

Verification Report

Forth periodic verification

Report for:

Brestiom Plc

Verification of JI project for
Bulgarian Small Hydro Power Plant (SHPP)
Portfolio
(Ref BG 1000158)

Monitoring Period:
01/01/2012 to 31/10/2012

LRQA Reference	: SOF6010110/0004 version 02
Date	: 11 Dec 2012
Work carried out by	: Lyubka Marinova
Work verified by	: Javier Vallejo Drehs

Contents

1	<i>Executive Summary</i>	3
2	<i>Introduction</i>	5
2.1	Objective	5
2.2	Scope	6
2.3	GHG Project Description.....	6
3	<i>Methodology</i>	6
3.1	Verification approach.....	6
3.2	Desk review	7
3.3	On-site assessment.....	7
3.4	Quality of evidence	8
3.5	Resolution of clarification and corrective action requests.....	8
3.6	Internal quality control	9
4	<i>Verification conclusions</i>	9
4.1	Project approvals by parties involved.....	9
4.2	Project implementation in accordance with the determined project design document	9
4.3	Compliance with monitoring plan.....	10
4.4	Revision of Monitoring Plan.....	11
4.5	Data Management	11
5	<i>Making the monitoring report publicly available</i>	12
6	<i>Verification Opinion</i>	13
7	<i>Appendices</i>	14
7.1	Appendix A: List of documents reviewed	14
7.2	Appendix B: Certificate of Appointment.....	15
7.3	Appendix C: Checklist for Verification	16

- ☒ No distribution without permission from the client or responsible organisational unit
- ☐ Limited distribution
- ☐ Unrestricted distribution

1 Executive Summary

Lloyd's Register Quality Assurance Limited has been contracted by Brestiom Plc, representing the project participants (PP), to undertake the forth verification of the determined project activity "Bulgarian Small Hydro Power Plant (SHPP) Portfolio" project reference number BG 1000158 covering the monitoring period from 01/01/2012 to 31/10/2012. The verification has been performed by document review based on the Monitoring Report Version 1.0 dated 22/11/2012, on-site assessment, and interviews with the stakeholders and issuance of the verification report.

The project intends to reduce greenhouse gas (GHG) emissions by construction and operation of three small hydro power plants, namely: Loziata – located at Plovdiv region, Bulgaria having planned nominal capacity of 5,156 kW; Byala Mesta and Cherna Mesta both located in Blagoevgrad region, Bulgaria, both having nominal capacities of 650 kW. All three hydro plants are run of river plants. Loziata power plant involves operation of Francis turbine and Byala and Cherna Mesta power plants involve the operation of Pelton turbines.

The fulfilment of the requirements as set forth in the Article 6 of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC), the JI Guidelines and relevant decisions of the Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol (COP/MOP) and the Supervisory Committee of the JI (JISC) as well as the Bulgarian JI Track 1 procedure has been evaluated and the conformance to the verification requirements were confirmed based on the given information. A risk based approach was taken to conduct the verification and if necessary corrective action requests (CARs), clarifications (CLs) and forward action requests (FARs) could be issued for relevant actions by the PP.

The verification team identified, through the verification process, no CAR/CL/FARs. The verification team, through the verification process, confirmed that the emission reductions achieved by the project activity during the monitoring period are correctly calculated in the monitoring report Version 1.0 dated 22/11/2012 based on the approved monitoring methodology and the monitoring plan of the determined PDD. Therefore, LRQA determined that the reductions in anthropogenic emissions amount to 12,296 tCO₂e and requests the Executive Environmental Agency to deem this verification final for ERUs issuance.

Lloyd's Register Quality Assurance Ltd
Hiramford
Middlemarch Office Village
Siskin Drive
Coventry CV3 4FJ
United Kingdom

Registered office:
Lloyd's Register
71 Fenchurch Street
London EC3M 4BS
United Kingdom

Abbreviations

CAR	Corrective action request
CL	Clarification
COP/MOP	Conference of the Parties serving as meeting of the Parties to the Kyoto Protocol
ERs	Emission reductions
ERU	Emission Reduction Unit
FAR	Forward action request
GHG	Greenhouse gas
IPCC	Intergovernmental panel on climate change
JI	Joint Implementation Mechanism
JI DVM	Joint Implementation Determination and Verification Manual
JI-G	Joint Implementation Guidelines (Decision 9/CMP.1)
JISC	Joint Implementation Supervisory Committee
JI-SSC	Small Scale JI projects
KP	Kyoto Protocol of the United Nations Framework Convention on Climate Change
LR	Lloyd's Register
LRQA	Lloyd's Register Quality Assurance Limited
PDD	Project design document
PP	Project participant
SHPP	Small Hydro Power Plant
tCO ₂ e	Tonne of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change

2 Introduction

The project participant (PP) represented by Brestiom Plc has contracted with Lloyd's Register Quality Assurance Limited (LRQA) to undertake the third verification of the proposed project "Bulgarian Small Hydro Power Plant (SHPP) Portfolio" covering the monitoring period from 01/01/2012 to 31/10/2012. This report summarises the findings through the verification process that has been conducted on the verification requirements of the JI-G and the host Party for JI Track 1.

The verification has been undertaken by the team formed of the qualified personnel of LRQA as follows.

Lyubka Marinova	LRQA Bulgaria	Team Leader, JI Verifier, Sector Expert
Javier Vallejo Drehs	LRQA Ltd.	Technical Reviewer, CDM Verifier, Sector Expert, Decision Maker

Personnel being engaged in a JI project verification are qualified based on the established procedures of LRQA to assure the resource requirements that satisfy all the requirements of competence criteria of the JI accreditation standard for Independent Entities. LRQA is an Accredited Independent Entity, whose Accreditation certificate was issued the 1st August 2011, that holds the full responsibility on decision-making regarding the verification in line with the accreditation requirements of the JISC. The certificate of appointment of the team personnel is attached to this report.

As an Accredited Independent Entity for JI, LRQA is authorized to verify JI Monitoring Reports and certify ERUs under Track 1 in Bulgaria, in accordance to article 10 of the Bulgarian Regulation for JI track I Projects: "Instruction for Approval of Projects Generating Emission Reduction Units under Track I of the Joint Implementation Mechanism"¹

2.1 Objective

Through the verification activities, the verification team has to confirm that:

- 1) The project activity has been implemented and operated as described in the determined PDD, and that all physical features of the project activity are in place
- 2) The monitoring report (MR) and other supporting documents provided are complete and verifiable and in line with applicable JI requirements
- 3) Actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan (MP); and
- 4) The data are recorded and stored as per the approach chosen for baseline setting and monitoring.

The verification followed the requirements of the current version of the JI Determination and Verification Manual (JI DVM) to ensure the quality and consistency of the verification work and the report.

¹ <http://ji.unfccc.int/UserManagement/FileStorage/VUYPR24AS1Q6KFHIOCW9NXE8G05B3>

2.2 Scope

The scope of verification was an independent and objective review of the monitored emission reductions (ERs) against the verification requirements of the JI-G and the host Party for JI Track 1. LRQA followed a risk-based approach in the verification, focusing on the identification of significant risks for implementation of the determined monitoring plan and the resultant emission reductions. The verification statement shall become final on final review by the decision maker of LRQA Ltd.

2.3 GHG Project Description

Project title	Bulgarian Small Hydro Power Plant (SHPP) Portfolio
JI reference	BG1000158
Date of registration	04/06/2010
Applied methodology	AMS-I.D (version 10) Grid connected renewable electricity generation
Crediting period	2008-2012
Project location	Three locations, one at Plovdiv region, Bulgaria and two in Blagoevgrad region, Bulgaria
Project participants	Brestiom Plc, Bulgaria Camco International, UK
Monitoring period	01/01/2012 – 31/10/2012

3 Methodology

3.1 Verification approach

LRQA's verification of the project documentation provided by the project participant was based upon both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report submitted to LRQA. Qualitative information comprises the information on internal management controls, calculation procedures, procedures for transfer of data, frequency of emission reports and review and internal audit of calculations.

As well as the monitoring documentation provided by the project participants, LRQA also reviewed:

- The determined PDD, including the monitoring plan and the corresponding determination report
- Previous verification reports, if any
- The applied CDM monitoring methodology AMS I.D Version 10.
- Relevant decisions, clarifications and guidance from the CMP and the JISC
- Any other information and references relevant to the project's resulting emissions reductions.

3.2 Desk review

The verification was performed primarily based on the review of the monitoring report and the supporting documentation. This process included:

- 1) A review of data and information presented to verify their completeness
- 2) A review of the MP (In case of approved CDM methodology approach chosen also a review of the CDM monitoring methodology), paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and
- 3) An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs.

The monitoring report version 1.0 dated 22/11/2012 was initially reviewed and LRQA requested the PP to present the supporting information and documents and such additional information and documents that were also reviewed by LRQA. The documents reviewed by LRQA are listed in the Appendix A.

3.3 On-site assessment

An on-site assessment was conducted as a part of verification activity and involved:

- 1) An assessment of the implementation and operation of the JI project as per the determined PDD
- 2) A review of information flows for generating, aggregating and reporting of the monitoring parameters
- 3) Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the MP
- 4) A cross-check between information provided in the MR and data from other sources
- 5) A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD
- 6) A review of calculations and assumptions made in determining the GHG data and ERs, and
- 7) An identification of QA/QC procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The detail of the on-site assessment is as follows:

Date	Location	Subjects covered	Persons interviewed
05/12/2012	SHPPs Byala and Cherna Mesta, Blagoevgrad region	1. Visit of project facilities/ changes 2. Metering provisions and calibration 3. Maintenance 4. Training 5. Record keeping	Mr. Boyko Mratsev – operator at Cherna Mesta SHPP and Byala Mesta SHPP Mr. Mehmed Kozarev – operator at Byala Mesta SHPP Mr. Redzheb Kunyov – operator at Cherna Mesta SHPP

			Mr. Petar Ganchev – representative of Brestiom Plc
06/12/2012	SHPP Loziata, Plovdiv region	1. Visit of project facilities/ changes 2. Metering provisions and calibration 3. Maintenance 4. Training 5. Record keeping 6. Document review and data verification	Mr. Yanko Kolentsov – Plant manager Loziata SHPP Mr. Petar Ganchev – representative of Brestiom Plc

For details of all the findings of the desk review and site visit, please refer to the Checklist for Verification in Appendix C.

3.4 Quality of evidence

When verifying the report emission reduction, LRQA ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data are shown in Appendix A.

When assessing the audit trails, LRQA also examined:

1. Whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period
2. The source and nature of the evidence
3. If comparable information was available from sources other than that used in the monitoring report, LRQA cross-checked the monitoring report against the other sources to confirm that the stated figures were correct. The sources and the data referenced are shown in Appendix A.

LRQA also assessed that the data collection system met the requirements of the monitoring plan.

3.5 Resolution of clarification and corrective action requests

LRQA, during this verification, did not identify issues related to the monitoring, implementation or operation of the proposed JI project activity that could impair the capacity of the proposed JI project to achieve emission reductions or influence the reporting of emission reductions. LRQA has identified, discussed and concluded these issues within the Checklist for Verification – Appendix C.

LRQA would raise a Corrective Action Request (CAR) if one of the following occurred:

1. Nonconformities with the monitoring plan were found in monitoring and reporting, or if the evidence provided to prove conformity was insufficient
2. Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions, and/or
3. Issues identified in a FAR during determination to be verified during verification have not been resolved by the project participants.

LRQA would raise a Clarification Request (CL) if information was insufficient or not clear enough to determine whether the applicable JI requirements have been met.

All CARs and CLs raised by LRQA during this verification should be resolved. If this would not be completed, the ERs cannot be certified and recommended for approval to the JISC for the issuance of ERUs by the DFP of the Host party.

LRQA would raise a Forward Action Request (FAR) during this verification for actions where the monitoring and reporting require attention and/or adjustment for the next verification period. FARs do not relate to JI requirements for issuance of ERs achieved during the subject monitoring period.

3.6 Internal quality control

The technical review by a qualified person independent from the verification team and a review by an authorised decision maker are conducted before the submission of the verification report to the Bulgarian Executive Environmental Agency.

4 Verification conclusions

LRQA has undertaken this verification in line with the Checklist for verification (which is based on the Joint Implementation Determination and Verification Manual Version 01-DVM). This section provides an overview of the verification activities and general conclusions. Further details in relation to each element of the DVM and to each finding are shown in the Checklist for Verification – Appendix C.

The Checklist is structured based on the main verification requirements as follows:

- Project approvals by Parties involved
- Project implementation in line with the determined project design document
- Compliance with monitoring plan
- Revision of Monitoring Plan (Applicable if MP is revised by PP)
- Data Management.

4.1 Project approvals by parties involved

LRQA has assessed that the DFP of the Parties Bulgaria and Netherlands, other than the host country, has issued an unconditional written project approval in accordance to paragraph 38 of the JI Guidelines.

4.2 Project implementation in accordance with the determined project design document

LRQA has, by means of a desk review and an on-site visit, assessed that all physical features of the proposed CDM project activity proposed in the PDD are in place and that the project participants have operated the proposed JI project as per this PDD, regarding which the determination has been deemed final and is so listed on the UNFCCC JI website.

For details of the implementation status of the project, the actual operation of the proposed JI project and any information given in the monitoring report that is different

from that stated in this PDD², please refer to the Checklist for Verification in Appendix C.

4.3 Compliance with monitoring plan

LRQA has confirmed that:

1. The monitoring plan has been properly implemented and followed by the project participants
2. All parameters stated in the monitoring plan have been sufficiently monitored and updated as applicable, including:
 - a. Project emission parameters
 - b. Baseline emission parameters
 - c. Leakage parameters
 - d. Management and operational system
3. the accuracy of equipment used for monitoring is in line with the relevant requirements provided by the JISC and is controlled and calibrated in line with the monitoring plan:
 - a. monitoring results are consistently recorded as per approved frequency
 - b. quality assurance and quality control procedures have been applied in line with the monitoring plan

For details relating to this section, please refer to the Verification Checklist in Appendix C.

LRQA confirms that monitoring has been carried out in line with the monitoring plan contained in the determined PDD.

The “Monitoring Parameters and calibration table” in the Checklist for Verification – Appendix C shows each parameter required by the monitoring plan, and clearly states how LRQA has verified the information flow (from data generation, aggregation, to recording, calculation and reporting) for these parameters, including the values in the monitoring report.

LRQA confirms also that the monitoring period for each component of the JI project is clearly specified in the Monitoring Report in accordance to the PDD, regarding which the determination has been deemed final, and the Monitoring Report does not overlap with other components for which verification were already deemed final in the past.

JI SSC Projects

LRQA has assessed that the relevant threshold to be classified as JI-SSC projects is not exceeded on an annual average basis during the reporting period.

² And has caused an increase in estimates of the emission reductions in the current monitoring period or is highly likely to increase the estimates of emission reductions in future monitoring periods

4.4 Revision of Monitoring Plan

The implemented Monitoring Plan does not need a revision in this stage of the Project implementation and no revised Monitoring Plan has been submitted by PP for this Monitoring period.

4.5 Data Management

LRQA has determined whether:

1. A complete set of data for the specified monitoring period is available
2. The implementation of data collection procedures is in line with the monitoring plan, including the quality control and quality assurance procedures
3. The function of the monitoring equipment, including its calibration status, is in order
4. The evidence and records used for the monitoring are maintained in a traceable manner
5. The data collection and management system for the project is in line with the monitoring plan
6. The calculations of baseline emissions, proposed JI project emissions and leakage, as appropriate, have been carried out in line with the formulae and methods described in the monitoring plan.

For details of whether data were not available because activity levels, or non-activity parameters were not monitored in line with the determined monitoring plan, and for a description of LRQA cross-checked reported data, please refer to the Checklist for Verification in Appendix C.

LRQA confirms that appropriate methods and formulae for calculating baseline emissions, projects emissions and leakage have been followed.

LRQA is of the opinion that all assumptions, emissions factors and default values that were applied in calculations have been justified.

5 Making the monitoring report publicly available

In line with the "Procedures for making the monitoring report available to the public in line with paragraph 32 of the JI Guidelines, the monitoring report Version 1.0 dated 22/11/2012 was made publicly available on the LRQA website at:

<http://www.lr.org/lloyds-register-quality-assurance/management-system-standards-schemes-directives/schemes/CDM-and-JI-projects/Bulgarian.Small.Hydro.Power.Plant.aspx>

As the project is a Track 1 project following the requirements of the Bulgarian Track 1 procedure publication on JI web site is not possible. The requirements of this procedure stipulate that PP have to submit the Monitoring and Verification reports to the Bulgarian Ministry for Environment and Water.

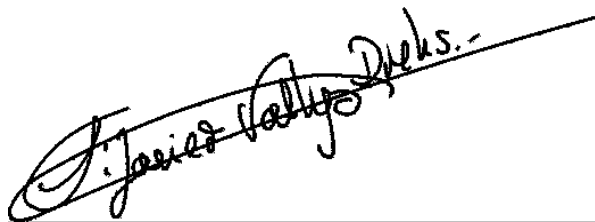
6 Verification Opinion

LRQA has undertaken the forth periodic verification of the proposed project activity “Bulgarian Small Hydro Power Plant (SHPP) Portfolio” covering the monitoring period from 01/01/2012 to 31/10/2012 based on the requirements of JI as set out in Article 6 of the Kyoto Protocol, the JI Guidelines, subsequent decisions made by the COP/MOP and JISC, and the other rules applicable to the proposed project including the host country’s legislation and its specific requirements for JI projects approval.

Through the verification process no CAR/CL/FARs were identified by the verification team.

The verification team is of the opinion that the proposed project activity has been implemented in line with the determined PDD, the MP version 1,2 dated 02 June 2010 complies with the relevant rules and regulations for the establishment of Monitoring Plans, the monitoring complies with the MP and the monitored data and calculation of ERs are assessed and confirmed as correct. Therefore, LRQA hereby issued a positive verification opinion and inform the Executive Environmental Agency and the Bulgarian Ministry for Environment and Water about it and that the reported ERs of “Bulgarian Small Hydro Power Plant (SHPP) Portfolio” during the monitoring period of 01/01/2012 to 31/10/2012 amount to 12,296 tCO₂e.

Decision Maker



11/12/2012

Javier Vallejo Drehs

JI Quality Manager

7 Appendices

7.1 Appendix A: List of documents reviewed

Category A documents (documents from the PP)

1	PDD for Bulgarian Small Hydro Power Plant (SHPP) Portfolio, version 1.2 dated 2 June 2010
2	Letters of Approval by Ministry for Environment and Water of the Republic of Bulgaria and the Ministry of Economic Affairs the state of Netherlands
3	JI Determination report issued by TUV SUD dated 04/06/2010
4	Verification and Certification Report for the Third Periodic Verification issued by LRQA dated 07/05/2012
5	Monthly protocols and invoices for the produced electricity by SHPP Loziata, SHPP Cherna Mesta and SHPP Byala Mesta
6	Monthly protocols and invoices for the consumed electricity by SHPP Loziata, SHPP Cherna Mesta and SHPP Byala Mesta
7	Power purchase agreements and annexes
8	Agreements between Brestiom Plc and Cherna Mesta Ltd and Brestiom Plc and Byala Mesta Ltd for the assignment of rights for emission reductions
9	Daily records for the electricity generated for Loziata SHPP, Byala Mesta SHPP and Cherna Mesta SHPP
10	Calibration documents
11	Clarification letters from Mr. Dinko Krushkov – Manager of Eldis EOOD and Mr. Boris Kirchev – Meter Data Management Department at EVN Bulgaria Electrorazpredelenie AD regarding metrological check of power meter at Loziata SHPP
12	Protocols for inspection conducted by competent authorities
13	Water use permits for SHPP Loziata, SHPP Cherna Mesta and SHPP Byala Mesta

Category B documents (other documents referenced)

1	AMS-I.D (version 10) Renewable electricity generation for a grid
2	Order A-441/13.10.2011 of the Chair of State Agency for Metrology and Technical Supervision regarding periods of testing of measurement devices

7.2 Appendix B: Certificate of Appointment

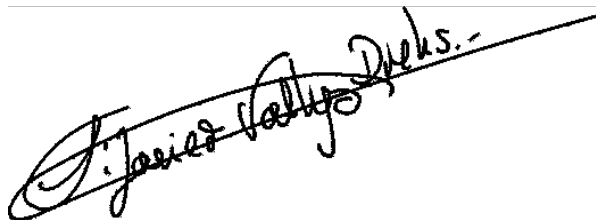
Verification of "Bulgarian Small Hydro Power Plant (SHPP) Portfolio"

We hereby certify that the following personnel have engaged in the verification process that has fully satisfied the competence requirements of the verification of the CDM project activity.

Name of Person	Assigned Roles
Lyubka Marinova Javier Vallejo Drehs	Team Leader, Sector Expert Technical Reviewer, Sector Expert, Decision Maker

Signed by

Decision Maker



11/12/2012

Javier Vallejo Drehs

JI Quality Manager

7.3 Appendix C: Checklist for Verification

LLOYDS REGISTER QUALITY ASSURANCE Joint Implementation Mechanism Checklist for Verification

Project: Bulgarian Small Hydro Power Plant Portfolio

Version 02 / 07.12.2012

This document has been produced by the LRQA Verification Team after the completion of the desk review and the site visit. It outlines the verified situation in relation to a number of criteria, including those defined in the Determination and Verification Manual (DVM) produced by the JI Supervisory Committee.

If LRQA has identified issues requiring corrective action or clarification, a reference is made in the 'Action requested' column, and details are stated in the column marked 'Conclusion'.

DVM para	Check item	Initial finding	Action requested to project participants (incl. CAR, CL or FAR)	Review of project participants' action	Conclusion
Project approvals by Parties involved					
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in line with paragraph 38 of the JI guidelines, at the latest?	Letters of approval are available issued by Bulgaria (host country) and the Netherlands. The letters are dated 30/03/2010 and 20/06/2008 respectively.			OK
91	Are all the written project approvals by Parties involved unconditional?	Written project approvals issued by the Ministry for Environment and Water of Bulgaria and the Ministry of Economic Affairs of the Netherlands are unconditional.			OK
Project implementation					

DVM para	Check item	Initial finding	Action requested to project participants (incl. CAR, CL or FAR)	Review of project participants' action	Conclusion
92	Has the project been implemented in line with the PDD on which the determination has been deemed final and is so listed on the UNFCCC JI website?	Initially project implementation including construction of facilities and installed equipment was confirmed to be in line with the description in PDD Version 1.2 dated 02/06/2010 during first verification conducted in June 2010. Second and third verifications did not detect any changes or deviation from project description in PDD. The project as described in the PDD involves construction and operation of three Small Hydro Power Plants (SHPP) – Lozyata, Cherna Mesta and Byala Mesta. The three SHPPs are operated by three legal entities – Brestiom Plc, Cherna Mesta Ltd and Byala Mesta Ltd respectively. Agreements were signed to define the responsibilities and obligations of each of the legal entities regarding the implementation of the JI project. It was confirmed during current verification that there is neither a change in legal entities nor in the above mentioned agreements. During site visits on 05 and 06/12/2012 related to forth verification no changes in equipment and related facilities were detected.			OK
93	What is the status of operation of the project during the monitoring period?	During the monitoring period covering 01/01/2012 – 31/10/2012 all three SHPPs were operational.			OK
<i>Procedures regarding changes during project implementation. (if applicable)</i>					NA
6	Has the PP prepared a detailed description of all changes that have occurred since the determination was deemed final and provided justification for these changes?				NA
7	The physical location of the project can not change				NA
7	If the emission sources have changed, has the PP updated the monitoring plan in this respect?				NA
7	The baseline scenario shall not change.				NA
7	Are the changes consistent with the JI specific approach or the clean development mechanism (CDM) methodology on which the determination was prepared for the Project?				NA
Compliance with monitoring plan					

DVM para	Check item	Initial finding	Action requested to project participants (incl. CAR, CL or FAR)	Review of project participants' action	Conclusion
94	Did the monitoring occur in line with the monitoring plan included in the PDD on which the determination has been deemed final and is so listed on the UNFCCC JI website?	The monitored parameters include generated electricity at all three SHPPs as well as the electricity imported from the grid to cover own needs at time when turbines are not in operation. Reading of one meter at each location is done electronically on monthly basis by power grid operator (EVN for Lozyata SHPP and CEZ for Cherna and Byala Mesta SHPPs). Based on these readings invoices are prepared for the generated and the purchased electricity respectively. The invoices for the generated electricity are accompanied by detailed reports for the amount of electricity generated/ purchased signed by both parties. Power meter readings are read also by shift operator on daily basis and these are used for internal control purposes. Emission factor is calculated ex-ante for each calendar year in the determined PDD (page 25). Based on this a fixed emission factor different for each calendar year is used during the crediting period as indicated in the approved PDD and confirmed during first verification visit. The monitoring is in line with the respective description in the PDD.			OK
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, for example, those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	According to PDD version 1.2 emission reductions were calculated by implementing approved CDM methodology AMS-I.D (version 10) Grid connected renewable electricity generation. The emission factor is determined on the basis of National Baseline study of Joint Implementation projects in the Bulgarian Energy Sector. Carbon Emission Factor, published by the Bulgarian Ministry for Environment and Water. The data for Maximum Demand Forecast with HPP included are used. For the purposes of verification of the monitoring report it was confirmed that the approach presented in PDD is followed.			OK
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	During the site visits and the interviews it was confirmed that generated electricity and consumed electricity are monitored on monthly basis by grid operator. Based on this data monthly invoices are prepared by SHPP operators for the generated electricity and by the Distribution company (EVN for Lozyata SHPP and CEZ for Byala Mesta and Cherna Mesta SHPPs) for the purchased electricity. Monthly protocols for the generated electricity are prepared and signed by respective two parties – SHPP operator and distribution company. The invoices issued by grid operator and SHPPs respectively are used for emission reduction calculation purposes. For the calculation of emission reductions the imported electricity from the grid is deducted from the amount of generated electricity thus obtaining the monthly figures for the net produced electricity. Daily records aggregated on monthly basis are used for internal control purposes. For Lozyata the daily records are maintained in electronic format, while for the other two SHPPs the daily records were reviewed on paper only during site visit.			OK

DVM para	Check item	Initial finding	Action requested to project participants (incl. CAR, CL or FAR)	Review of project participants' action	Conclusion
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	The emission factor is determined on the basis of National Baseline study of Joint Implementation projects in the Bulgarian Energy Sector. Carbon Emission Factor, published by the Bulgarian Ministry for Environment and Water. The data for Maximum Demand Forecast with HPP included are used. For the monitoring period 01/01/2012 – 31/10/2012 emission factor of 0.791 tCO2/MWh is used in line with PDD version 1.2 dated 02/06/2010.			OK
95 (d)	Is the calculation of emission reductions or enhancements of net removals calculated based on conservative assumptions and the most plausible scenarios in a transparent manner?	The calculation of emission reductions is done in line with description in PDD version 1.2 dated 02/06/2010.			OK
Applicable to JI SSC projects only					
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	The project is a renewable energy project with maximum output capacity less than 15 MW (approx 6.5 MW). The threshold is not exceeded. During site visit carried out on 05/12/2012 at Cherna and Byala Mesta SHPPs and on 06/12/2012 at Lozyata SHPP it was confirmed that there is no change in composition of the portfolio as indicated in determined PDD version 1.2 dated 02/06/2010. The equipment installed was confirmed to be as follows based on information from manufacturer name plates: ✓ Lozyata SHPP: Two horizontal spiral case Fransis Turbine type 265F 1050 FSH 1050F6 Mavel SN 20725/1 and 20725/2 respectively. Each turbine is connected to synchronous generators TES type GSH900L12 SN 941431 and SN 941430 respectively. ✓ Byala Mesta SHPP: One MAVEL Pelton Turbine SN 020492 connected to generator TES type GAK56OL10 SN 942188 ✓ Cherna Mesta SHPP: One MAVEL Pelton Turbine SN 020491 connected to generator TES type GAK56OL10 SN 942187			OK
Applicable to bundled JI SSC projects only					
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?				NA
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?				NA

DVM para	Check item	Initial finding	Action requested to project participants (incl. CAR, CL or FAR)	Review of project participants' action	Conclusion
98	If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?				NA
Revision of monitoring plan					
Applicable only if monitoring plan is revised by project participants					
99 (a)	Did the project participants provide an appropriate justification for the proposed revision?				NA
99 (b)	Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?				NA
Data management					
101 (a)	Is the implementation of data collection procedures in line with the monitoring plan, including the quality control and quality assurance procedures?	Data collection, quality control and quality assurance procedures are described in the PDD. It was confirmed during the site visits and the interviews that these are in line with monitoring practices in SHPPs. Details are presented under 94 and 95 b above.			OK

DVM para	Check item	Initial finding	Action requested to project participants (incl. CAR, CL or FAR)	Review of project participants' action	Conclusion
101 (b)	Is the function of the monitoring equipment, including its calibration status, in order?	<p>The monitoring equipment involved in data collection comprises of three electricity meters installed in each of the SHPPs. The electricity meters are owned by grid operators (EVN for Lozyata SHPP and CEZ for Cherna Mesta and Byala Mesta SHPPs). The ID specifications and available information for electricity metes as confirmed during site visit are as follows:</p> <ul style="list-style-type: none"> - Lozyata SHPP – Electricity meter Elster A1500 SN 00440218, EVN Bulgaria Electrorazpredelenie AD protocol for checking 30264 dated 05/05/2011 and 52454 dated 29/09/2012. The checking was done by EVN (owner of meter) based on their internal rules. - Cherna Mesta SHPP – Electricity meter SL 7000 Actaris SN 36038878 mounted on 23/03/2010, Sticker for state metrological check valid till 01/2014; CEZ Distribution Bulgaria AD protocols for mounting and checking 00003120 dated 23/03/2010 and only checking 1000012440 dated 02/05/2011 - Byala Mesta SHPP – Electricity meter SL 7000 Actaris SN 36038796, Sticker for state metrological check valid till 01/2014; CEZ Distribution Bulgaria AD protocols for mounting and checking 100003119 dated 23/03/2010 and only checking 1000012441 dated 02/05/2011. <p>ID numbers are indicated in protocols for purchased electricity signed by SHPP operators and respective grid operator.</p>			OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	The evidence and records related to monitoring are maintained in a traceable manner. Documents are kept locally at SHPPs and at Sofia office.			OK
101 (d)	Is the data collection and management system for the project in line with the monitoring plan?	Data collection and management system were found in line with monitoring plan based on details presented in sections above.			OK

Monitoring Parameters and Calibration Table:

Complete the following table for each parameter:

Data / Parameter (as in the MP)		Electricity generation Lozyata SHPP (MWh)	Electricity generation Cherna Mesta SHPP (MWh)	Electricity generation Byala Mesta SHPP (MWh)
Value	Ex ante	NA (only data for 1 calendar year are presented in PDD)	NA (only data for 1 calendar year are presented in PDD)	NA (only data for 1 calendar year are presented in PDD)
	Ex-post	11,937.874	1,737.870	1,868.550
Measuring frequency		Monthly	Monthly	Monthly
Reporting frequency		Monthly	Monthly	Monthly
Is the measuring and reporting frequency in line with the MP and the Monitoring Methodology?		Yes	Yes	Yes
Recording (Manually / electronically/...)		Electronic	Electronic	Electronic
QA/QC How are values verified? (Cross-checked, double-checked,...)		Cross checked with aggregated daily records for the generated electricity	Cross checked with aggregated daily records for the generated electricity	Cross checked with aggregated daily records for the generated electricity
Type of Monitoring Equipment and Identification number or Reference in the PDD		Electricity meter, no details specified	Electricity meter, no details specified	Electricity meter, no details specified
Is accuracy of the monitoring equipment as stated in the PDD? If not stated in the PDD, does it represent good monitoring practices?		Accuracy not stated in PDD. Electricity meters used are approved to be used for commercial purposes	Accuracy not stated in PDD. Electricity meters used are approved to be used for commercial purposes	Accuracy not stated in PDD. Electricity meters used are approved to be used for commercial purposes
Period of operating time		03/05/2011- till present	23/03/2010-till present	23/03/2010-till present
Instrument type		Electricity meter Elster A1500	Electricity meter Actaris SL 7000	Electricity meter Actaris SL 7000
Manufacturer, model and serial number		Elster SN 00440218	Actaris SN 36038878	Actaris SN 36038796
Specific location		Room within main building of SHPP next to control room	Outside main building of SHPP	Outside main building of SHPP

Data / Parameter (as in the MP)	Electricity generation Lozyata SHPP (MWh)	Electricity generation Cherna Mesta SHPP (MWh)	Electricity generation Byala Mesta SHPP (MWh)
Calibration dates	Checks by EVN Bulgaria on 05/05/2011 and 29/09/2012 (reports presented). Explanation provided that metrological check was carried out in Apr 2011 and is valid till Apr 2015.	Periodical checks by CEZ Bulgaria 02/05/2011 (report presented) Sticker for metrological check valid till 01/2014	Periodical checks by CEZ Bulgaria 02/05/2011 (report presented). Sticker for metrological check valid till 01/2014.
Company performing the calibration	See above	See above	See above
Required calibration frequency: Is it in line with the MP? Or does it represent good monitoring practices?	Monitoring plan does not specify calibration frequency. Meters are fiscal ones and follow the National rules for checking of fiscal electricity meters attached to power up to 10 MVA (inclusive) – every 4 years	Monitoring plan does not specify calibration frequency. Meters are fiscal ones and follow the National rules for checking of fiscal electricity meters attached to power up to 10 MVA (inclusive) – every 4 years	Monitoring plan does not specify calibration frequency. Meters are fiscal ones and follow the National rules for checking of fiscal electricity meters attached to power up to 10 MVA (inclusive) – every 4 years
Is calibration valid for the whole reporting period?	Yes	Yes	Yes
Maintenance	None	None	None
Does the data management (from monitoring equipment to emission reductions calculation) ensure correct transfer of data and reporting of emission reductions?	Yes	Yes	Yes
Key reporting risks	In PDD it is stated the electricity meter measures net electricity produced. In fact it measures both electricity produced and electricity consumed. These are accounted separately and the consumed amount shall be deducted from the generated amount.	In PDD it is stated the electricity meter measures net electricity produced. In fact it measures both electricity produced and electricity consumed. These are accounted separately and the consumed amount shall be deducted from the generated amount.	In PDD it is stated the electricity meter measures net electricity produced. In fact it measures both electricity produced and electricity consumed. These are accounted separately and the consumed amount shall be deducted from the generated amount.