055608, 0055606 dated 12.10.2006, No.:0170628 dated 24.10.2008

/14/ ABB ROMETRICS S.R.L. Calibration protocol on electricity meter, No: TM-01521990, dated 17 Nov 2003

/15/ AS INTERNATIONAL. S.R.L Calibration protocol on heat meter, No:0132105, dated 01.09.2006

/16/ SC Colterm SA: Internal working orders 2007 – 2009 on coal consumption meters

/17/ SC Colterm SA: Coal amount on the stock – inventory results 2007 - 2009

/18/ ISO 9001 issued by SRAC CERT S.R.L. valid by 5 November 2012

/19/ 14001 issued by SRAC CERT S.R.L. valid by 5 November 2012

/20/ 18001 issued by SRAC CERT S.R.L. valid by 5 November 2012

/21/ Autoritatea Nationala de Reglementare in Domeniul Energiei - Licence on heat production No. 13/2007, issued under seria L, Nr. 2020, 15 November 2007

/22/ Autoritatea Nationala dr Reglementare in Domeniul Energiei - Licence on electricity production, issued under seria L, Nr. 1625, 6 April 2004 November 2007

/23/ SC Colterm SA:: PO-CLT-A-23 - Planning and Monitoring of Energy production and Consumption – Internal Operational Procedure

/24/ SC Colterm SA: JI Project Procedure "PO2_Data Transfer" Internal Operational Procedure

/25/ PO-CLT-A-34 – "Determination of the caloric content of the solid fuels". Internal Operational Procedure

/26/ SC Colterm SA: PO-CLT-A-30 – "Coal receiving and weighing". Internal Operational Procedure

/27/ SC Colterm SA: F01_Monthly QA Check List Colterm

/28/ SC Colterm SA: F02_Semi Annual QA Check List EPA

/29/ SC Colterm SA: F03_Monthly JI Monitoring Data Record

/30/ SC Colterm SA: JI Project Procedures - P01_Records and Documents Keeping

/31/ SC Colterm SA: JI Project Procedures - P02_Data transfer

/32/ SC Colterm SA: JI Project Procedures - P03_Monthly QA check Colterm

/33/ SC Colterm SA: JI Project Procedures - P04_Semi-Annual QA check EPA

/34/ SC Colterm SA: JI Project Procedures - PO5_Coal Consumption Estimation

/35/ SC Colterm SA: A Procedures - Annex Data Transfer

/36/ SC Colterm SA: Training Protocols 1 and 2, 2007

/37/ SC Colterm SA: Training Protocols 1 and 2, 2008

/38/ SC Colterm SA: Training Protocols 1 and 2, 2009

Background documents related to the design and/or methodologies employed in the design or other reference documents.

/39/ JI Supervisory Committee, Determination and verification manual, version 01 adopted at JISC 19

/40/ JI Supervisory Committee, Guidance on criteria for baseline setting and monitoring, version 02 adopted at JISC18

/41/ National procedure for using Joint Implementation (JI) mechanism under Track I (National JI Track I Procedure) http://ji.unfccc.int/UserManagement/FileStorage/AWBVICCKC5KW215L28BETVJZ1YHUN6

/42/ Directive 2004/22/EC of European Parliament and of the Council of 31 March 2004 on measuring instruments

/43/ Romanian Bureau of Legal Metrology - Ordinance (Ordin) 48/2010 published within Official Gazette (Monitorul Oficial) 181/22.03.2010

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APPENDIX A

CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS

Corrective action requests

CAR ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CAR 1	The Monitoring report is very brief and PP is requested to revise it according to: • Real information (paragraphs related to status of construction works text have to include real status of operation, all have been done yet, nothing is proposed....) • All changes have to be described and explained (why? Approved by, ...,) especially coal consumption procedure PO - CLT – A – 13 should be described as well as electricity production and the self consumption monitoring. Changes do not corresponds in the individual MRs • Version of ACM 0002 used • Values of ex ante parameters are missing in MR, compare the current values with the PDD values • Project's crediting period: DD MMM 2008 to DD MMM 2012 • Dates of MR are missing • Formatting and units (m^3, kcal, CO_2, kWh, N_2O, NH_4,....)	The Monitoring reports have been updated in accordance • Real information has been included in Section 3 - Project Status within the MRs (2007, 2008, 2009) (***Annex 1_MR***). • Changes have been described under Section 5 – Monitoring Parameters within the MRs (2007, 2008, 2009). The procedure PO – CLT – A – 13 can be found in ***Annex 2_Coal Estimation Procedure*** together with the English translation of the chapter dealing with the specific requirement. • Version 4 of ACM0002 is used, respective additions have been made to the MRs (2007, 2008, 2009) (***Annex 1_MR***). • Values of ex-ante parameters have been included in Section 6 – Parameters not monitored within the MRs (2007, 2008, 2009) (***Annex 1_MR***). • The crediting period has been included under Project Facts within the MRs (2007, 2008, 2009) (***Annex 1_MR***). • The dates of the MRs have been included in the cover page of the MRs (2007, 2008, 2009) (***Annex 1_MR***). • Formatting and units have been adjusted throughout the MRs (2007, 2008, 2009) (***Annex 1_MR***).	All requested information as well as formatting and revisions were provided and incorporated into the MR. CAR 1 has been closed

CAR ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CAR 2	PP is requested to include into the Monitoring report the part describing Data management system and QC/QA procedures: • Review of information flows for generating (SCADA information system), aggregating and reporting the monitoring parameters, collection, documentation, archiving, upgrade, responsibilities JI training procedures, evidences, participants	• Respective Monitoring Management and Quality Assurance System Documents have been included in Appendix 1: MMQAS Documentation within the MRs (2007, 2008, 2009) (***Annex 1_MR***). • JI training protocols can be found in ***Annex 3_Training Protocols***	Monitoring Management and Quality Assurance System Documents as well training protocols have been provided by PP. CAR 2 has been closed
CAR 3	Excel sheets: • DNV has found some small mistakes and non conformities in the excel sheet of 2008 and 2009. These mistakes (2008/input data/ H10-13, 2009/input data/ H11-13, 15, 19, 20) have to be revised and new values have to be used for revised calculations. • the emission reduction sheet as a result of calculation should be included – individual sheet • default values annex II units for NCV are missing • correct units have to be used (m^3, kcal, CO_2, kWh, N_2O, NH_4,….)	• Respective corrections have been made in the 2008, 9 MR Excel Spreadsheets (***Annex 1_MR***). Filled out forms Form_F03_Monthly JI Monitoring Data Project for the years 2007, 2008, and 2009 can be found in ***Annex 5_Filled out Form_F03_Monthly JI Monitoring Data Project*** Filled out CET SUD Technical Economic Reports for the years 2007, 2008, and 2009 can be found in ***Annex 6_Filled out Technical Economic Reports*** • An emission reduction summary sheet has been included in the MR Excel Spreadsheet (2007, 2008, 2009) (***Annex 1_MR***). • Units of default values have been included in the the MR Excel Spreadsheet (2007, 2008, 2009) (***Annex 1_MR***). • Units have been revised in accordance throughout the MR Excel Spreadsheet (***Annex 1_MR***).	Excel sheets were revised and all requested changes have been done as well as correct formatting. These corrections results: • 2008 ER of 43 557 tCO_2 have changed to 43 558 tCO_2 • 2009 ER of 50 290 tCO_2 have changed to 49 480 tCO_2 CAR 3 has been closed

CAR ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CAR 4	The evidence about internal audit process as well as environmental authorities' inspections has to be provided, if any.	• As per Romanian National Procedure, local EPAs are required to carry out semi-annual QA checks and prepare an annual Report. Local EPAs have attended the training session on December 16th, 2010 (***Annex 3_Training Protocols***) and promised to start performing respective checks etc.	Requested information as well as training protocols have been provided by PP. CAR 4 has been closed
CAR 5	Monitoring reports should take into account two periods 2007 because 2007 is for voluntary credits and 2008-2009 corresponding with Kyoto, that need to be emphasized	An indication has been included under Project Facts within the MRs (2007, 2008, 2009) (***Annex 1_MR***).	An indication has been included under Project Facts within the MRs (2007, 2008, 2009) CAR 5 has been closed

Clarification requests

CL ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CL 1	Provide the description of activities and authorisation of the internal IaC and metrological laboratory	• The description of the activities of the PRAM – AMC (I & C) Laboratory is provided in ***Annex 4_Laboratory PRAM***, paragraph 1.	The description of the activities of the PRAM – AMC (I & C) Laboratory has been provided by PP CL 1 has been closed

CL ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CL 2	Specify the accuracy of the Multifunctional PoverLogic system PM 500 and specify under which rules the calibration interval has been defined and provide the working orders as an the evidence	• The accuracy of the Multifunctional Power Logic System as well as legal document stipulating the calibration requirements are provided in ***Annex 4_Laboratory PRAM***, paragraph 2.	The accuracy of the Multifunctional Power Logic System as well as legal document stipulating the calibration requirements have been provided – see tables of chapter 3.3 of this report. CL 2 has been closed
CL 3	Specify the accuracy of the Computer for thermal energy CALEC MB, Aquametro AB, 2 flow meters SONO 3000	• The accuracy of the Multifunctional Power Logic System as well as legal document stipulating the calibration requirements are provided in ***Annex 4_Laboratory PRAM***, paragraph 2.	The accuracy of the Multifunctional Power Logic System as well as legal document stipulating the calibration requirements have been provided – see tables of chapter 3.3 of this report. CL 3 has been closed

CL ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
CL 4	Specify the accuracy of the f meters (AEM 54), and specify under which rules the calibration interval has been defined	• The accuracy for the systems measuring the frequency and the voltage based on which is determined the coal belt speed and accordingly the is estimated the hourly coal consumption as well as legal documents stipulating the calibration requirements are provided in ***Annex 4_Laboratory PRAM***, paragraph 2.	The accuracy for the systems measuring the frequency and the voltage based on which is determined the coal belt speed and accordingly the is estimated the hourly coal consumption as well as legal documents stipulating the calibration requirements have been provided – see tables of chapter 3.3 of this report. CL 4 has been closed

Forward action requests from previous verification

FAR ID	Forward action request	Summary of how FAR has been addressed in this reporting period	Assessment of how FAR has been addressed
FAR 1	NA		

Forward action requests from this verification

FAR ID	Forward action request	Response by Project Participants	DNV's assessment of response by Project Participants
FAR 1	NA		