Revised Monitoring Plan

for the

Ajbapur Sugar Complex Cogeneration Project

CDM Project Number 0332

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1. Introduction

This document describes the proposed new Monitoring Plan for the Ajbapur Sugar Complex Cogeneration Project (CDM project number 0332) in India. This shall replace the current Monitoring Plan as stated in the Project Design Document dated 07 March 2006.

The revision is requested against the monitoring plan included in the validated and registered PDD for the project activity. The project activity follows the approved small scale methodology AMS ID. The methodology states that "Monitoring shall consist of metering the electricity generated by the renewable energy technology." In the case of the project activity, a renewable electricity generation unit attached to a sugar factory, the monitoring plan submitted in the PDD monitored the electricity exported to the grid at the UPPCL substation. However there have been changes in the metering as a new biomass generating unit has been added at the site. The new addition to generation at the project site has also been registered as a CDM project activity - DSCL Sugar Ajbapur Cogeneration Project Phase II, project number 0982. The changes proposed to project 0332 relate to the point of metering of the electricity.

Initially it was envisaged that separate meters would be available to measure exports from the individual projects and for this a fresh proposal was submitted to UPPCL for power sale. However under current guidelines, UPPCL combined both the projects and issued a revised PPA . It is no longer possible to meter electricity exports from project 0332 individually since UPPCL has placed both projects on the same connection at the substation, whilst at the plant the export is through a common meter. Whilst this does not impact the second project (0982) where metering is at the point of generation, it does impact the first project where measurements of electricity are stated as being carried out at the substation. We would therefore request that the point of monitoring of project 0332 is changed to the project site and the net electricity generation (total generation minus auxiliary consumption) of the 7.5MW turbine is measured as the qualifying electricity for emission reductions.

This will not impact the measurement of emission reductions as the first project activity (0332) was designed solely to export electricity to the grid. The interdependencies between the projects do not give rise to problems as the new project, 0982, calculates emission reductions on the basis of total generation less historic generation (the latter thus includes exports of electricity from project 0332). For confirmation of this we have included a condition in the monitoring that total exports to the grid must be greater than the net generation of project 0332. (Please refer to Exhibit 1 for details)

2. Data to be Monitored

The relevant change in the PDD with reference to the monitoring plan is the metering of electricity. The present plan establishes electricity metering at

the UPPCL substation situated at Mohammadi and estimating CERs on the basis of invoices raised by the factory to UPPCL. In light of changes at the site and subsequent intervention by UPPCL, the recording of electricity at substation should be changed to recording of electricity at site. The CERs is this case is estimated based on the net electricity generation by the 7.5 MW turbine. The net electricity generation will be calculated by the difference of gross power generation and auxiliary consumption plus transmission losses of 7.5 MW turbine. Apart form this the total export to grid will also be monitored to compare that total export is greater than net generation by the project activity. Transmission Losses will be calculated as a difference of the export meter (APS00864) installed at the plant and the meter installed at the UPPCL substation situated at Mohammadi(APMO4047) for the total power exported and this loss % will be applied to Ee, gross (energy supplied from factory corresponding to the monthly invoice raised by the factory to UPPCL(meter reference APS00864)) to calculated Pe,(Net electricity generation by TG5). The revised table should be shown as follows:

ID number	Data type	Data variable	Data unit	Measured (m), calculated (c) or estimated (e)	Recording Frequency	Proportion of data to be monitored	How will the data be archived? (Electronic/ paper)	For how long is archived data to be kept?	Comment
1 Gross electricity generation from TG 5 (7.5 MW TG)	Quantitative	G_e	MWh	M	Monthly	100%	Electronic and Paper	12 years	This item will be measured by electricity meter installed at site and recorded on the daily and monthly reports compiled at site
2 Auxiliary consumption for TG 5 (7.5 MW TG)	Quantitative	A_e	MWh	M	Monthly	100%	Electronic and Paper	12 years	This item will be measured by electricity meter installed at site and recorded on the daily and monthly reports compiled at site
3 Gross Export to UPPCL substation (Mohammadi)	Quantitative	$E_{e,gross}$	MWh	M	Monthly	100%	Paper	12 years	This item will be based on the energy supplied from factory (corresponding to the monthly invoice raised by the factory) to UPPCL(meter reference APS00864)

4 Net Export to UPPCL substation	Quantitative	$E_{e,net}$	MWh	M	Monthly	100%	Paper	12 years	This item will be based on energy received at UPPCL and monthly invoice raised by the factory to UPPCL (meter reference APMO4047)
5 Confirmation that no fossil fuels have been combusted	Qualitative	-	-	Measured	Annually	100%	Electronic	12 years	-

3. Energy Meter Reading Process

The sections below outline the procedure for recording the data to be monitored

3.1. Recording of Energy Meters

The hourly recording of data from energy meters will be done in the log books maintained at the turbine house control room. This data will be collated to form the daily and monthly reports that will become the base for determining the CERs.

3.2. Personnel Taking Readings

The log book readings will be taken by the shift operators. The daily and monthly reports will be prepared by the Dy. Chief Engineer.

3.3. Frequency of Taking Readings

The log book readings will be taken on an hourly basis. At the end of day the daily reports will be prepared. Based on these daily reports the monthly report will be prepared at the end of each month. These monthly reports will finally be used for estimation of CERs.

3.4. Archiving of Readings

The spreadsheets used for preparing the daily and monthly reports will be stored both electronically and on file. The log books recording the hourly readings will also be stored.

4. Calibration and Quality Assurance of Meters

The sections below outline the Quality Assurance procedures set up to ensure accurate capture of data.

4.1. Description of Meters Used on Site

	7.5 MW TG Generation	**7.5 MW TG Auxiliary**	**EXPORT Meter Ee, gross**	**UPPCL Mohamadi Export Meter, Ee,net**
Meter Number	TNB01177	3701203	APS00864	APMO4047
Make	SECURE METER	L&T	APEX	APEX
Type	E3M021	EM301	RFZ013-403	RFZ013-403
Volts	11kV/110V	415	132KV/110V	132KV/110V
Amps	600/1	2000/5	150/1	200/1
Accuracy	Class 0.2	Class 1	0.2	0.2

4.2. Description of Meters Used on Site

Both the meters are annually tested for accuracy by certified agency. All the test results are stored on paper for traceability.

5. Estimation of CERs

The annual estimation of CERs will be based on the net electricity generation form the project activity, that is the 7.5 MW turbine.

To obtain the number of CERs generated, net electricity generation in MWh must be multiplied by the relevant CO_2 emission factor. Thus:

$$CERs = P_e.C \qquad \text{Equation 1}$$

Where:

P_e = Net electricity generation by TG5, MWh

C = Constant representing the CO_2 emission factor of displaced power, tCO_2/MWh

Now,

$$P_e = G_e - A_e - T_e \qquad \text{Equation 2}$$

Where:

P_e = Net electricity generation by TG5, MWh

G_e = Gross electricity generation by TG5, MWh(meter reference no. TNB01177)

A_e = Auxiliary consumption for TG5, MWh(meter reference no. 3701203)

T_e = Transmission Losses

$E_{e,gross}$= This item will be based on the energy supplied from factory (corresponding to the monthly invoice raised by the factory) to UPPCL(meter reference no.APS00864)

$E_{e,net}$ = This item will be based on energy received at UPPCL and monthly invoice raised by the factory to UPPCL (meter reference no.APMO4047) And,

$$C = 0.918 \qquad \text{Equation 3}$$

as per the project design document.

$$T_e = \left(\frac{E_{e,gross} - E_{e,net}}{E_{e,gross}} \right) \times \left(G_e - A_e \right) \qquad \text{Equation 4}$$

Exhibit 1: Single Line Diagram