

Monitoring Report Sheet (Input Sheet) [For Verification]

Table 1: Parameters monitored ex post

(a) Monitoring period	(b) Monitoring point No.	(c) Parameters	(d) Description of data	(e) Monitored Values	(f) Units	(g) Monitoring option	(h) Source of data	(i) Measurement methods and procedures	(j) Monitoring frequency	(k) Other comments
01/01/2018 - 31/10/2018	1	FC _{coal,p}	Consumption of coal by the boiler during the period <i>p</i> .	0.0	ton	C	On-site measurements.	not relevant to the project	not relevant to the project	No coal consumption expected by the project
01/01/2018 - 31/10/2018	2	FC _{HFO,p}	Consumption of HFO by the boiler during the period <i>p</i> .	0.0	ton	C	On-site measurements.	not relevant to the project	not relevant to the project	No HFO consumption expected by the project
01/01/2018 - 31/10/2018	3	FC _{diesel,p}	Consumption of diesel by the boiler during the period <i>p</i> .	357,676.0	ton	C	On-site measurements.	On-site measurement by flow meter. Calibrated according to API MPMS 14.3 or by manufacturer's specification	Hourly	fuel oil
01/01/2018 - 31/10/2018	4	FC _{LPG,p}	Consumption of LPG by the boiler during the period <i>p</i> .	22,369.1	ton	C	On-site measurements.	On-site measurement by flow meter. Calibrated according to API MPMS 14.3 or by manufacturer's specification	Hourly	fuel gas 1
01/01/2018 - 31/10/2018	5	FC _{gas,p}	Consumption of by the boiler natural gas during the period <i>p</i> .	39,491.0	ton	C	On-site measurements.	On-site measurement by flow meter. Calibrated according to API MPMS 14.3 or by manufacturer's specification	Hourly	fuel gas 2
01/01/2018 - 31/10/2018	6	ST _{p,h}	Process steam generation on hour <i>h</i> during the period <i>p</i> .	4,556,162.4	tonnes steam/h	C	On-site measurements.	On-site measurement by flow meter. Calibrated according to API MPMS 14.3 or by manufacturer's specification.	Hourly	process steam generation during the 1st

Table 2: Project-specific parameters fixed ex ante

(a) Parameters	(b) Description of data	(c) Estimated Values	(d) Units	(e) Source of data	(f) Other comments
a	Parameter derived as a result of linear regression analysis (specific emission factor).	0.3	tCO ₂ /tonnes steam	Calculated according to steps 1 and 2 of section F2	"hourly based value for "b" is multiplied by 7232 to convert it to the value applicable for the number of operation hours in the 1st monitoring period"
b	Parameter derived as a result of linear regression analysis (y-intercept).	73375.9	tCO ₂ /h	Calculated according to steps 1 and 2 of section F2	#REF!
NCV _{coal}	Net calorific value of coal	0.0	GJ/ton	not relevant to the project	No coal consumption expected by the project
NCV _{HFO}	Net calorific value of HFO	0.0	GJ/ton	not relevant to the project	No HFO consumption expected by the project
NCV _{diesel}	Net calorific value of diesel	41.4	GJ/ton	d) Lower value of IPCC default values provided in the table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories.	fuel oil
NCV _{LPG}	Net calorific value of LPG	47.9	GJ/ton	b) measurement by the project participants	fuel gas 1
NCV _{gas}	Net calorific value of natural gas	49.4	GJ/ton	b) measurement by the project participants	fuel gas 2
EF _{coal}	CO ₂ emission factor of coal	0.0000	kgCO ₂ /GJ	not relevant to the project	No coal consumption expected by the project
EF _{HFO}	CO ₂ emission factor of HFO	0.0000	kgCO ₂ /GJ	not relevant to the project	No HFO consumption expected by the project
EF _{diesel}	CO ₂ emission factor of diesel	72.6000	kgCO ₂ /GJ	d) Lower value of IPCC default values provided in the table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories.	fuel oil
EF _{LPG}	CO ₂ emission factor of LPG	60.1000	kgCO ₂ /GJ	b) measurement by the project participants	fuel gas 1
EF _{gas}	CO ₂ emission factor of natural gas	55.2000	kgCO ₂ /GJ	b) measurement by the project participants	fuel gas 2

Table3: Ex-post calculation of CO₂ emission reductions

Monitoring Period	CO ₂ emission reductions	Units
01/01/2018 - 31/10/2018	34,956	tCO ₂ /p

[Monitoring option]

Option A	Based on public data which is measured by entities other than the project participants (Data used: publicly recognized data such as statistical data and
Option B	Based on the amount of transaction which is measured directly using measuring equipments (Data used: commercial evidence such as invoices)
Option C	Based on the actual measurement using measuring equipments (Data used: measured values)

Monitoring Report Sheet (Calculation Process Sheet) [For Verification]

1. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period p		34,957.0	tCO ₂ /p	ER _p
2. Selected default values, etc.				
Net calorific value of coal	Coal	0.0	GJ/ton	NCV _{coal}
Net calorific value of HFO	HFO	0.0	GJ/ton	NCV _{HFO}
Net calorific value of diesel	Diesel	41.4	GJ/ton	NCV _{diesel}
Net calorific value of LPG	LPG	47.9	GJ/ton	NCV _{LPG}
Net calorific value of natural gas	Natural gas	49.4	GJ/ton	NCV _{gas}
CO ₂ emission factor of coal	Coal	0.0000	kgCO ₂ /GJ	EF _{coal}
CO ₂ emission factor of HFO	HFO	0.0000	kgCO ₂ /GJ	EF _{HFO}
CO ₂ emission factor of diesel	Diesel	72.6000	kgCO ₂ /GJ	EF _{diesel}
CO ₂ emission factor of LPG	LPG	60.1000	kgCO ₂ /GJ	EF _{LPG}
CO ₂ emission factor of natural gas	Natural gas	55.2000	kgCO ₂ /GJ	EF _{gas}
3. Calculations for reference emissions				
Reference emissions during the period p		1,282,125.8	tCO ₂ /p	RE _p
4. Calculations of the project emissions				
Project emissions during the period p		1,247,168.8	tCO ₂ /p	PE _p
Project emissions (coal) during the period p		0.0	tCO ₂ /p	
Project coal consumption during the period p	Coal	0.0	ton	FC _{coal,p}
Net calorific value of coal	Coal	0.0	GJ/ton	NCV _{coal}
CO ₂ emission factor of coal	Coal	0.0000	kgCO ₂ /GJ	EF _{coal}
Project emissions (heavy fuel oil) during the period p		0.0	tCO ₂ /p	
Project heavy fuel oil consumption during the period p	HFO	0.0	ton	FC _{HFO,p}
Net calorific value of HFO	HFO	0.0	GJ/ton	NCV _{HFO}
CO ₂ emission factor of HFO	HFO	0.0000	kgCO ₂ /GJ	EF _{HFO}
Project emissions (diesel) during the period p		1,075,045.3	tCO ₂ /p	
Project diesel consumption during the period p	Diesel	357,676.0	ton	FC _{diesel,p}
Net calorific value of diesel	Diesel	41.4	GJ/ton	NCV _{diesel}
CO ₂ emission factor of diesel	Diesel	72.6000	kgCO ₂ /GJ	EF _{diesel}
Project emissions (LPG) during the period p		64,436.3	tCO ₂ /p	
Project LPG consumption during the period p	LPG	22,369.1	ton	FC _{LPG,p}
Net calorific value of LPG	LPG	47.9	GJ/ton	NCV _{LPG}
CO ₂ emission factor of LPG	LPG	60.1000	kgCO ₂ /GJ	EF _{LPG}
Project emissions (natural gas) during the period p		107,687.2	tCO ₂ /p	
Project natural gas consumption during the period p	Natural gas	39,491.0	ton	FC _{gas,p}
Net calorific value of natural gas	Natural gas	49.4	GJ/ton	NCV _{gas}
CO ₂ emission factor of natural gas	Natural gas	55.2000	kgCO ₂ /GJ	EF _{gas}

[List of Default Values]

Net calorific value of fossil fuel	NCV _i	
Default net calorific value of coal	18.9	GJ/t
Default net calorific value of heavy fuel oil	39.8	GJ/t
Default net calorific value of diesel oil	41.4	GJ/t
Default net calorific value of LPG	44.8	GJ/t
Default net calorific value of natural gas	46.5	GJ/t

CO ₂ emission factor of fossil fuel	EF _i	
Default emission factor of coal	0.0961	kgCO ₂ /GJ
Default emission factor of heavy fuel oil	0.0755	kgCO ₂ /GJ
Default emission factor of diesel oil	0.0726	kgCO ₂ /GJ
Default emission factor of LPG	0.0616	kgCO ₂ /GJ
Default emission factor of natural gas	0.0543	kgCO ₂ /GJ