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Date
03.06.2011

Request for Revision of Monitoring Plan
"9 MW Neria Hydroelectric project, Karnataka, India"

CDM Registration No: 1549

Dear Sir/Madam,

Please find below the validation opinion of TÜV NORD JI/CDM Certification Program to the revision of the monitoring plan for the above mentioned project No.1549.

If you have any questions do not hesitate to contact us.

Yours sincerely,

TÜV NORD JI/CDM Certification Program



Rainer Winter

Validation opinion as per requirement of EB49, Annex 28, para 7

Level of accuracy or completeness

☒ TÜV NORD herewith confirms that the proposed revision of the monitoring plan ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced.

Additional comment:

"9 MW Neria Hydroelectric project, Karnataka, India" (hereafter referred to as project activity) was registered on 09 October 2008 using the methodology "Grid connected renewable electricity generation" (AMS I.D, Version 10).

The project activity is a mini Hydel project of 9 (2 x 4.5) MW capacity. The project reduces GHG emissions due to the generation of electricity by using hydro potential of the hydro power plant located across Neria River, Dharmasthala Village, Dakshina Kannada District, Karnataka. The electricity generated is supplied to the MESCOM (Mangalore Electricity Supply Company Limited) in the Southern grid.

The monitoring of the measuring equipment is done at the project site and the Pilakala substation located near the project site, maintained and operated by M/s. BPCL.

In line with the paragraph 57 of the modalities and procedures for the CDM-EB 49, Annex 28, the DOE instructed the project participant to revise the monitoring plan to improve accuracy and completeness of information on methods of measurement of parameters and frequency of calibration of measuring equipment, and also to fulfill the requirements mentioned under paragraph 17 and 18 of Clean Development Mechanism Validation and Verification Manual (VVM) (EB-55, Annex-1). The DOE has validated the detailed procedure to arrive on the monitoring parameters in section B.7.1, B.7.2 and Annex-4 of the revised monitoring plan in track change and clean mode.

Revision 1:

The monitoring plan in the registered PDD does not clearly mention the sources and measurement procedures of the monitoring parameters. The PDD mentions that the parameters EG_y (Electricity supplied to the grid by the project), EG_{grossy} (Total electricity generated by the project during the year y), $EG_{Auxiliary}$ (Auxiliary electricity consumption of the project), and $EG_{import,y}$ (Grid electricity import to the project activity during the year y), would be sourced from "On-site measurements". Similarly, for the parameter $F_{i,y}$ (Quantity of fossil fuel type i combusted in the project plant during year y), on site measurements from the weigh bridge is mentioned as the procedure for measurement in the registered PDD.

However, the above information is general and does not specify the actual source of the measured values.

- For the electricity parameters, EG_y , $EG_{export,y}$, and $EG_{import,y}$, the description of measurement methods has been elaborated as per the actual site occurrences in the revised monitoring plan. Parameters EG_{grossy} and $EG_{Auxiliary}$ have been excluded as they are not required to be monitored as per the methodology, and in order to avoid ambiguity.
- It was noticed during the site visit that a weighbridge was not being used for measuring the amount of fossil fuel (diesel) being used during the monitoring period. Instead, the quantity of fossil fuel was being measured by dip stick method/ glass gauge and crosschecked with the fuel purchase receipts and the edhours of operation of the DG set recorded in the log books.

The monitoring plan has been revised to include the actual procedure adopted at the site for all parameters, and to avoid ambiguity of the sources and measurement procedures used for the collection and monitoring of data.

Revision 2:

It was noticed during the site visit that the project was connected to the grid via two lines. The metering at Pilikala thus has four meters- a main and check meter at Line I and a main and check meter at Line II. The photographs taken at the site confirm the same. The registered PDD states that there are two meters, when actually there are two separate lines and four meters.

Revision 3:

The calibration frequency of energy meters was not mentioned in the registered PDD. The registered monitoring plan mentions that calibration will be conducted as per industrial standards. The revised monitoring plan mentions that quarterly calibration will be conducted as per the PPA between the PP and the State electricity board.

Revision 4:

Since the PDD preparation and project registration, the organization structure of M/s. Bhoruka Power Corporation Limited has altered. The revised roles and responsibilities have been included in section B.7.2 –Description of the monitoring plan.

The above mentioned revisions have been addressed in B.7.1, B.7.2 and Annex 4 of the revised MP.

The DOE also confirms that the below mentioned monitoring plan is adequate and meets the requirements stipulated under monitoring methodology (AMS I.D. Version 10).

Parameter	Description	Source	DOE Assessment
EG _y	EG _y is the electricity supplied to the grid by the project. This is measured by the main and check meters at the Pilikala station situated near the hydro project. Electricity supplied (EG _y) to the grid by the project activity is measured by the difference between electricity export (EG _{export,y}) and electricity import (EG _{import,y}). All the readings related to export and import electricity will be mentioned in the monthly certified joint meter readings/B-Forms. The net electricity values generated by the project activity can be cross checked with the invoices raised to KPTCL/DISCOM by the PP.	Monthly joint meter readings taken at meters at LINE I and LINE II at the Pilikala substation, authenticated by state utility and PP representative To cross check (EG _y) value, the invoices raised by the project proponent to KPTCL/DISCOM for the sale of electricity may be used.	The procedure undertaken for the measuring and recording the energy delivered to the grid, i.e. EG _y was not described in a detailed manner in the registered PDD. The revised monitoring plan provides an accurate source and description of measurement procedures adopted at the site. The same has been confirmed by the site visit interviews and review of JMRs taken at the Pilikala substation.

			Sample invoices were verified. Thus the parameter, electricity supplied to the grid has been accurately described in the revised MP.
$EG_{\text{export},y}$	Electricity exported by project activity will be monitored by the main and check meters at the Pilikala substation.	Monthly joint meter readings taken at meters at LINE I and LINE II at the Pilikala substation, authenticated by state utility and PP representative	The revised monitoring plan provides an accurate source and description of measurement procedures adopted at the site. The same has been confirmed by the site visit interviews and review of JMRs recorded at the Pilikala substation.
$EG_{\text{import},y}$	Electricity imported by project activity will be monitored by the main and check meters at the Pilikala substation.	Monthly joint meter readings taken at meters at LINE I and LINE II at the Pilikala substation, authenticated by state utility and PP representative	The revised monitoring plan provides an accurate source and description of measurement procedures adopted at the site. The same has been confirmed by the site visit interviews and review of JMRs recorded at the Pilikala substation.
$F_{i,y}$	The quantity of diesel used for emergencies and start-ups during the monitoring period.	The quantity of diesel consumed is measured on site by the dipstick method or glass gauge from the diesel storage tanks. The diesel purchase receipts and the operating hours of the DG set maintained in	As the diesel is not measured by a weighbridge as mentioned in the registered PDD, the procedure adopted at the site has been included in the revised MP. The diesel is purchased in litres and its

		log books are used as a means of cross verification.	consumption is measured by the dip-stick method. The diesel consumed and the operating hours of the DG set are recorded into log books. The log books were verified along with the diesel purchase receipts.. For reasons of practicality, the PP chose not to purchase a weighbridge for measuring the small amounts of diesel used. The log books were verified for the quantities of diesel used, and the PP's contention deemed to be OK. $F_{i,y}$ is thus described accurately as per the site conditions.
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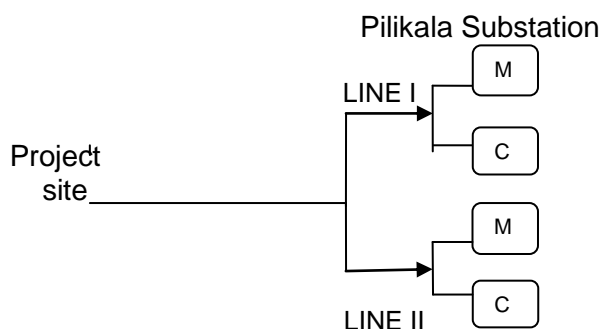
Assessment of the QA/QC procedures:

1. The energy meters that measure export and import electricity consisting of 2 main and 2 check meters of Line 1 and Line 2 of the project activity will be tested for accuracy every calendar quarter as prescribed in the PPA. KPTCL will be in charge of calibration of energy meters and the meters will be sealed and kept it under the custody of state utility. The validation team has verified the PPA signed between the PP and KPTCL.
2. The PPA and calibration reports were verified and the validation team confirms that the QA/QC procedures mentioned in the revised MP are accurate.

Assessment of revised roles and responsibilities:

The organization structure has altered since the registration of the project. The revised roles and responsibilities have been included in the revised monitoring plan. The validation team has verified the revised organization chart, and conducted interviews with the assistant manager and engineers at the site. The validation team concludes that the revised MP describes accurately the new organization structure w.r.t to the project activity.

The metering arrangement at the site is as follows:



As was noticed during the site visit, the project was connected to the grid via two lines. The metering at Pilikala thus has four meters- a main and check meter at Line I and a main and check meter at Line II. The metering mentioned in the revised monitoring plan is correct. Photographs taken at the site confirm the same.

The proposed revised monitoring plan (in track change mode and clean versions submitted along with this report) ensures that the level of accuracy and completeness in the monitoring and verification process is not reduced as a result of the revisions.

The validation team confirms that the revised monitoring plan is accurate and reflects the actual site conditions.

References:

- JMR- Monthly joint meter reading reports issued by KPTCL at the Pilikala substation.
- PPA- Power Purchase Agreement between KPTCL and PP dated 2004-11-04
- CAL₁- Calibration reports of the export and import electricity meters issued by KPTCL
- LOG- Log book records of diesel consumption
- INV- Invoices raised to the KPTCL by the PP for sale of electricity.
- RCPTs- Diesel purchase receipts.

Accordance with approved monitoring methodology

☒ TÜV NORD herewith confirms that the proposed revision of the monitoring plan is in accordance with the approved monitoring methodology applicable to the project activity.

Additional comment:

The proposed revised monitoring plan adheres to the applied methodology i.e. AMS I.D. Version 10.

Previous verification findings

- ☐ TÜV NORD herewith confirms that the findings of previous validation reports, if any, have been taken into account.
- ☒ No findings from previous validation had to be considered.

Additional comment:

The DOE has identified the need of revising the monitoring plan to improve accuracy and completeness of the monitoring information (Cp para 57 of CDM M&P) during the first periodic verification and accordingly the PP has sought for a revision in the monitoring plan. The revised monitoring plan has been validated as above.