

ANNEX 3

TO THE 1ST VERIFICATION REPORT
FOR THE PROJECT:

BETHLEHEM HYDROELECTRIC
PROJECT

ASSESSMENT

REGARDING POST
REGISTRATION CHANGES



1 OBJECTIVE / SCOPE

This report serves as an annex to the Post-registration changes request form (F-CDM-PRC).

2 GENERAL CHARACTERISTICS

2.1 Project Characteristics

As this assessment was carried out as part of the 1st verification of the project activity please refer to chapter 2 of the verification report.

2.2 Overview of Post Registration Changes

Within this report post registration changes as listed in Table 2-2 are assessed.

Table 2-2: Overview Post Registration Changes

#	Applicable as of / from - to	Type of post registration change ¹⁾	Description
1	2009-10-08	CrPDD	Parameters for monitoring the electricity produced at each power plant belonging to the project activity have been defined separately instead of one single parameter that monitors the total electricity at a project level
2	2009-10-08	PCfrMP	Changes on power meter location as per PPA
3	2009-10-08	PCfrMP	Calibration frequency in order to comply with the latest CDM Procedures for Small Scale projects, version 17.0, EB 61, Annex 21
4	2009-10-08	PCfrMP	Inclusion of calculation and monitoring of project emissions from back up diesel generator
5	2009-10-08	PCfrMP	Inclusion of calculation and monitoring of project emissions from back up electricity from the national grid

- ¹⁾ CrPDD : Corrections to the registered PDD
PCfrMP : Permanent changes from registered Monitoring Plan

2.3 Assessment team members and technical reviewers

As this assessment was carried out as part of the 1st verification of the project activity please refer to section 3.3 of the verification report.

2.4 Assessment Steps

In this case all activities were carried out as part of the 1st verification of this project activity.

2.5 Review of Documents

The registered as well as the revised PDD and supporting background documents related to the project design and the post registration changes were reviewed.

As far as required, the assessment team used additional documentation by third parties like power meter technical sheets and manufacturer calibration recommendations and grid operator code of practice for electricity metering.

2.6 Follow-up Interviews

As this assessment was carried out as part of the 1st verification of the project activity please refer to section 3.7 of the verification report.

A comprehensive list of all interviewed persons is part of section 7 'References' in the Verification Report.

3 CHANGES THAT DO NOT AFFECT THE PROJECT DESIGN

3.1 Assessment of Changes

Requested Deviations / Changes #1

- Type of change(s):
- ☐ *Temporary Deviation from Monitoring Plan*
 - ☐ *Temporary Deviation from Monitoring Methodology*
 - ☒ *Corrections that do not affect the project design*
 - ☐ *Permanent Change from Monitoring Plan*
 - ☐ *Permanent Change from Monitoring Methodology*
 - ☐ *Changes specific to afforestation or reforestation*

A. Description of post registration change

Start Date: Please provide the start date of the change	2009-10-08	End Date: Please provide the end date of the change, if applicable	-
Description: Please give a detailed description of the changes	Change in the description of the monitoring parameters in the monitoring plan section of the PDD. In the revised Monitoring Plan section, the monitoring of the total generated electricity by the project has been separated in two monitoring parameters for the electricity produced in each power plant belonging to the project (E1g & E2g). Also, the monitoring of the total imported electricity by the project has been included in two monitoring parameters for the electricity imported by each power plant belonging to the project (E1i & E2i) for accounting for possible project emissions. This change enhances the clarity and transparency of the monitoring system.		

B. Assessment of post registration change – Corrections that do not affect the project design

Requested Deviations / Changes #1

MM compliance: Please check in case of changes to the registered MP, whether they are in compliance with the MM.	This alteration does not suppose any conceptual change in the registered monitoring plan; rather it adds transparency and clarity to it. The applied methodology only requires monitoring of the electricity generated by the renewable technology. The DOE has deemed it appropriate to consider this change under "Corrections that do not affect the project design", and therefore not requiring a prior approval by the Board. The revised monitoring plan includes the monitoring of the electricity produced by the project by independently monitoring the electricity generated in each power plant belonging to the project activity. Therefore, the revised monitoring plan remains in compliance with the methodology.
Later version of MM: Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.	Not applicable.
Accuracy: Please give a detailed assessment whether the change is likely to lead to a reduction in the accuracy of the ER calculation.	The changes do not affect the accuracy of the ER calculation; rather it adds transparency and clarity to the description of the monitoring system, which is now done individually per power plant instead of for the whole project activity.
Conservativeness: Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	This approach follows the requirements of the applied methodology therefore it fulfils the concept of conservativeness.
Appendix 1 PS: Check if the changes fall under one of the scenarios of appendix 1 of the PS.	The proposed change does not require prior approval by the Board as it falls under Para 1 of Appendix 1 of the PS.
C. Revised PDD	
Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/> The changes have correctly been reflected in the revised PDD. <input type="checkbox"/> A revision of the PDD is not required (in case of temp. changes). <input checked="" type="checkbox"/> The revised PDD has been forwarded in (i) track-change and (ii) clean version.
D. Prior Approval	



Requested Deviations / Changes #1

Prior approval:

Assess whether the
change requires prior
approval of the board

- ☐ *The post registration change requires prior approval*
- ☒ *The post registration change does not require prior approval*

Type of change(s):	<input type="checkbox"/> Temporary Deviation from Monitoring Plan <input type="checkbox"/> Temporary Deviation from Monitoring Methodology <input type="checkbox"/> Corrections that do not affect the project design <input checked="" type="checkbox"/> Permanent Change from Monitoring Plan <input type="checkbox"/> Permanent Change from Monitoring Methodology <input type="checkbox"/> Changes specific to afforestation or reforestation		
A. Description of post registration change			
Start Date: Please provide the start date of the change	2009-10-08	End Date: Please provide the end date of the change, if applicable	-
Description: Please give a detailed description of the changes	Change in the calibration frequency and accuracy classes applicable for the electricity meters. In the revised Monitoring Plan, the calibration frequency is defined as once every three years, whereas the registered monitoring plan indicated that no calibration was needed. It has been confirmed with the equipment manufacturer ^{/MT/} that a re-calibration of the equipment is not required. Also, the South African National Standards for electricity metering on electricity measurement do not require specific calibration beyond the manufacturer's recommendation. Only if any in-situ verification test shows that a meter is outside the required error limits, the meter shall be returned to an accredited calibration laboratory for calibration at reference conditions ^{/SANS/} .		
B. Assessment of post registration change – Permanent changes from MP or MM			
MM compliance: Please check in case of changes to the registered MP, whether they are in compliance with the MM.	The applied methodology does not refer to any calibration requirement. However, the CDM Procedures for Small Scale projects, version 17.0, EB 61, Annex 21, establishes that <i>all measuring equipment should be certified to national or IEC standards and calibrated according to the national standards and reference points or IEC standards and recalibrated at appropriate intervals according to manufacturer specifications, but at least once in three years</i> . Therefore, the revised monitoring plan is now in compliance with the mentioned procedure.		
Later version of MM: Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.	Not applicable.		

Accuracy: Please give a detailed assessment whether the change is likely to lead to a reduction in the accuracy of the ER calculation.	The changes are indeed increasing the accuracy of the ER calculation as the monitoring equipments will be calibrated in a higher frequency.		
Conservative-ness: Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	Not applicable.		
Appendix 1 PS: Check if the changes fall under one of the scenarios of appendix 1 of the PS.	The proposed change does not require prior approval by the Board as it falls under Para 5 a) of Appendix 1 of the PS.		
C. Revised PDD			
Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/> The changes have correctly been reflected in the revised PDD. <input type="checkbox"/> A revision of the PDD is not required (in case of temp. changes). <input checked="" type="checkbox"/> The revised PDD has been forwarded in (i) track-change and (ii) clean version.		
D. Prior Approval			
Prior approval: Assess whether the change requires prior approval of the board	<input type="checkbox"/> <i>The post registration change requires prior approval</i> <input checked="" type="checkbox"/> <i>The post registration change does not require prior approval</i>		

- Type of change(s):
- ☐ Temporary Deviation from Monitoring Plan
 - ☐ Temporary Deviation from Monitoring Methodology
 - ☐ Corrections that do not affect the project design
 - ☒ Permanent Change from Monitoring Plan
 - ☐ Permanent Change from Monitoring Methodology
 - ☐ Changes specific to afforestation or reforestation

A. Description of post registration change

Start Date: Please provide the start date of the change	2010-10-08	End Date: Please provide the end date of the change, if applicable	-
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Description: Please give a detailed description of the changes	Change of power meter location. In the revised Monitoring Plan, the exact power meter location has been newly defined as per the definition provided in the corresponding PPA to each power plant. The registered PDD stated that <i>electricity meters are installed at each generation unit</i> . The PPAs for Merino and Sol Plaatje ^{/PPA/} define the power meters location at the power station and at the Panorama substation, respectively.
B. Assessment of post registration change – Permanent changes from MP or MM	
MM compliance: Please check in case of changes to the registered MP, whether they are in compliance with the MM.	The applied methodology does not refer to any requirement referred specifically to power meter location.
Later version of MM: Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.	Not applicable.
Accuracy: Please give a detailed assessment whether the change is likely to lead to a reduction in the accuracy of the ER calculation.	The changes are not affecting the accuracy of the ER calculation; rather they give accurate information about where the monitoring equipment shall be located as per the applying PPA.
Conservative-ness: Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	Not applicable.
Appendix 1 PS: Check if the changes fall under one of the scenarios of appendix 1 of the PS.	The proposed change does not require prior approval by the Board as it falls under Para 5 c) of Appendix 1 of the PS.
C. Revised PDD	
Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/> The changes have correctly been reflected in the revised PDD. <input type="checkbox"/> A revision of the PDD is not required (in case of temp. changes). <input checked="" type="checkbox"/> The revised PDD has been forwarded in (i) track-change and (ii) clean version.
D. Prior Approval	

Prior approval: Assess whether the change requires prior approval of the board	<input type="checkbox"/> <i>The post registration change requires prior approval</i>
	<input checked="" type="checkbox"/> <i>The post registration change does not require prior approval</i>

Type of change(s):	<input type="checkbox"/> <i>Temporary Deviation from Monitoring Plan</i> <input type="checkbox"/> <i>Temporary Deviation from Monitoring Methodology</i> <input type="checkbox"/> <i>Corrections that do not affect the project design</i> <input checked="" type="checkbox"/> <i>Permanent Change from Monitoring Plan</i> <input type="checkbox"/> <i>Permanent Change from Monitoring Methodology</i> <input type="checkbox"/> <i>Changes specific to afforestation or reforestation</i>
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A. Description of post registration change

Start Date: Please provide the start date of the change	2010-10-08	End Date: Please provide the end date of the change, if applicable	-
Description: Please give a detailed description of the changes	Addition of calculation of projects emissions due to use of back up diesel generator and addition of respective monitoring parameters $FC_{1,j}$, $FC_{2,j}$.		

B. Assessment of post registration change – Permanent changes from MP or MM

MM compliance: Please check in case of changes to the registered MP, whether they are in compliance with the MM.	The applied methodology does not refer to any requirement referred specifically projects emissions due to fossil fuel consumption onsite.
Later version of MM: Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.	The changes in the MP are in line with latest version of MM. The latest version of ASM ID ver. 17 refers to projects emissions due to onsite fossil fuel consumption.
Accuracy: Please give a detailed assessment whether the change is likely to lead to a reduction in the accuracy of the ER calculation.	The changes might affect the accuracy of the ER calculation in case the project emissions would contribute more than 1% of the total emission reductions for a given monitoring period. In the case the project emissions will be higher than 1% of total emissions reduction it will be deducted from the emission reductions.

Conservative-ness: Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	Conservative assumptions were applied. NCV_{diesel} and $EF_{\text{CO}_2, \text{diesel}}$ from IPCC upper limits at a 95% confidence interval and density of diesel (ρ_{diesel}) from publicly available data from South African Petroleum Industry Association were applied.
Appendix 1 PS: Check if the changes fall under one of the scenarios of appendix 1 of the PS.	The proposed change does require prior approval by the Board as it falls under Para 6 a) of Appendix 1 of the PS.
C. Revised PDD	
Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/> The changes have correctly been reflected in the revised PDD. <input type="checkbox"/> A revision of the PDD is not required (in case of temp. changes). <input checked="" type="checkbox"/> The revised PDD has been forwarded in (i) track-change and (ii) clean version.
D. Prior Approval	
Prior approval: Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/> <i>The post registration change requires prior approval</i> <input type="checkbox"/> <i>The post registration change does not require prior approval</i>

Type of change(s):

- ☐ Temporary Deviation from Monitoring Plan
- ☐ Temporary Deviation from Monitoring Methodology
- ☐ Corrections that do not affect the project design
- ☒ Permanent Change from Monitoring Plan
- ☐ Permanent Change from Monitoring Methodology
- ☐ Changes specific to afforestation or reforestation

A. Description of post registration change

Start Date: Please provide the start date of the change	2010-10-08	End Date: Please provide the end date of the change, if applicable	-
Description: Please give a detailed description of the changes	Addition of calculation of projects emissions for back up use of electricity and addition of respective monitoring parameters.		

B. Assessment of post registration change – Permanent changes from MP or MM

MM compliance: Please check in case of changes to the registered MP, whether they are in compliance with the MM.	The applied methodology does not refer to any requirement referred specifically projects emissions due to fossil fuel consumption onsite.
Later version of MM: Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.	The changes in the MP are in line with latest version of MM. The latest version of ASM ID ver. 17 refers to projects emissions due to onsite fossil fuel consumption.
Accuracy: Please give a detailed assessment whether the change is likely to lead to a reduction in the accuracy of the ER calculation.	The changes might affect the accuracy of the ER calculation in case the project emissions would contribute more than 1% of the total emission reductions for a given monitoring period. In the case the total project emissions will be higher than 1% of total emissions reduction it will be deducted from the emission reductions.
Conservative-ness: Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	Conservative assumptions were applied. Validated emissions factor for South African grid were applied.
Appendix 1 PS: Check if the changes fall under one of the scenarios of appendix 1 of the PS.	The proposed change does require prior approval by the Board as it falls under Para 6 a) of Appendix 1 of the PS.
C. Revised PDD	
Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/> The changes have correctly been reflected in the revised PDD. <input type="checkbox"/> A revision of the PDD is not required (in case of temp. changes). <input checked="" type="checkbox"/> The revised PDD has been forwarded in (i) track-change and (ii) clean version.
D. Prior Approval	
Prior approval: Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/> <i>The post registration change requires prior approval</i> <input type="checkbox"/> <i>The post registration change does not require prior approval</i>

3.2 Related Findings

No findings have been identified in this context.

4 CHANGE TO THE START DATE OF THE CREDITING PERIOD

The post registration changes do not fall under this category.

5 CHANGES TO THE PROJECT / PROGRAMME DESIGN

The post registration changes do not fall under this category.

6 SUMMARY OF ASSESSMENT OPINIONS

The below listed changes have occurred after the registration of the project.

Type of Change occurred	Total No. of changes	No. of changes which require prior approval
<input type="checkbox"/> Temporary deviations from the MP		
<input type="checkbox"/> Temporary deviations from the MM		
<input checked="" type="checkbox"/> Corrections that do not affect the project	1	0
<input type="checkbox"/> Change to the start date of the crediting p.		
<input checked="" type="checkbox"/> Permanent changes from the MP	2	0
<input type="checkbox"/> Permanent changes from the MM		
<input checked="" type="checkbox"/> Design changes to the project activity / PoA		
<input type="checkbox"/> Changes specific to AR projects		

None of the changes occurred requires prior approval of the Board.

Essen, 2013-08-15



Martin Saalmann
TÜV NORD JI/CDM CP
Assessment Team Leader

Essen, 2013-08-15



Rainer Winter
TÜV NORD JI/CDM CP
Final Approval

7 REFERENCES

All references are listed in the Verification Report submitted as part of the Request for Issuance for the 1st Monitoring Period.