Monitoring Report Sheet (Input Sheet) [For Verification]

Table 1: Parameters monitored *ex post*

(a) Monitoring period	(b) Monitoring point No.	(c) Parameters	(d) Description of data	(e) Monitored Values	(f) Units	(g) Monitoring option	(h) Source of data	(i) Measurement methods and procedures	(j) Monitoring frequency	(k) Other comments
2017/3/1-2017/12/31	(1)	$EC_{PJ,i,p}$	Power consumption of project chiller *i* during the period *p*	250	MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: The meter was calibrated on 06/01/2016 at the time of shipment from the factory. The accuracy level is in accordance with the meter specification (accuracy: ±0.5%). It is calibrated when the meter shows the unnatural value in periodical checks.	Continuously	
	(2)	$FC_{PJ,p}$	The amount of fuel input for power generation during the monitoring period *p*		mass or weight/p	Option B	Invoice from fuel supply company	Data is collected and recorded from the invoices by the fuel supply company.	Continuously	for option c), Not applicable to this project
	(3)	$EG_{PJ,p}$	The amount of electricity generated during the monitoring period *p*		MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: In case a calibration certificate issued by an entity accredited under national/international standards is not provided, such measuring equipment is required to be calibrated.	Continuously	for option c), Not applicable to this project

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

(a) Parameters	(b) Description of data	(c) Estimated Values	(d) Units	(e) Source of data	(f) Other comments
EF_{elec}	[For grid electricity] CO_2 emission factor for consumed electricity	0.670	tCO_2/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 "Grid Emission Factor (GEF) of Bangladesh", endorsed by National CDM Committee unless otherwise instructed by the Joint Committee.	Letter No. DOE/International Convention/2012/21/07 dated 19 08 2013
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option a**	0.000	tCO_2/MWh	Determined based on the following options: a) the most recent value available from CDM approved small scale methodology AMS-I.A., b) power generation efficiency obtained from manufacturer's specification, and c) the power generation efficiency calculated from monitored data of the amount of fuel input for power generation and the amount of electricity generated.	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option b**	0.000	tCO_2/MWh	Calculated	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option c**	0.000	tCO_2/MWh	Calculated	
$T_{cooling\text{-}out,i}$	Output cooling water temperature of project chiller *i* set under the project specific condition	37.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$T_{chilled\text{-}out,i}$	Output chilled water temperature of project chiller *i* set under the project specific condition	7.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{RE,i}$	COP of reference chiller *i* under the standardizing temperature conditions	5.13	-	Selected from the default values set in the methodology	
$COP_{PJ,i}$	COP of project chiller *i* under the project specific conditions	6.16	-	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{PJ,tc,i}$	COP of project chiller *i* calculated under the standardizing temperature conditions	6.16	-	Calculated with the following equation; $COP_{PJ,tc,i} = COP_{PJ,i} \times [(T_{cooling\text{-}out,i} - T_{chilled\text{-}out,i} + TD_{chilled} + TD_{cooling}) \div (37 - 7 + TD_{chilled} + TD_{cooling})]$	
η_{elec}	Power generation efficiency	0.0	%	Specification of the captive power generation system provided by the manufacturer	for option b)
NCV_{fuel}	Net calorific value of consumed fuel	0.00	GJ/mass or weight	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for option c)
EF_{fuel}	CO_2 emission factor of consumed fuel	0.00	tCO_2/GJ	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for both option b) and c)

Table3: *Ex-post* calculation of CO_2 emission reductions

Monitoring Period	CO_2 emission reductions	Units
2017/3/1-2017/12/31	33	tCO_2/p

[Monitoring option]

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

Monitoring Spreadsheet: JCM_BD_AM001_ver01.0
Reference Number: BD002

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

1. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period *p*	N/A	33.65	tCO_2/p	ER_p
2. Selected default values, etc.				
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
3. Calculations for reference emissions				
Reference emissions during the period *p*	N/A	201.27	tCO_2/p	RE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	250	MWh/p	$EC_{PJ,i,p}$
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
COP of project chiller *i* calculated under the standardizing temperature conditions	N/A	6.16	-	$COP_{PJ,tc,i}$
4. Calculations of the project emissions				
Project emissions during the period *p*	N/A	167.61	tCO_2/p	PE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	250	MWh/p	$EC_{PJ,i,p}$

[List of Default Values]

$COP_{RE,i}$ (x<300USRt)	5.13	-
$COP_{RE,i}$ (300≦x<700USRt)	5.50	-
$COP_{RE,i}$ (700≦x<1,150USRt)	5.66	-

$TD_{cooling}$	1.5	degree Celsius
$TD_{chilled}$	1.5	degree Celsius

Monitoring Report Sheet (Input Sheet) [For Verification]

Table 1: Parameters monitored *ex post*

(a) Monitoring period	(b) Monitoring point No.	(c) Parameters	(d) Description of data	(e) Monitored Values	(f) Units	(g) Monitoring option	(h) Source of data	(i) Measurement methods and procedures	(j) Monitoring frequency	(k) Other comments
2017/3/1-2017/12/31	(1)	$EC_{PJ,i,p}$	Power consumption of project chiller *i* during the period *p*	0	MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: The meter was calibrated on 11/09/2017 at the time of shipment from the factory. The accuracy level is in accordance with the meter specification (accuracy: ±0.5%). It is calibrated when the meter shows the unnatural value in periodical checks.	Continuously	
	(2)	$FC_{PJ,p}$	The amount of fuel input for power generation during the monitoring period *p*		mass or weight/p	Option B	Invoice from fuel supply company	Data is collected and recorded from the invoices by the fuel supply company.	Continuously	for option c), Not applicable to this project
	(3)	$EG_{PJ,p}$	The amount of electricity generated during the monitoring period *p*		MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: In case a calibration certificate issued by an entity accredited under national/international standards is not provided, such measuring equipment is required to be calibrated.	Continuously	for option c), Not applicable to this project

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

(a) Parameters	(b) Description of data	(c) Estimated Values	(d) Units	(e) Source of data	(f) Other comments
EF_{elec}	[For grid electricity] CO_2 emission factor for consumed electricity	0.670	tCO_2/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 "Grid Emission Factor (GEF) of Bangladesh", endorsed by National CDM Committee unless otherwise instructed by the Joint Committee.	Letter No. DOE/International Convention/2012/21/07 dated 19. 08. 2013
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option a**	0.000	tCO_2/MWh	Determined based on the following options: a) the most recent value available from CDM approved small scale methodology AMS-I.A., b) power generation efficiency obtained from manufacturer's specification, and c) the power generation efficiency calculated from monitored data of the amount of fuel input for power generation and the amount of electricity generated.	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option b**	0.000	tCO_2/MWh	Calculated	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option c**	0.000	tCO_2/MWh	Calculated	
$T_{cooling-out,i}$	Output cooling water temperature of project chiller *i* set under the project specific condition	37.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$T_{chilled-out,i}$	Output chilled water temperature of project chiller *i* set under the project specific condition	6.9	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{RE,i}$	COP of reference chiller *i* under the standardizing temperature conditions	5.13	-	Selected from the default values set in the methodology	
$COP_{PJ,i}$	COP of project chiller *i* under the project specific conditions	6.16	-	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{PJ,tc,i}$	COP of project chiller *i* calculated under the standardizing temperature conditions	6.18	-	Calculated with the following equation; $COP_{PJ,tc,i} = COP_{PJ,i} \times [(T_{cooling-out,i} - T_{chilled-out,i} + TD_{chilled} + TD_{cooling}) \div (37 - 7 + TD_{chilled} + TD_{cooling})]$	
η_{elec}	Power generation efficiency	0.0	%	Specification of the captive power generation system provided by the manufacturer	for option b)
NCV_{fuel}	Net calorific value of consumed fuel	0.00	GJ/mass or weight	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for option c)
EF_{fuel}	CO_2 emission factor of consumed fuel	0.00	tCO_2/GJ	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for both option b) and c)

Table3: *Ex-post* calculation of CO_2 emission reductions

Monitoring Period	CO_2 emission reductions	Units
2017/3/1-2017/12/31	0	tCO_2/p

[Monitoring option]

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

Monitoring Spreadsheet: JCM_BD_AM001_ver01.0

Reference Number: BD002

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

1. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period *p*	N/A	0.00	tCO_2/p	ER_p
2. Selected default values, etc.				
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
3. Calculations for reference emissions				
Reference emissions during the period *p*	N/A	0.00	tCO_2/p	RE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	0	MWh/p	$EC_{PJ,i,p}$
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
COP of project chiller *i* calculated under the standardizing temperature conditions	N/A	6.18	-	$COP_{PJ,tc,i}$
4. Calculations of the project emissions				
Project emissions during the period *p*	N/A	0.00	tCO_2/p	PE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	0	MWh/p	$EC_{PJ,i,p}$

[List of Default Values]

$COP_{RE,i}$ (x<300USRt)	5.13	-
$COP_{RE,i}$ (300≦x<700USRt)	5.50	-
$COP_{RE,i}$ (700≦x<1,150USRt)	5.66	-

$TD_{cooling}$	1.5	degree Celsius
$TD_{chilled}$	1.5	degree Celsius

Monitoring Report Sheet (Input Sheet) [For Verification]

Table 1: Parameters monitored *ex post*

(a) Monitoring period	(b) Monitoring point No.	(c) Parameters	(d) Description of data	(e) Monitored Values	(f) Units	(g) Monitoring option	(h) Source of data	(i) Measurement methods and procedures	(j) Monitoring frequency	(k) Other comments
2017/3/1-2017/12/31	(1)	$EC_{PJ,i,p}$	Power consumption of project chiller *i* during the period *p*	0	MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: The meter was calibrated on 11/09/2017 at the time of shipment from the factory. The accuracy level is in accordance with the meter specification (accuracy: ±0.5%). It is calibrated when the meter shows the unnatural value in periodical checks	Continuously	
	(2)	$FC_{PJ,p}$	The amount of fuel input for power generation during the monitoring period *p*		mass or weight/p	Option B	Invoice from fuel supply company	Data is collected and recorded from the invoices by the fuel supply company.	Continuously	for option c), Not applicable to this project
	(3)	$EG_{PJ,p}$	The amount of electricity generated during the monitoring period *p*		MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: In case a calibration certificate issued by an entity accredited under national/international standards is not provided, such measuring equipment is required to be calibrated.	Continuously	for option c), Not applicable to this project

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

(a) Parameters	(b) Description of data	(c) Estimated Values	(d) Units	(e) Source of data	(f) Other comments
EF_{elec}	[For grid electricity] CO_2 emission factor for consumed electricity	0.670	tCO_2/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 "Grid Emission Factor (GEF) of Bangladesh", endorsed by National CDM Committee unless otherwise instructed by the Joint Committee.	Letter No. DOE/International Convention/2012/21/07 dated 19 08 2013
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option a**	0.000	tCO_2/MWh	Determined based on the following options: a) the most recent value available from CDM approved small scale methodology AMS-I.A., b) power generation efficiency obtained from manufacturer's specification, and c) the power generation efficiency calculated from monitored data of the amount of fuel input for power generation and the amount of electricity generated.	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option b**	0.000	tCO_2/MWh	Calculated	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option c**	0.000	tCO_2/MWh	Calculated	
$T_{cooling\text{-}out,i}$	Output cooling water temperature of project chiller *i* set under the project specific condition	37.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$T_{chilled\text{-}out,i}$	Output chilled water temperature of project chiller *i* set under the project specific condition	7.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{RE,i}$	COP of reference chiller *i* under the standardizing temperature conditions	5.13	-	Selected from the default values set in the methodology	
$COP_{PJ,i}$	COP of project chiller *i* under the project specific conditions	6.16	-	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{PJ,tc,i}$	COP of project chiller *i* calculated under the standardizing temperature conditions	6.16	-	Calculated with the following equation; $COP_{PJ,tc,i} = COP_{PJ,i} \times [(T_{cooling\text{-}out,i} - T_{chilled\text{-}out,i} + TD_{chilled} + TD_{cooling}) \div (37 - 7 + TD_{chilled} + TD_{cooling})]$	
η_{elec}	Power generation efficiency	0.0	%	Specification of the captive power generation system provided by the manufacturer	for option b)
NCV_{fuel}	Net calorific value of consumed fuel	0.00	GJ/mass or weight	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for option c)
EF_{fuel}	CO_2 emission factor of consumed fuel	0.00	tCO_2/GJ	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for both option b) and c)

Table3: *Ex-post* calculation of CO_2 emission reductions

Monitoring Period	CO_2 emission reductions	Units
2017/3/1-2017/12/31	0	tCO_2/p

[Monitoring option]

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

Monitoring Spreadsheet: JCM_BD_AM001_ver01.0
Reference Number: BD002

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

1. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period *p*	N/A	0.00	tCO_2/p	ER_p
2. Selected default values, etc.				
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
3. Calculations for reference emissions				
Reference emissions during the period *p*	N/A	0.00	tCO_2/p	RE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	0	MWh/p	$EC_{PJ,i,p}$
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
COP of project chiller *i* calculated under the standardizing temperature conditions	N/A	6.16	-	$COP_{PJ,tc,i}$
4. Calculations of the project emissions				
Project emissions during the period *p*	N/A	0.00	tCO_2/p	PE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	0	MWh/p	$EC_{PJ,i,p}$

[List of Default Values]

$COP_{RE,i}$ (x<300USRt)	5.13	-
$COP_{RE,i}$ (300≦x<700USRt)	5.50	-
$COP_{RE,i}$ (700≦x<1,150USRt)	5.66	-

$TD_{cooling}$	1.5	degree Celsius
$TD_{chilled}$	1.5	degree Celsius

Monitoring Report Sheet (Input Sheet) [For Verification]

Table 1: Parameters monitored *ex post*

(a) Monitoring period	(b) Monitoring point No.	(c) Parameters	(d) Description of data	(e) Monitored Values	(f) Units	(g) Monitoring option	(h) Source of data	(i) Measurement methods and procedures	(j) Monitoring frequency	(k) Other comments
2018/1/1-2018/12/31	(1)	$EC_{PJ,i,p}$	Power consumption of project chiller *i* during the period *p*	532	MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: The meter was calibrated on 06/01/2016 at the time of shipment from the factory. The accuracy level is in accordance with the meter specification (accuracy: ±0.5%). It is calibrated when the meter shows the unnatural value	Continuously	
	(2)	$FC_{PJ,p}$	The amount of fuel input for power generation during the monitoring period *p*		mass or weight/p	Option B	Invoice from fuel supply company	Data is collected and recorded from the invoices by the fuel supply company.	Continuously	for option c), Not applicable to this project
	(3)	$EG_{PJ,p}$	The amount of electricity generated during the monitoring period *p*		MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: In case a calibration certificate issued by an entity accredited under national/international standards is not provided, such measuring equipment is required to be calibrated.	Continuously	for option c), Not applicable to this project

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

(a) Parameters	(b) Description of data	(c) Estimated Values	(d) Units	(e) Source of data	(f) Other comments
EF_{elec}	[For grid electricity] CO_2 emission factor for consumed electricity	0.670	tCO_2/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 "Grid Emission Factor (GEF) of Bangladesh", endorsed by National CDM Committee unless otherwise instructed by the Joint Committee.	Letter No. DOE/International Convention/2012/21/07 dated 19 08 2013
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option a**	0.000	tCO_2/MWh	Determined based on the following options: a) the most recent value available from CDM approved small scale methodology AMS-I.A., b) power generation efficiency obtained from manufacturer's specification, and c) the power generation efficiency calculated from monitored data of the amount of fuel input for power generation and the amount of electricity generated.	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option b**	0.000	tCO_2/MWh	Calculated	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option c**	0.000	tCO_2/MWh	Calculated	
$T_{cooling\text{-}out,i}$	Output cooling water temperature of project chiller *i* set under the project specific condition	37.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$T_{chilled\text{-}out,i}$	Output chilled water temperature of project chiller *i* set under the project specific condition	7.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{RE,i}$	COP of reference chiller *i* under the standardizing temperature conditions	5.13	-	Selected from the default values set in the methodology	
$COP_{PJ,i}$	COP of project chiller *i* under the project specific conditions	6.16	-	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{PJ,tc,i}$	COP of project chiller *i* calculated under the standardizing temperature conditions	6.16	-	Calculated with the following equation; $COP_{PJ,tc,i} = COP_{PJ,i} \times [(T_{cooling\text{-}out,i} - T_{chilled\text{-}out,i} + TD_{chilled} + TD_{cooling}) \div (37 - 7 + TD_{chilled} + TD_{cooling})]$	
η_{elec}	Power generation efficiency	0.0	%	Specification of the captive power generation system provided by the manufacturer	for option b)
NCV_{fuel}	Net calorific value of consumed fuel	0.00	GJ/mass or weight	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for option c)
EF_{fuel}	CO_2 emission factor of consumed fuel	0.00	tCO_2/GJ	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for both option b) and c)

Table3: *Ex-post* calculation of CO_2 emission reductions

Monitoring Period	CO_2 emission reductions	Units
2018/1/1-2018/12/31	71	tCO_2/p

[Monitoring option]

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

Monitoring Spreadsheet: JCM_BD_AM001_ver01.0
Reference Number: BD002

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

1. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period *p*	N/A	71.62	tCO_2/p	ER_p
2. Selected default values, etc.				
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
3. Calculations for reference emissions				
Reference emissions during the period *p*	N/A	428.35	tCO_2/p	RE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	532	MWh/p	$EC_{PJ,i,p}$
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
COP of project chiller *i* calculated under the standardizing temperature conditions	N/A	6.16	-	$COP_{PJ,tc,i}$
4. Calculations of the project emissions				
Project emissions during the period *p*	N/A	356.73	tCO_2/p	PE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	532	MWh/p	$EC_{PJ,i,p}$

[List of Default Values]

$COP_{RE,i}$ (x<300USRt)	5.13	-
$COP_{RE,i}$ (300≦x<700USRt)	5.50	-
$COP_{RE,i}$ (700≦x<1,150USRt)	5.66	-

$TD_{cooling}$	1.5	degree Celsius
$TD_{chilled}$	1.5	degree Celsius

Monitoring Report Sheet (Input Sheet) [For Verification]

Table 1: Parameters monitored *ex post*

(a) Monitoring period	(b) Monitoring point No.	(c) Parameters	(d) Description of data	(e) Monitored Values	(f) Units	(g) Monitoring option	(h) Source of data	(i) Measurement methods and procedures	(j) Monitoring frequency	(k) Other comments
2018/1/1-2018/12/31	(1)	$EC_{PJ,i,p}$	Power consumption of project chiller *i* during the period *p*	0	MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: The meter was calibrated on 11/09/2017 at the time of shipment from the factory. The accuracy level is in accordance with the meter specification (accuracy: ±0.5%). It is calibrated when the meter shows the unnatural value in periodical checks.	Continuously	
	(2)	$FC_{PJ,p}$	The amount of fuel input for power generation during the monitoring period *p*		mass or weight/p	Option B	Invoice from fuel supply company	Data is collected and recorded from the invoices by the fuel supply company.	Continuously	for option c), Not applicable to this project
	(3)	$EG_{PJ,p}$	The amount of electricity generated during the monitoring period *p*		MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: In case a calibration certificate issued by an entity accredited under national/international standards is not provided, such measuring equipment is required to be calibrated.	Continuously	for option c), Not applicable to this project

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

(a) Parameters	(b) Description of data	(c) Estimated Values	(d) Units	(e) Source of data	(f) Other comments
EF_{elec}	[For grid electricity] CO_2 emission factor for consumed electricity	0.670	tCO_2/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 "Grid Emission Factor (GEF) of Bangladesh", endorsed by National CDM Committee unless otherwise instructed by the Joint Committee.	Letter No. DOE/International Convention/2012/21/07 dated 19. 08. 2013
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option a**	0.000	tCO_2/MWh	Determined based on the following options: a) the most recent value available from CDM approved small scale methodology AMS-I.A., b) power generation efficiency obtained from manufacturer's specification, and c) the power generation efficiency calculated from monitored data of the amount of fuel input for power generation and the amount of electricity generated.	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option b**	0.000	tCO_2/MWh	Calculated	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option c**	0.000	tCO_2/MWh	Calculated	
$T_{cooling-out,i}$	Output cooling water temperature of project chiller *i* set under the project specific condition	37.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$T_{chilled-out,i}$	Output chilled water temperature of project chiller *i* set under the project specific condition	6.9	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{RE,i}$	COP of reference chiller *i* under the standardizing temperature conditions	5.13	-	Selected from the default values set in the methodology	
$COP_{PJ,i}$	COP of project chiller *i* under the project specific conditions	6.16	-	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{PJ,tc,i}$	COP of project chiller *i* calculated under the standardizing temperature conditions	6.18	-	Calculated with the following equation; $COP_{PJ,tc,i} = COP_{PJ,i} \times [(T_{cooling-out,i} - T_{chilled-out,i} + TD_{chilled} + TD_{cooling}) \div (37 - 7 + TD_{chilled} + TD_{cooling})]$	
η_{elec}	Power generation efficiency	0.0	%	Specification of the captive power generation system provided by the manufacturer	for option b)
NCV_{fuel}	Net calorific value of consumed fuel	0.00	GJ/mass or weight	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for option c)
EF_{fuel}	CO_2 emission factor of consumed fuel	0.00	tCO_2/GJ	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for both option b) and c)

Table3: *Ex-post* calculation of CO_2 emission reductions

Monitoring Period	CO_2 emission reductions	Units
2018/1/1-2018/12/31	0	tCO_2/p

[Monitoring option]

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

Monitoring Spreadsheet: JCM_BD_AM001_ver01.0

Reference Number: BD002

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

1. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period *p*	N/A	0.00	tCO_2/p	ER_p
2. Selected default values, etc.				
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
3. Calculations for reference emissions				
Reference emissions during the period *p*	N/A	0.00	tCO_2/p	RE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	0	MWh/p	$EC_{PJ,i,p}$
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
COP of project chiller *i* calculated under the standardizing temperature conditions	N/A	6.18	-	$COP_{PJ,tc,i}$
4. Calculations of the project emissions				
Project emissions during the period *p*	N/A	0.00	tCO_2/p	PE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	0	MWh/p	$EC_{PJ,i,p}$

[List of Default Values]

$COP_{RE,i}$ (x<300USRt)	5.13	-
$COP_{RE,i}$ (300≦x<700USRt)	5.50	-
$COP_{RE,i}$ (700≦x<1,150USRt)	5.66	-

$TD_{cooling}$	1.5	degree Celsius
$TD_{chilled}$	1.5	degree Celsius

Monitoring Report Sheet (Input Sheet) [For Verification]

Table 1: Parameters monitored *ex post*

(a) Monitoring period	(b) Monitoring point No.	(c) Parameters	(d) Description of data	(e) Monitored Values	(f) Units	(g) Monitoring option	(h) Source of data	(i) Measurement methods and procedures	(j) Monitoring frequency	(k) Other comments
2018/1/1-2018/12/31	(1)	$EC_{PJ,i,p}$	Power consumption of project chiller *i* during the period *p*	0	MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: The meter was calibrated on 11/09/2017 at the time of shipment from the factory. The accuracy level is in accordance with the meter specification (accuracy: ±0.5%). It is calibrated when the meter shows the unnatural value in periodical checks	Continuously	
	(2)	$FC_{PJ,p}$	The amount of fuel input for power generation during the monitoring period *p*		mass or weight/p	Option B	Invoice from fuel supply company	Data is collected and recorded from the invoices by the fuel supply company.	Continuously	for option c), Not applicable to this project
	(3)	$EG_{PJ,p}$	The amount of electricity generated during the monitoring period *p*		MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: In case a calibration certificate issued by an entity accredited under national/international standards is not provided, such measuring equipment is required to be calibrated.	Continuously	for option c), Not applicable to this project

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

(a) Parameters	(b) Description of data	(c) Estimated Values	(d) Units	(e) Source of data	(f) Other comments
EF_{elec}	[For grid electricity] CO_2 emission factor for consumed electricity	0.670	tCO_2/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 "Grid Emission Factor (GEF) of Bangladesh", endorsed by National CDM Committee unless otherwise instructed by the Joint Committee.	Letter No. DOE/International Convention/2012/21/07 dated 19 08 2013
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option a**	0.000	tCO_2/MWh	Determined based on the following options: a) the most recent value available from CDM approved small scale methodology AMS-I.A., b) power generation efficiency obtained from manufacturer's specification, and c) the power generation efficiency calculated from monitored data of the amount of fuel input for power generation and the amount of electricity generated.	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option b**	0.000	tCO_2/MWh	Calculated	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option c**	0.000	tCO_2/MWh	Calculated	
$T_{cooling-out,i}$	Output cooling water temperature of project chiller *i* set under the project specific condition	37.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$T_{chilled-out,i}$	Output chilled water temperature of project chiller *i* set under the project specific condition	7.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{RE,i}$	COP of reference chiller *i* under the standardizing temperature conditions	5.13	-	Selected from the default values set in the methodology	
$COP_{PJ,i}$	COP of project chiller *i* under the project specific conditions	6.16	-	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{PJ,tc,i}$	COP of project chiller *i* calculated under the standardizing temperature conditions	6.16	-	Calculated with the following equation; $COP_{PJ,tc,i} = COP_{PJ,i} \times [(T_{cooling-out,i} - T_{chilled-out,i} + TD_{chilled} + TD_{cooling}) \div (37 - 7 + TD_{chilled} + TD_{cooling})]$	
η_{elec}	Power generation efficiency	0.0	%	Specification of the captive power generation system provided by the manufacturer	for option b)
NCV_{fuel}	Net calorific value of consumed fuel	0.00	GJ/mass or weight	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for option c)
EF_{fuel}	CO_2 emission factor of consumed fuel	0.00	tCO_2/GJ	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for both option b) and c)

Table3: *Ex-post* calculation of CO_2 emission reductions

Monitoring Period	CO_2 emission reductions	Units
2018/1/1-2018/12/31	0	tCO_2/p

[Monitoring option]

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

Monitoring Spreadsheet: JCM_BD_AM001_ver01.0
Reference Number: BD002

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

1. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period *p*	N/A	0.00	tCO_2/p	ER_p
2. Selected default values, etc.				
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
3. Calculations for reference emissions				
Reference emissions during the period *p*	N/A	0.00	tCO_2/p	RE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	0	MWh/p	$EC_{PJ,i,p}$
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
COP of project chiller *i* calculated under the standardizing temperature conditions	N/A	6.16	-	$COP_{PJ,tc,i}$
4. Calculations of the project emissions				
Project emissions during the period *p*	N/A	0.00	tCO_2/p	PE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	0	MWh/p	$EC_{PJ,i,p}$

[List of Default Values]

$COP_{RE,i}$ (x<300USRt)	5.13	-
$COP_{RE,i}$ (300≦x<700USRt)	5.50	-
$COP_{RE,i}$ (700≦x<1,150USRt)	5.66	-

$TD_{cooling}$	1.5	degree Celsius
$TD_{chilled}$	1.5	degree Celsius

Monitoring Report Sheet (Input Sheet) [For Verification]

Table 1: Parameters monitored *ex post*

(a) Monitoring period	(b) Monitoring point No.	(c) Parameters	(d) Description of data	(e) Monitored Values	(f) Units	(g) Monitoring option	(h) Source of data	(i) Measurement methods and procedures	(j) Monitoring frequency	(k) Other comments
2019/1/1-2019/7/31	(1)	$EC_{PJ,i,p}$	Power consumption of project chiller *i* during the period *p*	90	MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: The meter was calibrated on 06/01/2016 at the time of shipment from the factory. The accuracy level is in accordance with the meter specification (accuracy: ±0.5%). It is calibrated when the meter shows the unnatural value in periodical checks.	Continuously	
	(2)	$FC_{PJ,p}$	The amount of fuel input for power generation during the monitoring period *p*		mass or weight/p	Option B	Invoice from fuel supply company	Data is collected and recorded from the invoices by the fuel supply company.	Continuously	for option c), Not applicable to this project
	(3)	$EG_{PJ,p}$	The amount of electricity generated during the monitoring period *p*		MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: In case a calibration certificate issued by an entity accredited under national/international standards is not provided, such measuring equipment is required to be calibrated.	Continuously	for option c), Not applicable to this project

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

(a) Parameters	(b) Description of data	(c) Estimated Values	(d) Units	(e) Source of data	(f) Other comments
EF_{elec}	[For grid electricity] CO_2 emission factor for consumed electricity	0.670	tCO_2/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 "Grid Emission Factor (GEF) of Bangladesh", endorsed by National CDM Committee unless otherwise instructed by the Joint Committee.	Letter No. DOE/International Convention/2012/21/07 dated 19 08 2013
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option a**	0.000	tCO_2/MWh	Determined based on the following options: a) the most recent value available from CDM approved small scale methodology AMS-I.A., b) power generation efficiency obtained from manufacturer's specification, and c) the power generation efficiency calculated from monitored data of the amount of fuel input for power generation and the amount of electricity generated.	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option b**	0.000	tCO_2/MWh	Calculated	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option c**	0.000	tCO_2/MWh	Calculated	
$T_{cooling\text{-}out,i}$	Output cooling water temperature of project chiller *i* set under the project specific condition	37.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$T_{chilled\text{-}out,i}$	Output chilled water temperature of project chiller *i* set under the project specific condition	7.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{RE,i}$	COP of reference chiller *i* under the standardizing temperature conditions	5.13	-	Selected from the default values set in the methodology	
$COP_{PJ,i}$	COP of project chiller *i* under the project specific conditions	6.16	-	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{PJ,tc,i}$	COP of project chiller *i* calculated under the standardizing temperature conditions	6.16	-	Calculated with the following equation; $COP_{PJ,tc,i} = COP_{PJ,i} \times [(T_{cooling\text{-}out,i} - T_{chilled\text{-}out,i} + TD_{chilled} + TD_{cooling}) \div (37 - 7 + TD_{chilled} + TD_{cooling})]$	
η_{elec}	Power generation efficiency	0.0	%	Specification of the captive power generation system provided by the manufacturer	for option b)
NCV_{fuel}	Net calorific value of consumed fuel	0.00	GJ/mass or weight	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for option c)
EF_{fuel}	CO_2 emission factor of consumed fuel	0.00	tCO_2/GJ	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for both option b) and c)

Table3: *Ex-post* calculation of CO_2 emission reductions

Monitoring Period	CO_2 emission reductions	Units
2019/1/1-2019/7/31	12	tCO_2/p

[Monitoring option]

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

Monitoring Spreadsheet: JCM_BD_AM001_ver01.0
Reference Number: BD002

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

1. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period *p*	N/A	12.14	tCO_2/p	ER_p
2. Selected default values, etc.				
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
3. Calculations for reference emissions				
Reference emissions during the period *p*	N/A	72.58	tCO_2/p	RE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	90	MWh/p	$EC_{PJ,i,p}$
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
COP of project chiller *i* calculated under the standardizing temperature conditions	N/A	6.16	-	$COP_{PJ,tc,i}$
4. Calculations of the project emissions				
Project emissions during the period *p*	N/A	60.44	tCO_2/p	PE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	90	MWh/p	$EC_{PJ,i,p}$

[List of Default Values]

$COP_{RE,i}$ (x<300USRt)	5.13	-
$COP_{RE,i}$ (300≦x<700USRt)	5.50	-
$COP_{RE,i}$ (700≦x<1,150USRt)	5.66	-

$TD_{cooling}$	1.5	degree Celsius
$TD_{chilled}$	1.5	degree Celsius

Monitoring Report Sheet (Input Sheet) [For Verification]

Table 1: Parameters monitored *ex post*

(a) Monitoring period	(b) Monitoring point No.	(c) Parameters	(d) Description of data	(e) Monitored Values	(f) Units	(g) Monitoring option	(h) Source of data	(i) Measurement methods and procedures	(j) Monitoring frequency	(k) Other comments
2019/1/1-2019/7/31	(1)	$EC_{PJ,i,p}$	Power consumption of project chiller *i* during the period *p*	101	MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: The meter was calibrated on 11/09/2017 at the time of shipment from the factory. The accuracy level is in accordance with the meter specification (accuracy: ±0.5%). It is calibrated when the meter shows the unnatural value in periodical checks.	Continuously	
	(2)	$FC_{PJ,p}$	The amount of fuel input for power generation during the monitoring period *p*		mass or weight/p	Option B	Invoice from fuel supply company	Data is collected and recorded from the invoices by the fuel supply company.	Continuously	for option c), Not applicable to this project
	(3)	$EG_{PJ,p}$	The amount of electricity generated during the monitoring period *p*		MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: In case a calibration certificate issued by an entity accredited under national/international standards is not provided, such measuring equipment is required to be calibrated.	Continuously	for option c), Not applicable to this project

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

(a) Parameters	(b) Description of data	(c) Estimated Values	(d) Units	(e) Source of data	(f) Other comments
EF_{elec}	[For grid electricity] CO_2 emission factor for consumed electricity	0.670	tCO_2/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 "Grid Emission Factor (GEF) of Bangladesh", endorsed by National CDM Committee unless otherwise instructed by the Joint Committee.	Letter No. DOE/International Convention/2012/21/07 dated 19. 08. 2013
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option a**	0.000	tCO_2/MWh	Determined based on the following options: a) the most recent value available from CDM approved small scale methodology AMS-I.A., b) power generation efficiency obtained from manufacturer's specification, and c) the power generation efficiency calculated from monitored data of the amount of fuel input for power generation and the amount of electricity generated.	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option b**	0.000	tCO_2/MWh	Calculated	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option c**	0.000	tCO_2/MWh	Calculated	
$T_{cooling\text{-}out,i}$	Output cooling water temperature of project chiller *i* set under the project specific condition	37.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$T_{chilled\text{-}out,i}$	Output chilled water temperature of project chiller *i* set under the project specific condition	6.9	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{RE,i}$	COP of reference chiller *i* under the standardizing temperature conditions	5.13	-	Selected from the default values set in the methodology	
$COP_{PJ,i}$	COP of project chiller *i* under the project specific conditions	6.16	-	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{PJ,tc,i}$	COP of project chiller *i* calculated under the standardizing temperature conditions	6.18	-	Calculated with the following equation; $COP_{PJ,tc,i} = COP_{PJ,i} \times [(T_{cooling\text{-}out,i} - T_{chilled\text{-}out,i} + TD_{chilled} + TD_{cooling}) \div (37 - 7 + TD_{chilled} + TD_{cooling})]$	
η_{elec}	Power generation efficiency	0.0	%	Specification of the captive power generation system provided by the manufacturer	for option b)
NCV_{fuel}	Net calorific value of consumed fuel	0.00	GJ/mass or weight	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for option c)
EF_{fuel}	CO_2 emission factor of consumed fuel	0.00	tCO_2/GJ	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for both option b) and c)

Table3: *Ex-post* calculation of CO_2 emission reductions

Monitoring Period	CO_2 emission reductions	Units
2019/1/1-2019/7/31	13	tCO_2/p

[Monitoring option]

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

Monitoring Spreadsheet: JCM_BD_AM001_ver01.0
Reference Number: BD002

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

1. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period *p*	N/A	13.86	tCO_2/p	ER_p
2. Selected default values, etc.				
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
3. Calculations for reference emissions				
Reference emissions during the period *p*	N/A	81.65	tCO_2/p	RE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	101	MWh/p	$EC_{PJ,i,p}$
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
COP of project chiller *i* calculated under the standardizing temperature conditions	N/A	6.18	-	$COP_{PJ,tc,i}$
4. Calculations of the project emissions				
Project emissions during the period *p*	N/A	67.79	tCO_2/p	PE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	101	MWh/p	$EC_{PJ,i,p}$

[List of Default Values]

$COP_{RE,i}$ (x<300USRt)	5.13	-
$COP_{RE,i}$ (300≦x<700USRt)	5.50	-
$COP_{RE,i}$ (700≦x<1,150USRt)	5.66	-

$TD_{cooling}$	1.5	degree Celsius
$TD_{chilled}$	1.5	degree Celsius

Monitoring Report Sheet (Input Sheet) [For Verification]

Table 1: Parameters monitored *ex post*

(a) Monitoring period	(b) Monitoring point No.	(c) Parameters	(d) Description of data	(e) Monitored Values	(f) Units	(g) Monitoring option	(h) Source of data	(i) Measurement methods and procedures	(j) Monitoring frequency	(k) Other comments
2019/1/1-2019/7/31	(1)	$EC_{PJ,i,p}$	Power consumption of project chiller *i* during the period *p*	116	MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: The meter was calibrated on 11/09/2017 at the time of shipment from the factory. The accuracy level is in accordance with the meter specification (accuracy: ±0.5%). It is calibrated when the meter shows the unnatural value in periodical checks.	Continuously	
	(2)	$FC_{PJ,p}$	The amount of fuel input for power generation during the monitoring period *p*		mass or weight/p	Option B	Invoice from fuel supply company	Data is collected and recorded from the invoices by the fuel supply company.	Continuously	for option c), Not applicable to this project
	(3)	$EG_{PJ,p}$	The amount of electricity generated during the monitoring period *p*		MWh/p	Option C	Monitored data	Data is measured by measuring equipments in the factory. - Specification of measuring equipments: 1) Electrical power meter is applied for measurement of electrical power consumption of project chiller. 2) Meter is certified in compliance with national/international standards on electrical power meter. - Measuring and recording: 1) Measured data is recorded and stored in the measuring equipments. 2) Recorded data is checked its integrity once a month by responsible staff. - Calibration: In case a calibration certificate issued by an entity accredited under national/international standards is not provided, such measuring equipment is required to be calibrated.	Continuously	for option c), Not applicable to this project

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

(a) Parameters	(b) Description of data	(c) Estimated Values	(d) Units	(e) Source of data	(f) Other comments
EF_{elec}	[For grid electricity] CO_2 emission factor for consumed electricity	0.670	tCO_2/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 "Grid Emission Factor (GEF) of Bangladesh", endorsed by National CDM Committee unless otherwise instructed by the Joint Committee.	Letter No. DOE/International Convention/2012/21/07 dated 19 08 2013
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option a**	0.000	tCO_2/MWh	Determined based on the following options: a) the most recent value available from CDM approved small scale methodology AMS-I.A., b) power generation efficiency obtained from manufacturer's specification, and c) the power generation efficiency calculated from monitored data of the amount of fuel input for power generation and the amount of electricity generated.	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option b**	0.000	tCO_2/MWh	Calculated	
EF_{elec}	[For captive electricity] CO_2 emission factor for consumed electricity **Option c**	0.000	tCO_2/MWh	Calculated	
$T_{cooling\text{-}out,i}$	Output cooling water temperature of project chiller *i* set under the project specific condition	37.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$T_{chilled\text{-}out,i}$	Output chilled water temperature of project chiller *i* set under the project specific condition	7.0	degree Celsius	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{RE,i}$	COP of reference chiller *i* under the standardizing temperature conditions	5.13	-	Selected from the default values set in the methodology	
$COP_{PJ,i}$	COP of project chiller *i* under the project specific conditions	6.16	-	Specifications of project chiller i prepared for the quotation or factory acceptance test data by manufacturer	
$COP_{PJ,tc,i}$	COP of project chiller *i* calculated under the standardizing temperature conditions	6.16	-	Calculated with the following equation; $COP_{PJ,tc,i} = COP_{PJ,i} \times [(T_{cooling\text{-}out,i} - T_{chilled\text{-}out,i} + TD_{chilled} + TD_{cooling}) \div (37 - 7 + TD_{chilled} + TD_{cooling})]$	
η_{elec}	Power generation efficiency	0.0	%	Specification of the captive power generation system provided by the manufacturer	for option b)
NCV_{fuel}	Net calorific value of consumed fuel	0.00	GJ/mass or weight	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for option c)
EF_{fuel}	CO_2 emission factor of consumed fuel	0.00	tCO_2/GJ	In order of preference: 1) values provided by the fuel supplier; 2) measurement by the project participants; 3) regional or national default values; 4) 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.	for both option b) and c)

Table3: *Ex-post* calculation of CO_2 emission reductions

Monitoring Period	CO_2 emission reductions	Units
2019/1/1-2019/7/31	15	tCO_2/p

[Monitoring option]

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

Monitoring Spreadsheet: JCM_BD_AM001_ver01.0
Reference Number: BD002

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

1. Calculations for emission reductions	Fuel type	Value	Units	Parameter
Emission reductions during the period *p*	N/A	15.59	tCO_2/p	ER_p
2. Selected default values, etc.				
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
3. Calculations for reference emissions				
Reference emissions during the period *p*	N/A	93.22	tCO_2/p	RE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	116	MWh/p	$EC_{PJ,i,p}$
COP of reference chiller *i* under the standardizing temperature conditions	N/A	5.13	-	$COP_{RE,i}$
COP of project chiller *i* calculated under the standardizing temperature conditions	N/A	6.16	-	$COP_{PJ,tc,i}$
4. Calculations of the project emissions				
Project emissions during the period *p*	N/A	77.63	tCO_2/p	PE_p
CO_2 emission factor for consumed electricity [grid]	Electricity	0.670	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity [captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
CO_2 emission factor for consumed electricity with lower value [grid or captive]	Electricity	0.000	tCO_2/MWh	EF_{elec}
Power consumption of project chiller *i*	Electricity	116	MWh/p	$EC_{PJ,i,p}$

[List of Default Values]

$COP_{RE,i}$ (x<300USRt)	5.13	-
$COP_{RE,i}$ (300≦x<700USRt)	5.50	-
$COP_{RE,i}$ (700≦x<1,150USRt)	5.66	-

$TD_{cooling}$	1.5	degree Celsius
$TD_{chilled}$	1.5	degree Celsius