






Validation opinion

Revision of the monitoring plan

Title of project activity:			
Enercon Wind Farms in Karnataka Bundled Project – 30.4 MW			
CDM reference number:		DNV project No.:	
1291		PRJC-267341-2010-CCS-IND	
Type of revision:	<input type="checkbox"/> Proposed revision only includes the request by the CDM EB <input type="checkbox"/> Proposed revision includes not only the request by the CDM EB but also additional revisions proposed by the PP/DOE <input checked="" type="checkbox"/> Proposed Revision includes revisions proposed by the PP/DOE		
Date	Work carried out by:	Work verified by:	Approved by:
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We refer to the procedure for revising monitoring plans adopted at EB 49 (Annex-28) which allows for the project participants to revise the monitoring plans in order to improve accuracy and/or completeness of information.

1 Description of the changes to the monitoring plan

A revision of the monitoring plan is proposed to provide clarity with respect to the monitoring of “EGy-Net Electricity Supplied to the grid by the project”, inclusion of the parameters “Electricity Export”, “Electricity Import”, “Transmission Losses”, used in the calculation of “Net Electricity Supplied to the grid” and other information related to monitoring as described below:

1.1 Reason for revision in Monitoring Plan (MP)

The monitoring plan of the registered PDD contains only “EGy – Net electricity export supplied to the grid by the project” as the parameter to be monitored. In actual practice it was noticed that the “Net electricity export to the grid” is calculated based on the measured electricity export, import and Transmission losses. The revision in the monitoring plan is being submitted to bring in more clarity on the monitoring of the “EGy – Net electricity export supplied to the grid by the project” by including the parameters “Electricity Export”, “Electricity Import”, “Transmission Losses”, and including the other factors used in the calculation of “Net Electricity Supplied to the grid”.

1.2 Proposed revision in Monitoring Plan (MP)

a) Inclusion of “Electricity Export, EG_{export} ”:

The total electricity exported by the project activity from the grid, EG_{export} was not specifically included in the Monitoring Plan of the registered PDD. In actual practice it was noticed that the state utility calculates the net electricity supplied to the grid by deducting the transmission losses T_E and 115% of the measured Electricity Import EG_{import} from the Electricity Export EG_{export} . Thus monitoring of EG_{export} needs to be included in the

Monitoring Plan to reflect the actual practice in vogue in the state of Karnataka. The EG_{export} is monitored by the two way dedicated main and check meters provided at 33 kV metering points and recorded monthly in Joint Meter Reading (Form B).

b) Inclusion of “Electricity Import, EG_{import} ”:

The total electricity imported by the project activity from the grid, EG_{import} was not specifically included in the Monitoring Plan of the registered PDD. In actual practice it was noticed that the state utility calculates the net electricity supplied to the grid by deducting the transmission losses T_E and 115% of the measured Electricity Import EG_{import} from the Electricity Export EG_{export} . Thus monitoring of EG_{import} needs to be included in the Monitoring Plan to reflect the actual practice in vogue in the state of Karnataka. The EG_{import} is monitored by the two way dedicated main and check meters provided at 33 kV metering points and recorded monthly in Joint Meter Reading (Form B).

c) Inclusion of “Transmission Losses, T_E ”:

The total electricity transmission losses for export between the 33 kV metering point and the high voltage side of the substation to which the sub-project is connected T_E was not specifically included in the Monitoring Plan. The state utility calculates the net electricity supplied to the grid by deducting the transmission losses T_E and 115% of the measured Electricity Import EG_{import} from the Electricity Export EG_{export} . Thus monitoring of T_E needs to be included in the Monitoring Plan to reflect the actual practice in vogue in the state of Karnataka. The transmission loss for each of the sub-project is determined by the state utility and recorded monthly in Joint Meter Reading (Form B).

d) The formula for calculation of “Net Electricity supplied to the grid” EG_y is corrected to:

$$EG_y = EG_{\text{export}} - 115\% * EG_{\text{import}} - \text{Transmission Loss } (T_E)$$

e) The procedure adopted by the state utility for calculation of transmission loss as given in the PPA is presented as:

$$Z = \frac{(X_1 + X_2 + X_3 \dots + X_n) - Y}{(X_1 + X_2 + X_3 \dots + X_n)} \times 100$$

Where,

Z = Percentage transmission loss for export incurred in transmission line between the meters located at 33 kV metering point (including the machines of the project activity and other project developers) and the meters located at high voltage side (bulk meter: main and check) of receiving sub-station.

X_i = Energy export reading (X_i) noted at energy meters installed at 33 kV metering point where i vary from 1 to n which represents the meters connected to project activity and other project developers.

Y = Energy export reading at bulk meter installed at high voltage side of transformer of the receiving sub-station.

Transmission loss in export (T_E) = Transmission loss (Z) * Energy export at 33kV metering point (EG_{Export}).

2 Assessment of the revision of the monitoring plan

a) Formula for calculation of net electricity supplied to the grid EG_y : The state utility calculates the net electricity supplied to the grid EG_y by deducting the Transmission losses T_E and 115% of the Electricity Import EG_{import} from the Electricity Export EG_{export} . The formula for calculation of net electricity supplied to the grid by the project activity has been checked from the power purchase agreements and monthly joint meter readings (Form B). The calculation of EG_y requires the monitoring of the parameters EG_{export} , EG_{import} and T_E separately. This actual practice of calculation of net electricity supplied to the grid has been appropriately incorporated thereby removing the inconsistency in the registered PDD.

The monitoring of additional parameters will not have any impact on level of accuracy or completeness of the monitoring and verification process. However, this change is to reflect the actual monitoring practice at site. This will also bring in more clarity in monitoring.

b) The procedure for calculation of transmission losses T_E : The state utility is responsible for the calculation of the percentage transmission loss during export of electricity (Z) which is common for all windmills located in the same area and connected to the same sub-station. The procedure for calculation of transmission losses has been verified from the power purchase agreement (PPA). This actual practice of calculation of net electricity supplied to the grid has been appropriately incorporated thereby removing the inconsistency in the registered PDD.

The above corrections are in line with the requirements of the applied methodology (ACM0002, version 6) and the applicable regulatory guideline (Karnataka Electricity Regulatory Commission's order dated 18 August 2005 <http://www.kerc.org/PPA/WINDMILLPPA.doc>).

3 Validation opinion

Hence, it is DNV's opinion that:

- a. the proposed revision of the monitoring plan ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced as a result of the revisions.
- b. the proposed revision of the monitoring plan is in accordance with the approved monitoring methodology applicable to the project activity whilst ensuring the conservativeness of the emission reductions

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