VERIFICATION REPORT

- 4TH PERIODIC –

THE WORLD BANK PROTOTYPE CARBON FUND

"CZECH UMBRELLA JI PROJECTS"

Period of District Heating Projects: 01.01. 2008 – 31.12.2008

Period of Small Hydro Projects: 01.01.2008 – 31.12.2008

Report No: 8000364962 – 09/314

Date: 2010-06-30

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Verification Report:	***Report No.***	***Rev. No.***	***Date of 1st issue:***	***Date of this rev.***
	8000364962 – 09/314	0	2010-06-30	2010-06-30
Project:	***Title:***		***Registration date:***	***UNFCCC-No.:***
	Czech Umbrella JI projects		N/A	Track I project
Project Participant(s):	***Host party:***		***Other involved parties:***	
	Czech Republic			
Applied methodology/ies:	***Title:***		***No.:***	***Scope:***
	Project specific methodology		N/A	1
Monitoring:	***Monitoring period (MP):***		***No. of days:***	***MP No.***
	Period of District Heating Projects: 01.01. 2008 – 31.12.2007		366	6
	Period of Small Hydro Projects: 01.01.2008 – 31.12.2008		366	4
Monitoring report:	***Title:***		***Draft version:***	***Final version:***
	Emission Reduction Report 2008 Payment SHPs Emission Reduction Report 6th Monitoring period Rozhmital &Decin		Version 1 dated 27.10.2009 Version 1 dated 23.10.2009	Version 1 dated 27.10.2009 Version 3 dated 29.06.2010
Verification team / Technical Review and Final Approval	***Verification Team:***		***Technical review:***	***Final approval:***
	Rainer Winter Evgeni Sud Petr Matusinsky		Eric Krupp Stefan Winter Sergej Friesen	Eric Krupp
Emission reductions: [t CO_{2e}]	***Total Verified amount***			
	62,326 t CO2e			
Summary of Verification Opinion:	The World Bank (Prototype Carbon Fund) has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 4th periodic verification of the project: "CZECH UMBRELLA JI PROJECTS", with regard to the relevant requirements for JI project activities. The umbrella of projects can be divided in two groups: District heating (DH) and Small Hydro Projects (SHD). Within the district heating group the emission reduction is realized by a fuel switch from coal to gas. Within the small hydro projects the emission reduction is achieved by the renewable production of electricity which is fed into the national grid. This verification covers the period: 01.01.2008 – 31.12.2008 In the course of the verification 9 Corrective Action Requests (CAR) and 1 Clarification Request (CR) were raised and successfully closed. No FARs have been raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the validated monitoring plan, the periodic verification reports, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant. As a result of this verification, the verifier confirms that: • all operations of the project are implemented and installed as planned and described in the validated project design document. • the monitoring plan is in accordance with the validated project			

specific monitoring plan developed for DH and SHD project activities.

- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the 4th periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

District heating projects: 01.01.2008 – 31.12.2008

No.	Name of Sub-project	Emission Reductions in tCO2
1	Rozmital	1.170
2	Decin	19.536

Small Hydro Projects: 01.01.2008 – 31.12.2008

No.	Name of Sub-project	Emission Reductions in tCO2
1	Hydro Horky	1.466
2	Hydro Kostice	763
3	Hydro Decin	2.358
4	Hydro Olse	751
5	Hydro Tynec Sazavou – Brodce	1.581
6	Hydro Frantiskov	1.188
7	Hydro Libochovice	2.681
8	Hydro Patec	2.736
9	Hydro Smržovka-Kamenice	1.257
10	Hydro Černys	3.047
11	Hydro Čerčany	875
12	Hydro Benátky nad Jizerou	4.696
13	Hydro Les - Kralovstvi	10.108
14	Hydro Libocani	3.964
15	Bulhary	4.149

The total verified amount of emission reductions achieved within district heating and small hydro projects is **62,326 t CO2e.**

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Abbreviations:

CA	**Corrective Action / Clarification Action**
CAR	**Corrective Action Request**
CDM	**Clean Development Mechanism**
CER	**Certified Emission Reduction**
DVM	**Determination and Verification Manual**
CO_2	**Carbon dioxide**
CO_{2eq}	**Carbon dioxide equivalent**
CR	**Clarification Request**
DH	**District Heating**
ER	**Emission Reduction**
ERU	**Emission Reduction Unit**
FAR	**Forward Action Request**
GHG	**Greenhouse gas(es)**
JI	**Joint Implementation**
JISC	**Joint Implementation Supervisory Committee**
MP	**Monitoring Plan**
MR	**Monitoring Report**
PDD	**Project Design Document**
PP	**Project Participant**
SHP	**Small hydro projects**
QA/QC	**Quality Assurance / Quality Control**
UNFCCC	**United Nations Framework Convention on Climate Change**
XLS	**Emission Reduction Calculation Spread Sheet**

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1. INTRODUCTION

The World Bank (Prototype Carbon Fund) has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the 4th periodic verification of the project

"CZECH UMBRELLA JI PROJECTS"

with regard to the relevant requirements for JI project activities. The verifiers have reviewed the implementation of the monitoring plan (MP) in the positive validated JI project activity number.

GHG data for the monitoring period covering

District Heating Projects: **01.01. 2008 – 31.12.2008**

Small Hydro Projects: **01.01. 2008 – 31.12.2008**

was verified in detailed manner applying the set of requirements, audit practices and principles of the UNFCCC.

This report summarizes the findings and conclusions of this 4th periodic verification of the above mentioned JI project activity.

The umbrella of projects in the Czech Republic (CZ) encompasses two groups of projects. Within the first group the emission reduction is realized by a fuel switch from coal to gas in **district heating facilities** of the cities Rozmital and Decin. Within the second group emission reduction is realized through electricity generation in **small hydro plants** which is fed into the national grid and replaces fossil fuel generated electricity.

1.1. Objective

The objective of the verification is the review and ex-post determination by an independent entity of the GHG emission reductions. It includes the verification of the:

- Implementation and operation of the project activity as given in the PDD,
- compliance with provisions of the monitoring plan,
- data given in the monitoring report by checking the monitoring records, the emissions reduction calculation and supporting evidence
- accuracy of the monitoring equipment
- quality of evidence
- significance of reporting risks and risks of material misstatements.

1.2. Scope

The verification of this registered project is based on the validated project design document/PDD/ including baseline, the monitoring report/MR/, emission reduction

calculation spread sheet/MR/, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

The verification is carried out on the basis of the following requirements, applicable for this project activity:

- Article 6 of the Kyoto Protocol /KP/,
- guidelines for the implementation of Article 6 of the Kyoto Protocol as presented UNFCCC/Kyoto Protocol requirements, in particular, the requirements of the JI as set out in decision 9/CMP.1 the present annex and relevant decisions by the JISC,
- other relevant rules, including the host country legislation,
- CDM Validation and Verification Manual /VVM/,
- monitoring plan as given in the registered PDD /PDD/,
- Applied Methodology: Each group of projects – district heating and small hydro projects – apply their **own baseline approaches** which were positive validated in the course of determination PDD.

The Czech Ministry of Industry and Trade (MIT) has provided four emission reduction reports. These are - two DH projects and two the SHP project reports.

15 Small Hydro plants:

The Emissions Reduction Report, 3rd Monitoring Period SHP covering 14 Small Hydro Power Plants within the time period between **1st January 2008** and **31st December 2008**:

1. • Hydro Horky
2. • Hydro Kostice
3. • Hydro Decin
4. • Hydro Olse
5. • Hydro Tynec Sazavou – Brodce
6. • Hydro Frantiskov
7. • Hydro Libochovice
8. • Hydro Patec
9. • Hydro Smržovka-Kamenice
10. • Hydro Černys
11. • Hydro Čerčany
12. • Hydro Benátky nad Jizerou
13. • Hydro Les - Kralovstvi
14. • Hydro Libocani
15. • Hydro Bulhary

District Heating projects:

For the two District Heating projects in Rožmitál and Děčín, Czech Ministry of Industry and Trade (MIT) has submitted the monitored reports:

Emissions Reduction Report 6th Monitoring period for Rozmital&Decin covering the time period between **01 January 2008** and **31 December 2008.**

2. GHG PROJECT DESCRIPTION

2.1. Project Characteristics

The Prototype Carbon Fund (PCF) signed a Host Country Agreement and an Emissions Purchase Agreement with the Czech Republic in 2003 to formalize the terms under which carbon emission reductions will be purchased. The thrust of the PCF umbrella project is to add carbonbased support to projects that were considered by the Czech Energy Agency (CEA) and the State Environmental Fund (SEF). The Czech Ministry of Industry and Trade (MIT) took over all responsibilities regarding the project from the Czech Energy Agency (CEA) on December 31, 2007 when CEA was dissolved by the government decree.

The "Czech Umbrella JI Projects" currently consists of 15 small hydro projects and two district heating projects in Czech Republic.

Methodology: In the case of the small hydros, they all use the same standardized approach prepared by Prototype Carbon Fund (PCF) for grid-connected electricity generation from renewable sources. This approach was positive validated by the Det Norske Veritas (DNV) in the course of determination PDD. A specific approach to determine emission reduction realized through the two District Heating projects has been developed by PCF and determined by the Det Norske Veritas (DNV) in the course of determination PDD.

Essential data of the project is presented in the following Table 2-1.

Table 2-1: Project Characteristics

Item	Data	
Project title	Czech Umbrella JI Projects	
Project size	☐ Large Scale ☒ Small Scale	
JI registration No.	Registered as per the Track I procedures	
Project Scope (according to UNFCCC sectoral scope numbers for JI)	1	Energy Industries (renewable - / non-renewable sources)
Applied Methodology	Project specific methodology	

2.2. Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-2).

Table 2-2: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	Czech Republic	Ministry of Industry and Trade of the Czech Republik

2.3. Project Location

Project is located in the Czech Republic.

The details of the project location are given in table 2-3:

Table 2-3-1: Project Location – **Small Hydro Projects**

No.	Project Location
Host Country	Czech Republic
Project location:	• Horky • Kostice • Decin • Olse • Tynec Sazavou – Brodce • Frantiskov • Libochovice • Patec • Smržovka-Kamenice • Černys • Čerčany • Benátky nad Jizerou • Les - Kralovstvi • Libocani • Bulhary

Table 2-3-2: Project Location – **District Heating Projects**

No.	Project Location
Host Country	Czech Republic
Project location:	• Rozmital • Decin

2.4. Technical Project Description

The "Czech Umbrella JI Projects" currently consists of 15 small hydro projects and two district heating projects in Czech Republic. For all types of projects the PCF developed individual baseline studies and calculation approaches that have been determined by Det Norske Veritas (DNV).

The **hydro power projects** are characterized by a refurbishment of old small hydro power plants. Within the retrofit the outdated equipment has been dismantled and the new equipment has been installed. According to the elaborated baseline study for determining a grid factor, the produced electricity substitutes electricity from conventional power plants.

The key parameters for the project are given in table 2-4-1 and 2-4-2:

Table 2-4-1: Technical data of the plant – **Small Hydro Plants**

Parameter	Unit	Value
1. Horky	kW	110
2. Kostice	kW	145
3. Decin	kW	212
4. Olse	kW	362
5. Tynec Sazavou – Brodce	kW	290
6. Frantiskov	kW	320
7. Libochovice	kW	250
8. Patec	kW	250
9. Smržovka-Kamenice	kW	250
10. Černys	kW	250
11. Čerčany	kW	170
12. Benátky nad Jizerou	kW	856
13. Les - Kralovstvi	MW	2.21
14. Libocani	kW	640
15. Bulhary	kW	740

The **district heating projects** are characterized by a fuel switch from carbon intensive fuels like coal to less carbon intensive fuels like natural gas. The efficiency of the district heating facilities has been improved as well in the course of the project implementation. Both effects result in a reduction of carbon dioxide.

Within the Rozmital District Heating project without the implementation of the JI project activity the space heat and hot tap water would be provided to the three old coal fired boilers.

Table 2-4-2: Technical data of the plant – **District Heating Projects**

Parameter	Unit	Value
1. Rozmital	kW	110
2. Decin	kW	212

3. METHODOLOGY AND VERIFICATION SEQUENCE

3.1. Verification Steps

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the monitoring report
- A desk review of the Monitoring Report /MR/ submitted by the client and additional supporting documents with the use of customised verification protocol /CPM/ according to the Validation and Verification Manual /VVM/,
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

The verification of this project was carried out from November 2008 to May 2009:

3.2. Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3. Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, consistent of one team leader and 3 additional team members, was appointed. Furthermore also the personnel for the technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-1 below.

Table 3-1: Involved Personnel

	Name	Company	Function [1)]	Qualification Status [2)]	Scheme competence	Technical competence [4)]	Host country Competence	Team Leading competence
☒ Mr. ☐ Ms.	Rainer Winter	TN CERT	TL	SA	☒	S, K	☐	☒
☒ Mr. ☐ Ms.	Evgeni Sud	TN CERT	TM	E	☒		☐	☐
☒ Mr. ☐ Ms.	Petr Matusinski	TN Czech	TM	TE	☐		☒	☐
☒ Mr. ☐ Ms.	Sergej Friesen	TN CERT	TR[3)]	E	☒		☐	☐
☒ Mr. ☐ Ms.	Stefan Winter	TN CERT	TR[3)]	TE	☐	S, K	☐	☐
☒ Mr. ☐ Ms.	Eric Krupp	TN CERT	TR[3)], FA	SA	☒		☐	☒

[1)] TL : Team Leader; TM : Team Member, TR: Technical review; FA: Final approval;

[2)] GHG Auditor Status: A : Assessor; E : Expert; SA: Senior Assessor; T : Trainee, TE: Technical Expert

3.4. Publication of the Monitoring Report

The monitoring reports, as received from the project participants, have not been made publicly available because it is not required by the Host Country.

3.5. Verification Planning

In order to ensure a complete, transparent and timely execution of the verification task the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion.

Various tools have been established in order to ensure an effective verification planning.

Risk analysis and detailed audit testing planning

For the identification of potential reporting risks and the necessary detailed audit testing procedures for residual risk areas table A-1 is used. The structure and content of this table is given in table 3-2 below.

Table 3-2: Table A-1; Identification of verification risk areas

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	**Identification, assessment and testing of management controls**	**Areas of residual risks**	**Additional verification testing performed**	**Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)**
The following potential risks were identified and structured according to the possible areas of occurance.	*The potential risks of raw data generation have been identified in the course of the monitoring system implementation.* *The following measures were taken in order to minimize the corresponding risks.* *The following measures are implemented:*	*Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of every verification.*	*The additional verification testing performed is described. Testing may include:* - *Sample cross checking of manual transfers of data* - *Recalculation* - *Spreadsheet 'walk throughs' to check links and equations* - *Inspection of calibration and maintenance records for key equipment* - *Check sampling analysis results* *Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.*	*Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.*

The completed table A-1 is enclosed in the annex (table A-1) to this report.

Project specific periodic verification checklist

In order to ensure transparency and consideration of all relevant assessment criteria, a project specific verification protocol has been developed. The protocol shows, in a transparent manner, criteria and requirements, means and results of the verification. The verification protocol serves the following purposes:

- It organises, details and clarifies the requirements a JI project is expected to meet for verification
- It ensures a transparent verification process where the verifying DOE documents how a particular requirement has been proved and the result of the verification.

The basic structure of this project specific verification protocol for the periodic verification is described in table 3-3.

Table 3-3: Structure of the project specific periodic verification checklist

Table A-2: Periodic Verification Checklist			
Expectations for GHG data management system/controls	***Comments***	***Draft Concl.***	***Final Concl.***
The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table.	*Description of circumstances and further commendation to the conclusion.*	*This is either acceptable based on review of MR and supporting Documents (**OK**), or a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Draft Verification report. The Initial Verification has additional **Forward Action Requests (FAR)**. FAR indicates essential risks for further periodic verifications*	*CARs and CRs raised in the Draft Conclusion have to be closed or resolved. The final conclusion determines the final statement. FARs could remain in this section as they are subject in the next consecutive verification.*

The periodic verification checklist (verification protocol) is the backbone of the complete verification starting from the desk review until final assessment. Detailed assessments and findings are discussed within this checklist and not necessarily repeated in the main text of this report.

The completed verification protocol is enclosed in the annex (table A-2) to this report.

3.6. Desk review

During the desk review all documents initially provided by the client and publicly available documents relevant for the verification were reviewed. The main documents are listed below:

- the last revision of the PDD including the monitoring plan/PDD/,
- the last revision of the validation report/VAL/,
- the monitoring reports for the small hydro and district heating projects, including the claimed emission reductions for the project/MR/,
- the emission reduction calculation spreadsheets for small hydro and district heating projects/XLS/

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

3.7. On-site assessment

As most essential part of the verification exercise it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with the applicable criteria. Furthermore the on-site assessment is necessary to check the monitoring data with respect to accuracy to ensure the calculation of emission reductions. The main tasks covered during the site visit include, but are not limited to:

- The on-site assessment included an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed.
- The duly calibration of all metering equipment was checked.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data were checked completely.
- The data aggregation trails were checked via spot sample down to the level of the meter recordings.

The on-site audit was carried out in the time period between November 2009 and February 2010.

Before and during the on-site visit the verification team performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

Representatives of World Bank and Ministry of Industry and Trade including the operational staff of the plant were interviewed. The main topics of the interviews are summarised in Table 3-4.

Table 3-4: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
1. Projects & Operations Personnel, World Bank and Ministry of Industry and Trade	- General aspects of the project - Technical equipment and operation - Changes since validation - Monitoring and measurement equipment - Remaining issues from validation - Calibration procedures - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - GHG calculation - Procedural aspects of the verification - Maintenance - Environmental aspects

3.8. Draft verification reporting

On the basis of the desk review, the on-site visit, follow-up interviews and further background investigation the verification protocol is completed. This protocol together with a general project and procedural description of the verification and a detailed list of the verification findings form the draft verification report. This report is sent to the client for resolution of raised CARs, CRs and FARs.

3.9. Resolution of CARs, CRs and FARs

Nonconformities raised during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, if:

- there is a clear deviation concerning to the above mentioned applicable criteria (esp. the monitoring plan).
- requirements set by the monitoring plan or qualifications in the validation opinion have not been met; or
- there is a risk that the project would not be able to deliver emission reductions.

Forward Action Requests (FAR) indicate essential risks for further periodic verifications. Forward Action Requests are issued, if:

- the actual status requires a special focus on this item for the next consecutive verification, or
- an adjustment of the monitoring plan is recommended.

The verification team uses the term Clarification Request (CR), which is be issued if:

- additional information is needed to fully clarify an issue.

For a detailed list of all CARs, CRs and FARs raised in the course of the verification pl. refer to chapter 4.

3.10. Final reporting

Upon successful closure of all raised CARs and CRs the final verification report including a positive validation opinion can be issued. In case not all essential issues could finally be resolved, a final report including a negative validation opinion is issued.

The final report summarizes the final assessments w.r.t. all applicable criteria.

3.11. Technical review

Before submission of the final verification report a technical review of the whole verification procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the verification opinion and the topic specific assessments as prepared by the verification team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.12. Final approval

After successful technical review an overall (esp. procedural) assessment of the complete verification will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the request for issuance can be started.

4. VERIFICATION FINDINGS

In the following paragraphs the findings from the desk review of the monitoring report/MR/, the calculation spreadsheet/XLS/, PDD/PDD/, the Validation Report/VAL/ and other supporting documents, as well as from the on-site assessment and the interviews are summarised.

The summary of CAR, FAR and CR issued are shown in Table 4-1:

Table 4-1: Summary of CAR, CR and FAR

Verification topic	No. of CAR	No. of CR	No. of FAR
H - Project history	0	0	0
U - Update on Changes and Incidents	0	0	0
R - Monitoring Report – General	3	0	0
P - Monitoring Parameters	4	1	0
C - Emission Reduction Calculation	0	0	0
Q - Quality Management	2	0	0
SUM	**9**	**1**	**0**

The following tables include all raised CARs, CRs and FARs and the assessments of the same by the verification team. For an in depth evaluation of all verification items it should be referred to the verification protocols (see Annex).

Monitoring Report	**CAR R1 (Rozhmital)**			
Classification	☒ CAR	☐ FAR	☐ CR	☐ None
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	"Heat sales in GJ" from April 08 until December 08 in the table 4 MR (Emissions_Reduction_Report_2008DecinRozmital FINAL_23_10_2009.pdf) pages 12, 13 are not in line with initial data and values in the excel file "MP Workbook Rozmital 2008.xls" in the table "Heat sales 2008". Please correct.			

Monitoring Report	CAR R1 (Rozhmital)
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	This has been corrected.
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The revised monitoring report with corrected Table 4 on page 12-13 has been provided. The revision has been proved by the determination team and found to be appropriate.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during next periodic verification ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Appropriate action was not taken ☒ The project complies with the requirements

Monitoring Report	CAR R2 (Rozhmital)			
Classification	☒ CAR	☐ FAR	☐ CR	☐ None
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please correct the reference year in the excel file "MP Workbook Rozmital 2008.xls", table "Heat sales 2008" (replace "2007" by "2008").			
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	This has been corrected.			
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The required correction has been provided.			
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The CAR / CL is closed, ☐ The CAR / CL could **not** be closed.			

Monitoring Report	CAR R3 (Rozhmital)			
Classification	☒ CAR	☐ FAR	☐ CR	☐ None
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please provide initial data for august 2008 for Rozmital District Heating Fuel Switch Project.			

Monitoring Report	CAR R3 (Rozhmital)
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	This has been provided
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The required document has been provided and the correctness of the applied values could be verified.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The CAR / CL is closed, ☐ The CAR / CL could **not** be closed.

Monitoring Report	CAR P1 (Rozhmital)			
Classification	☒ CAR	☐ FAR	☐ CR	☐ None
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please clarify the difference between the "Energy content natural gas in may 2008" "MP Workbook Rozmital 2008.xls" and as per provided initial data "Rozmital District Heating Fuel Switch Project".			
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	This has been corrected.			
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The energy content natural gas taken as **22,99** MJ/m³ is indicated in the initial data (hard copy/printout). Nevertheless in the Excel calculation spreadsheet the correct value **34,21622** MJ/m³ is applied. The deviation can be explained as a misprint in the hard copy. It is important to note that the applied value and the calculation of the emission reduction have been carried out based on the correct values.			
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The CAR / CL is closed, ☐ The CAR / CL could **not** be closed.			

Monitoring Report	CAR P2 (Rozhmital)

Monitoring Report	**CAR P2 (Rozhmital)**			
Classification	☒ CAR	☐ FAR	☐ CR	☐ None
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Inconsistence between the provided initial data and excel spreadsheet "MP Workbook Rozmital 2008.xls" "Energy content natural gas (Cell C38)" in tables "from květen 2008 until prosinec 2008". Please clarify why the values in these both sources are different.			
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	During the inspection error was detected in the formulas in cell C38. The error was discovered later, because it was in the cell in which data are not written. Data were checked and corrected for the entire year 2008.			
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The values (formulae) for the "Energy content natural gas" have been duly corrected in the Excel spreadsheet. The monthly calculation of the achieved emission reductions is correct. The ER values in the table "Summary" ("MP Workbook Rozmital 2008.xls") correspond to the monthly figures calculated in particular tables. The total ER amount indicated as 1170 tCO_2 reported in the Monitoring report.is correct. It corresponds to the ER values in the table "Summary" ("MP Workbook Rozmital 2008.xls")			
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The CAR / CL is closed, ☐ The CAR / CL could **not** be closed.			

Monitoring Report	**CAR P3 (Rozhmital)**			
Classification	☐ CAR	☐ FAR	☒ CR	☐ None
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	There is a minor difference between the gas consumption as indicated in the invoices and gas consumption as per the meter readings. Please clarify.			
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The difference in gas consumption in the invoices and gas consumption, according to Rozmital tables arises from the fact that gas company deducts gas every day at 6.00 am, while the municipality checks and records boiler every day at 10.00 hours. For the year 2009 Rozmital will compare their conditions with the Gas bills(from the gas company) to avoid the different states.			

Monitoring Report	**CAR P3 (Rozhmital)**
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	An appropriate explanation for the minor deviations has been provided. It is important to note that the applied value and the calculation of the emission reduction have been carried out based on the correct values.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The CAR / CL is closed, ☐ The CAR / CL could **not** be closed.

Monitoring Report	**CAR P4 (Rozhmital)**			
Classification	☒ CAR	☐ FAR	☐ CR	☐ None
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Inconsistence between the provided initial data and excel spreadsheet "MP Workbook Rozmital 2008" "Total CO2 emissions baseline (Cell E62)" in tables "from červen 2008 until srpen 2008". In these cells are no formulae included. Only values. Please clarify why the values in these both sources are different.			
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The reason why the cell E62 displays different value is rounding the source cells.			
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	An appropriate explanation has been provided. It is important to note that the applied value and the calculation of the emission reduction have been carried out based on the correct values.			
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The CAR / CL is closed, ☐ The CAR / CL could **not** be closed.			

Monitoring Report	**CAR P5 (SHP Cercany)**			
Classification	☒ CAR	☐ FAR	☐ CR	☐ None

Monitoring Report	CAR P5 (SHP Cercany)
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Inconsistence between the provided initial data and excel spreadsheet for Cercany project. Please check cell R10 in "Cercany_Monitor_Workbook2008" "Project Data" In this cell "Production Ex Plant [feb]" is 130. However as per the provided invoice it is 103. Please provide consistence or clarify why the values in these both sources are different.
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	This has been corrected.
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The inconsistence has been duly corrected and a correct production ex plant has been applied.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The CAR / CL is closed, ☐ The CAR / CL could **not** be closed.

Monitoring Report	CAR Q1 (Rozhmital)			
Classification	☒ CAR	☐ FAR	☐ CR	☐ None
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please provide evidence for calibration of the applied measurement equipment for Rozhmital project. (This can be done during the on-site-visit)			
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	This has been provided.			
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The evidences of the applied calibration equipment have been provided. It could be verified that calibration of the applied calibration equipment has been carried out appropriately.			

Monitoring Report	**CAR Q1 (Rozhmital)**
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The CAR / CL is closed, ☐ The CAR / CL could **not** be closed.

Monitoring Report	**CAR Q2 (SHP)**			
Classification	☒ CAR	☐ FAR	☐ CR	☐ None
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please provide evidence for calibration of the applied measurement equipment within small hydro projects. (This can be done during the on-site-visit)			
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	This has been provided to the verification team during on-site visit.			
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	In the course of the verification it could be verified that the electricity meters are property of an energy company (ČEZ, EON). Verification team was able to inspect the metering devices and it has been observed that all meters are properly sealed and marks were untouched. Based on the local knowledge verification team was able to conclude that measurement a system of electricity (calibration) is under Czech Low and it is checked by the different authorities. For this reason the calibration of the applied meters has been assessed as appropriate and in line with laws and regulations of the Host Country.			
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The CAR / CL is closed, ☐ The CAR / CL could **not** be closed.			

5. SUMMARY OF VERIFICATION ASSESSMENTS

The following paragraphs include the summary of the final verification assessments after all CARs and CRs are closed out. For details of the assessments pl. refer to the discussion of the verification findings in chapter 4 and the verification protocol (Annex 1).

5.1. Implementation of the project

During the verification a site visit was carried out. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipments, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the validated project design documents, monitoring plans and the relevant baseline studies.

5.2. Project history

In the course of the previous verification no Forward Action Requests have been raised.

5.3. Special events

All rights and obligations previously under the responsibility of the Czech Energy Agency (CEA) were transferred to the Czech Ministry of Industry and Trade, effective from January 1, 2008.

No further special events with effect on the monitoring of the project have been observed during the monitoring period.

5.4. Compliance with the monitoring plan

The monitoring system and all applied procedures have been reviewed. It has been verified that the monitoring system and all applied procedures are completely in compliance to the validated monitoring plan. The CARs and CRs raised in this context have been successfully closed.

The validated monitoring plan specifies procedures for data collecting and reporting. These procedures have been appropriately followed by the project participant within the monitoring. In particular it has been verified that appropriate measurement equipment has been used. Also the collection and recording of the monitoring parameters has been duly carried out by the responsible personnel.

Furthermore the monitoring plan provides an Excel calculation spreadsheet. The completing of the spreadsheet is an integral part of the monitoring. This has been appropriately carried out by the responsible personnel.

No deviations from the validated monitoring plan have been identified.

5.5. Compliance with the monitoring methodology

The project activity applies a project specific methodology.

The monitoring plan provides an Excel calculation spreadsheet. This spreadsheet contains defined and validated formulae for calculation of emission reductions. In addition the monitoring plan provides an explanation and guidance on the application of the developed calculation tool.

The verification team has reproduced the calculation of emission reductions based on the provided parameters and the amount of the emission reduction has been verified. The applied spreadsheet have been also reviewed and examined. It has been verified that the formulae and procedures as defined within the monitoring plan has been appropriately applied. All minor changes and deviations to the approved spreadsheet have been duly corrected.

5.6. Monitoring parameters

During the verification all relevant monitoring parameters have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. The results as well as the verification procedure are described in the project specific verification checklist.

After appropriate corrections were carried out by the project participant it can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.

5.7. Monitoring report

A draft monitoring report was submitted to the verification team by the project participants.

During the verification, mistakes and needs for clarification were identified. The PP has carried out the requested corrections so that it can be confirmed that the Monitoring report is complete and transparent and in accordance with the registered PDD and other relevant requirements.

5.8. ER Calculation

During the verification mistakes in the ER calculation were identified. Corresponding CARs were raised.

A revised ER calculation was prepared by the PP and presented to the verification team. All raised issues were addressed appropriately so that all CARs and CRs could be closed out. Thus it is confirmed that the ER calculation is overall correct.

5.9. Quality Management

Quality Management procedures for measurements, collection and compilation of data, data storage and archiving, calibration, maintenance and training of personnel in the framework of this CDM project activity have been defined. The procedures defined can be assessed as appropriate for the purpose. No significant deviations thereof have been observed during the verification.

Please also refer to the comment made within the assessment of the improved system for data management undertaken in response on the FARs raised within the previous verification.

5.10. Overall Aspects of the Verification

All necessary and requested documentation was provided by the project participants so that a complete verification of all relevant issues could be carried out.

Access was granted to all installations of the plant which are relevant for the project performance and the monitoring activities.

No issues have been identified indicating that the implementation of the project activity and the steps to claim emission reductions are not compliant with the applicable UNFCCC criteria and relevant guidance provided by the COP/CMP and the JISC (clarifications and/or guidance).

5.11. Hints for next Periodic Verification

No FARs have been raised.

6. VERIFICATION OPINION

The World Bank (Prototype Carbon Fund) has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 4th periodic verification of the project: "CZECH UMBRELLA JI PROJECTS", with regard to the relevant requirements for JI project activities. The umbrella of projects can be divided in two groups: District heating (DH) and Small Hydro Projects (SHD). Within the district heating group the emission reduction is realized by a fuel switch from coal to gas. Within the small hydro projects the emission reduction is achieved by the renewable production of electricity which is fed into the national grid.

This verification covers the period: 01.01.2008 – 31.12.2008

In the course of the verification 9 Corrective Action Requests (CAR) and 1 Clarification Request (CR) were raised and successfully closed. No FARs have been raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the validated monitoring plan, the periodic verification reports, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the validated project specific monitoring plan developed for DH and SHD project activities.
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the 4th periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

District heating projects: 01.01.2008 – 31.12.2008

No.	Name of Sub-project	Emission Reductions in tCO2
1	Rozmital	1.170
2	Decin	19.536

Small Hydro Projects: 01.01.2008 – 31.12.2008

No.	Name of Sub-project	Emission Reductions in tCO2
1	Hydro Horky	1.466
2	Hydro Kostice	763
3	Hydro Decin	2.358
4	Hydro Olse	751
5	Hydro Tynec Sazavou – Brodce	1.581
6	Hydro Frantiskov	1.188
7	Hydro Libochovice	2.681
8	Hydro Patec	2.736
9	Hydro Smržovka-Kamenice	1.257
10	Hydro Černys	3.047
11	Hydro Čerčany	875
12	Hydro Benátky nad Jizerou	4.696
13	Hydro Les - Kralovstvi	10.108
14	Hydro Libocani	3.964
15	Bulhary	4.149

The total verified amount of emission reductions achieved within district heating and small hydro projects is **62,326 t CO2e.**

Essen 2010-06-30

Rainer Winter

TÜV NORD JI/CDM Certification Program

Verification Team Leader

Essen, 2010-06-30

Eric Krupa

TÜV NORD JI/CDM Certification Program

Final Approver

7. REFERENCES

Table 7-1: Documents provided by the project participant(s)

Reference	Document
/**CAL-EI**/	Calibration protocols for the electricity meters in district heating projects
/**CAL-G**/	Calibration protocols for the gas meters in district heating projects
/**CAL-H**/	Calibration protocols for the heat meters in district heating projects
/**DVM**/	Determination and Verification Manual
/**D-1**/	"Yearly Report (2008) from the Energy regulation agency (ERU)"
/**D-2**/	Report of CO2 reduction. (Decin)
/**D-3**/	Excel sheets with Gas Consumption by HOBS in TCM, (Decin)
/**D-4**/	Electric Consumption by Heat Pumps in MWh,
/**D-5**/	Total Electric Consumption for Heat Production and Delivery to the DN Network, (Decin)
/**D-6**/	Electric Production by Gas Motors Ex Plant in MWh, Heat Production by Gas Motors Ex Plant in TJ, (Decin)
/**D-7**/	Heat Production by HOBs Ex Plant in TJ, (Decin)
/**D-8**/	Total Heat Delivered to District Heat Network, (Decin)
/**D-9**/	Total Gas Consumption in MWh, Heat Delivered to Grid, (Decin)
/**D-10**/	Total Heat sales, Efficiency district heating system, (Rozmital)
/**D-11**/	Numbers of customers (Rozmital)
/**D-12**/	Numbers of heat flow meters (Rozmital)
/**D-13**/	Heat sales in GJ (new flats, Municipal school, District heating consumers) (Rozmital)

Reference	Document
/**D-14**/	Energy input natural gas (Rozmital)
/**D-15**/	Electricity consumption (Rozmital)
/**D-16**/	Heat ex plant (Rozmital)
/**D-17**/	Monthly generation SHP
/**D-18**/	Energy Balance
/**D-19**/	CEZ annual report
/**D-20**/	Displacement and Efficiency of the new simple cycle gas turbine:
/**D-21**/	Emission factors for the baseline fuel
/**MR-1**/	Emission Reduction Report 6th Monitoring period Rozhmital &Decin Version 1 dated 27.10.2009 Emission Reduction Report 6th Monitoring period Rozhmital &Decin Version 3 dated 29.06.2010
/**MR-2**/	Emission Reduction Report 2008 Payment SHPs Version 1 dated 27.10.2009
/**XLS**/	MS-Excel calculation and monitoring files for District heating projects: 1. Rozmital Workbook 2008_rev4_May_20_10.xls 2. Decin Monitoring Tables 2002-2008.xls Small hydro projects: 1. Benatky_Monitor_Workbook2008.xls 2. Bulhary_Monitor_Workbook2008.xls 3. Cercany_Monitor_Workbook2008_revised Feb_11_10.xls 4. Cernys_Monitor_Workbook2008.xls 5. Decin_Monitor_Workbook2008 .xls 6. Frantiskov_Monitor_Workbook2008.xls 7. Horky_Monitor_Workbook2008.xls 8. Kostice_Monitor_Workbook2008.xls 9. Les_Království_Monitor_Workbook2008.xls

Reference	Document
	10. Libochovice_Monitor_Workbook2008.xls 11. Libo*ƒ*any_Monitor_Workbook2008.xls 12. Olse_Monitor_Workbook2008.xls 13. Patek_Monitor_Workbook2008.xls 14. Smrzovka_Monitor_Workbook2008.xls 15. Tynec_Monitor_Workbook2008.xls

Table 7-2: Background investigation and assessment documents

Reference	Document
/**BA-1**/	Czech District Heating Projects Proposed Standard Baseline Final Report, published by PCF and performed by Power System Engineering Inc. dated Dec. 9th , 2002
/**BA-2**/	Decin District Heating Project Baseline Study Final Report, published by PCF and performed by Power System Engineering Inc. dated Aug. 21st , 2003
/**BA-3**/	The Prototype Carbon Fund monitoring Plan (MP) Decin District Heating Project, published by PCF dated Aug. 21st , 2003
/**BA-4**/	Rozmital District Heating Project Baseline Study Final Report, published by PCF and performed by Power System Engineering Inc. on Dec. 16th , 2002
/**BA-5**/	The Prototype Carbon Fund Monitoring Plan (MP) Rozmital District Heating Project, published by PCF on May. 14th , 2002
/**BA-7**/	Emissions Reduction Report (for DH Decin & Rozmital) 4th Monitoring period April 1st, 2004 – December 31st 2006
/**BA-8**/	Emissions Reduction Report (for DH Decin & Rozmital) 5th Monitoring period January 1st, 2007 – December 31st 2007
/**BA-9**/	Emissions Reduction Report, 4th Monitoring period SHP January 1st, 2006 – December 31st, 2006
/**BA-10**/	Emissions Reduction Report, 2007 Payment SHPs January 1st, 2007 – December 31st, 2007

Reference	Document
/**BA-11**/	Verification Report, Report No. 645780, Version 01, 28 November 2006, TÜV SÜD The World Bank Prototype Carbon Fund Umbrella of Climate Change Projects in the Czech Republic for the following time period: Period of District Heating Projects: 01/04/2004 – 31/03/2006 Period of Small Hydro Bundle-1: 01/04/2002 – 31/12/2004 Period of Small Hydro Bundle-2: 01/03/2003 – 31/12/2005
/**CPM**/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/**IPPC**/	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book
/**KP**/	Kyoto Protocol (1997)
/**MA**/	Decision 3/CMP. 1 (Marrakesh – Accords)

Table 7-3: Websites used

Reference	Link	Organisation
/**dna-HP**/	http://www.mzp.cz/AIS/web-en.nsf/pages/Climate_Change	DNA of Czech Republic
/**dna-pr**/	http://www.env.cz/AIS/web-pub.nsf/$pid/MZPPZFEQYNJ6/$FILE/Methodical%20Guidelines_EN.doc	Methodical Guideline for Submitting and Approving Joint Implementation Projects in the Czech Republic
/**unfccc**/	http://cdm.unfccc.int	UNFCCC
/**ipcc**/	www.ipcc-nggip.iges.or.jp	IPCC publications

Table 7-4: Interviewed Persons

Reference		Name	Organisation / Function
/**IM01**/	☒ Mr. ☐ Ms	Pavel Gebauer	Head of Renewable Energy Department Ministry of Industry and Trade
/**IM01**/	☒ Mr. ☐ Ms	Jana Plecha	Advisor to the Deputy Minister Ministry of Industry and Trade
/**IM01**/	☒ Mr. ☐ Ms	Nick Bowden	Technical Specialist Carbon Finance operations The Wolrd Bank
/**IM01**/	☒ Mr. ☐ Ms	Michal Bubenik	Renewable Energy Department Ministry of Industry and Trade
/**IM01**/	☒ Mr. ☐ Ms.	Milan Matušovič	Týnec nad Sázavou – Brodce –MVE / Owner/Manager
/**IM01**/	☒ Mr. ☐ Ms.	Václav Mandák	Františkov- Šumava – MVE / Manager
/**IM01**/	☒ Mr. ☐ Ms.	Josef Kindl	Koštice nad Ohří – MVE / Manager
/**IM01**/	☒ Mr. ☐ Ms.	Ing. Miroslav Brada	Černýš – Pernštejn nad Ohří – MVE / Manager
/**IM01**/	☒ Mr. ☐ Ms.	Ing. Jiří Langer	Horky nad Jizerou –MVE / Owner/Manager
/**IM01**/	☒ Mr. ☐ Ms.	Dr. Luděk Liška	Benátky nad Jizerou – MVE / Owner/Manager
/**IM01**/	☒ Mr. ☐ Ms.	Ing. Miroslav Křivánek	Pátek – MVE / Manager
/**IM01**/	☒ Mr. ☐ Ms.	Ing. Michal Vyšín	Děčín – Staré město –MVE / Owner
/**IM01**/	☒ Mr. ☐ Ms.	Ing. Miroslav Křivánek	Libochovice – MVE / Owner
/**IM01**/	☒ Mr. ☐ Ms.	Zbynek Mrozek	Olše - MVE / Manager
/**IM01**/	☒ Mr. ☐ Ms.	Ing. Herbert Gärtner	Smržovka – Kamenice – MVE / Manager
/**IM01**/	☒ Mr.	Pavel Dohnal	Čerčany – MVE / Manager

Reference		Name	Organisation / Function
	☐ Ms.		
/IM01/	☒ Mr. ☐ Ms.	Zdeněk Řehoř Ing. Jakub Helus	Libočany – MVE / Manager Libočany – MVE / Manager
/IM01/	☒ Mr. ☐ Ms.	Šlichta Ing. Jakub Helus	Bulhary – MVE/ Technician Bulhary – MVE/ Manager
/IM01/	☒ Mr. ☐ Ms.	Petr Tremer	Les Království – MVE / Manager
/IM01/	☒ Mr. ☐ Ms.	Ing. Petr Šimoník	TERMO Děčín / Manager
/IM01/	☒ Mr. ☐ Ms.	Ing, Josef Vondrášek Kolářová	Rožmitál District Heating Project / Major Technician

ANNEX

Verification Protocol

ANNEX: VERIFICATION PROTOCOL

Table A-1: GHG calculation procedures and management control testing / detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
Raw data generation				
• Installation of measuring equipment • Dysfunction of installed equipment • Maloperation by operational personnel • Downtimes of equipment • Exchange of equipment • Change of measurement equipment characteristic • Insufficient accuracy • Change of	• Installation of modern and state of the art equipment • Process control automation. • Internal data review • Regular visual inspect-ions of installed equip-ment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment • Stand-by duty is	• Inadequate installation / operation of the monitoring equipment. • Inadequate exchange of equipment. • Change of personnel • Undetected measurement errors • Inappropriateness of Management system procedures w.r.t. monitoring plan requirements (e.g. substitute value strategies) • Non-application of management system procedures • Insufficient accuracy	• Site – visit • Check of equipment • Check of technical data sheets • Check of suppliers information / guarantees. • Check of calibration records, if applicable • Check of maintenance records • Export and countercheck of raw data in EXCEL. • Counter-check of raw data and commercial	• **See Table A-2**

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
technology • Accuracy of values supplied by Third Parties	organized • Training • Internal audit procedures • Internal check of QA/QC measures of involved Third Parties	• Inappropriate QA/QC measures of Third Parties	data • Check of JI management system • Check of JI related procedures • Application of CDM management system procedures • Check of trainings • Check of responsibilities • Check of QA/QC documentation / evidences of involved Third Parties	
Raw data collection and data aggregation				
• Wrong data transfer from raw data to daily and monthly aggregated reporting forms • IT Systems • Spread sheet	• Cross-check of data • Plausibility checks of various parameters. • Appropriate archiving system • Clear allocation of responsibilities	• Unintended usage of old data that has been revised • Incomplete documentation • Ex-post corrections of records • Ambiguous sources of information	• Check of data aggregation steps • Counter-calculation • Data integrity checks by means of graphical data analysis and calculation of specific performance	• **See Table A-2**

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
programming • Manual data transmission • Data protection • Responsibilities	• Application of JI Management system procedures • Usage of standard software solutions (Spreadsheets) • Limited access to IT systems • Data protection procedures	• Non-application of management system procedures • Manual data transfer mistakes • Unintended change of spread sheet programming or data base entries • Problems caused by updating/upgrading or change of applied software	figures • Check of data archiving system • Check of application of Management system procedures	
Other calculation parameters				
• Emission factors, oxidation factors, coefficients	• The values and data sources applied are defined in the PDD and monitoring plan.	• Unintended or intended Modification of calculation parameters. • Wrong application of values • Misinterpretations of the applied methodology and/ or the PDD • Missing update of applicable regulatory framework (e.g. IPCC	• Update-check of regulatory framework • Countercheck of the applied MP in the MR against the methodology and the PDD.	• **See Table A-2**

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
		values).		
Calculation Methods				
• Applied formulae • Miscalculation • Mistakes in spread-sheet calculation	• Advanced calculation and reporting tools • A JI coordinator is in charge of the JI related calculations • Usage of tested / counterchecked Excel spreadsheets • Involvement of external consultants	• The danger of miscal-culation can only be minimized.	• Countercheck on the basis of own calculation. • Spread sheet walk-trough. • Plausibility checks • Check of plots	• **See Table A-2**
Monitoring reporting				
• Data transfer to the author of the monitoring report • Data transfer to the monitoring report • Unintended use of	• An experienced JI consultant is responsible for monitoring reporting. • JI QMS procedures are defined	• The danger of data transfer mistakes can only be minimized • Inappropriate application of QMS procedures	• Counter check with evidences provided. • Audit of procedure application	• **See Table A-2**

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including *Forward Action Requests*)
outdated versions				

Table A-2: (Project specific) Periodic Verfication Checklist

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verifiers Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
1. Project history				
Open issues from validation *Check (esp. in case of 1st periodic verification) whether there are any open issues indicated in the validation report (e.g. FAR)?*	/VAL/	This is a 4th periodic verification. No open issues from the validation should be addressed.	OK	OK
Open issues from previous verification *Check in case of further periodic verifications whether there are any open issues indicated in previous verification (FAR)?*	/BA-11/	This is a 4th periodic verification. No FARs were issued within the previous verification.	OK	OK
Requests for Deviations / Revisions of MP *Check if there have been any requests for deviations from the registered monitoring plan or requests for revisions of the monitoring plan. If any, make sure that they are considered during verification?*	/unfccc/	The project related documentation was checked. No RfDev or RfrevMP have been raised before the start of the verification.	OK	OK
Initial verification *In case an initial verification has been carried out, check if all FARs, recommendations etc. have been addressed appropriately.*	/IM01/ /BA-11/	N/A	OK	OK
Initial project implementation *In case of first periodic verification: Assess whether the project has been implemented and operated as per the registered PDD and are all physical features*	/BA-11/	N/A	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
of the project in place? *In case of further periodic verifications: Go to next chapter.*				
2. Update on Changes and Incidents (during the Monitoring Period)				
Technical equipment *Check if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period.* *Consider e.g. interviews with operational personnel, QMS records, maintenance records, instrument specifications.* *In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.*	/IM01/ /BA-1/ /BA-2/ /BA-3/ /BA-4/	In the course of the verification the verification team has inspected the project sites and interviewed the operational personnel. The verification team has inspected the particular installations and reviewed the corresponding technical specifications. As a result it could be concluded that no relevant equipment was exchanged within the monitoring period.	OK	OK
Operation modes *Check if relevant operation modes of the project activity have been exchanged or modified during the monitoring period.* *Consider e.g. interviews with operational personnel, operation log sheets, data management system records.* *In case of changes, check whether the project is still in line with the registered PDD and assure that these*	/IM01/ /BA-1/ /BA-2/ /BA-3/ /BA-4/	By means of plausibility checks of the main monitored parameters and interviews with the operational personnel it was evidenced, that no relevant operation modes were exchanged within the monitoring period.	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
changes have been considered in the monitoring report and the emission reduction calculation.				
Incidents *Identify if there have been any significant incidents, deviant operation modes and / or downtimes of the equipment?* *Consider e.g. interviews with operational personnel, operational log sheets, analysis of performance data.*	/IM01/ /BA-8/	Based on the document review and interviews with responsible personnel it could be verified that no significant incidents have occurred during the monitoring period. This was also backed up by the data integrity check.	OK	OK
Personnel *Find out, if relevant personnel w.r.t. monitoring has been exchanged?* *In case of changes, assure that the implemented monitoring procedures have not been affected.*	/IM01/ /MR-1/ /MR-2/	In this context it is important to mention that all rights and obligations previously under the responsibility of the Czech Energy Agency (CEA) were assumed by the Czech Ministry of Industry and Trade, effective January 1, 2008. Hence Ministry of Industry and Trade has been appropriately indicated as a project participant within the monitoring reports covering the time period between 01.01.2008 – 31.12.2008. In general the responsibilities of the personnel within the monitoring of the project activity are clearly defined. All tasks have been carried out by properly trained personnel.	OK	OK
Legislation Find out whether relevant legislation with effect on the project activity in the host country has been changed.	/dna-pr/ /IM01/ /BA-7/ /BA-8/ /BA-9/ /BA-10/	Relevant legislation was considered, No relevant changes were identified.	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
	/BA-11/			
3. Monitoring Report – General				
Monitoring period *Check if the monitoring period is in line with a) the crediting period and/or b) previous monitoring periods?*	/IM01/ /MR-1/ /MR-2/	There is no overlapping of crediting periods. The end of the previous crediting period is 31.12.2007. The beginning of the considered crediting period is 01.01.2008.	OK	OK
References *Check if the monitoring report provides the correct references, in detail: project title, applied methodology/ies, meth tools.*	/IM01/ /MR-1/ /MR-2/	Page numbers, the date of issuance and revision number have been indicated in the Monitoring reports for the district heating and small hydro projects.	OK	OK
Completeness *Assess if the monitoring report is complete, i.e. have all relevant issues been addressed?*	/IM01/ /MR-1/ /MR-2/	The verification team has reviewed the monitoring reports for district heating and hydro projects. Both reports provide information about particular project including the relevant technical characteristics of each project. Furthermore the main monitoring parameters and emission reductions are clearly included in the monitoring reports in table form. It could be concluded that both reports are complete.	OK	OK
Transparency *Assess if the monitoring report is transparent, i.e. clear and unequivocal in all respect?*	/IM01/ /MR-1/ /MR-2/	The monitoring reports include an accurate and clear description of the project activity, a short month wise data on the main monitoring parameters like the electricity/heat generation and fossil fuel consumption. Furthermore the monitoring reports clearly indicate the generated amount of emission reductions. All the information is provided in very transparently in the table format.	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
Misstatements on general issues *Assess whether the monitoring report is free of material misstatements regarding issues other than the monitoring parameters.* *Discuss the monitoring parameters in detail in chapter "Monitoring Parameters".*	/IM01/ /MR-1/ /MR-2/	The following issues have been identified:		OK
		• "Heat sales in GJ" from April 08 until December 08 in the table 4 of the Monitoring report (pages 12, 13) are not in line with initial data and values in the excel file "MP Workbook Rozmital 2008.xls" in the table "Heat sales 2008". Please correct.	CAR R1	
		• Please correct the reference year in the excel file "MP Workbook Rozmital 2008.xls", table "Heat sales 2008" (replace "2007" by "2008").	CAR R2	
		• Please clarify the difference between the "Energy content natural gas in may 2008" "MP Workbook Rozmital 2008.xls" and as per provided initial data "Rozmital District Heating Fuel Switch Project".	CAR P1	
		• Inconsistence between the provided initial data and excel spreadsheet "MP Workbook Rozmital 2008.xls" "Energy content natural gas (Cell C38)" in tables "from květen 2008 until prosinec 2008". Please clarify why the values in these both sources are different.	CAR P2	
		• Please clarify the minor difference between the gas consumption as indicated in the invoices and gas consumption as per the meter readings.	CR P3	
		• Inconsistence between the provided initial data and excel spreadsheet "MP Workbook Rozmital 2008" "Total CO2 emissions baseline (Cell E62)" in tables "from červen 2008 until srpen 2008". In these cells are no formulae included. Only values. Please clarify why the values in these both	CAR P4	

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		sources are different.		
		• Inconsistence between the provided initial data and excel spreadsheet for Cercany project. Please check cell R10 in "Cercany_Monitor_Workbook2008" "Project Data" In this cell "Production Ex Plant [feb]" is 130. However as per the provided invoice it is 103. Please provide consistence or clarify why the values in these both sources are different.	CAR P5	
		•		
Deviations from the validated monitoring plan *Assess whether the MR in line with the validated monitoring plan?*	/MR-1/ /MR-2/ /XLS/ /BA-1/ /BA-2/ /BA-3/ /BA-4/ /BA-5/ /BA-7/ /BA-8/ /BA-9/ /BA-10/	The validated monitoring plan specifies procedures for data collecting and reporting. These procedures have been appropriately followed by the project participant within the monitoring. In particular it has been verified that appropriate measurement equipment has been used. Also the collection and recording of the monitoring parameters has been carried out by the responsible personnel. Furthermore the monitoring plan provides an Excel calculation spreadsheet. The completing of the spreadsheet is an integral part of the monitoring. This has been appropriately carried out by the responsible personnel. Furthermore the monitoring plan specifies the particular data sources to be applied for determination of the carbon emission factor. The specified data sources have been appropriately applied. Detailed information (links and references) about the particular data sources has been accurately indicated in the monitoring reports. As already indicated the appropriateness of the data sources has been proved in the course of the determination. The reporting of the generated emission reductions has been	CAR R1, CAR P2, CAR P4, CAR P5	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verifiers Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
		carried out in a clear, transparent and appropriate manner. The monitoring reports include all the relevant information w.r.t. to the parties involved. In this context it is important to mention that all rights and obligations previously under the responsibility of the Czech Energy Agency (CEA) were assumed by the Czech Ministry of Industry and Trade, effective January 1, 2008. Hence Ministry of Industry and Trade has been appropriately indicated as a project participant within the monitoring reports covering the time period between 01.01.2008 – 31.12.2008. Some typing errors have been found. CAR R1, CAR P2, CAR P4, CAR P5 have been raised in this context. In response to the raised CARs the PP has duly revised the project documentation. It can be confirmed that the entire calculation of emission reductions is correct. No further deviations from the validated monitoring plan have been identified. Furthermore the reporting has been established in a transparent manner with regard to the choice of approaches, assumptions, parameters, data sources and key factors. Hence it has been concluded that the monitoring report is in line with the validated monitoring plan.		
Deviations from the approved methodology *Assess whether the MR in line with the applied monitoring methodology?*	/MR-1/ /MR-2/ /XLS/ /BA-1/ /BA-2/	The monitoring plan provides an Excel calculation spreadsheet. The spreadsheet contained defined and validated formulae for calculation of emission reductions. In addition the monitoring plan provides an explanation and guidance on the application of the developed calculation tool. The verification team has reproduced the calculation of emission reductions based on the provided parameters and the amount of	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
	/BA-3/ /BA-4/ /BA-5/ /BA-7/ /BA-8/ /BA-9/ /BA-10/	the emission reduction has been verified. The applied spreadsheet have been also reviewed and examined. It has been verified that the formulae and procedures as defined within the monitoring plan has been appropriately applied. No changes and deviations to the approved spreadsheet have been observed. Hence it has been concluded that the applied methodology for determination of the emission reductions is in line with the validated monitoring plan.		
4. Monitoring Parameters *(List all parameters of the PDD chapter B.7.1; pl. copy the 6 lines below for each parameter)*				
Small Hydro Projects				
4.1. Monthly production ex plant				
Measurement / Determination method *Describe how the monitoring parameter was measured / determined.* *Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used.* *Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.*	/MR-1/ /MR-2/ /XLS/ /BA-1/ /BA-2/ /BA-3/ /BA-4/ /BA-5/	**Small Hydro Projects** Within the small hydro projects the key monitoring parameter is the generated electricity. The monitoring workbook (in paper form) for each sub-project has been submitted to the verification team. The workbook includes the monthly data on the electricity generation of the particular sub-project. All monitoring workbooks were signed by the authorized representative of the sub-project. The applied values for the monitored electricity generation are based on the invoices. The electricity generation as per the invoices was cross checked with meter readings. Within the verification the installed monitoring equipment has	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
	/MP/ /BA-7/ /BA-8/ /BA-9/ /BA-10/	been inspected at the project sites. It has been observed and verified that the installed equipment is suitable w.r.t. to the measurement of the electricity generation (i.e. supply to the grid) and is in line with provisions of the monitoring plan. Furthermore it has been observed that the installed equipment is operated appropriately and the calibration of the relevant meters has been carried out in compliance with national law. The monitoring of the key input parameters is also relevant for economic and for tax reasons. Furthermore, the electricity meters of the small hydro projects belong to the state owned electricity distribution company that purchase the generated electricity. Therefore monitoring requirements are resulting in high quality monitoring system. Taking this into account the verification team is of the opinion that the relevant parameters have been monitored in accordance with provisions of the monitoring plan, with the national regulations and in an appropriate manner. **District Heating projects** Within the district heating projects (Rozmital and Decin) the key monitoring parameters are the natural gas consumption, the electricity consumption of the heat pumps and other project installations as well as the heat supply ex plant. All monitoring parameters are measured by calibrated meters and recorded according to the validated monitoring plan. Furthermore for the key parameters like natural gas consumption; electricity consumption the project participant receive monthly invoices from the gas and electricity suppliers.		

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		The invoices are crosschecked with meter readings. The installed equipment is operated appropriately and the calibration of the relevant meters has been carried out in compliance with national law. The monitoring of the key input parameters is also relevant for economic and for tax reasons.		
Correctness *Determine whether the value given in the monitoring report is correct.* *In case of mistakes pl. provide details and descriptions of the CARs raised.*	/MR-1/ /MR-2/ /XLS/ /D-1/ /D-2/ /D-3/ /D-4/ /D-5/ /D-6/ /D-7/ /D-8/ /D-9/ /D-10/ /D-11/ /D-12/ /D-13/ /D-14/ /D-15/	☒ Correct ☐ Not correct Comment: **Hydro Projects** As already indicated within the small hydro projects the key monitoring parameter is the **generated electricity**. In order to verify the correctness of the monitoring parameters the verification team has reviewed the provided project monitoring workbooks (in paper form) for each sub-project. The monitoring workbooks include the information about the project title, location, project operator, current year, measured at, equipment, responsible person, MWh Production Ex Plant (monthly), Delivered to Point of Sale (monthly), Net Grid Production Displaced (monthly). Furthermore the invoices issued by the distribution companies for the purchased electricity have been provided and reviewed by the verification team. The verification team has compared the applied values indicated in the invoices with the information provided in the workbooks. It could be concluded that values given in the monitoring reports are correct and in line with the issued invoices. The determination of the **grid emissions factor** has been carried out based on the information provided by external data sources. All applied data sources including the name of the data source and the link to the relevant website are summarized in	~~CAR R1,~~ ~~CAR P2,~~ ~~CAR P4,~~ ~~CAR P5~~ ~~CAR R3~~ ~~CAR P5~~ ~~CAR R3~~	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
	/D-16/ /D-17/ /D-18/ /D-19/ /D-20/ /D-21/	the monitoring report in a clear and transparent manner. The verification team has proved whether the information applied to calculate grid emission factor is in line with the information provided in particular data sources. This has been done by following the links to the websites and review of the relevant documentation. It could be verified that applied data have been correctly taken from the data sources. In addition the verification team has reproduced the calculation based on the Excel spreadsheet provided for the pervious verification and the results could be verified. Hence it has been concluded that both the monitored electricity generation and the grid data are correct. The values given in the monitoring report are in line with values in the corresponding Excel sheets. **District Heating projects** Both for Decin and for Rozmital projects the monitoring workbooks with the required monitoring parameters have been provided. The workbooks have been signed by the authorized representative of the sub-project. The workbooks contain monthly data on the key monitoring parameters like the natural gas consumption, the electricity consumption of the heat pumps and other project installations, the heat supply ex plant and the heat consumption of the customers. The values given in the monitoring reports are based on the meter readings and backed up by the invoices issued by gas and electricity suppliers. Within the verification the provided		

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		evidences for the relevant monitoring parameters have been proved and the correctness has been verified. The values given in the monitoring report are in line with values in the corresponding Excel sheets. During the on-site visit the verification team has carried out plausibility checks. By doing this the verification team has compared the daily recordings in the logbooks at the site with the meter values. Based on this it could be verified that the monitoring is carried out in a very appropriate manner and in accordance with the validated monitoring plan. The validated emission factors for determination the baseline emissions remain fixed. The applied factors have been correctly taken from the validated PDD.		
QA/QC Procedure *Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.*	/MR-1/ /MR-2/ /XLS/ /BA-1/ /BA-2/ /BA-3/ /BA-4/ /BA-5/ /MP/ /BA-7/ /BA-8/	**Hydro Projects** The calibration is carried out by the distribution companies that purchase electricity. This is in line with the monitoring plan. Hence it has been concluded that quality assurance procedures for the electricity generation is in compliance with national regulation. In the course of the first verification two Forward Action Requests have been raised in order to request the project participant to improve its data management system as well to establish a quality assurance system to ensure high quality project management of all sub-projects. In order to comply with these requirements project participant has improved the procedures for data management and processing within the particular stages of the monitoring. The double check procedures have been introduced to ensure high	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
	/BA-9/ /BA-10/	quality project management of all sub-projects. Different tasks within the monitoring are clearly allocated to the personal of the different departments of the Ministry of Industry and Trade. Personal and the corresponding tasks/responsibilities of the project monitoring are clearly defined. Furthermore all procedures have been clearly documented. A sufficient confidence has been gained that the introduced two stage quality assurance system provides procedures and provisions for an accurate and appropriate monitoring of generated emission reductions. No FARs have been raised in the previous verification. **District Heating projects** For the District Heating projects the monitoring of the relevant parameters is carried out by calibrated equipment. The monitoring is carried out by the appointed personnel. The personnel have been appropriately trained for the assigned tasks. It has been also proved that the calibration and maintenance of the monitoring equipment has been carried out by competent personnel. During the on-site inspection the daily handling of the meter reading has been observed. It has been observed that meter readings and data recording is carried out on a daily basis. The figures are recorded in paper form in logbooks at the site. All logbooks are clearly structured and include a clear description of the year, the monitoring parameter, the meter number and the recorded values. The recorded figures are submitted to the personnel in charge of the reporting. The reported figures are aggregated and summarized in the monitoring report. By doing this they are compared with the invoices and undergo plausibility		

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		checks. Hence it has been concluded that the double check procedures have been introduced to ensure high quality project management. Different tasks within the monitoring are clearly allocated to the personal of the different departments of the Ministry of Industry and Trade. Personal and the corresponding tasks/responsibilities of the project monitoring are clearly defined.		
Accuracy *In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that appropriate discounts have been considered for ER calculation.*	/MR-1/ /MR-2/ /XLS/ /CAL-EI/ /CAL-G/ /CAL-H/	**Hydro Projects** Within the small hydro projects the key monitored parameters like electricity supply to the grid is measured directly i.e. not estimated. Within the hydro projects the electricity generation is measured by the electricity meters. The energy company (ČEZ, EON) that purchase the generated electricity is responsible for the timely calibration of the electricity meters. In the course of the verification it could be verified that the electricity meters are property of the state owned energy company (ČEZ, EON). Verification team was able to inspect the metering devices and it has been observed that all meters are properly sealed and marks were untouched. Based on the local knowledge verification team was able to conclude that measurement a system of electricity (calibration) is under Czech Low and it is checked by the different authorities. For this reason the calibration of the applied meters has been assessed as appropriate and in line with laws and regulations of the Host Country. In the course of the verification no significant inaccuracies have been identified for the monitoring parameters.	~~CAR Q1~~ ~~CAR Q2~~ ~~CAR R3~~	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		Please refer to CAR Q2. **District Heating projects** Within the district heating projects the key monitored parameters are measured directly i.e. not estimated. The project participant has provided the calibration protocols for all applied meters. In particular the calibration protocols for the gas meters, heat and electricity meters have been provided. Provided documented evidences clearly indicate the date of the previous and next calibration. Based on this the verification team was able to verify that the calibration of the relevant meters has been carried out in timely manner and in accordance with provisions of the validated monitoring plan. In the course of the verification no significant inaccuracies have been identified for the monitoring parameters. Please refer to CAR Q1.		
Verification *Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences.*	/MR-1/ /MR-2/ /XLS/ BA-1/ /BA-2/ /BA-3/ /BA-4/ /BA-5/ /MP/ /BA-7/	During the on-site visit the verification team has carried out plausibility checks. By doing this the verification team has compared the daily recoding in the logbooks at the site with the values as per the meters. Based on this it could be verified that the monitoring is carried out in a very appropriate manner and in accordance with the validated monitoring plan. All monitoring parameters have been evidenced project participant. The verification team has reviewed the provided evidences. It could be verified that the values in the monitoring reports and the corresponding Excel spreadsheets are in line with provided evidences. For the values taken from publicly available data sources the corresponding documents, references (e.g. links) have been	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
	/BA-8/ /BA-9/ /BA-10/	provided. The provided evidences have been proved and the applied values have been verified. As already indicated measurement / determination procedure, accuracies, QA/QC procedures have been assessed as appropriate and in line with provisions of the monitoring plan.		
5. ER Calculation				
Traceability *Assess if the calculation is fully traceable. In case of complex calculations an Excel calculation spread-sheet shall be used. All applied formulae must be visible.*	/MR-1/ /MR-2/ /XLS/	The Excel calculation spreadsheets are an integral part of the validated monitoring plan. The spreadsheet contained defined and validated formulae for calculation of emission reductions. In addition the monitoring plan provides an explanation and guidance on how to apply the developed calculation tool. The verification team has reviewed all Excel calculation spreadsheet provided for the relevant sub-projects. It has been verified that the validated Excel calculation spreadsheet have been used. The calculation is completely traceable. All applied formulae are visible. No information gaps have been identified.	OK	OK
Parameter consistency *Assess whether all internal and external parameters and data used for calculation are applied consistently in the monitoring report and the calculation spreadsheet?* *Consider only the correct data exchange between the monitoring report and the calculation spreadsheet (if any). The evaluation of the correctness of the*	//MR-1/ /MR-2/ /XLS/	The verification team has compared whether the monitored parameter indicated in the monitoring reports, the Excel spreadsheet and the initial data are consistent. Various CARs have been raised due to minor deviations. All required corrections have been done. As a result the verification was able to conclude that the Excel – calculation sheet is completely in line with the monitoring report and initial data. No deviant parameter values have been used in the calculation sheet.	~~CAR R1~~ ~~CAR R3~~ ~~CAR P1~~ ~~CAR~~	OK

Checklist Item (incl. guidance for the verification team)	**Refe-rence**	**Verifiers Comments** (Means and results of assessment)	**Draft Concl.**	**Final Concl.**
parameter values itself should be discussed in the chapter "Monitoring Parameters".			~~P2~~ ~~CAR P3~~ ~~CAR P4~~ ~~CAR P5~~	
Applied formulae *Check if the applied formulae are in accordance with the monitoring plan and / or the approved methodology.*	/MR-1/ /MR-2/ /XLS/	The verification team has reproduced the calculation of emission reductions based on the provided parameters and the amount of the emission reduction has been verified. The applied spreadsheet have been also reviewed and examined. It has been verified that the formulae and procedures as defined within the monitoring plan has been appropriately applied. No changes and deviations to the approved spreadsheet have been observed.	OK	OK
Completeness of calculation *Assess whether the provided calculations are complete and reflect all requirements of the monitoring plan.* *Check especially that no standard or old values have been used for calculation where calculations based on up-to-date data is required.*	/MR-1/ /MR-2/ /XLS/ /BA-1/ /BA-2/ /BA-3/ /BA-4/	The calculation is completely traceable. No information or calculation gaps have been identified.	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
	/BA-5/			
6. Quality Management; defined organisational structure, responsibilities and competencies Internal QA/QC and document control				
Management System *Check if the GHG data monitoring system is embedded in a (certified) company quality management system, if so, check if all JI monitoring procedures been fully integrated in the project participant's quality management system. If not how the GHG management system has been implemented.*	/MR-1/ /MR-2/ /XLS/ /BA-1/ /BA-2/ /BA-3/ /BA-4/ /BA-5/	On the level of the sub-projects the operational system and management system is either documented in an appropriate manner or structures a quite simple. In particular due to the small project size the management and the operational system of the small hydro projects has a quite simple structure. In the course of the verification it has been observed that on the level of the sub-projects the operational system and management system has been appropriately implemented. On the level of the entire project activity project participant has appropriately implemented procedures for data management and processing within the particular stages of the monitoring. The improved system is based on the four-eye principle and provides procedures for double check procedures. A sufficient confidence has been gained that these procedures ensure high quality project management of all sub-projects.	OK	OK
Roles and Positions *Check if all roles and positions of each person in the GHG data management process are clearly defined and implemented, from raw data generation to*	/MR-1/ /MR-2/ /XLS/ /BA-1/	Different tasks within the monitoring are clearly allocated to the personal of the different departments of the Ministry of Industry and Trade. Personal and the corresponding tasks/responsibilities of the project monitoring are clearly defined. Furthermore all procedures have been clearly	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
submission of the final data. *Check further if only duly qualified personnel is involved in the monitoring procedures.*	/BA-2/ /BA-3/ /BA-4/ /BA-5/	documented. A sufficient confidence has been gained that the introduced two stage quality assurance system provides procedures and provisions for an accurate and appropriate monitoring of generated emission reductions.		
Trainings *Check if initial trainings have been carried out, in case deemed necessary.*	/BA-1/ /BA-2/ /BA-3/ /BA-4/ /BA-5/	In the course of the verification a sufficient confidence has been gained that the competences of involved staff and responsible persons ensure an appropriate quality of data. The involved personnel is familiar with monitoring procedures and with the technology applied.	OK	OK
Troubleshooting procedures *Assess whether troubleshooting procedures have been implemented.*	/BA-1/ /BA-2/ /BA-3/ /BA-4/ /BA-5/	Please refer to the comment under QA/QC Procedures	OK	OK
Maintenance procedures Are appropriate maintenance procedures in place?	/BA-1/ /BA-2/ /BA-3/ /BA-4/	All relevant meters are calibrated and sealed.	OK	OK

Checklist Item (incl. guidance for the verification team)	Refe-rence	Verifiers Comments (Means and results of assessment)	Draft Concl.	Final Concl.
	/BA-5/			
Internal QA/QC *Assess whether there are any procedures in place on when, where and how checks and reviews are to be carried out, and what evidence needs to be documented? (This might include spot checks by a second person not performing the calculations over manual data transfers, changes in assumptions and the overall reliability of the calculation processes.)*	/BA-1/ /BA-2/ /BA-3/ /BA-4/ /BA-5/	Please refer to the comment under QA/QC Procedures	OK	OK
Data archive Check whether all records of monitoring parameters are archived according to the monitoring plan.	/BA-1/ /BA-2/ /BA-3/ /BA-4/ /BA-5/	Yes data archiving is in line with provisions of the monitoring plan.	OK	OK
Data protection Assess whether appropriate measures have been take in order to avoid unintended or intended manipulation of the measured data.	/BA-1/ /BA-2/ /BA-3/ /BA-4/ /BA-5/	This issue has been discussed and a sufficient confidence has been gained that appropriate measures have been take in order to avoid unintended or intended manipulation of the measured data	OK	OK