## Summary

No.	Site Name	Grid Type	Estimated Reference Emissions (tCO <sub>2</sub> /p)	Estimated Project Emissions (tCO <sub>2</sub> /p)	Estimated Emission Reduction (tCO <sub>2</sub> /p)
1	<u>Pulau Putri</u>	Off grid	28.71495522	26.44315034	2.271804879
2	Pulau Pantara	Off grid	35.92323616	25.53826935	10.3849668
3	Gunung Kramaian	Off grid	3.66322474	3.118091512	0.545133227
4	<u>Perdau</u>	Off grid	10.87150568	10.00096804	0.87053764
5	<u>Matamanis</u>	Off grid	39.46829235	30.41149683	9.056795525
6	<u>Sei Mayang</u>	Off grid	39.46829235	33.3319059	6.136386459
7	<u>Muara Lesan</u>	Off grid	0	0	0
8	Kota Bangun Empat	Off grid	39.46829235	18.96673655	20.5015558
9	Gunung Kuku	Off grid	43.13151709	35.95321922	7.178297877
10	Pulau Galang Baru	Off grid	43.13151709	19.61808429	23.5134328
11	Pantai Pasir Panjang	Off grid	32.26001142	19.43387463	12.82613679
12	Galang Baru Tengah	Off grid	39.46829235	22.10858915	17.3597032
13	<u>Sungsang</u>	Off grid	43.13151709	28.10422179	15.0272953
14	Karanganyar2	Poor grid	30.25522662	28.16634774	2.088878887
15	Bukit Barapung	Off grid	33.93223466	26.06291309	7.86932157
16	HUT Tanah Merah	Off grid	0	0	0
17	Tirta Agung Mangsang	Off grid	21.74301136	15.93144141	5.81156995
18	<u>Gunung Sari Kampar</u>	Poor grid	12.65611127	11.26369995	1.392411318
19	Kulim2	Poor grid	20.79086295	18.79254943	1.998313522
20	Sukamakmur Kampar Kiri	Poor grid	8.055691561	6.836272395	1.219419166
		Total			146.0519607
					146

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/01- 2018/12/31	(1)	EC <sub>i.grid.p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	22.00	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS <sub>p</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	1	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(4)	T <sub>I,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	5,832	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> <sub>i</sub> is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p} = Days$ of operation of <i>BTSi</i> during the period <i>p</i> $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/01- 2018/12/31	(6)	FC <sub>I,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	10,795	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS <sub>p</sub> . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
${f \phi}_i$	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>i</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.903	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
ρ <sub>diesel</sub>	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

Units 2 tCO<sub>2</sub>/p

Monito	oring Report Sheet (Calculation Process Sheet) [For \	/erification]			
I. Calc	ulations for emission reductions	Fuel type	Value	Units	Paramete
Em	ission reductions during the period p	n/a	2.27180488	tCO <sub>2</sub> /p	$ER_{p}$
. Sele	cted default values, etc.				
Net	calorific value of diesel	Diesel 41.4 TJ/Gg			
Die	sel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	EF <sub>diesel</sub>
. Calc	ulations for reference emissions				
Ref	erence emissions during the period <i>p</i>	n/a	28.7149552	tCO <sub>2</sub> /p	REp
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	23	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	22	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	1	MWh/p	EC <sub>i,solar,p</sub>
	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	n/a	0	h/p	ті,р
	Total hours of operation of BTSi during the period p	n/a	5,832	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.903	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
. Calc	ulations of the project emissions				
Pro	ject emissions during the period <i>p</i>	n/a	26.4431503	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.903	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	10,795	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	ρ <sub>diesel</sub>

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/01- 2018/12/31	(1)	EC <sub>i.grid.p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	18	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS <sub>p</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	3	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(4)	T <sub>I,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	7,296	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> <sub>i</sub> is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p} = Days$ of operation of <i>BTSi</i> during the period <i>p</i> $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/01- 2018/12/31	(6)	FC <sub>I,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	10,426	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS <sub>p</sub> . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
₽i	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>i</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.903	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
P <sub>diesel</sub>	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

 Monitoring Period
 CO2 emission reductions

 2018/01/01-2018/12/31
 CO2 emission reductions

Units 10 tCO<sub>2</sub>/p

. Calc	culations for emission reductions	Fuel type	Value	Units	Parameter
Em	nission reductions during the period <i>p</i>	n/a	10.3849668	tCO <sub>2</sub> /p	$ER_{p}$
. Sele	ected default values, etc.				
Ne	t calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Die	esel $CO_2$ emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	EF <sub>diesel</sub>
. Calc	culations for reference emissions				
Re	ference emissions during the period <i>p</i>	n/a	35.9232362	tCO <sub>2</sub> /p	REp
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	21	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	18	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	3	MWh/p	$EC_{i,solar,p}$
	Hours for which electricity is available from grid at $BTSi$ during the period $p$	n/a	0	h/p	ті,р
	Total hours of operation of BTSi during the period p	n/a	7,296	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.903	tCO <sub>2</sub> /MWh	$EF_{grid}$
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
. Calc	culations of the project emissions				
Pro	oject emissions during the period <i>p</i>	n/a	25.5382694	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.903	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	10,426	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	ored ex post (c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/31- 2018/12/31	(1)	EC <sub>i.grid.p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	4	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS <sub>p</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(4)	T <sub>LP</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	744	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> <sub>1</sub> is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p} = Days$ of operation of <i>BTSi</i> during the period <i>p</i> $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/31- 2018/12/31	(6)	FC <sub>i,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	1,273	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS <sub>P</sub> . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
φi	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>1</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid $CO_2$ emission factor	1.512	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
P <sub>diesel</sub>	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

Monitori	ing Report Sheet (Calculation Process Sheet) [For \	/erification]			
. Calcul	ations for emission reductions	Fuel type	Value	Units	Paramete
Emis	sion reductions during the period <i>p</i>	n/a	0.54513323	tCO <sub>2</sub> /p	$ER_{p}$
. Select	ed default values, etc.				
Net c	alorific value of diesel	Diesel 41.4 TJ/Gg NO			
Diese	el CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	$EF_{diesel}$
. Calcul	ations for reference emissions				
Refer	rence emissions during the period <i>p</i>	n/a	3.66322474	tCO <sub>2</sub> /p	REp
Т	otal electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	5	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	$EC_{i,grid,p}$
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	4	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,solar,p</sub>
	lours for which electricity is available from grid at <i>BTSi</i> luring the period <i>p</i>	n/a	0	h/p	ті,р
Т	otal hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	744	h/p	T <sub>i,p</sub>
G	Grid CO <sub>2</sub> emission factor	Electricity	1.512	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
B	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTSi	n/a	2	L/h	φ <sub>i</sub>
V	Veighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
. Calcul	ations of the project emissions				
Proje	ct emissions during the period <i>p</i>	n/a	3.11809151	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
G	Grid CO <sub>2</sub> emission factor	Electricity	1.512	tCO <sub>2</sub> /MWh	$EF_{grid}$
T p	he quantity of diesel consumed at <i>BTS</i> i during the period	Diesel	1,273	L/p	FC <sub>i,diesel,p</sub>
V	Veighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/01- 2018/12/31	(1)	EC <sub>i.grid.p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	10	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	1	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(4)	T <sub>I,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	2,208	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> <sub>i</sub> is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p} = Days$ of operation of <i>BTSi</i> during the period <i>p</i> $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/01- 2018/12/31	(6)	FC <sub>I,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	4,083	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project $BTS_\mu$ . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
${f \phi}_i$	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>i</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.760	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
ρ <sub>diesel</sub>	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

Units 0 tCO<sub>2</sub>/p

Monite	oring Report Sheet (Calculation Process Sheet) [For \	/erification]			
. Calc	culations for emission reductions	Fuel type	Value	Units	Paramete
En	nission reductions during the period <i>p</i>	n/a	0.87053764	tCO <sub>2</sub> /p	$ER_{p}$
. Sele	ected default values, etc.				
Ne	t calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Die	esel $CO_2$ emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	$EF_{diesel}$
. Calc	culations for reference emissions				
Re	ference emissions during the period <i>p</i>	n/a	10.8715057	tCO <sub>2</sub> /p	$RE_{p}$
	Total electricity consumption at BTSi during the period p	Electricity	11	MWh/p	$EC_{i,p}$
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	$EC_{i,grid,p}$
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	10	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	1	MWh/p	EC <sub>i,solar,p</sub>
	Hours for which electricity is available from grid at $BTSi$ during the period $p$	n/a	0	h/p	ті,р
	Total hours of operation of BTSi during the period p	n/a	2,208	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.760	tCO <sub>2</sub> /MWh	$EF_{grid}$
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
. Calc	culations of the project emissions				
Pro	oject emissions during the period <i>p</i>	n/a	10.000968	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.760	tCO <sub>2</sub> /MWh	$EF_{grid}$
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	4,083	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(i)	(k)
Nonitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/01- 2018/12/31	(1)	EC <sub>i,grid,p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	29	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS <sub>r</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	3	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	8,016	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> <sub>i</sub> is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/01- 2018/12/31	(6)	FC <sub>t,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	12,415	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS <sub>i</sub> . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
φ <sub>i</sub>	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>i</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.760	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
P <sub>diesel</sub>	Weighted average density of diesel	1		a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4		IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600		IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

 Monitoring Period
 CO2 emission reductions

 2018/01/01-2018/12/31
 CO2 emission reductions

Units 9 tCO<sub>2</sub>/p

Monito	oring Report Sheet (Calculation Process Sheet) [For \	/erification]			
I. Calc	ulations for emission reductions	Fuel type	Value	Units	Paramete
Em	ission reductions during the period <i>p</i>	n/a	9.05679553	tCO <sub>2</sub> /p	$ER_{p}$
. Sele	cted default values, etc.				
Net	calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Die	sel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	$EF_{diesel}$
. Calc	ulations for reference emissions				
Ref	erence emissions during the period <i>p</i>	n/a	39.4682924	tCO <sub>2</sub> /p	$RE_{p}$
	Total electricity consumption at $BTSi$ during the period $p$	Electricity	32	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	29	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	3	MWh/p	EC <sub>i,solar,p</sub>
	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	n/a	0	h/p	тi,p
	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	8,016	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.760	tCO <sub>2</sub> /MWh	$EF_{grid}$
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$ ho_{diesel}$
. Calc	ulations of the project emissions				
Pro	ject emissions during the period <i>p</i>	n/a	30.4114968	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.760	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	12,415	L/p	FC <sub>i,diesel,f</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{\text{diesel}}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(i)	(k)
Nonitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/31- 2018/12/31	(1)	EC <sub>i.grid.p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	22	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS <sub>r</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	2	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	8,016	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> <sub>i</sub> is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/31- 2018/12/31	(6)	$FC_{i,diesel,p}$	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	13,607	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS <sub>i</sub> . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
${f \phi}_{i}$	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>i</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.760	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
ρ <sub>diesel</sub>	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

 Monitoring Period
 CO2 emission reductions

 2018/01/31-2018/12/31
 CO2 emission reductions

Units 6 tCO<sub>2</sub>/p

[Monitoring option] Option A Option B Option C

Calc	culations for emission reductions	Fuel type	Value	Units	Parameter
En	nission reductions during the period <i>p</i>	n/a	6.13638646	tCO <sub>2</sub> /p	$ER_{p}$
. Sele	ected default values, etc.				
Ne	t calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Die	esel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	EF <sub>diesel</sub>
	culations for reference emissions				
Re	ference emissions during the period <i>p</i>	n/a	39.4682924	tCO <sub>2</sub> /p	REp
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	25	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	$\text{EC}_{i,\text{grid},\text{p}}$
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	22	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	2	MWh/p	$EC_{i,solar,p}$
	Hours for which electricity is available from grid at $BTSi$ during the period $p$	n/a	0	h/p	ті,р
	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	8,016	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.760	tCO <sub>2</sub> /MWh	$EF_{grid}$
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{\text{diesel}}$
. Calc	culations of the project emissions				
Pro	oject emissions during the period p	n/a	33.3319059	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	$EC_{i,grid,p}$
	Grid CO <sub>2</sub> emission factor	Electricity	0.760	tCO <sub>2</sub> /MWh	$EF_{grid}$
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	13,607	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	ored ex post (c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/31- 2018/12/31	(1)	EC <sub>i,grid,p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
'2018/01/31 -2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
'2018/01/31 -2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
'2018/01/31 -2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
'2018/01/31 -2018/12/31	(5)	T <sub>LP</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> , is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p} = Days$ of operation of <i>BTSi</i> during the period <i>p</i> $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
'2018/01/31 -2018/12/31	(6)	FC <sub>i,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	0	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the fillec fuel which is refilled to fill up the tank at the project $BTS_p$ . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

#### Table 2: Project-specific parameters fixed ex ante

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
$\phi_i$	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>1</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid $CO_2$ emission factor	0.760	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
Pdiesel	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

#### Table3: Ex-post calculation of CO2 emission reductions

19	Tables: Ex-post calculation of $CO_2$ emission reductions							
	Monitoring Period	CO <sub>2</sub> emission reductions	Units					
	2018/01/31-2018/12/31	0	tCO <sub>2</sub> /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 specifications)
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)

Ionitoring Report Sheet (Calcula	tion Process Sheet) [For \	/erification]			
. Calculations for emission reduction	ons	Fuel type	Value	Units	Paramete
Emission reductions during the per	od p	n/a	0	tCO <sub>2</sub> /p	$ER_{p}$
. Selected default values, etc.					
Net calorific value of diesel		Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Diesel CO <sub>2</sub> emission factor		Diesel	72,600	kgCO <sub>2</sub> /TJ	$EF_{diesel}$
. Calculations for reference emission	ns				
Reference emissions during the pe	riod <i>p</i>	n/a	0	tCO <sub>2</sub> /p	$RE_{p}$
Total electricity consumption at	• • •	Electricity	0	MWh/p	EC <sub>i,p</sub>
the period <i>p</i>	ity consumed at <i>BTSi</i> during	Electricity	0	MWh/p	$EC_{i,grid,p}$
generator at BTSi during th		Electricity	0	MWh/p	EC <sub>i,diesel,p</sub>
PV system at <i>BTSi</i> during		Electricity	0	MWh/p	EC <sub>i,solar,p</sub>
Hours for which electricity is av during the period <i>p</i>	ailable from grid at <i>BTSi</i>	n/a	0	h/p	тi,р
Total hours of operation of BTS	i during the period p	n/a	0	h/p	T <sub>i,p</sub>
Grid CO <sub>2</sub> emission factor		Electricity	0.760	tCO <sub>2</sub> /MWh	$EF_{grid}$
Design efficiency of diesel gene BTS at the time of validation at BTSi		n/a	2	L/h	φ <sub>i</sub>
Weighted average density of di	esel	Diesel	1	kg/L	$\rho_{diesel}$
. Calculations of the project emission	ons				
Project emissions during the period	p	n/a	0	tCO <sub>2</sub> /p	PEp
The amount of grid electricity c period <i>p</i>	onsumed at <i>BTS</i> , during the	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
Grid CO <sub>2</sub> emission factor		Electricity	0.760	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
The quantity of diesel consume	d at <i>BTS</i> i during the period	Diesel	0	L/p	FC <sub>i,diesel,p</sub>
Weighted average density of di	esel	Diesel	1	kg/L	$\rho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b) Monitoring point No.	ored ex post (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 commen
2018/01/31- 2018/12/31	(1)	EC <sub>i.grid.p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS <sub>1</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	12	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS <sub>1</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	3	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(5)	Τ <sub>ιρ</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	8,016	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> <sub><i>i</i></sub> is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p}$ = Days of operation of <i>BTSi</i> during the period $p$ $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/31- 2018/12/31	(6)	$FC_{i,diesel,p}$	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	7,743	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project $BTS_{\mu}$ . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

Table 2: Project-specific parameters fixed ex ante

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
φ;	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS,	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.760	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
Pdiesel	Weighted average density of diesel	1		a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4		IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600		IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

 Monitoring Period
 CO2 emission reductions
 Units

 2018/01/31-2018/12/31
 20
 tCO2/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 specifications)					
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)					

. Calc	culations for emission reductions	Fuel type	Value	Units	Parameter
En	nission reductions during the period <i>p</i>	n/a	20.5015558	tCO <sub>2</sub> /p	$ER_{p}$
. Sele	ected default values, etc.				
Ne	t calorific value of diesel	Diesel	41.4	TJ/Gg	$NCV_{diesel}$
Die	esel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	$EF_{diesel}$
	culations for reference emissions				
Re	ference emissions during the period <i>p</i>	n/a	39.4682924	tCO <sub>2</sub> /p	$RE_{p}$
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	15	MWh/p	$EC_{i,p}$
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	$\text{EC}_{i,\text{grid},\text{p}}$
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	12	MWh/p	$EC_{i,diesel,p}$
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	3	MWh/p	$EC_{i,solar,p}$
	Hours for which electricity is available from grid at $BTSi$ during the period $p$	n/a	0	h/p	ті,р
	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	8,016	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.760	tCO <sub>2</sub> /MWh	$EF_{grid}$
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	$\phi_i$
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{\text{diesel}}$
. Calc	culations of the project emissions				
Pro	oject emissions during the period p	n/a	18.9667366	tCO <sub>2</sub> /p	$PE_{p}$
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	$EC_{i,grid,p}$
	Grid CO <sub>2</sub> emission factor	Electricity	0.760	tCO <sub>2</sub> /MWh	$EF_{grid}$
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	7,743	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{\text{diesel}}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other commen
2018/01/01- 2018/12/31	(1)	EC <sub>i,grid,p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period p	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	18	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	1	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi The manufacturer's specification for the measuring equipment has been prepared by the time of installation The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSI</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	8,760	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> <sub><i>i</i></sub> is determined based on the following calculation result: $T_{i\rho} = D_{i\rho} * 24$ Where, $D_{i\rho} = Days$ of operation of <i>BTSi</i> during the period <i>p</i> $D_{i\rho}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/01- 2018/12/31	(6)	FC <sub>i,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	14,677	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS <sub>p</sub> . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

Table 2: Project-specific parameters fixed ex ante

(b)	(c)	(d)	(e)	(f)
Description of data	Estimated Values	Units	Source of data	Other comments
Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS,	2			n/a
Grid CO <sub>2</sub> emission factor	0.760	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
Weighted average density of diesel	1			n/a
Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
	Description of data           Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS,           Grid CO <sub>2</sub> emission factor           Weighted average density of diesel           Net calorific value of diesel	Description of data         Estimated Values           Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS,         2           Grid CO <sub>2</sub> emission factor         0.760           Weighted average density of diesel         1           Net calorific value of diesel         41.4	Description of data         Estimated Values         Units           Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS;         2         L/h           Grid CO <sub>2</sub> emission factor         0.760         tCO <sub>2</sub> /MWh           Weighted average density of diesel         1         kg/L           Net calorific value of diesel         41.4         TJ/Gg	Description of data         Estimated Values         Units         Source of data           Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS,         2         L/h         Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.           Grid CO <sub>2</sub> emission factor         0.760         tCO <sub>2</sub> /MWh toCO <sub>2</sub> /MWh systems <sup>-</sup> , National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.           Weighted average density of diesel         1         kg/L         a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.           Net calorific value of diesel         41.4         TJ/Gg         IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.

 Monitoring Period
 CO2 emission reductions
 Units

 2018/01/01-2018/12/31
 7
 tCO2/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 specifications)
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)

Monito	oring Report Sheet (Calculation Process Sheet) [For \	/erification]			
I. Calc	ulations for emission reductions	Fuel type	Value	Units	Paramete
Em	ission reductions during the period p	n/a	7.17829788	tCO <sub>2</sub> /p	$ER_{p}$
. Sele	cted default values, etc.				
Net	t calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Die	sel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	EF <sub>diesel</sub>
. Calc	ulations for reference emissions				
Ref	ference emissions during the period <i>p</i>	n/a	43.1315171	tCO <sub>2</sub> /p	REp
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	19	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	18	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	1	MWh/p	EC <sub>i,solar,p</sub>
	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	n/a	0	h/p	ті,р
	Total hours of operation of BTSi during the period p	n/a	8,760	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.760	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
. Calc	ulations of the project emissions				
Pro	ject emissions during the period <i>p</i>	n/a	35.9532192	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.760	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	14,677	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	ored ex post (c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comments
2018/01/01- 2018/12/31	(1)	EC <sub>i,grid,p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS,. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	15	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS,. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	1	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	8,760	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> , is determined based on the following calculation result: $T_{i,\rho} = D_{i,\rho} * 24$ Where, $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYY) and end date (DD/MM/YYY) of the monitoring period. If there are days on which BTS, is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/01- 2018/12/31	(6)	FC <sub>LdieseLp</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	8,009	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS,. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
$\phi_i$	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>i</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.953	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
Pdiesel	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

Table3: Ex-post calculation of CO<sub>2</sub> emission reductions

Monitoring Period	CO <sub>2</sub> emission reductions		Units	
2018/01/01-2018/12/31		23	tCO <sub>2</sub> /p	I

Ionitoring Report Sheet (Calculation Process Sheet) [Fo	r Verification]			
. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period <i>p</i>	n/a	23.5134328	tCO <sub>2</sub> /p	$ER_{p}$
. Selected default values, etc.				
Net calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Diesel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	EF <sub>diesel</sub>
. Calculations for reference emissions				
Reference emissions during the period <i>p</i>	n/a	43.1315171	tCO <sub>2</sub> /p	RE <sub>p</sub>
Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	17	MWh/p	EC <sub>i,p</sub>
The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
The amount of electricity generated by the project dies generator at <i>BTSi</i> during the period <i>p</i>	Electricity	15	MWh/p	EC <sub>i,diesel,p</sub>
The amount of electricity generated by the project sola PV system at <i>BTSi</i> during the period <i>p</i>	r Electricity	1	MWh/p	$EC_{i,solar,p}$
Hours for which electricity is available from grid at $BTSi$ during the period $p$	n/a	0	h/p	ті,р
Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	8,760	h/p	T <sub>i,p</sub>
Grid CO <sub>2</sub> emission factor	Electricity	0.953	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTSi	n/a	2	L/h	φ <sub>i</sub>
Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
. Calculations of the project emissions				
Project emissions during the period <i>p</i>	n/a	19.6180843	tCO <sub>2</sub> /p	PEp
The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	$EC_{i,grid,p}$
Grid CO <sub>2</sub> emission factor	Electricity	0.953	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	8,009	L/p	FC <sub>i,diesel,p</sub>
Weighted average density of diesel	Diesel	1	kg/L	$ ho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/31- 2018/12/31	(1)	EC <sub>i.grid,p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS <sub>1</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	13	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS,. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	1	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(5)	T <sub>LP</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	6,552	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> , is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p} = Days$ of operation of <i>BTSi</i> during the period <i>p</i> $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/31- 2018/12/31	(6)	FC <sub>i,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	7,934	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project $BTS_p$ . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

#### Table 2: Project-specific parameters fixed ex ante

(a)	(a) (b)		(d)	(e)	(f)
Parameters Description of data		Estimated Values	Units	Source of data	Other comments
φ	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>1</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid $CO_2$ emission factor	0.953	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
Pdiesel	Weighted average density of diesel	1		a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4		IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600		IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

 Monitoring Period
 CO2 emission reductions

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#### [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 specifications)						
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)						

Calc	culations for emission reductions	Fuel type	Value	Units	Parameter
En	nission reductions during the period <i>p</i>	n/a	12.8261368	tCO <sub>2</sub> /p	$ER_{p}$
Sele	ected default values, etc.				
Ne	t calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Die	esel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	EF <sub>diesel</sub>
	culations for reference emissions				
Re	ference emissions during the period <i>p</i>	n/a	32.2600114	tCO <sub>2</sub> /p	REp
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	14	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	$EC_{i,grid,p}$
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	13	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	1	MWh/p	$EC_{i,solar,p}$
	Hours for which electricity is available from grid at $BTSi$ during the period $p$	n/a	0	h/p	ті,р
	Total hours of operation of BTSi during the period p	n/a	6,552	h/p	$T_{i,p}$
	Grid CO <sub>2</sub> emission factor	Electricity	0.953	tCO <sub>2</sub> /MWh	$EF_{grid}$
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
Calc	culations of the project emissions				
Pro	oject emissions during the period <i>p</i>	n/a	19.4338746	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	$EC_{i,grid,p}$
	Grid CO <sub>2</sub> emission factor	Electricity	0.953	tCO <sub>2</sub> /MWh	$EF_{grid}$
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	7,934	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	ρ <sub>diesel</sub>

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	ored ex post (c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/31- 2018/12/31	(1)	$EC_{i,grid,p}$	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS <sub>1</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	15	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	2	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(4)	Ti,p	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(5)	T <sub>LP</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	8,016	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> , is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p} = Days$ of operation of <i>BTSi</i> during the period <i>p</i> $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/31- 2018/12/31	(6)	FC <sub>I,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	9,025	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project $BTS_p$ . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

#### Table 2: Project-specific parameters fixed ex ante

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
φ	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>1</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid $CO_2$ emission factor	0.953	tCO₂/MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
Pdiesel	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

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#### [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 specifications)
[	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)

Calc	culations for emission reductions	Fuel type	Value	Units	Parameter
En	nission reductions during the period <i>p</i>	n/a	17.3597032	tCO <sub>2</sub> /p	$ER_{p}$
. Sele	ected default values, etc.				
Ne	t calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Die	esel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	EF <sub>diesel</sub>
	culations for reference emissions				
Re	ference emissions during the period <i>p</i>	n/a	39.4682924	tCO <sub>2</sub> /p	REp
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	16	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	$EC_{i,grid,p}$
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	15	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	2	MWh/p	$EC_{i,solar,p}$
	Hours for which electricity is available from grid at $BTSi$ during the period $p$	n/a	0	h/p	ті,р
	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	8,016	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.953	tCO <sub>2</sub> /MWh	$EF_{grid}$
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{\text{diesel}}$
. Calc	culations of the project emissions				
Pro	pject emissions during the period <i>p</i>	n/a	22.1085892	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	$EC_{i,grid,p}$
	Grid CO <sub>2</sub> emission factor	Electricity	0.953	tCO <sub>2</sub> /MWh	$EF_{grid}$
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	9,025	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/01- 2018/12/31	(1)	EC <sub>i,grid,p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	13	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS,. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at $BTSi$ during the period $p$	2	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(4)	T <sub>I,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	8,760	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> <sub>1</sub> is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p} = Days of operation of BTSi during the period p D_{i,p} is counted as the actual number of days between starting date(DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoringperiod. If there are days on which BTSi is not operating, the number ofdays should be subtracted from the total number of days monitored.The data monitored is kept and archived electronically for two yearsafter the final issuance of credits.$	Monitored daily and recorded monthly	n/a
2018/01/01- 2018/12/31	(6)	FC <sub>i,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	11,473	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS <sub>P</sub> . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
${f \phi}_i$	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>i</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.855	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
ρ <sub>diesel</sub>	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

Units 15 tCO<sub>2</sub>/p

. Calc	culations for emission reductions	Fuel type	Value	Units	Parameter
En	nission reductions during the period <i>p</i>	n/a	15.0272953	tCO <sub>2</sub> /p	$ER_{p}$
. Sele	cted default values, etc.				
Ne	t calorific value of diesel	Diesel	41.4	TJ/Gg	$NCV_{diesel}$
Die	esel $CO_2$ emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	$EF_{diesel}$
	culations for reference emissions				
Re	ference emissions during the period <i>p</i>	n/a	43.1315171	tCO <sub>2</sub> /p	$RE_{p}$
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	15	MWh/p	$EC_{i,p}$
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	$\text{EC}_{i,\text{grid},\text{p}}$
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	13	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	2	MWh/p	$EC_{i,solar,p}$
	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	n/a	0	h/p	ті,р
	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	8,760	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	$EF_{grid}$
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	$\phi_i$
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{\text{diesel}}$
. Calc	culations of the project emissions				
Pro	pject emissions during the period <i>p</i>	n/a	28.1042218	tCO <sub>2</sub> /p	$PE_{p}$
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	$EC_{i,grid,p}$
	Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	$EF_{grid}$
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	11,473	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{\text{diesel}}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
lonitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/01- 2018/12/31	(1)	EC <sub>i.grid,p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	33	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS <sub>1</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS,. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	2	MWh/p	Option C		Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	7,898	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	7,992	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> , is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYY) of the monitoring period. If there are days on which BTS, is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/01- 2018/12/31	(6)	FC <sub>I,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	30	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS <sub>P</sub> . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)	
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments	
Pi	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>1</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a	
∃F <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.855	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a	
D <sub>diesel</sub>	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a	
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a	
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a	

Table3: Ex-post calculation of CO<sub>2</sub> emission reductions

Monitoring Period	CO <sub>2</sub> emission reductions		Units
2018/01/01-2018/12/31		2	tCO <sub>2</sub> /p

Ionitoring Report Sheet (Calculation Process Sheet) [For	Verification]			
Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period p	n/a	2.08887889	tCO <sub>2</sub> /p	$ER_{p}$
. Selected default values, etc.				
Net calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Diesel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	EF <sub>diesel</sub>
Calculations for reference emissions				
Reference emissions during the period <i>p</i>	n/a	30.2552266	tCO <sub>2</sub> /p	RE <sub>p</sub>
Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	35	MWh/p	EC <sub>i,p</sub>
The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	33	MWh/p	EC <sub>i,grid,p</sub>
The amount of electricity generated by the project diese generator at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,diesel,p</sub>
The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	2	MWh/p	EC <sub>i,solar,p</sub>
Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	n/a	7,898	h/p	ті,р
Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	7,992	h/p	T <sub>i,p</sub>
Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
Calculations of the project emissions				
Project emissions during the period <i>p</i>	n/a	28.1663477	tCO <sub>2</sub> /p	PEp
The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	33	MWh/p	EC <sub>i,grid,p</sub>
Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	30	L/p	FC <sub>i,diesel,p</sub>
Weighted average density of diesel	Diesel	1	kg/L	ρ <sub>diesel</sub>

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(i)	(k)
Aonitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/01- 2081/12/31	(1)	EC <sub>i.grid.p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	24	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS <sub>r</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2081/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	7	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS,. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2081/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	4	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2081/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	6,518	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2081/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	8,760	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> , is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYY) of the monitoring period. If there are days on which BTS, is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/01- 2081/12/31	(6)	FC <sub>i,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	2,149	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS <sub>P</sub> . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

Table 2: Project-specific parameters fixed ex ante

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
φ;	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS,	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.855	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
Pdiesel	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

 Monitoring Period
 CO2 emission reductions
 Units

 2018/01/01-2081/12/31
 7
 tCO2/p

Calc	culations for emission reductions	Fuel type	Value	Units	Parameter
Em	nission reductions during the period <i>p</i>	n/a	7.86932157	tCO <sub>2</sub> /p	$ER_{p}$
Sele	cted default values, etc.				
Ne	t calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Die	esel $CO_2$ emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	$EF_{diesel}$
Calc	culations for reference emissions				
Re	ference emissions during the period <i>p</i>	n/a	33.9322347	tCO <sub>2</sub> /p	REp
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	36	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	24	MWh/p	$EC_{i,grid,p}$
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	7	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	4	MWh/p	$EC_{i,solar,p}$
	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	n/a	6,518	h/p	ті,р
	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	8,760	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	$EF_{grid}$
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{\text{diesel}}$
Calc	culations of the project emissions				
Pro	pject emissions during the period p	n/a	26.0629131	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	24	MWh/p	$EC_{i,grid,p}$
	Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	$EF_{grid}$
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	2,149	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{\text{diesel}}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	ored ex post (C)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/01- 2018/12/31	(1)		The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS <sub>1</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS,. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(4)		Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(5)	T <sub>i</sub> p	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> <sub>i</sub> is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/01- 2018/12/31	(6)	$FC_{i,diesel,p}$	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	0	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project $BTS_p$ . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)	
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments	
Pi	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>i</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a	
∃F <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.855	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a	
diesel	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a	
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a	
F <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a	

 Monitoring Period
 CO2 emission reductions

 2018/01/01-2018/12/31
 0
 tCO2/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 specifications)
ſ	Option B	Based on the amount of transaction which is measured directly using measuring equipments (Data used: commercial evidence such as invoices)
ſ	Option C	Based on the actual measurement using measuring equipments (Data used: measured values)

Monitoring Report Sheet (Calculation Process Sheet) [For	Verification]			
I. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period <i>p</i>	n/a	0	tCO <sub>2</sub> /p	$ER_{p}$
2. Selected default values, etc.				
Net calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Diesel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	EF <sub>diesel</sub>
3. Calculations for reference emissions				
Reference emissions during the period p	n/a	0	tCO <sub>2</sub> /p	REp
Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,p</sub>
The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
The amount of electricity generated by the project diese generator at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,diesel,p</sub>
The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,solar,p</sub>
Hours for which electricity is available from grid at $BTSi$ during the period $p$	n/a	0	h/p	ті,р
Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	0	h/p	T <sub>i,p</sub>
Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTSi	n/a	2	L/h	φ <sub>i</sub>
Weighted average density of diesel	Diesel	1	kg/L	ρ <sub>diesel</sub>
4. Calculations of the project emissions				
Project emissions during the period <i>p</i>	n/a	0	tCO <sub>2</sub> /p	PEp
The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	EC <sub>i,grid,p</sub>
Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	0	L/p	FC <sub>i,diesel,p</sub>
Weighted average density of diesel	Diesel	1	kg/L	ρ <sub>diesel</sub>

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
lonitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/01- 2018/12/31	(1)	EC <sub>i,grid,p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	10	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS,. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	1	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	0	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/01- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	4,416	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> , is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p} = Days of operation of BTSi during the period p D_{i,p} is counted as the actual number of days between starting date(DD/MM/YYY) and end date (DD/MM/YYY) of the monitoringperiod. If there are days on which BTS, is not operating, the number ofdays should be subtracted from the total number of days monitored.The data monitored is kept and archived electronically for two yearsafter the final issuance of credits.$	Monitored daily and recorded monthly	n/a
2018/01/01- 2018/12/31	(6)	FC <sub>1,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	6,504	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project $BTS_p$ . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
${f \phi}_i$	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>1</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.855	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
ρ <sub>diesel</sub>	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

Table3: Ex-post calculation of CO<sub>2</sub> emission reductions

Monitoring Period	CO <sub>2</sub> emission reductions	Units	l						
2018/01/01-2018/12/31	5	tCO <sub>2</sub> /p	Ì						

#### [Monitoring option]

 Option A
 Based on public data which is measured by entities other than the project participants (Data used: publidy recognized data such as statistical data and specifications)

 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)

Calc	culations for emission reductions	Fuel type	Value	Units	Parameter
En	nission reductions during the period <i>p</i>	n/a	5.81156995	tCO <sub>2</sub> /p	$ER_{p}$
. Sele	cted default values, etc.				
Ne	t calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Die	esel $CO_2$ emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	EF <sub>diesel</sub>
	culations for reference emissions				
Re	ference emissions during the period <i>p</i>	n/a	21.7430114	tCO <sub>2</sub> /p	REp
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	11	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	$EC_{i,grid,p}$
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	10	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	1	MWh/p	$EC_{i,solar,p}$
	Hours for which electricity is available from grid at $BTSi$ during the period $p$	n/a	0	h/p	ті,р
	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	4,416	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	$EF_{grid}$
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
. Calc	culations of the project emissions				
Pro	pject emissions during the period <i>p</i>	n/a	15.9314414	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	0	MWh/p	$EC_{i,grid,p}$
	Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	$EF_{grid}$
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	6,504	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(i)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other comment
2018/01/31- 2018/12/31	(1)	EC <sub>i,grid,p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period p	13	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS, The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS <sub>n</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	1	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	5,685	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(5)	T <sub>LP</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	5,856	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> <sub><i>i</i></sub> is determined based on the following calculation result: $T_{i\rho} = D_{i\rho} * 24$ Where, $D_{i\rho} = Days$ of operation of <i>BTSi</i> during the period <i>p</i> $D_{i\rho}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/31- 2018/12/31	(6)	FC <sub>i,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	62	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS <sub>P</sub> . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

#### Table 2: Project-specific parameters fixed ex ante

	(a)	(b)	(c)	(d)	(e)	(f)
	Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
q	P <sub>i</sub>	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS,	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
E	:F <sub>grid</sub>	Grid $CO_2$ emission factor	0.855	tCO <sub>2</sub> /IVIVI	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
ŀ	diesel	Weighted average density of diesel	1		a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
٢	ICV <sub>diesel</sub>	Net calorific value of diesel	41.4		IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
E	F <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600		IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

 Monitoring Period
 CO2 emission reductions

 2018/01/31-2018/12/31
 1

#### [Monitoring option]

ſ	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 specifications)							
ſ	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)							

Monito	ring Report Sheet (Calculation Process Sheet) [For \	/erification]			
I. Calcı	ulations for emission reductions	Fuel type	Value	Units	Paramete
Emi	ission reductions during the period <i>p</i>	n/a	1.39241132	tCO <sub>2</sub> /p	$ER_{p}$
. Selec	cted default values, etc.				
Net	calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Dies	sel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	$EF_{diesel}$
. Calcı	ulations for reference emissions				
Refe	erence emissions during the period <i>p</i>	n/a	12.6561113	tCO <sub>2</sub> /p	REp
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	14	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	13	MWh/p	$EC_{i,grid,p}$
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	1	MWh/p	EC <sub>i,solar,p</sub>
	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	n/a	5,685	h/p	ті,р
	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	5,856	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
. Calcı	ulations of the project emissions				
Proj	ject emissions during the period <i>p</i>	n/a	11.2636999	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	13	MWh/p	EC <sub>i,grid,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	$EF_{grid}$
	The quantity of diesel consumed at $BTS_i$ during the period $p$	Diesel	62	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

able 1: Param (a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(i)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other
2018/01/31- 2018/12/31	(1)	EC <sub>i,grid,p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>		MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS <sub>1</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS,. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	2	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	5,833	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(5)	T <sub>ip</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	5,856	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> , is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYYY) and end date (DD/MM/YYY) of the monitoring period. If there are days on which BTS, is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/31- 2018/12/31	(6)	FC <sub>i,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	39	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS <sub>P</sub> . The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
φ <sub>i</sub>	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS <sub>1</sub>	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.855	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
ρ <sub>diesel</sub>	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

Table3: Ex-post calculation of CO<sub>2</sub> emission reductions

Monitoring Period	CO <sub>2</sub> emission reductions	Units
2018/01/31-2018/12/31	1	tCO <sub>2</sub> /p

Monitorir	ng Report Sheet (Calculation Process Sheet) [For \	/erification]			
. Calcula	tions for emission reductions	Fuel type	Value	Units	Paramete
Emissi	ion reductions during the period <i>p</i>	n/a	1.99831352	tCO <sub>2</sub> /p	$ER_{p}$
. Selecte	d default values, etc.				
Net ca	lorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Diesel	CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	$EF_{diesel}$
. Calcula	tions for reference emissions				
Refere	ence emissions during the period <i>p</i>	n/a	20.790863	tCO <sub>2</sub> /p	$RE_{p}$
Тс	otal electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	24	MWh/p	$EC_{i,p}$
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	22	MWh/p	EC <sub>i,grid,p</sub>
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	2	MWh/p	EC <sub>i,solar,p</sub>
	ours for which electricity is available from grid at <i>BTSi</i> iring the period <i>p</i>	n/a	5,833	h/p	ті,р
Тс	otal hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	5,856	h/p	T <sub>i,p</sub>
Gr	rid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	$EF_{grid}$
BT	esign efficiency of diesel generator operated at the project IS at the time of validation at 25% load to be installed at <i>TSi</i>	n/a	2	L/h	φ <sub>i</sub>
W	eighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
. Calcula	tions of the project emissions				
Projec	t emissions during the period <i>p</i>	n/a	18.7925494	tCO <sub>2</sub> /p	$PE_{p}$
	ne amount of grid electricity consumed at <i>BTS</i> , during the priod <i>p</i>	Electricity	22	MWh/p	EC <sub>i,grid,p</sub>
Gr	rid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	EF <sub>grid</sub>
Th P	ne quantity of diesel consumed at <i>BTS</i> <sub>i</sub> during the period	Diesel	39	L/p	FC <sub>i,diesel,</sub>
W	eighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ

#### Monitoring Report Sheet (Input Sheet) [For Verification]

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(i)	(k)
Monitoring period	Monitoring point No.	Parameters	Description of data	Monitored Values	Units	Monitoring option	Source of data	Measurement methods and procedures	Monitoring frequency	Other commen
2018/01/31- 2018/12/31	(1)	EC <sub>i,grid,p</sub>	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	8	MWh/p	Option C	monitored data	Measuring equipment is installed to measure grid electricity consumption at project BTS <sub>i</sub> . The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(2)	EC <sub>i,diesel,p</sub>	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	0	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by the project diesel generator at project BTS,. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(3)	EC <sub>i,solar,p</sub>	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	1	MWh/p	Option C	monitored data	Measuring equipment is installed to measure electricity generated by solar PV system at project BTSi. The manufacturer's specification for the measuring equipment has been prepared by the time of installation. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(4)	T <sub>i,p</sub>	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	4,748	h/p	Option C	monitored data	Sensor logger is installed to measure hours for which of electricity is available from grid. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored continuously and recorded monthly	n/a
2018/01/31- 2018/12/31	(5)	T <sub>LP</sub>	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	4,872	h/p	Option C	monitored data	Total hours of operation of <i>BTS</i> , is determined based on the following calculation result: $T_{i,p} = D_{i,p} * 24$ Where, $D_{i,p}$ is counted as the actual number of days between starting date (DD/MM/YYY) and end date (DD/MM/YYY) of the monitoring period. If there are days on which BTS <sub>i</sub> is not operating, the number of days should be subtracted from the total number of days monitored. The data monitored is kept and archived electronically for two years after the final issuance of credits.	Monitored daily and recorded monthly	n/a
2018/01/31- 2018/12/31	(6)	FC <sub>i,diesel,p</sub>	The quantity of diesel consumed at <i>BTSi</i> during the period <i>p</i>	49	L/p	Option C	monitored data	Diesel consumption is determined by recording the quantity of the filled fuel which is refilled to fill up the tank at the project BTS, The data monitored is kept and archived electronically for two years after the final issuance of credits.	Recorded at every filling time	n/a

Table 2: Project-specific parameters fixed ex ante

(a)	(b)	(c)	(d)	(e)	(f)
Parameters	Description of data	Estimated Values	Units	Source of data	Other comments
φi	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at BTS,	2	L/h	Specification of generator. Manufacturer's data. If more than one diesel generators are equipped at the project BTS, the most efficient value among the design efficiency of the equipped diesel generators is adopted for the calculation of the reference emissions.	n/a
EF <sub>grid</sub>	Grid CO <sub>2</sub> emission factor	0.855	tCO <sub>2</sub> /MWh	The most recent value available at the time of validation is applied and fixed for the monitoring period thereafter. The data is sourced from "Emission Factors of Electricity Interconnection Systems", National Committee on Clean Development Mechanism Indonesian DNA for CDM unless otherwise instructed by the Joint Committee.	n/a
P <sub>diesel</sub>	Weighted average density of diesel	1	kg/L	a) Values provided by the fuel supplier in invoices, or b) Regional or national default value.	n/a
NCV <sub>diesel</sub>	Net calorific value of diesel	41.4	TJ/Gg	IPCC default values provided in table 1.2 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a
EF <sub>diesel</sub>	Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ	IPCC default values provided in table 1.4 of Ch.1 Vol.2 of 2006 IPCC Guidelines on National GHG Inventories. Lower value is applied.	n/a

Table3: Ex-post calculation of CO<sub>2</sub> emission reductions

 ables. $E_{2}$ -post calculation of $OO_{2}$ emission reductions							
Monitoring Period	CO <sub>2</sub> emission reductions	Units					
2018/01/31-2018/12/31	1	tCO <sub>2</sub> /p					

#### [Monitoring option]

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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 specifications)
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)

Monito	oring Report Sheet (Calculation Process Sheet) [For \	/erification]			
I. Calcı	ulations for emission reductions	Fuel type	Value	Units	Parameter
Emi	ission reductions during the period <i>p</i>	n/a	1.21941917	tCO <sub>2</sub> /p	$ER_{p}$
. Selec	cted default values, etc.				
Net	calorific value of diesel	Diesel	41.4	TJ/Gg	NCV <sub>diesel</sub>
Dies	sel CO <sub>2</sub> emission factor	Diesel	72,600	kgCO <sub>2</sub> /TJ	EF <sub>diesel</sub>
. Calcı	ulations for reference emissions				
Ref	erence emissions during the period <i>p</i>	n/a	8.05569156	tCO <sub>2</sub> /p	REp
	Total electricity consumption at <i>BTSi</i> during the period <i>p</i>	Electricity	9	MWh/p	EC <sub>i,p</sub>
	The amount of grid electricity consumed at <i>BTSi</i> during the period <i>p</i>	Electricity	8	MWh/p	$EC_{i,grid,p}$
	The amount of electricity generated by the project diesel generator at <i>BTSi</i> during the period <i>p</i>	Electricity	0	MWh/p	EC <sub>i,diesel,p</sub>
	The amount of electricity generated by the project solar PV system at <i>BTSi</i> during the period <i>p</i>	Electricity	1	MWh/p	EC <sub>i,solar,p</sub>
	Hours for which electricity is available from grid at <i>BTSi</i> during the period <i>p</i>	n/a	4,748	h/p	ті,р
	Total hours of operation of <i>BTSi</i> during the period <i>p</i>	n/a	4,872	h/p	T <sub>i,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	$EF_{grid}$
	Design efficiency of diesel generator operated at the project BTS at the time of validation at 25% load to be installed at <i>BTSi</i>	n/a	2	L/h	φ <sub>i</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$
. Calcı	ulations of the project emissions				
Proj	ject emissions during the period <i>p</i>	n/a	6.83627239	tCO <sub>2</sub> /p	PEp
	The amount of grid electricity consumed at $BTS_i$ during the period $p$	Electricity	8	MWh/p	EC <sub>i,grid,p</sub>
	Grid CO <sub>2</sub> emission factor	Electricity	0.855	tCO <sub>2</sub> /MWh	$EF_{grid}$
	The quantity of diesel consumed at <i>BTS</i> <sub>i</sub> during the period <i>p</i>	Diesel	49	L/p	FC <sub>i,diesel,p</sub>
	Weighted average density of diesel	Diesel	1	kg/L	$\rho_{diesel}$

Net calorific value of diesel	41.4	TJ/Gg
Diesel CO <sub>2</sub> emission factor	72,600	kgCO <sub>2</sub> /TJ