



SECTION A. General description of project activity

A.1 Title of the project activity:

>> Bundled Wind power project in Tamilnadu, India co-ordinated by the TamilNadu Spinning Mills Association (TASMA)

Version 10.0 - 28/03 / 2008

**B.7 Application of the monitoring methodology and description of the monitoring plan:****B.7.1 Data and parameters monitored***(Copy this table for each data and parameter)*

Data / Parameter:	EG _y	
Data unit:	GWh/y	
Description:	Net electricity supplied to the Southern grid of India by the project	
Source of data to be used:	Actual measurement records (From energy meter reading at sub station)	
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Year	Generation in GWh
	2003	140
	2004	428
	2005	780
	2006	860
	2007	860
	2008	860
	2009	860
	2010	860
	2011	860
2012	860	
Description of measurement methods and procedures to be applied:	Measured by 0.5S Class Meter – (accuracy $\pm 0.5\%$) Net generation = (Export- Import) To be certified by TNEB Statement Monthly Measurement by TNEB Daily Measurement by Site Engineer	
QA/QC procedures to be applied:	QA/QC of Monitoring Equipment Calibration procedure: Electricity meter is calibrated by the TNEB at least once in 5 years with a calibration report kept by the project owner . This will be as per the guidelines followed by TNEB.	
Any comment:	Detailed Monitoring plan is discussed in B7.2 and Annexure-4	

**B.7.2 Description of the monitoring plan:**

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The Management Structure for monitoring emission reductions would provide for :

- Operation and Maintenance
- Maintenance of Meters and Calibration
- Calculation of Emission Figures
- Local Environmental Care
- Changes in project boundary
- Documents and Records
- Periodic Review meetings
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The project activity will be operated and managed by project sponsors who are also the project proponents. They will ensure the safe operation and a project manager will be allocated with the responsibility for safe operation of the wind farms and the safety of the employees working in the farms. The CDM wind power project will abide by all regulatory and statutory requirements as prescribed under the state and central laws and regulations. To ensure such performance, the project sponsors will monitor all its activities and performance related to emission reduction. Apart from the main meter which will be used and owned by TNEB, LCS meters that meet the Indian and regional electricity authority's standards (with set calibration schedules), are provided in the wind mills.. **The main meters will be calibrated TNEB according to the standard practice of TNEB.** All the monitoring data will be recorded and kept under safe custody of the power plant site manager and/or the Management Representative. Also any change within the project boundary, will be recorded and informed to TNEB (as per PPA), and also to TASMA.

Measurement Frequency:

Frequency of measurement by TNEB – Once in a month

Frequency of measurement by Site In charge – Once in a day

Calibration of the Energy Meter - This **is carried out by TNEB (Minimum once in 5 years as per Guidelines followed by TNEB)**

No leakage is applicable for this project activity.

Systems based on ISO 9001:2000 will be implemented. The detailed structure of monitoring is given in Annexure – 4.



Annex 4

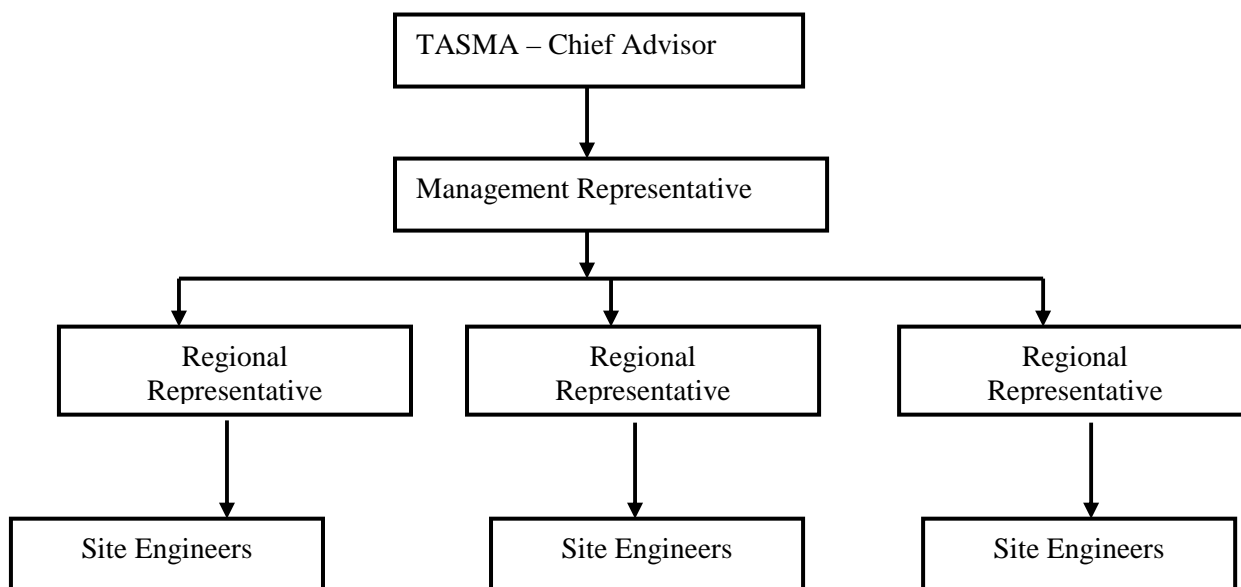
MONITORING INFORMATION

The monitoring plan proposed for the project activity will be centrally executed by Tasma. The monitoring plan will cover these following aspects.

- 1. Management Structure:
- 2. Operation and Maintenance
- 3. Maintenance of Meters and Calibration
- 4. Calculation of Emission Figures
- 5. Local Environmental Care
- 6. Changes in project boundary
- 7. Documents and Records
- 8. Periodic Review meetings

1. Management Structure

The monitoring activity will be centrally executed by Tasma. The organization for monitoring will be as follows:



1.1 SYSTEMS AND PROCEDURES



Detailed systems and procedures will be documented and maintained to implement the monitoring Plan. Following are general guidelines for metering and monitoring. For all these activities detailed procedures will be maintained. After some time these systems will be upgraded to ISO 9001 based quality management system.

2. OPERATIONS AND MAINTENANCE

Identification of WTGs

Each WTG which is part of the project activity will be uniquely identified. The ID number will have following structure:

Company ID+ WTG ID

This will be painted in each machine and maintained in all records.

The site engineer will be responsible for operation and maintenance.

The Operation and maintenance activities will include:

- Ensuring Preventive Maintenance
- Ensuring Break Down Maintenance
- Machine operation including resetting
- Recording Generation
- Transmitting Data to Tasma

Data capturing for the above will be done using controlled format.

3. MAINTENANCE OF METERS AND CALIBRATION

Metering:

The energy meter that measures the export of electricity is installed and maintained by TNEB as per the guidelines followed by TNEB, since TNEB is the regional government authority to measure, approve the generation, and make payments based on the same.

Metering Equipment:

Metering equipment shall be electronic multipurpose meter. The accuracy of the meters shall be per the guidelines followed by TNEB. Both the main meter and check meter shall follow these guidelines. Currently the accuracy level that is being practiced is 0.5S class. The main meter shall be installed and owned by TNEB and check meters (LCS) shall be installed and maintained by the owner of the project.



Daily Meter Reading

Daily energy meter reading for all WTGs will be taken by the maintenance staff, and will be recorded in the generation log, in a controlled format. The Daily Generation information will be sent to TASMA on a monthly basis.

Joint Meter Reading :

The monthly meter reading (both main and check meter) is being taken jointly by the Parties (TNEB and Owner) on the fixed day of the following month, as per the procedure of TNEB. At the conclusion of each meter reading, an appointed representative of the TNEB will sign a document recording the main meter reading and this will be verified by the Owner. The main meter reading will be used for recording electricity generation. Emission reduction calculation is based on kWh generation accepted by TNEB as per the readings of the main meter.

Inspection of Energy Meters:

The entire main and check energy meters (export and import) shall be installed with as accuracy as prescribed by TNEB guidelines. The current accuracy level is 0.5S Class. Each meter shall be jointly inspected and sealed on behalf of the parties and shall not be interfered with by either party except in the presence of the other party or its accredited representatives.

Calibration and Maintenance of Main Meter:

The generation recorded by the main meter alone will hold good for the purpose of billing as long as the error in the main meters is within the permissible limits. The calibration of the main meter will be responsibility of TNEB. The calibration of the main meter will be done as per the guidelines / Procedure followed by TNEB. This will be carried out minimum once in 5 years.

If on any occasion it is found that the main meter is beyond permissible limits of error, TNEB will be informed about it, and TNEB will make necessary efforts to correct the meter and recalibrate the same. During the time when the main meter is not functional, the check meter reading may be used for recording the generation, with the concurrence of TNEB.

Interconnection and Metering Facilities: The Owner shall provide dedicated core for the check Metering.

Communication Facilities: In each site minimum communication facilities such as telephone or wireless will be provided.

4. CALCULATION OF EMISSION FIGURES



TASMA will be responsible to calculate the emission figures.

A computer software will be maintained by TASMA with the following functions:

- Identification Details of all sub Projects
- Location , Capacity of all sub projects
- Monthly Generation of all Sub Projects

5. LOCAL ENVIRONMENTAL CARE

A Simple operation control check list for EMS will be provided for each project site. The site engineer will carry out the operational control review once in 15 days and the report will be sent to TASMA. The non-conformities will be recorded and corrective actions will be taken.

The long term Environmental Management program will be reviewed once in a year.

6. CHANGES IN PROJECT BOUNDARY

Changes in Project boundary in any event will be monitored and recorded by TASMA.

7. DOCUMENTS AND RECORDS

Procedures based on ISO 9001: 2000 will be followed for controlling documents and records. Certification for ISO 9001: 2000 will be obtained after registration.

All documents will be numbered and identified along with retention periods.

The Key records that will be maintained are :

- Project Activity Matrix giving all ID details
- Daily Working Details of WTGs
- Daily Generation Details
- CERs Computed on a monthly basis
- Records of Management Review

8. PERIODIC REVIEW MEETINGS

Management Review meetings will be conducted by TASMA once in three months with all project participants. All project related matters will be discussed with a structured agenda, and action plans will be identified. The minutes of the meetings will be recorded.