Monitoring report form for CDM project activity (Version 09.0)

MONITORING REPORT			
Title of the project activity	KSPCL Waste Heat to Power project, India		
UNFCCC reference number of the project activity	1151[1]		
Version number of the PDD applicable to this monitoring report	1.6		
Version number of this monitoring report	01		
Completion date of this monitoring report	20/04/2022		
Monitoring period number	07		
Duration of this monitoring period	01/10/2016 to 30/12/2017 (Inclusive of both dates)		
Monitoring report number for this monitoring period	Not Applicable		
Project participants	1. M/s Kamachi Sponge & Power Corporation Limited (KSPCL) 2. Emergent Ventures India (Pvt) Ltd 3. EKI Energy Services Limited		
Host Party	India		
Applied methodologies and standardized baselines	Applied methodology: ACM0004 ver. 2.0[2] - Consolidated methodology for waste gas and/or heat for power generation Standardized baselines: Not Applicable		
Sectoral scopes	1 : Energy industries (renewable - / non-renewable sources)		
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013 until 31 December 2020	Amount achieved from 1 January 2021
	0 tCO_2e	60,976 tCO_2e	0 tCO_2e
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	55,697 tCO_2e		

[1] https://cdm.unfccc.int/Projects/DB/SGS-UKL1180692546.94/view

[2] https://cdm.unfccc.int/methodologies/view?ref=ACM0004

SECTION A. Description of project activity

A.1. General description of project activity

The project activity entails utilisation of waste heat of flue gases generated in DRI kilns of sponge iron plant of Kamachi Sponge & Power Corporation Limited ("KSPCL" hereafter) in power generation. The power produced used actively at sponge iron plant of KSPCL. This will displace equivalent amount of power from the Tamilnadu Electricity Board (TNEB) grid, which is part of Southern Region (SR) grid in India and is primarily fossil fuel based. The project activity result in reduces emissions by avoiding generation of this power in grid connected power stations. The grid emission factor for SR grid is 0.86 tCO_2e/ MWh.

KSPCL has set up 04 nos. DRI kilns of 100 TPD each at its sponge iron production unit. Annual sponge iron production is ~120000 TPA. Each of the kilns generates ~25000 Nm^3/hr of high temperature flue gases. The temperature of flue gases from the kiln leaving After Burner Chamber (ABC) is at ~950-1000 deg C. This waste heat of flue gases will be utilised in generation of steam in Waste Heat Recovery Boilers (WHRB), which is further expanded in a single bleed-condensing turbine of 10MW to generate power. Steam from 04 nos. WHRB will be taken to the turbine through a common header. In the absence of the project activity, KSPCL would draw power from TNEB grid. The project activity thus displaces equivalent amount of power generation in SR grid connected power stations.

The project activity started commercial operation on 29th December, 2007. Fixed crediting period of 10 years has been selected for the project activity, which lasts from year 31st December 2007-30th December 2017.

Project's contribution to sustainable development:
The project activity is likely to have beneficial effect on agriculture, rural industries and employment in the region. Government of India has stipulated the following indicators for sustainable development in the interim approval guidelines[3] for CDM projects.

- Social well being
- Economic well being
- Environmental well being
- Technological well being

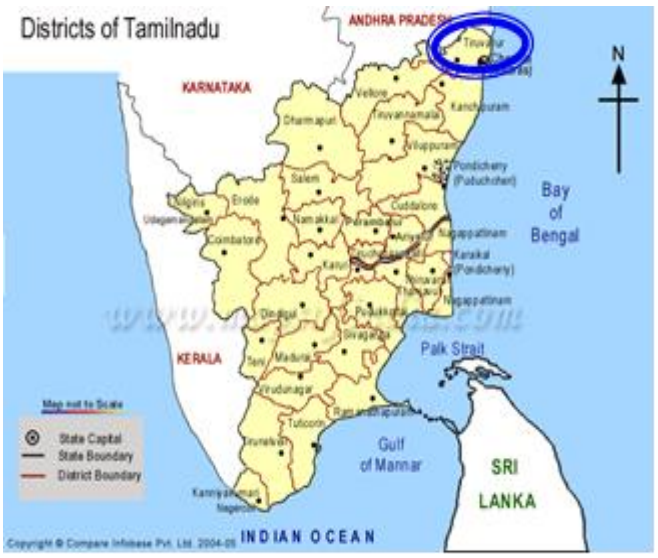
A.2. Location of project activity

Host party	State	District	Village	Town
India	Tamilnadu	Tiruvallur	Papan Kuppam	Gummudi Pundi

The project activity is located in Tiruvallur District in the state of Tamilnadu. The project site is nearly ~50 km. from the city of Chennai and nearest highway is NH 5. Tiruvallur is located at 79.57 E Longitude and 13.09 N Latitude.

Physical Address of the project site is:
Kamachi Sponge and Power Corporation Limited (KSPCL)
Plot No- 86, 116-119 & 123-125
Pappankuppam Village,
Gummudipundi Taluk,
Tiruvallur district,
Tamilnadu, India.

[3] https://ncdmaindia.gov.in/approval_process.aspx



A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (Host party)	M/s Kamachi Sponge & Power Corporation Limited (KSPCL) (Private Entity)	No
Switzerland	Emergent Ventures India (Pvt) Ltd (Private Entity)	No
Australia	EKI Energy Services Limited (Private Entity)	No

A.4. References to applied methodologies and standardized baselines

- Approved consolidated baseline methodology ACM0004 "Consolidated baseline methodology for waste gas and/or heat and/or pressure for power generation" Reference: Version 02.0[4], Sectoral Scope 01, dated 03rd March 2006.

[4] https://cdm.unfccc.int/methodologies/DB/3NL6ELY805NDZHF4YZRPK94MAPALUB

- Approved consolidated monitoring methodology ACM0004 "Consolidated monitoring methodology for waste gas and/or heat and/or pressure for power generation" Reference: Version 02.0[5], Sectoral Scope 01, dated 03rd March 2006

- Approved consolidated baseline methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" Reference: Version 06.0[6], Sectoral Scope 01, dated 19th May 2006

- Tool for the demonstration and assessment of additionality (version 03[7]) Reference: Version 03, EB29

A.5. Crediting period type and duration

Crediting period type : Fixed
Crediting period duration : 31/12/2007 to 30/12/2017.
Crediting period length : 10 years 00 months

SECTION B. Implementation of project activity

B.1. Description of implemented project activity

The project started commercial production from 29/12/2007. The project was operational for entire monitoring period. During this current monitoring period, the project activity was operated and monitored in accordance with the approved monitoring methodology ACM0004, version 02.0 and approved monitoring plan.

Each of the 04 kilns generates ~25000 Nm^3/hr of high temperature flue gases. The temperature of flue gases from the kiln leaving After Burner Chamber (ABC) is at ~950-1000 deg C. This waste heat of flue gases will be utilised in generation of steam in Waste Heat Recovery Boilers (WHRB), which is further expanded in a single bleed-condensing turbine of 10MW to generate power. Steam from 04 nos. WHRB will be taken to the turbine through a common header.

Table 1 Waste heat recovery boiler

Capacity	10 TPH
Steam Pressure	67 kg/cm^2
Steam Temperature	485 +- 5 deg C
Nos.	04 Nos.
Flue gas inlet temp.	950 deg C
Flue gas inlet to ESP	175 deg C

Table 2 Turbine

Rated Capacity	10 MW
Steam Inlet Pressure	64 ata
Steam Inlet Temperature	480 deg C
Nos.	1 nos.
Bleed pressure for deaerator	4 ATA

[5] https://cdm. unfccc.int/methodologies/DB/3NL6ELY805NDZHF4YZRPK94MAPALUB

[6] https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG

[7] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v5.2.pdf/history_view

B.2. Post-registration changes

B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

There are no temporary deviations from the registered monitoring plan, the applied methodologies, the applied standardized baselines or the other applied methodological regulatory documents during this monitoring period. Hence, Not Applicable.

B.2.2. Corrections

There are no corrections to project information or parameters fixed at the registration or renewal of crediting period of the project activity. Hence, Not Applicable.

B.2.3. Changes to the start date of the crediting period

Start date of crediting period changes from 03/10/2007 to 02/10/2017 to 31/12/2007 to 30/12/2017[8].

B.2.4. Inclusion of monitoring plan

There is no post-registration change to include a monitoring plan into the PDD.

B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

The monitoring plan has been revised by the PP for improving the accuracy and completeness of the monitoring system. The revised monitoring plan[9] was approved by the CDM EB on 11/09/2010.

For current monitoring period there is no any permanent change from registered monitoring plan.

B.2.6. Changes to project design

There are no changes to project design of registered project activity.

B.2.7. Changes specific to afforestation or reforestation project activity

Not applicable as this project activity is not afforestation or reforestation project activity.

SECTION C. Description of monitoring system

KSPCL procedure for monitoring and recording of data on operation & maintenance of the plant/ equipment's. The equipment's/ instruments used for CDM project are also part of the procedures and records on maintenance and rectification done on all the equipment's are maintained.

Various departments at KSPCL are headed by respective HOD (Head of Department) supported by shift- in-charges & support staff. Departments are mainly divided into projects, mechanical, electrical & instrumentation, production, QC and administration. Mechanical & electrical department are responsible for the overall upkeep of plant, plant machinery and instruments.

[8] https://cdm.unfccc.int/Projects/DB/SGS-UKL1180692546.94/view

[9] https://cdm.unfccc.int/Projects/DB/SGS-UKL1180692546.94/view

Mr. Sunil Patodia-Managing Director is responsible for the overall functioning of the sponge iron plant. KSPCL proposes adoption of following procedures to assure the completeness and correctness of the data needed to be monitored for CDM project activity.

Formation of CDM Team:
A CDM project team is constituted with participation from relevant sections. This team is responsible for data collection and archiving. This team periodically review CDM project activity, check data collected, emissions reduced etc. On a monthly basis, the monitoring reports checked and discussed by the senior CDM team members. In case of any irregularity observed by any of the CDM team members, it is informed to the concerned person for necessary actions. Further these reports then be forwarded to the management monthly basis.

- Unit Head: Overall responsibility of compliance with the CDM monitoring plan.
- Power plant In-charge: Responsibility for completeness of data, reliability of data (calibration of meters), and monthly report generation
- Shift In-charge: Responsibility of data monitoring & recording

Day to day data collection and record keeping:
Plant data collected on operation under the supervision of the respective Shift-in-charge and record is kept in daily logs.

Reliability of data collected-
The reliability of the meters is checked by testing the meters on yearly basis. Documents pertaining to testing of meters are maintained.

Frequency-
The frequency for data monitoring is as per the monitoring details in Section B.7.1 of PDD.

Archiving of data-
Data is being kept for two years after the crediting period (total 12 years)

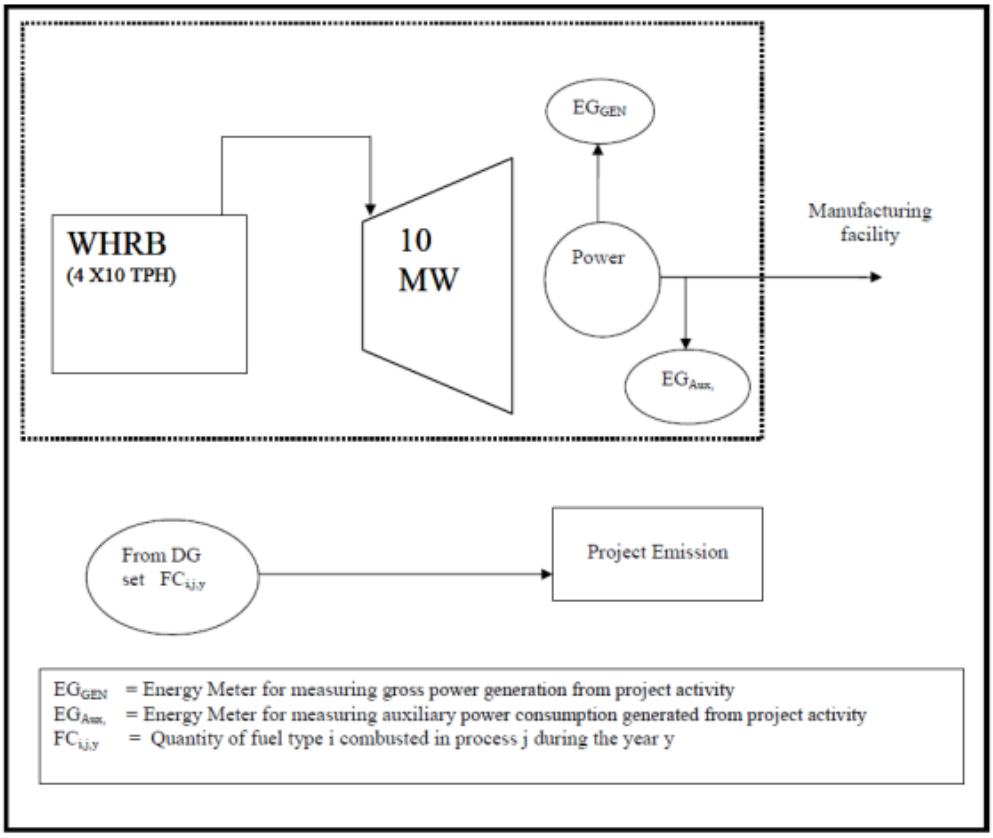
Checking data for its correctness and completeness:
The CDM team is overall responsible for checking data for its completeness and correctness. The data collected from daily logs is recorded after verification from respective departments.

Calibration of instruments:
KSPCL procedures defined for the calibration of instruments. A log of calibration records is maintained. Electrical & Instrumentation department in the company is responsible for the upkeep of instruments in the plant.

Maintenance of instruments and equipment's used in data monitoring:
The process department is responsible for the proper functioning of the equipment's/ instruments and informs the concerned department for corrective action if found not operating as required. Corrective action is taken by the concerned department and a report on corrective action taken is maintained as done time to time along with the details of problems rectified.

Emergency preparedness
The project activity does not lead to any unintentional emissions. So, there is no need for any emergency preparedness in project activity.

Report generation on monitoring:
After verification of the data and due diligence on correctiveness if required an annual report on monitoring and estimations maintained by the CDM team and record to this effect is maintained for verification.



SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

In the project all the parameters, required for Emission reduction calculation, have to be monitored since no parameter was fixed ex-ante

Data/Parameter	**-**
Unit	-
Description	-
Source of data	-
Value(s) applied	-
Choice of data or measurement methods and procedures	-
Purpose of data/parameter	-
Additional comments	-

D.2. Data and parameters monitored

Data/Parameter	**EG_Y**
Unit	MWh
Description	Net power supplied to manufacturing facility due to waste heat recovery
Measured/calculated/ default	Calculated
Source of data	Plant operation data on power generation in project activity
Value(s) of monitored parameter	64,796.87

Monitoring equipment	Not Applicable
Measuring/reading/recording frequency	Recording frequency: Monthly
Calculation method (if applicable)	Calculated based on daily gross power generation and auxiliary power consumption in the power generation plant. The calculation formula is as follows: $EG_{,Y} = EG_{GEN} – EG_{AUX}$ Where, E_{GY}= Net power generation from turbine EG_{GEN}= Gross power generation from turbine EG_{AUX}= Auxiliary power consumption in power generation plant
QA/QC procedures	Refer section B.7.2 from PDD
Purpose of data/parameter	For baseline emission calculations
Additional comments	-

Data/Parameter	**EG_{GEN}**
Unit	MWh
Description	Gross power generation from project activity
Measured/calculated/ default	Measured
Source of data	Plant operation data on power generation in project activity taken from energy meters installed at project site.
Value(s) of monitored parameter	70,664.9
Monitoring equipment	Type of Meter: Energy Meter Accuracy Class: 0.2s Calibration Frequency: Yearly

Meter serial no.	Calibration date	Calibration valid till	Delay in months
07022878	23/10/2015	22/10/2016	No Delay
09142129	26/10/2016	20/09/2018	
07022878	15/09/2017	14/09/2018	

Measuring/reading/recording frequency	Measuring frequency: Continuous Recording frequency: Hourly Continuous
Calculation method (if applicable)	Not Applicable
QA/QC procedures	Energy meter is calibrated as per schedule.
Purpose of data/parameter	For baseline emission calculations
Additional comments	The data will be archived for crediting period +2 years

Data/Parameter	**EG_{AUX}**
Unit	MWh
Description	Auxiliary power consumption in project activity
Measured/calculated/ default	Measured
Source of data	Plant operation data on power consumption by project activity taken from energy meters installed at project site.
Value(s) of monitored parameter	5,868.03

<table>
<tr><td>Monitoring equipment</td><td>Type of Meter: Energy Meter
Accuracy Class: 0.2s
Calibration Frequency: Yearly
<table>
<tr><th>Meter serial no.</th><th>Calibration date</th><th>Calibration valid till</th><th>Delay in months</th></tr>
<tr><td>07022884</td><td>19/09/2016</td><td>18/09/2017</td><td rowspan="2">No Delay</td></tr>
<tr><td>09141998</td><td>15/09/2017</td><td>14/09/2018</td></tr>
</table></td></tr>
<tr><td>Measuring/reading/recording frequency</td><td>Measuring frequency: Continuous Recording frequency: Monthly</td></tr>
<tr><td>Calculation method (if applicable)</td><td>Not Applicable</td></tr>
<tr><td>QA/QC procedures</td><td>Energy meter is calibrated as per schedule.</td></tr>
<tr><td>Purpose of data/parameter</td><td>For baseline emission calculations</td></tr>
<tr><td>Additional comments</td><td>The data will be archived for crediting period +2 years</td></tr>
</table>

Data/Parameter	**$EF_{electricity,y}$**
Unit	tCO_2/ MWh
Description	CO_2 baseline emission factor for the electricity displaced due to the project activity in year y
Measured/calculated/ default	Calculated
Source of data	"CO_2 Baseline Database for the Indian Power Sector" – Central Electricity Authority (CEA); Ministry of Power - Version 14.0[10]
Value(s) of monitored parameter	2016-17 - 0.9457 2017-18 - 0.9368 The parameter "$EF_{electricity,y}$" is being taken as per CEA Database Version 14 for the respective years and for year 2016-17 and year 2017-18 (till Dec 2017), the latest available EF (0.9368) has been used for baseline emission calculations. The year wise EF calculations has been shown transparently in the ER Sheet
Monitoring equipment	Not Applicable
Measuring/reading/recording frequency	Frequency of monitoring: Yearly
Calculation method (if applicable)	Not Applicable
QA/QC procedures	This is reliable data as it has been estimated by Central Electricity Authority, which has access to data on power generation from all the power plants in a grid and is therefore reliable
Purpose of data/parameter	For baseline emission calculations
Additional comments	The data will be archived for crediting period + 2 years.

Data/Parameter	**$EF_{OM,y}$**
Unit	tCO_2/ MWh
Description	CO_2 Operating Margin emission factor for the grid
Measured/calculated/ default	Calculated
Source of data	"CO_2 Baseline Database for the Indian Power Sector" – Central Electricity Authority (CEA); Ministry of Power – Version 14.0[11]

[1010] https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver14.pdf

[11] https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver14.pdf

Value(s) of monitored parameter	2016-17 – 0.9726 2017-18 – 0.9610 The parameter "$EF_{electricity,y}$" is being taken as per CEA Database Version 14 for the respective years and for year 2016-17 and year 2017-18 (till Dec 2017), the latest available OM (0.9610) has been used for baseline emission calculations. The year wise OM calculations has been shown transparently in the ER Sheet
Monitoring equipment	Not Applicable
Measuring/reading/recording frequency	Frequency of monitoring: Yearly
Calculation method (if applicable)	Not Applicable
QA/QC procedures	This is reliable data as it has been estimated by Central Electricity Authority, which has access to data on power generation from all the power plants in a grid and is therefore reliable
Purpose of data/parameter	For baseline emission calculations
Additional comments	The data will be archived for crediting period + 2 years.

Data/Parameter	**$EF_{BM,y}$**
Unit	tCO_2/ MWh
Description	CO_2 Build Margin emission factor for the grid
Measured/calculated/ default	Calculated
Source of data	"CO_2 Baseline Database for the Indian Power Sector" – Central Electricity Authority (CEA); Ministry of Power – Version 14.0[12]
Value(s) of monitored parameter	2016-17 – 0.8723 2017-18 – 0.8644 The parameter "$EF_{electricity,y}$" is being taken as per CEA Database Version 14 for the respective years and for year 2016-17 and year 2017-18 (till Dec 2017), the latest available BM (0.8644) has been used for baseline emission calculations. The year wise BM calculations has been shown transparently in the ER Sheet
Monitoring equipment	Not Applicable
Measuring/reading/recording frequency	Frequency of monitoring: Yearly
Calculation method (if applicable)	Not Applicable
QA/QC procedures	This is reliable data as it has been estimated by Central Electricity Authority, which has access to data on power generation from all the power plants in a grid and is therefore reliable
Purpose of data/parameter	For baseline emission calculations
Additional comments	The data will be archived for crediting period + 2 years.

Data/parameter:	**$FC_{i,j,y}$**
Unit	litre
Description	Quantity of diesel combusted in process j during the year y
Measured/calculated/default	Measured
Source of data	Onsite measurements

[12] https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver14.pdf

Value(s) of monitored parameter	968 Please refer excel sheet for monthly data
Monitoring equipment	Type of Meter: Flow Meter Make and Serial Number- Kent Oil Meter, 10-096 Accuracy Class: ±0.5% Calibration Frequency: Yearly Date of Calibration: 17/10/2016 Validity: 16/10/2017
Measuring/reading/recording frequency:	Frequency of Monitoring: Continuously (as and when consumed) Frequency of recording: Daily (as and when consumed)
Calculation method (if applicable):	The volume of diesel consumed at plant site has monitored using flow meter reading. However, in the absence of flow meter the volume of diesel consumed at plant site was measured via volumetric graduated container. The container used for storing diesel has volumetric graduations hence, the level difference before and after the usage provides quantity of diesel consumed in litres.
QA/QC procedures:	The diesel consumption data can be cross checked with store slips provided against issuance of diesel. Both volumetric container and flow meter are calibrated at regular interval. There is delay in calibration frequency observed and conservatively PP applied error factor as per accuracy class of the meter for the delayed calibration period for the entire month to retain conservativeness.
Purpose of data:	For Project emission calculations
Additional comments:	The data will be archived for crediting period + 2 years

Data/parameter:	**$NCV_{i,y}$**
Unit	TJ/ l
Description	Weighted average net calorific value of diesel in year y
Measured/calculated/default	Measured
Source of data	The value would be measured as per the option (b) mentioned in the “Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion” version: 02, EB: 41 since, the values for NCV are not provided by the supplier in invoices as required by the preferred option (a) of the tool. The NCV of the diesel has been measured by Laboratory tests. The test reports of the same would be made available during the verification
Value(s) of monitored parameter	0.00065711 Please refer excel sheet for monthly data
Monitoring equipment	Not Applicable, since the value is measured via third party (Laboratory) tests
Measuring/reading/recording frequency:	Frequency of monitoring: The NCV would be obtained for each fuel delivery, from which weighted average annual values would be calculated
Calculation method (if applicable):	The measurement for Net Calorific Value of the diesel would be in line with national or international fuel standard. The parameter would be monitored in the unit of kcal/l which would be converted to kJ/l by multiplying it with the conversion factor of calories to joule i.e. 4.1868
QA/QC procedures:	This parameter would be measured via third party (Laboratory) tests and the test report for the same would be made available during the verification process
Purpose of data:	For baseline emission calculations
Additional comments:	The data will be archived for crediting period + 2 years

Data/parameter:	**$EF_{CO2,i,y}$**
Unit	tCO_2/ TJ
Description	Weighted average CO2 emission factor of the diesel in year y.
Measured/calculated/default	Default

Source of data	The option (d) of "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" version: 02, EB: 41 i.e IPCC default values at the upper limit of the uncertainty at a 95 % confidence interval as provided in table 1.4 of chapter 1 of Vol.2 (Energy) of the 2006 IPCC Guidelines on Nation GHG Inventories since, the fuel supplier does not provide the CO2 emission factor on the invoices as required by the preferred option (a) of the tool.
Value(s) of monitored parameter	74.80
Monitoring equipment	Not Applicable since, the parameter is taken from IPCC default values as local data is not available
Measuring/reading/recording frequency:	Frequency of monitoring – Data would be reviewed annually and any future revision of the IPCC Guidelines would be taken into account
Calculation method (if applicable):	IPCC default value
QA/QC procedures:	No QA/QC necessary for this data item.
Purpose of data:	For project emission calculations
Additional comments:	-

D.3. Implementation of sampling plan

Not Applicable

SECTION E. Calculation of emission reductions or net anthropogenic removals

E.1. Calculation of baseline emissions or baseline net removals

The baseline emissions are calculated as per below mentioned formula:

$$BE_{electricity,y} = EG_y \cdot EF_{electricity,y}$$

Where,

EGy = Net quantity of electricity supplied to the manufacturing facility by the project during the year y; (MWh)

EFy = CO2 baseline emission factor for the electricity displaced due to the project activity during the year y; (tCO_2/MWh)

CO_2 baseline emission factor in the baseline scenario is determined to be grid power supply; the Emissions Factor for displaced electricity is calculated as described in methodology ACM0002.

Sample baseline emission calculation for the month of Nov-2016 is being shown below:

Baseline Emissions (Nov-2016) = 4567.32 * 0.9475
= 4,327.23 tCO_2

Please note, as EF_y being not fixed for the entire monitoring period, there is variation in baseline emissions for every month.

For detailed calculations for the entire monitoring period, please refer ER Sheet.

E.2. Calculation of project emissions or actual net removals

The project emissions are calculated as per below mentioned formula:

$$PE_{FC,j,y} = \sum_i FC_{i,j,y} \times NCV_{i,y} \times EF_{CO2,i,y}$$

Where,

PE_y = Project emissions in year y (tCO_2)

$FC_{i,j,y}$ = Mass or volume unit of fuel *i* consumed (t or m^3 or kL)

$NCV_{i,y}$ = Net calorific value per mass or volume unit of fuel *i* (TJ/t or m^3 or kL)

$EF_{co2,i,y}$ = Carbon emissions factor per unit of energy of the fuel *i* (tC/TJ)

Project Emissions (for Nov-2016) = 91*0.00004447*1*74.8
=0.30 tCO_2
For detailed calculations for the entire monitoring period, please refer ER Sheet

E.3. Calculation of leakage emissions

Not Applicable, as per the registered PDD section B.6.

E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions or baseline net GHG removals (t CO_2e)	Project GHG emissions or actual net GHG removals (t CO_2e)	Leakage GHG emissions (t CO_2e)	GHG emission reductions or net anthropogenic GHG removals (t CO_2e)			
				Before 01/01/ 2013	From 01/01/ 2013 until 31/12/ 2020	From 01/01/ 2021	Total amount
Total	60,976	3	0	0	60,976	0	60,976

E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO_2e)	Amount estimated ex ante for this monitoring period in the PDD (t CO_2e)
60,976	55,697

E.5.1. Explanation of calculation of "amount estimated ex ante for this monitoring period in the PDD"

Considering the annual average emission reductions as per the registered PDD which is 44,582 tCO_2e per year, the number of days since commissioning covered during the current monitoring period comes out to be 456 days. The amount estimated is using unitary method i.e. 45,582/365*456= 55,697 tCO_2e

E.6. Remarks on increase in achieved emission reductions

During the present monitoring period, actual emission reductions achieved are 60,976 tCO_2e whereas estimated emission reductions was 55,697 tCO_2e. The project witnessed 9.48 % increase in emission reductions which was due to the higher value of efficiency achieved for the current monitoring period.

E.7. Remarks on scale of small-scale project activity

The project activity remains as a large scale, type -III project activity for the entire crediting period.

Appendix 1. Breakdown details

Month	Date	Stop time	Start time	Total Hours Break down.	Remark
Nov-16	28.11.2016	11.55 Hrs	13.32 Hrs	1.37 Hrs	Plant Block out due to 70Mw line breaker open so Load fluctuation (352 open df/dt)& 52-A Open in Over frequency
Feb-17	23.02.2017	00.23Hrs	05.41Hrs	5.18Hrs	Due to TG inlet temp high (malfunction)
	23.02.2017	22.26Hrs	0.00Hrs	18.57Hrs	TG Trip Manually due to Servo motor & ESV service (Steam passing via Servo actuator)
	24.02.2017	0.00Hrs	5.23Hrs		
	24.02.2017	18.43Hrs	18.45Hrs	0.02Hrs	TG Trip manually due to load through checking
Jun-17	07.06.2017 To 12.06.2017	0.00 hrs	13.19 Hrs	133.11Hrs	TG Trip manually for Shutdown work (DCS Upgradation)
	12.06.2017	14.12 Hrs	19.57 Hrs	5.45 Hrs	TG Trip Manually due to ESV Flange Gasket side steam passing
Sept-17	18.9.2017	12.47 Hrs	13.50 Hrs	1.03 Hrs	Plant black out- Due to 70 MW 33 kv incoming fuse problem.
	28.9.2017	14.08 Hrs	14.39 Hrs	0.31 Hrs	Plant black out - Due to LTA Breaker open due to Earth fault (Compressor-1)
	29.09.2017	21.00Hrs	21.57Hrs	0.57Hrs	Plant black out- Due to 70 MW 230 kv incoming supply Failure

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Document information

Version	*Date*	*Description*
09.0	8 October 2021	Revision to: • Ensure consistency with version 03.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN).
08.0	6 April 2021	Revision to: • Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).
07.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Add a section on remarks on the observance of the scale limit of small-scale project activity during the crediting period; • Add "changes specific to afforestation or reforestation project activity" as a possible post-registration changes; • Clarify the reporting of net anthropogenic GHG removals for A/R project activities between two commitment periods; • Make editorial improvements.
06.0	7 June 2017	Revision to: • Ensure consistency with version 01.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from *F-CDM-MR* to *CDM-MR-FORM*; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.

Version	*Date*	*Description*
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB 70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.

Decision Class: Regulatory
Document Type: Form
Business Function: Issuance
Keywords: monitoring report