



**CLEAN DEVELOPMENT MECHANISM
PROGRAM ACTIVITY DESIGN DOCUMENT FORM (CDM-CPA-DD)
Version 01**

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NOTE:

(i) This form is for the submission of CPAs that apply a large scale methodology using provisions of the proposed PoA.

(ii) The coordinating/managing entity shall prepare a CDM Programme Activity Design Document (CDM-CPA-DD)^{1,2} that is specified to the proposed PoA by using the provisions stated in the PoA DD. At the time of requesting registration the PoA DD must be accompanied by a CDM-CPA-DD form that has been specified for the proposed PoA, as well as by one completed CDM-CPA-DD (using a real case). After the first CPA, every CPA that is added over time to the PoA must submit a completed CDM-CPA-DD.

¹ The latest version of the template form CDM-CPA-DD is available on the UNFCCC CDM web site in the reference/document section.

² At the time of requesting validation/registration, the coordinating managing entity is required to submit a completed CDM-POA-DD, the PoA specific CDM-CPA-DD, as well as one of such CDM-CPA-DD completed (using a real case).


SECTION A. General description of CDM programme activity (CPA)
A.1. Title of the CPA:

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Kogonwon Coal Mine (CMM-DPRK-1)

Version: 1

Date: 10/10/2011

A.2. Description of the CPA:

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Outline of the coal mine where the CPA is implemented:

The Kogonwon Coal Mine (고간원탄광) is located in the north of the DPR Korea. It is managed by the Ministry of Coal Industry, which holds the mining rights. The Kogonwon Coal Mine has been operating since 1920 and has an estimated reserve of 53 million tons of coal. It currently employs around 1,000 workers.

Kogonwon Coal Mine has demonstrated an average annual production capacity of 800,000 tons per year over the years 2006 to 2010 and is forecast to increase production to annually produce 2 million tons per year in accordance with the DPR Korea's policy to increase coal mining in the DPR Korea overall.

Kogonwon Coal Mine's main production level is at approximately 580 meters below sea level. It has 4 shafts with the Central Shaft being the main shaft for the supply of fresh air underground, as well as for transporting the workforce and mined coal.

Power supply at the mine is provided by Chongjin Thermoelectric Power Plant and Sodusu Hydroelectric Power Plant. The coal mine has a direct railway link from the mine.

Outline how methane is currently captured and vented:

Kogonwon Coal Mine is an underground mine where substantial amounts of coal mine methane (CMM) result from the active mining of coal. Currently all CMM is vented into the atmosphere through the existing air ventilation system.

The mine operates 3 main blowers with a capacity of 20m³/min each. The 3 main blowers are installed at the main shaft. Smaller back-up blowers are installed at the remaining 3 shafts. The ventilation system is designed to ensure the operational safety of the coal mining activity at the mine. CMM utilisation and destruction was not a consideration in the design and implementation of the ventilation system and the technology and skill to capture CMM at the site is not available in the DPR Korea at the moment.

The mine is estimated to produce around 8,000 tons of methane on an annual basis at present. As the mine continues to develop into deeper territories, it is estimated that the methane released by the mine will increase substantially. Additionally, the increase of production from the current level of 800,000 tons per year to 2 million tons per year will contribute to increased venting of CMM at the CPA site.

There is no infrastructure at the site that would allow the mine to capture CMM at present.

**Option selected by the CPA for use/destruction of CMM:**

In this CPA, the following equipment will be installed in order to achieve emission reductions:

- (i) Total number of flares

Number	Size (in MW)	Description
2	10	Enclosed flare for the combustion of coal-mine methane gas

Goals of the CPA:

The goal of the CPA is the destruction of the CMM from the Kogonwon Coal Mine. The installation of the equipment consisting of 2 flares at the site when fully operational and will destroy an estimated 12m³/year of CMM.

As a result of this project activity, a total of 1,001,345 tons of Co2e will be abated due to the conversion of methane with a GWP of 21 to Co2, having a GWP of 1 during the CPA's first crediting period.

Timeline schedule for the CPA

Equipment	Installation Date
Degasification system	July 2013
Flare	December 2013

A.3. Entity/individual responsible for CPA:

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The Korea Coal Foreign Economic Cooperation Company (KCFECC) is the CPA Operator. KCFECC has appointed Mr. Ri Thae Song, the Director of Foreign Economic Department of KCFECC to be responsible for the CPA. Kong Man Jom, the General Manager of the Kogonwon Coal Mine will be responsible for monitoring at the CPA site.

A.4. Technical description of the CPA:**A.4.1. Identification of the CPA:**

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A.4.1.1. Host Party:

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Democratic People's Republic of Korea



A.4.1.2. Geographic reference of other means of identification allowing the unique identification of the CPA (maximum one page):

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The CPA is located in Kogonwon Worker’s District, Gyongwon County, North Hamgyong Province, in the north of the Democratic People’s Republic of Korea. The CPA has geographic reference +42° 40' 26.55" N, +130° 12' 49.15" E.

Figure-1 and Figure-2 show the location of the project site





A.4.2. Duration of the CPA:

A.4.2.1. Starting date of the CPA:

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The start date of the CPA shall be the date on which construction work for the equipment needed to destroy or utilize CMM commences.

A.4.2.2. Expected operational lifetime of the CPA:

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A.4.3. Choice of the crediting period and related information:

Renewable crediting period

A.4.3.1. Starting date of the crediting period:

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The date on which the CPA is included in the PoA

A.4.3.2. Length of the crediting period, first crediting period if the choice is renewable CP:

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The length of the crediting period for this CPA is 7 years and can be renewed for two periods of seven years each.

A.4.4. Estimated amount of emission reductions over the chosen crediting period:

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The estimated amount of emission reductions for this CPA was calculated in accordance with the equations set out in the POA-DD titled “Coal mine Methane utilisation and Destruction Programme in DPR Korea”.

Table 1 – Estimated emissions reductions over the chosen crediting period

Year	Estimation of overall emission reductions (tonnes of CO ₂ e)
2014	105,251
2015	118,681
2016	132,112
2017	145,542
2018	158,973
2019	172,405
2020	168,381
Total (tonnes of CO ₂ e)	1,001,345
Average annual emissions reductions	143,049



A.4.5. Public funding of the CPA:

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No public funding from Parties is provided for this CPA

A.4.6. Confirmation that CPA is neither registered as an individual CDM project activity nor is part of another Registered PoA:

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This CPA is not a de-bundled component of a large-scale activity as evidenced by a letter issued by the Korea Coal Foreign Economic Cooperation Company (KCFECC).

Additionally, as described in the POA-DD of the PoA titled “Coal Mine Methane Utilisation and Destruction Programme in DPR Korea”, the coordinating/managing entity is maintaining a database that lists all included CPAs including their location, installed equipment and name of the company responsible for the CPA.

Before the inclusion of a CPA, the managing/coordinating entity will ensure by utilising this database that the CPA is not already included in this PoA.


SECTION B. Eligibility of CPA and Estimation of emissions reductions
B.1. Title and reference of the Registered PoA to which CPA is added:

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Coal Mine Methane Utilisation and Destruction Programme in DPR Korea

B.2. Justification of the why the CPA is eligible to be included in the Registered PoA :

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The PoA-DD titled Coal Mine Methane Utilisation and Destruction Programme in DPR Korea sets out the eligibility criteria for a CPA as follows:

1. The geographic boundary of the CPA lies within the DPR Korea;
2. A CPA reduces GHG emissions by utilising CMM for electricity and or power generation and/or destroys CMM through flaring;
3. The existing Approved CDM Methodology ACM0008 (Version 07) is applicable to the CPA.
4. For the purpose of determining baseline emissions, a CPA, in the baseline scenario, released all CMM into the atmosphere without destruction and utilisation;
5. A CPA operator confirms in a written statement that it is aware and agrees with the inclusion of the CPA in the PoA;
6. A CPA operator confirms in a written statement that it does not belong to any other PoA or CDM Project;
7. A CPA operator confirms in a written statement that they are not required by law or other policies to capture CMM at the CPA;

The CPA complies with all eligibility criteria as follows:

1. The geographic boundary of the CPA Kogonwon Coal Mine, which lies within the DPR Korea. The CPA has geographic reference +42°40'26.55" north and 130°40'12 east;
2. The CPA reduces GHG emissions by destroying CMM through flaring;
3. The existing Approved CDM Methodology ACM0008 (Version 07) is applicable to the CPA.
4. The baseline scenario for the CPA is the release of all CMM into the atmosphere without destruction and utilisation;
5. The CPA operator has signed a written statement confirming that it is aware and agrees with the inclusion of the CPA in the PoA;



6. The CPA operator has signed written statement confirming that it does not belong to any other PoA or CDM Project;
7. The CPA operator has signed a written statement confirming that they are not required by law or other policies to capture CMM at the CPA;

B.3. Assessment and demonstration of additionality of the CPA, as per eligibility criteria listed in the Registered PoA:

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The PoA-DD titled Coal Mine Methane Utilisation and Destruction Programme in DPR Korea sets out the following criteria for the assessment of additionality:

- (i) The CPA is not required by law or other statutes or measures to capture and utilise or destroy CMM;
- (ii) The CPA confirms that it does not have the financial resources to implement the project

The CPA complies with the additionality criteria as follows:

- (i) The Ministry of Environment signed a written statement confirming that the CPA is not by law or any other statutes or measures required to capture and utilise and/or destroy CMM;
- (ii) The CPA operator has signed a written statement confirming that it does not have the financial resources to implement the project

B.4. Description of the sources and gases included in the project boundary and proof that the CPA is located within the geographical boundary of the registered PoA.

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In compliance with Approved Methodology ACM0008, the project boundary for each CPA is determined as set out below:

A) For the purpose of determining project activity emissions, each CPA will include:

- CO₂ emissions from the combustion of methane in a flare, engine, power plant or heat generation plant;
- CO₂ emissions from the combustion of non methane hydrocarbons (NMHCs), if they represent more than 1% by volume of the extracted coal mine gas;
- CO₂ emissions from on-site fuel consumption due to the project activity, including transport of the fuel;
- Fugitive emissions from unburned methane.

B) For the purpose of determining baseline emissions, each CPA will include the following emissions sources:

- CH₄ emissions as a result of venting gas that would be captured in the project scenario;
- CO₂ emissions from the destruction of methane in the baseline scenario;



- CO₂ emissions from the production of heat and power (motive and electrical) that is replaced by the project activity.

C) The special extent of each CPA comprises:

- All equipment installed and used as part of the project activity for the extraction, compression, and storage of CMM at the project site, and transport to an off-site user;
- Flaring, captive power and heat generation facilities installed and used as part of the project activity;
- Power plants connected to the electricity grid, where the project activity exports power to the grid, as per the definition of project electricity system and connected electricity system given in “Tool to calculate the emission factor for an electricity system”.

Table 2: Overview on emissions sources included in or excluded from the project boundary

	Source	Gas		Justification / Explanation
Baseline Emissions	Emissions of methane as a result of venting	CH ₄	Included	All of the capture CMM at each CPA is vented into the atmosphere in the baseline scenario. This is the main emission source.
	Emissions from destruction of methane in the baseline	CO ₂	Excluded	There is no flaring or use for heat and/or electricity in the baseline scenario
		CH ₄	Excluded	Excluded for simplification in accordance with Approved Methodology ACM0008.
		N ₂ O	Excluded	Excluded for simplification in accordance with Approved Methodology ACM0008.
	Grid electricity generation (electricity provided to the grid)	CO ₂	Excluded	No electricity will be produced at this CPA.
		CH ₄	Excluded	Excluded for simplification in accordance with Approved Methodology ACM0008.
		N ₂ O	Excluded	Excluded for simplification in accordance with Approved Methodology ACM0008.
	Captive power and/or heat, and vehicle fuel use	CO ₂	Excluded	There is no captive power generation at the CPA site.
		CH ₄	Excluded	Excluded for simplification in accordance with Approved Methodology ACM0008.
		N ₂ O	Excluded	Excluded for simplification in accordance with Approved Methodology ACM0008.
Project Emissions	Emissions of methane as a result of continued venting	CH ₄	Excluded	Only the change in CMM emissions release will be taken into account, by monitoring the methane used or destroyed by the project activity.



	Source	Gas		Justification / Explanation
	On-site fuel consumption due to the project activity, including transport of the gas	CO ₂	Included	If additional equipment such as compressors or fans is required on top of what is required for purely drainage, energy consumption from such equipment should be accounted for.
		CH ₄	Excluded	Excluded for simplification in accordance with Approved Methodology ACM0008.
		N ₂ O	Excluded	Excluded for simplification in accordance with Approved Methodology ACM0008.
	Emissions from methane destruction	CO ₂	Included	From the combustion of methane in a flare, or heat/power generation
	Emissions from NMHC destruction	CO ₂	Included	From the combustion of NMHC in a flare or heat/power generation, if NMHC accounts for more than 1% by volume of extracted coal mine gas
	Fugitive emissions of unburned methane	CH ₄	Included	Small amounts of methane will remain unburned in flares or heat/power generation
	Fugitive methane emissions from on-site equipment	CH ₄	Excluded	Excluded for simplification in accordance with Approved Methodology ACM0008.
	Fugitive methane emissions from gas supply pipeline or in relation to use in vehicles	CH ₄	Excluded	Excluded for simplification in accordance with Approved Methodology ACM0008.
	Accidental methane release	CH ₄	Excluded	Excluded for simplification in accordance with Approved Methodology ACM0008.

The geographic boundary of the CPA is the Kogonwon Coal Mine, which lies within the DPR Korea. The CPA location within the geographical boundary of the register PoA is also an eligibility criterion as listed in B.3. The CPA has geographic reference 42°39'78" north and 130°40'12" east.

B.5. Emission reductions:

B.5.1. Data and parameters that are available at validation:

The parameters available at validation are as follows:



Data / Parameter:	GWP_{CH_4}
Data unit:	tCO ₂ e/ tCH ₄
Description:	Global warming potential of methane
Source of data:	ACM0008 / Version 7
Measurement procedures (if any):	Default value
Monitoring frequency:	<i>Ex ante</i>
QA/QC procedures:	
Any comment:	21 tCO ₂ e/tCH ₄

Data / Parameter:	CEF_{CH_4}
Data unit:	tCO ₂ e/tCH ₄
Description:	Carbon emission factor for combusted methane
Source of data:	ACM0008 / Version 7
Measurement procedures (if any):	Calculated
Monitoring frequency:	<i>Ex ante</i>
QA/QC procedures:	
Any comment:	44/16 = 2.75 tCO ₂ e/tCH ₄

Data / Parameter:	CEF_{ELEC}
Data unit:	tCO ₂ /MWh
Description:	CO ₂ emission factor of the grid
Source of data:	Central Bureau of Statistics, DPR Korea
Measurement procedures (if any):	Calculated in Accordance with “Tool to calculate the emission factor for an electricity system”
Monitoring frequency:	<i>Ex ante</i>
QA/QC procedures:	
Any comment:	0.88333

Data / Parameter:	$EF_{OM,y}$
Data unit:	tCO ₂ /MWh
Description:	CO ₂ Operating Margin emission factor of the grid
Source of data:	Central Bureau of Statistics, DPR Korea
Measurement procedures (if any):	Calculated in Accordance with “Tool to calculate the emission factor for an electricity system”
Monitoring frequency:	<i>Ex ante</i>
QA/QC procedures:	
Any comment:	0.88333



Data / Parameter:	$EF_{BM,y}$
Data unit:	tCO ₂ /MWh
Description:	CO ₂ Build Margin emission factor of the grid
Source of data:	Central Bureau of Statistics, DPR Korea
Measurement procedures (if any):	Calculated in Accordance with “Tool to calculate the emission factor for an electricity system”
Monitoring frequency:	<i>Ex ante</i>
QA/QC procedures:	
Any comment:	0.00000

Data / Parameter:	$F_{i,y}$
Data unit:	t or m ₃ /yr
Description:	Amount of each fossil fuel consumed by each power source/plant
Source of data:	Central Bureau of Statistics, DPR Korea
Measurement procedures (if any):	Calculated in Accordance with “Tool to calculate the emission factor for an electricity system”
Monitoring frequency:	<i>Ex ante</i>
QA/QC procedures:	
Any comment:	Please see Annex 3 for more information

Data / Parameter:	$COEF_{i,k}$
Data unit:	tCO ₂ /t or m ³
Description:	CO ₂ emission coefficient of each fuel type and each power source/plant
Source of data:	Central Bureau of Statistics, DPR Korea
Measurement procedures (if any):	Calculated in Accordance with “Tool to calculate the emission factor for an electricity system”
Monitoring frequency:	Annually
QA/QC procedures:	
Any comment:	Please see Annex 3 for more information

Data / Parameter:	$GEN_{i,y}$
Data unit:	MWh/yr
Description:	Electricity generation of each power source/plant
Source of data:	Central Bureau of Statistics, DPR Korea
Measurement procedures (if any):	Calculated in Accordance with “Tool to calculate the emission factor for an electricity system”
Monitoring frequency:	<i>Ex ante</i>
QA/QC procedures:	
Any comment:	Please see Annex 3 for more information

B.5.2. Ex-ante calculation of emission reductions:

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Project Emissions

Project emissions are defined by the following equation:

$$PE_y = PE_{ME} + PE_{MD} + PE_{UM} \quad (1)$$

Where:

- PE_y = Project emissions in year y (tCO₂e)
- PE_{ME} = Project emissions from energy use to capture and use methane (tCO₂e)
- PE_{MD} = Project emissions from methane destroyed (tCO₂e)
- PE_{UM} = Project emissions from un-combusted methane (tCO₂e)

Combustion emissions from additional energy required for CMM capture and use

The Kogonwon Coal mine currently does not have any CMM capture system. Therefore, all electricity required to operate the CMM capture/suction system in order to bring the CMM to surface has to be accounted for in the project emissions.

$$PE_{ME} = CONS_{ELEC, PJ} \cdot CEF_{ELEC} \quad (2)$$

Where:

- PE_{ME} = Project emissions from energy use to capture and use or destroy methane (tCO₂e)
- $CONS_{ELEC, PJ}$ = Additional electricity consumption for capture and use or destruction of methane, if any (MWh)
- CEF_{ELEC} = Carbon emissions factor of electricity used by coal mine (tCO₂/MWh)

For electricity emissions factor, the grid electricity emissions factor was calculated using the “Tool to calculate the emission factor for an electricity system” for calculating the combined margin emissions factor are used.

The projected electricity demand for the CMM capture/suction system at the Kogonwon Coal Mine is 300 kwh/h. It is estimated that the CPA will consume around 2,400MWh per year ($CONS_{ELEC, PJ}$). The CEF_{ELEC} is 0.88333 tons/Mwh. Therefore, the estimated PE_{ME} of the CPA is 2,120 tCO₂e per year.

Combustion emissions from use of captured methane

The captured methane is burned in a flare that releases combustion emissions. NMHC accounts for less than 1% by volume of the extracted CMM/CBM or more than 0.1% by volume of the extracted VAM, and is therefore excluded from the calculation for combustion emissions.

$$PE_{MD} = MD_{FL} \times CEF_{CH_4} \quad (3)$$

Where:

- PE_{MD} = Project emissions from CMM/CBM destroyed (tCO₂e)
- MD_{FL} = Methane destroyed through flaring (tCH₄)
- CEF_{CH_4} = Carbon emission factor for combusted methane (2.75 tCO₂/tCH₄)



In each end-use, the amount of gas destroyed depends on the efficiency of combustion of each end use.

$$MD_{FL} = MM_{FL} - (PE_{flare}/GWP_{CH_4}) \quad (4)$$

Where:

MD_{FL}	=	Methane destroyed through flaring (tCH ₄)
MM_{FL}	=	Methane measured sent to flare (tCH ₄)
PE_{flare}	=	Project emissions of non-combusted CH ₄ , expressed in terms of CO _{2e} , from flaring of the residual gas stream (tCO _{2e})
GWP_{CH_4}	=	Global warming potential of methane (21 tCO _{2e} /tCH ₄)

The project emissions of non-combusted CH₄ expressed in terms of CO_{2e} from flaring of the residual gas stream (PE_{flare}) shall be calculated following the procedures described in the “Tool to determine project emissions from flaring gases containing methane”. PE_{flare} can be calculated on an annual basis or for the required period of time using this tool.

MM_{FL} was estimated based on coal production levels and the resulting methane released from coal mining.

When estimating emission reductions, a value of 0 was assumed for PE_{flare} which is a conservative estimate.

Un-combusted methane from project activity

Not all of the methane sent to the flare will be combusted, so a small amount will escape to the atmosphere. These emissions are calculated using the following:

$$PE_{UM} = GWP_{CH_4} \times MM_{FL} \times (1 - Eff_i) + PE_{flare} \quad (5)$$

Where:

PE_{UM}	=	Project emissions from un-combusted methane (tCO _{2e})
GWP_{CH_4}	=	Global warming potential of methane (21 tCO _{2e} /tCH ₄)
I	=	Use of methane (power generation, heat generation, supply to gas grid to various combustion end uses)
MM_i	=	Methane measured sent to use i (tCH ₄)
Eff_i	=	Efficiency of methane destruction in use i (%)
PE_{flare}	=	Project emissions of non-combusted CH ₄ expressed in terms of CO _{2e} from flaring of the residual gas stream (tCO _{2e})

The project emissions from flaring of the residual gas stream (PE_{flare}) shall be calculated following the procedures described in the “Tool to determine project emissions from flaring gases containing methane”. PE_{flare} can be calculated on an annual basis or for the required period of time using this tool. Baseline Emissions. When estimating emission reductions, a value of 0 was assumed for PE_{flare} which is a conservative estimate.



Baseline emissions are given by the following equation:

$$BE_y = BE_{MR,y} + BE_{Use,y} \quad (6)$$

Where:

- BE_y = Baseline emissions in year y (tCO₂e)
 $BE_{MR,y}$ = Baseline emissions from release of methane into the atmosphere in year y that is avoided by the project activity (tCO₂e)

Methane released into the atmosphere

Currently methane at the Kogonwon Coal Mine is released into the atmosphere during the mining process using ventilation air.

This methane would have been emitted to the atmosphere in the baseline scenario, unless some capture and use activities form part of the baseline:

$$BE_{MRy} = GWP_{CH_4} \times [CMM_{Pji,y} + PMM_{Pji,y}] \quad (7)$$

Where:

- BE_{MRy} = Baseline emissions from release of methane into the atmosphere in year y that is avoided by the project activity (tCO₂e)
 i = Use of methane (flaring)
 $CMM_{Pji,y}$ = Pre-mining CMM captured, sent to and destroyed by use i in the project activity in year y (expressed in tCH₄)
 $PMM_{Pji,y}$ = Post-mining CMM captured, sent to and destroyed by use i in the project activity in year y (tCH₄)
 GWP_{CH_4} = Global warming potential of methane (21 tCO₂e/tCH₄)

The methane that is still vented in the project scenario is not accounted for in the project emissions or in the baseline emissions, since it is vented in both scenarios.

There is no methane destruction in the baseline.

Pre-mining and post-mining CMM extraction

Both $CMM_{Pj,y}$, $PMM_{Pj,y}$ are directly monitored as part of the project activity, $CMM_{Pj,y}$, $PMM_{Pj,y}$.

A summary of the baseline emission calculations is below:



	BE _y	BE _{MD,y}	BE _{MR,y}	Coal production
Year	tCO ₂	tCO ₂	tCO ₂	tons
2014	108,058	0	108,058	800,000
2015	121,565	0	121,565	900,000
2016	135,072	0	135,072	1,000,000
2017	148,579	0	148,579	1,100,000
2018	162,086	0	162,086	1,200,000
2019	175,594	0	175,594	1,300,000
2020	189,101	0	189,101	1,400,000
Total	1,040,060	0	1,040,054	7,700,000
Average	148,579	0	148,579	1,100,000

LEAKAGE

There is no leakage (LE_y) for this CPA.

EMISSION REDUCTIONS

The emission reduction ER_y by the project activity during a given year y is the difference between the baseline emissions (BE_y) and project emissions (PE_y), as follows:

$$ER_y = BE_y - PE_y - LE_y \quad (8)$$

Where:

- ER_y = Emissions reductions of the project activity during the year y (tCO₂e)
- BE_y = Baseline emissions during the year y (tCO₂e)
- PE_y = Project emissions during the year y (tCO₂e)
- LE_y = Leakage emissions in year y (tCO₂e)

B.5.3. Summary of the ex-ante estimation of emission reductions:

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Year	Estimation of project activity emissions (tonnes of CO ₂ e)	Estimation of baseline emissions (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of overall emission reductions (tonnes of CO ₂ e)
2014	2,807	108,058	0	105,251
2015	2,884	121,565	0	118,681



2016	2,960	135,072	0	132,112
2017	3,037	148,579	0	145,542
2018	3,113	162,086	0	158,973
2019	3,189	175,594	0	172,405
2020	20,720	189,101	0	168,381
Total	20,720	1,040,060	0	1,001,345

B.6. Application of the monitoring methodology and description of the monitoring plan:

B.6.1. Description of the monitoring plan:

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The Kogonwon Coal Mine adopts the approved ACM0008 (Version 07) “Consolidated methodology for coal bed methane, coal mine methane and ventilation air methane capture and use for power (electrical or motive) and heat and/or destruction through flaring or flameless oxidation”, to establish the monitoring plan.

This monitoring is designed to ensure that the Designated Operational Entity (DOE) is able to verify the data from the CPA.

1. Management Structure and responsibilities

The Korea Coal Foreign Economic Cooperation Company (KCFECC) is the CPA operator. Mr. Ri Thae Song, the Director of the Foreign Economic Department is responsible for the CPA. Mr. Ri Thae Song has appointed Mr. Kong Man Jom, the General Manager of the Kogonwon Coal Mine to be responsible for ensuring that monitoring equipment is maintained and operated in accordance with manufacturer specifications. This person has also been trained by the manufacturer on how to operate the monitoring equipment and perform maintenance on the monitoring equipment.

2. Data Collection

The CPA will use continuous flow meters and equipment to monitor the temperature and pressure of the CMM/CBM gas collected at the CPA. The equipment will be serviced, calibrated and maintained in accordance with manufacturer’s instructions and complete records of such service, calibration and maintenance will be kept. Measurement data will be recorded electronically at hourly intervals and converted to average hourly flows adjusted to normal temperature and pressure. This data will subsequently used to calculate Daily average flows, amount of CMM/CBM gas collected, using a continuous flow meter and monitoring of temperature and pressure.

The CPA will use continuous analyser in order to determine the percentage of methane in the CMM/CBM gas.

The CPA will determine the project emissions from flaring of the residual gas stream (PE_{flare}) in accordance with the “Tool to determine project emissions from flaring gases containing methane”.

The CPA will use continuous analyser in order to determine the Temperature (T) and pressure (P) of the CMM/CBM gas to determine the density of methane in the CMM/CBM gas.



100% of the data should be monitored if not indicated otherwise.

3. Data calibration

All measurements are taken utilising calibrated measurement equipment according to international industry standards.

4. Data handling

The CPA operator, with the help of the managing/coordinating entity will develop and implement a protocol for adequate record keeping and data monitoring systems. The data recorded by the CPA operator will be transmitted to the managing/coordinating entity within ten business days after the end of each calendar month.

5. Data quality control

All data transmitted by the CPA operator to the managing/coordinating entity will be checked by the managing/coordinating entity to ensure the accuracy and completeness of the data. In case of mistakes, corrective action will be taken to avoid similar mistakes in the future.

6. Reporting

The CPA operator transmits copies of completed worksheets on a regular basis while maintaining originals on file. The CPA operator should prepare a brief annual report which should include: information on overall project performance, emission reductions generated and verified and comparison with targets, etc. The report can be combined with the periodic verification report.

The coordinating/managing entity will use the collected data to calculate emission reductions. The coordinating/managing entity will also be responsible for the preparation of the data for verification.

7. Data archiving

All data collected as part of monitoring will be archived electronically and be kept at least for 2 years after the end of the last crediting period. Data will be kept electronically by the managing/coordinating entity, which ensures that data can centrally be made available to a Designated Operational Entity (DOE) upon request.

8. Training

At least five (5) technicians will be trained on the operation and maintenance of the monitoring equipment by the manufacturer before the commissioning of the project. This training will ensure that trained technicians are able to operate the equipment properly and perform routine maintenance procedures on the monitoring equipment in order to ensure that the parameters listed in this section can be monitored accurately and in accordance with individual parameter requirements.

The managing/coordinating entity will liaise with the CPA operator to ensure that ongoing training will be provided by the manufacturer of the monitoring equipment to ensure that a sufficient number of technicians are adequately trained to operate and maintain the monitoring equipment in accordance with manufacturer requirements and this monitoring plan. The initial training of technicians has to be performed before the start of the first monitoring period of the CPA.

**SECTION C. Environmental analysis**

>>

C.1. Please indicate the level at which environmental analysis as per requirements of the CDM modalities and procedures is undertaken. Justify the choice of level at which the environmental analysis is undertaken:

Please tick if this information is provided at the PoA level. In this case sections C.2. and C.3. need not be completed in this form.

C.2. Documentation on the analysis of the environmental impacts, including transboundary impacts:

>>

No information required here as environmental impact information was provided at the PoA level.

C.3. Please state whether in accordance with the host Party laws/regulations, an environmental impact assessment is required for a typical CPA, included in the programme of activities (PoA);

>>

No information required here as environmental impact information was provided at the PoA level.

SECTION D. Stakeholders' comments

>>

D.1. Please indicate the level at which local stakeholder comments are invited. Justify the choice:

Please tick if this information is provided at the PoA level. In this case sections D.2. to D.4. need not be completed in this form.

D.2. Brief description how comments by local stakeholders have been invited and compiled:

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In order to solicit stakeholder comments from the local community affected by the implementation of this CPA, the Korea Coal Foreign Economic Cooperation Company (KCFECC) has consulted 55 people through the Department for Appeals and Complaints of the People's Committee of North Hamgyong Province.

The Department for Appeals and Complaints of the People's Committee of North Hamgyong Province has distributed questionnaires to local stakeholders and held a stakeholder consultation meeting at the offices of the Kogonwon Mine, Gyongwon County, North Hamgyong Province on the 7th of October to solicit their feedback in regards to the implementation of the project.

D.3. Summary of the comments received:

>>

The project received positive comments and strong support from the local stakeholders.



D.4. Report on how due account was taken of any comments received:

>>

Given that the project was strongly supported by local stakeholders, no further measures were required.



Annex 1

CONTACT INFORMATION ON ENTITY/INDIVIDUAL RESPONSIBLE FOR THE CPA

Organization:	The Korea Coal Foreign Economic Cooperation Company (KCFECC)
Street/P.O.Box:	Potonggang-dong, Potonggang District
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City:	Pyongyang
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Telephone:	+850 2 18111 ext 8334
FAX:	+850 2 381 4410
E-Mail:	coal@star-co.net.kp
URL:	
Represented by:	Mr. Ri Thae Song
Title:	Director
Salutation:	Mr.
Last Name:	Ri
Middle Name:	
First Name:	Thae Song
Department:	Foreign Economic Department
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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No public funding from Parties is provided for this CPA

Annex 3

BASELINE INFORMATION

In accordance with the “Tool to calculate the emission factor for an electricity system”, the calculations for CEF_{ELEC} were performed as per attached spreadsheet.

Annex 4

MONITORING INFORMATION
