



Monitoring report form (Version 03.1)

Monitoring report

Title of the project activity	Shandong Huaneng Shouguang 49.5MW Wind Farm Project
Reference number of the project activity	CDM Reference No. 3391
Version number of the monitoring report	Version 01
Completion date of the monitoring report	18/01/2013
Registration date of the project activity	19/07/2010
Monitoring period number and duration of this monitoring period	3rd monitoring period: 25/12/2011- 31/12/2012 (both days included)
Project participant(s)	Huaneng Shouguang Wind Power Co., Ltd The Kansai Electric Power Co., Inc.
Host Party(ies)	People's Republic of China
Sectoral scope(s) and applied methodology(ies)	Sectoral Scope Number: 1. Energy Industry-Renewable resources Approved methodology ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 09).
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	103,995tCO₂e (373days in total) {Calculated as 373*(estimated emission reductions in the registered PDD/365days in a year) = 373*(101,765/365) = 103,995}
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	88,764tCO₂e

SECTION A. Description of project activity**A.1. Purpose and general description of project activity**

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Shandong Huaneng Shouguang 49.5MW Wind Farm Project (hereinafter referred as "the proposed project") is located on the west of the old river mouth, Dajiawa town, Shouguang county, Weifang City, Shandong province, P. R. China. It is designed to generate electricity from wind, a clean and renewable resource and provide annual net on-grid power generation of 96.4788GWh and achieve 101,765tCO₂e GHGs reductions per annum.

The area covered by North China Power Grid (hereinafter referred as NCPG) is abundant in coal and oil resources, and thermal power plant is the major power source of NCPG. By avoiding operation of existing thermal power plants and future expansion of fossil fuel-based generation by the NCPG, the proposed project displaces part of thermal power in NCPG by making use of clean and renewable energy.

Relevant dates for the project activity refers to the following table.

Date	Key events
15/04/2008	The starting date of construction ¹
16/12/2008	The project began commissioning and turned into full operation ²
19/07/2010	Registration date and starting date of the crediting period
19/07/2010-24/12/2010	The 1st monitoring period
25/12/2010-24/12/2011	The 2nd monitoring period
25/12/2011-31/12/2012	The 3rd monitoring period

From 25/12/2011-31/12/2012, the net power supplied to the grid by the project is 84,152.64MWh, corresponds to the emission reductions of 88,764tCO₂e.

A.2. Location of project activity

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The proposed project is located on the west of the old river mouth of Dajiawa township, Shouguang county, Weifang city, Shandong Province, P.R. China, 10km away from Dajiawa town, 40km away from Shouguang City and 150km from Jinan city (provincial capital). Shouguang city lies in the north of Shandong province, in the middle part of Shandong peninsula and southwest to the Laizhou Bay. It is east to the Hanting district and Weicheng district of Weifang city, south to Qingzhou city and Changle city, west to the Guangrao county of Dongying city and north to Bohai Sea. According to the data measured by the Marine Environment Monitoring Center Station, the proposed project's geographical coordinate is longitude 118°56'59.636''~119°02'53.821''E and latitude 37°13'44.198''~37°16'02.668''N, and with its geographical coordinate of substation at longitude 118°56'59.636''~118°57'11.300''E and latitude 37°14'14.110''~37°14'20.603''N.

A.3. Parties and project participant(s)

Party involved (host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
People's Republic of China (Host)	Huaneng Shouguang Wind Power Co., Ltd (Private entity)	No
Japan	The Kansai Electric Power Co., Inc. (Private entity)	No

¹ Please refer to the Construction Contract.

² Please refer to the Project Operation Log.

A.4. Reference of applied methodology

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The project operation has been monitoring in accordance with the requirements of the applicable monitoring methodology as described in PDD and the approved monitoring methodology ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (ACM0002/Version 09, Sectoral Scope: 01, EB45); Tool to calculate emission factor for an electricity system (version 01.1).

A.5. Crediting period of project activity

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The proposed project employs the renewable crediting period (7 years*3), and the first crediting period is from 19/07/2010 to 18/07/2017, and there was no post-registration change to the start date of the crediting period.

SECTION B. Implementation of project activity**B.1. Description of implemented registered project activity**

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The proposed project installs 33 IEC3 type three-blade rotor wind turbines with rated capacity of 1500KW, build a control centre including a 35kV switchyard and central control centre, and extend 110kV transmission lines for power transmission. The proposed project is connected to Shouguang Power Grid (SGPG), and then to the North China Power Grid (hereinafter referred as NCPG) finally. Please refer to Section C for the diagram.

During this monitoring period, no overhaul or equipment exchange happened. No events or situation occurred during this monitoring period, which may impact the applicability of the methodology.

B.2. Post registration changes**B.2.1. Temporary deviations from registered monitoring plan or applied methodology**

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Not applicable.

B.2.2. Corrections

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Not applicable.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

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Not applicable.

B.2.4. Changes to project design of registered project activity

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Not applicable.

B.2.5. Changes to start date of crediting period

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Not applicable.

B.2.6. Types of changes specific to afforestation or reforestation project activity

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Not applicable.

SECTION C. Description of monitoring system

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The proposed project is connected to SGPG within NCPG, the power delivered to the grid is determined and monitored by a bidirectional meter (M1) installed at the output side of the switching substation. This meter can measure both of the electricity delivered to the grid and the electricity dispatched from the grid, and the net on-grid power supply (EG_v) is defined as $(EG_{out,v} - EG_{in,v})$. This meter is owned, operated and maintained by the grid company. And a check bidirectional meter (M2) is also installed on the project site in order to cross check the record data of the M1 by the project owner. This check meter is owned, operated and maintained by the project owner. The locations of the meters are shown in Figure as follows.

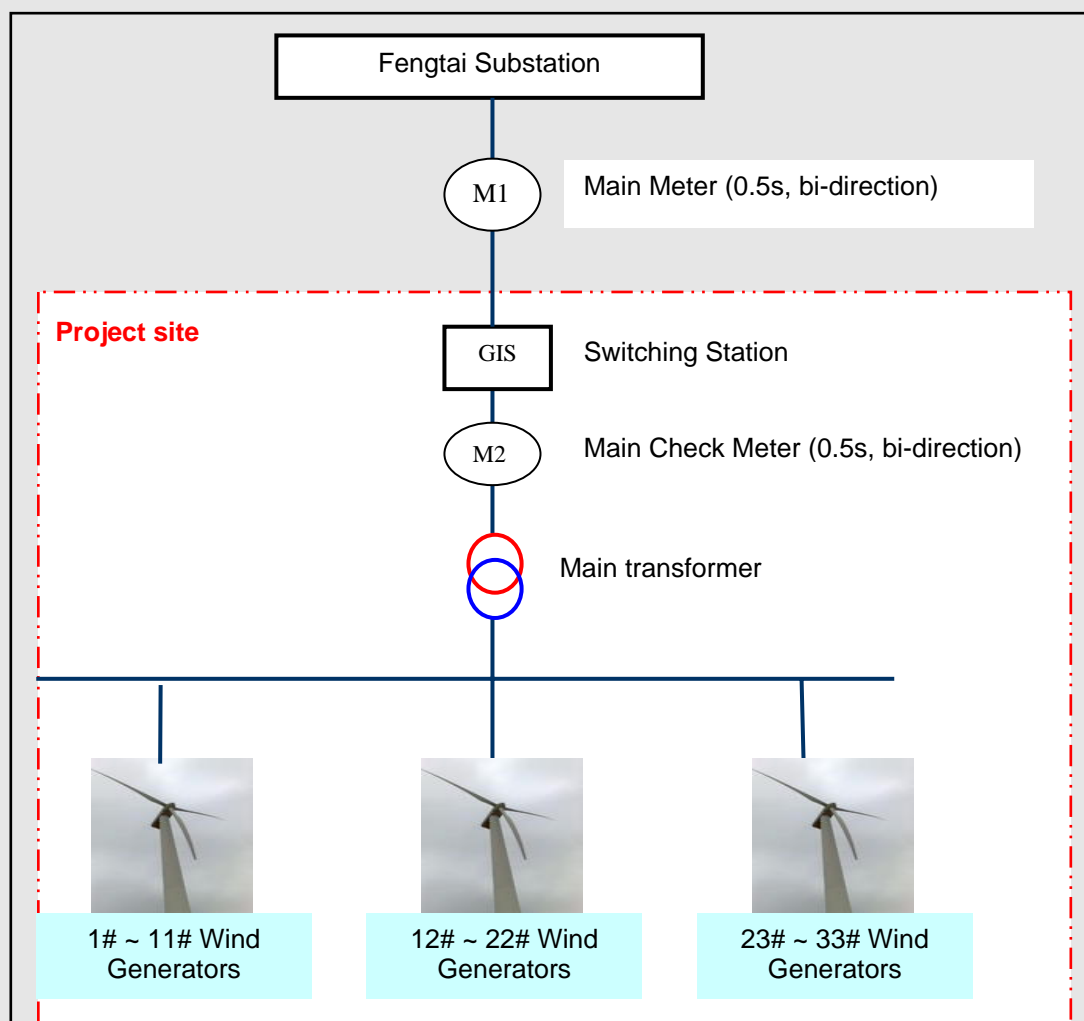


Figure: Diagram of the Grid Connection

※ Data collection system

- Main meter (M1) installed in the Fengtai Substation is recorded data monthly by the grid company together with the project owner.
- The Project owner monitors on-site meter M2 at the project site and records data continuously everyday, and prepare monthly reading records.
- The monthly reading records of M2 are then cross-checked with the reading records of M1 by the project owner.
- After checking the readings, the sales receipts are issued in according with the readings of the M1.

※ The Organizational Structure, Role and Responsibility

Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with the project owner. And the Beijing Changjiang River International Holding had advised the project developer on how to perform the monitoring work. The staffs who were responsible for electricity meter readings and recording, and who were responsible for auditing the metered data had been trained according to the CDM requirements.

※ Emergency Procedures

If any error is identified, the project company shall inform the grid company of the error. Then necessary calibration and/or repair are required.

After processing error, the project owner must prepare a report/explanation regarding the emergency to explain to DOE that the handling method is reasonable.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

(Copy this table for each piece of data and parameter.)

Data / Parameter:	EF_y
Unit:	tCO ₂ /MWh
Description:	Combined margin CO ₂ emission factor for the NCPG
Source of data:	Calculated according to the procedure outlined in B.6.1 of the registered PDD
Value(s) applied:	1.0548
Purpose of data:	Baseline emission calculation
Additional comment:	Not applicable

D.2. Data and parameters monitored

(Copy this table for each piece of data and parameter.)

Data / Parameter:	EG_{out,y}
Unit:	MWh
Description:	Electricity supplied to SGPG within NCPG by the proposed project
Measured/ Calculated / Default:	Measured continuously
Source of data:	Meter measured continuously and reported on a monthly basis

Value(s) of monitored parameter:	The actual power supplied to the grid by the project is 84,460.64MWh from 25/12/2011 to 31/12/2012. The detailed data are provided in Table 1.																												
Monitoring equipment:	<p>The electricity is monitored continuously through the bidirectional meter M1 and recorded monthly installed in the Fengtai substation by the Grid company, which is also the data resource of the sale receipts. And a check meter M2 is monitored and recorded by the project owner at the project site and then crosschecked the recorded readings of the M1. Detailed information refers to the following Table.</p> <table><tr><th rowspan="2">Meter</th><th rowspan="2">Accuracy</th><th rowspan="2">Meter No.</th><th colspan="2">Calibration Period</th><th rowspan="2">Calibration frequency</th></tr><tr><th>Date of Calibration</th><th>Validity</th></tr><tr><td rowspan="2">M1</td><td rowspan="2">0.5S</td><td rowspan="2">20070808020043</td><td>04/06/2011</td><td>Yes</td><td rowspan="2">Yearly</td></tr><tr><td>30/05/2012</td><td>Yes</td></tr><tr><td rowspan="2">M2</td><td rowspan="2">0.5S</td><td rowspan="2">09100170220042</td><td>04/06/2011</td><td>Yes</td><td rowspan="2">Yearly</td></tr><tr><td>30/05/2012</td><td>Yes</td></tr></table> <p>(Note: These meters were checked and calibrated by the Weifang Power Company Meter Measuring Centre.)</p>					Meter	Accuracy	Meter No.	Calibration Period		Calibration frequency	Date of Calibration	Validity	M1	0.5S	20070808020043	04/06/2011	Yes	Yearly	30/05/2012	Yes	M2	0.5S	09100170220042	04/06/2011	Yes	Yearly	30/05/2012	Yes
Meter	Accuracy	Meter No.	Calibration Period		Calibration frequency																								
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M1	0.5S	20070808020043	04/06/2011	Yes	Yearly																								
			30/05/2012	Yes																									
M2	0.5S	09100170220042	04/06/2011	Yes	Yearly																								
			30/05/2012	Yes																									
Measuring/ Reading/ Recording frequency:	Measure continuously and reported on a monthly basis																												
Calculation method (if applicable):	N/A																												
QA/QC procedures:	<ul style="list-style-type: none">● The reading of meter M2 is monitored continuously and recorded monthly by the project owner, and then cross-checked with the reading of meter M1 installed and owned by the grid company. The conservative value is used for emission reductions calculation;● Meters have been calibrated annually;● Data measured by meters are double checked by sales receipt.																												
Purpose of data:	Baseline emission calculation																												
Additional comment:	Not applicable																												

Data / Parameter:	EG _{in,y}
Unit:	MWh
Description:	Electricity purchased from SGPG within NCPG by the proposed project
Measured/ Calculated / Default:	Measured continuously
Source of data:	Meter measured continuously and reported on a monthly basis
Value(s) of monitored parameter:	The actual power imported from the grid is 308.00MWh from 25/12/2011 to 31/12/2012. The detailed data are provided in Table 2.

Monitoring equipment:	The electricity is monitored continuously through the bidirectional meter M1 and recorded monthly installed in the substation by the Grid company, which is also the data resource of the sale receipts. And a check meter M2 is monitored and recorded by the project owner at the project site and then crosschecked the recorded readings of the M1. Detailed information refers to the following Table.					
	Meter	Accuracy	Meter No.	Calibration Period		Calibration frequency
				Date of Calibration	Validity	
	M1	0.5S	20070808 020043	04/06/2011 30/05/2012	Yes Yes	Yearly
	M2	0.5S	09100170 220042	04/06/2011 30/05/2012	Yes Yes	
	(Note: These meters were checked and calibrated by the Weifang Power Company Meter Measuring Centre.)					
Measuring/ Reading/ Recording frequency:	Measure continuously and reported on a monthly basis					
Calculation method (if applicable):	N/A					
QA/QC procedures:	<ul style="list-style-type: none">● The reading of meter M2 is monitored continuously and recorded monthly by the project owner, and then cross-checked with the reading of meter M1 installed and owned by the grid company. The conservative value is used for emission reductions calculation;● Meters have been calibrated annually;● Data measured by meters are double checked by sales receipt.					
Purpose of data:	Baseline emission calculation					
Additional comment:	Measure continuously and reported on a monthly basis					

D.3. Implementation of sampling plan

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Not applicable.

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

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Baseline emissions are calculated with baseline emission factor (EF_y) and electricity supplied by the Project to the grid (EG_y), as follows:

$$BE_y = EG_y \cdot EF_y = (EG_{out,y} - EG_{in,y}) \cdot 1.0548$$

where

EF_y is the emission factor in year y; the emission factor is determined ex-ante.

EG_y is the net power supplied to the grid by the proposed project in year y which is calculated as $EG_y = EG_{out,y} - EG_{in,y}$.

The following tables 1-3 provide the calculation of the baseline emissions during monitoring period.

Table 1 The comparison process of electricity exported to the grid by the Project (MWh)

Monitoring Period	Readings from reading records of M2	Readings from reading records of M1	Readings from sales receipts	Conservative data applied
	A1	A2	A3	A=Min(A1,A2,A3)
25/12/2011-19/01/2012	3,884.52	3,736.48	3,736.48	3,736.48
20/01/2012-23/02/2012	8,620.30	8,402.24	8,402.24	8,402.24
24/02/2012-24/03/2012	8,981.03	8,569.44	8,569.44	8,569.44
25/03/2012-23/04/2012	12,287.75	11,973.28	11,973.28	11,973.28
24/04/2012-24/05/2012	8,684.33	8,264.96	8,264.96	8,264.96
25/05/2012-23/06/2012	5,334.06	5,302.88	5,302.88	5,302.88
24/06/2012-23/07/2012	4,779.43	4,468.64	4,468.64	4,468.64
24/07/2012-24/08/2012	5,310.34	5,146.24	5,146.24	5,146.24
25/08/2012-23/09/2012	4,499.42	4,352.48	4,352.48	4,352.48
24/09/2012-24/10/2012	5,685.12	5,503.52	5,503.52	5,503.52
25/10/2012-23/11/2012	8,210.50	7,937.60	7,937.60	7,937.60
24/11/2012-18/12/2012	8,142.63	7,828.48	7,828.48	7,828.48
19/12/2012-31/12/2012	3,072.46	2,974.40	2,974.40	2,974.40
Total	87,491.89	84,460.64	84,460.64	84,460.64

Table 2 The comparison process of electricity imported from the grid by the Project (MWh)

Monitoring Period	Readings from reading records of M2	Readings from reading records of M1	Readings from sales receipts	Conservation data applied
	B1	B2	B3	B=Max(B1,B2,B3)
25/12/2011-19/01/2012	48.14	49.28	49.28	49.28
20/01/2012-23/02/2012	51.39	52.80	52.80	52.80
24/02/2012-24/03/2012	20.14	21.12	21.12	21.12
25/03/2012-23/04/2012	10.31	10.56	10.56	10.56
24/04/2012-24/05/2012	18.95	19.36	19.36	19.36
25/05/2012-23/06/2012	18.93	19.36	19.36	19.36
24/06/2012-23/07/2012	16.93	17.60	17.60	17.60
24/07/2012-24/08/2012	28.14	29.92	29.92	29.92
25/08/2012-23/09/2012	21.35	22.88	22.88	22.88
24/09/2012-24/10/2012	18.74	19.36	19.36	19.36
25/10/2012-23/11/2012	18.92	19.36	19.36	19.36
24/11/2012-18/12/2012	12.35	14.08	14.08	14.08
19/12/2012-31/12/2012	11.44	12.32	12.32	12.32
Total	295.73	308.00	308.00	308.00

Table 3 Baseline Emissions during the Monitoring Period

Monitoring Period	EG _{out,y} (MWh)	EG _{in,y} (MWh)	EG _y (MWh)	EF _y tCO ₂ e/MWh	Baseline Emission tCO ₂
	A	B	C=A- B	D	E=CxD
25/12/2011-19/01/2012	3,736.48	49.28	3,687.20	1.0548	3,889
20/01/2012-23/02/2012	8,402.24	52.80	8,349.44	1.0548	8,807
24/02/2012-24/03/2012	8,569.44	21.12	8,548.32	1.0548	9,017
25/03/2012-23/04/2012	11,973.28	10.56	11,962.72	1.0548	12,618
24/04/2012-24/05/2012	8,264.96	19.36	8,245.60	1.0548	8,697
25/05/2012-23/06/2012	5,302.88	19.36	5,283.52	1.0548	5,573

24/06/2012-23/07/2012	4,468.64	17.60	4,451.04	1.0548	4,695
24/07/2012-24/08/2012	5,146.24	29.92	5,116.32	1.0548	5,397
25/08/2012-23/09/2012	4,352.48	22.88	4,329.60	1.0548	4,567
24/09/2012-24/10/2012	5,503.52	19.36	5,484.16	1.0548	5,785
25/10/2012-23/11/2012	7,937.60	19.36	7,918.24	1.0548	8,352
24/11/2012-18/12/2012	7,828.48	14.08	7,814.40	1.0548	8,243
19/12/2012-31/12/2012	2,974.40	12.32	2,962.08	1.0548	3,124
Total	84,460.64	308.00	84,152.64	-	88,764

(Note: The cut-off time is 24:00 in the cut off-date. As for the cut-off date each month, it has been regulated on around 24th of each month, but for the detailed date, it is usually determined by the availability of the Grid Company. However, once the cut-off date is chosen, the project owner could be informed in advance.)

E.2. Calculation of project emissions or actual net GHG removals by sinks

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As per methodology and the registered PDD, there are no expected project emissions related to the generation of electricity, as generation is based on a renewable resource. Therefore, the project emission (PE_v) is zero, $PE_v=0$.

E.3. Calculation of leakage

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According to methodology, as a newly built hydropower plant, there is no energy generating equipment be transferred from another activity and no existing equipment be transferred to another activity involved in the project activities. Therefore, the leakage is not to be considered.

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

Item	Baseline emissions or baseline net GHG removals by sinks (t CO ₂ e)	Project emissions or actual net GHG removals by sinks (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO ₂ e)
Total	88,764	0	0	88,764

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO₂e)	The estimated emission reduction is 103,995t CO ₂ in this monitoring period (373days in total) based on the registered PDD	The actual emission reduction is 88,764tCO ₂ during this monitoring period

E.6. Remarks on difference from estimated value in registered PDD

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To demonstrate the actual emission reduction claim in the monitoring period did not have significant increase compare to the estimate in the registered PDD, we made the following comparison:
Based on the registered PDD, the estimated CERs covering the monitoring period shall be 103,995tCO₂e. However, actual emission reduction amount is 88,764tCO₂e in this monitoring report due to the lack of wind,

and this data is smaller than we estimated. Therefore, there is no risk about the great increase.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO ₂ e)	88,764	N/A

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Document information

Version	Date	Description
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.

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