**MONITORING REPORT FORM (F-CDM-MR)**
**Version 02.0**

## MONITORING REPORT

| | |
|---|---|
| **Title of the project activity** | **Liaoning Julonghu Wind Farm Project** |
| **Reference number of the project activity** | **4416** |
| **Version number of the monitoring report** | **01** |
| **Completion date of the monitoring report** | **03/08/2012** |
| **Registration date of the project activity** | **16/02/2011** |
| **Monitoring period number and duration of this monitoring period** | **Monitoring period Number: 01**<br>**Monitoring period Dates:16/02/2011 – 31/07/2012 (first and last days included)** |
| **Project participant(s)** | **Fuxin Julonghu Wind Power Co., Ltd.**<br>**Energy Systems International B.V.** |
| **Host Party(ies)** | **China** |
| **Sectoral scope(s) and applied methodology(ies)** | **Scope 1**<br>**Approved consolidated baseline and monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 11).** |
| **Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD** | **155,418 t$CO_2$e** |
| **Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period** | **127,500 t $CO_2$e** |

## SECTION A. Description of project activity

### A.1. Purpose and general description of project activity

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Liaoning Julonghu Wind Farm Project (hereinafter referred to as the Project) is located within Houxinqiu Town, Zhangwu County, Fuxin City, Liaoning Province, P.R.China. It is invested, constructed and operated by Fuxin Julonghu Wind Power Co., Ltd. (hereinafter referred to as the Project Owner).

The total installed capacity of the Project is 49.5 MW equipped with 33 sets of wind turbine with a unit installed capacity of 1,500 kW. The estimated electricity delivered to Northeast China Grid by the Project is 104,115 MWh per year with a plant load factor of 0.24. Electricity generated by the Project will be delivered to Northeast China Grid.

Northeast China Grid is dominated by traditional thermal power plants. In the absence of the Project, equivalent amount of annual power output of the Project will be generated and supplied by Northeast China Grid which the Project is connected to, which is the same with the baseline scenario of the Project.

It is expected that the Project as a renewable energy source power generation project will generate emission reductions of about 107,033 $tCO_2e$ per year by avoiding $CO_2$ emissions from the same amount of electricity generation from Northeast China Grid, which is mainly composed of traditional thermal power plants.

The Project commenced construction on 26/06/2009. The first turbine was commissioned on 09/12/2009, and all the 33 sets of turbine have been put into operation gradually till 03/02/2010.

The expected technical lifetime of the Project is 20 years as stated in the registered PDD.

This Monitoring Report is for the first phase of monitoring period, which is from 16/02/2011-31/07/2012. The total emission reduction achieved in this monitoring period is 127,500 $tCO_2e$.

### A.2. Location of project activity

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The Project is located within Houxinqiu Town, Zhangwu County, Fuxin City, Liaoning Province, P.R.China. The geographical coordinates of the covered area of the Project are east longitude of 122° 41′ 14″ ~122° 46′ 07″ and north latitude of 42° 31′ 30″ ~42° 33′ 40″. The area of the wind farm is about 25 $km^2$. Figure 1 shows the location of Fuxin City.

### 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) | Fuxin Julonghu Wind Power Co., Ltd. | No |
| Netherlands | Energy Systems International B.V. | No |

### A.4. Reference of applied methodology

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The proposed project will use the approved consolidated baseline and monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 12).

The methodology also refers to the latest approved versions of the following tools:

- Tool to calculate the emission factor for an electricity system (Version 02);
- Tool for the demonstration and assessment of additionality (Version 05.2).

For more information regarding the methodology and the tools as well as their consideration by the Executive Board, please refers to the web site:
http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html

**A.5. Crediting period of project activity**

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A renewable crediting period is chosen. The start date of crediting period is change from 01/04/2011 to 16/02/2011. The first crediting period of the project activity is from 16/02/2011 to 15/02/2018.

**SECTION B. Implementation of project activity**

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

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The Project commenced construction on 26/06/2009. The first turbine was commissioned on 09/12/2009, and all the 33 sets of turbine have been put into operation gradually till 03/02/2010.
The expected technical lifetime of the Project is 20 years as stated in the registered PDD.

**B.2. Post registration changes**

**B.2.1. Temporary deviations from registered monitoring plan or applied methodology**

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The monitoring for this project during this monitoring period is conducted in accordance with the MP of the registered PDD and applied methodology. Thus, temporary deviation did not occur and thus is not applicable for the project.

**B.2.2. Corrections**

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The monitoring for this project during this monitoring period is conducted in accordance with the MP of the registered PDD and applied methodology. Thus, corrections did not occur and thus is not applicable for the project.

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

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The monitoring for this project during this monitoring period is conducted in accordance with the MP of the registered PDD and applied methodology. Thus, permanent changes did not occur and thus is not applicable for the project.

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

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The monitoring for this project during this monitoring period is conducted in accordance with the MP of the registered PDD and applied methodology. Thus, changes to project design of registered project activity did not occur and thus is not applicable for the project.

**B.2.5. Changes to start date of crediting period**

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Start date of crediting period is change from 01/04/2011 to 16/02/2011.This has been approved by EB.

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

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This is not applicable since the project is not afforestation or reforestation project activities

**SECTION C. Description of monitoring system**

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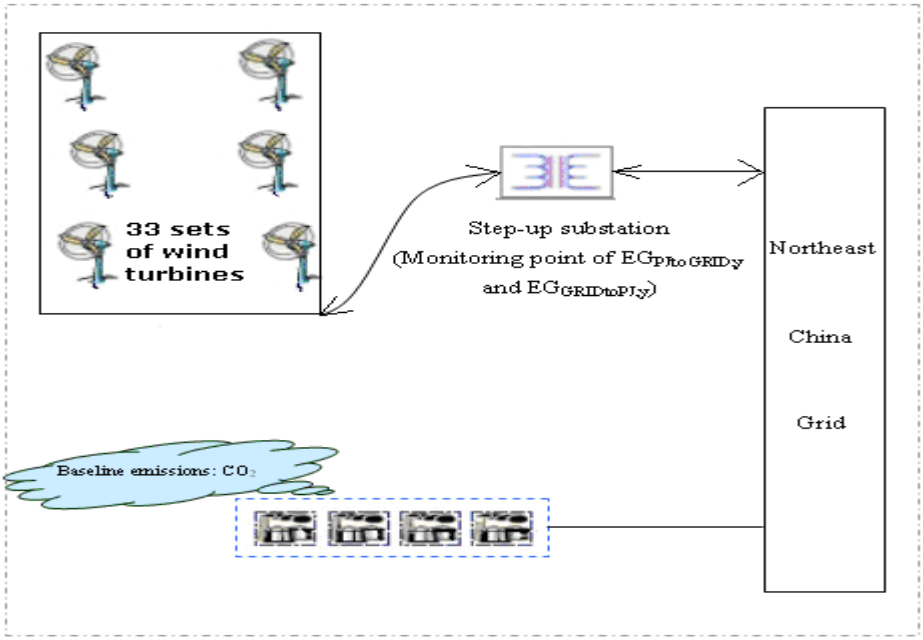
**Monitoring System**

The net electricity generation of the Liaoning Julonghu Wind Farm Project is monitored through the main metering equipment installed at the Step-up substation at the Project Site, recording exports to the grid (supply) and imports from the grid (consumption). Net generation supplied is calculated as exports minus imports. The backup meter is also installed at the same substation. The accuracy of the meters is 0.2s.

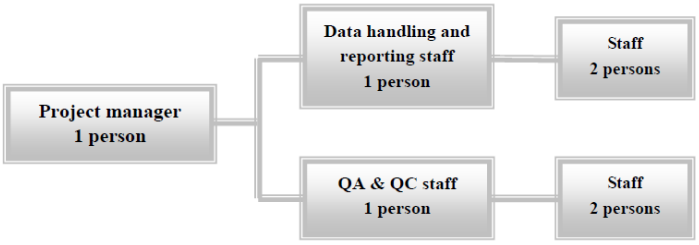



**Data Collection Procedures**

- Electricity generated by project and electricity imported from grid are continuously measured by Monitoring meter and monthly recorded by appointed staff.
- As per the regulation of the grid company, the designated personnel from Grid Company and the project owner record meter reading at 24:00 of last day of each month on receipts.
- Based on the Monthly Reading Records, the grid company issue electricity transaction.
- wind farm cross checked with receipts and reports of the readings to the DOE before the verification is requested.

**Organizational structure**

The Project Manager is responsible for 1) implementation and supervision of the monitoring activity and 2) communication of this CDM project. The data handling and reporting personnel are responsible for managing, processing and submitting data. The QA & QC personnel are responsible for calibration of meters and supervision of the whole process quality.




**Roles and responsibilities**

The Project manager supervises the whole monitoring activities and management. And all the monitored data was recorded by Reporting manager and checked by QA & QC manager. The QA & QC manager is also duty on maintenance of the meters.

**Emergency procedures**
A main meter and a back-up meter are installed at Transformer Substation to monitor electricity delivered to Northeast China Grid. The back-up meter will be used for measurement if the main meter failures to function in a normal or satisfactory manner.

## SECTION D. Data and parameters

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

| **Data/Parameter** | **EF** |
|---|---|
| **Unit** | $tCO_2/MWh$ |
| **Description** | Emission factor which is ex-anted according to the applied methodology. |
| **Source of data** | The baseline emission factor EF*grid,CM,y* of Northeast China Grid is calculated as the weighted average of the Operating Margin emission factor (*EFgrid,OM,y*) and the Build Margin emission factor(*EFgrid,BM,y*), where the weight of Operating Margin, $\omega OM$ is 0.75 and Build Margin, $\omega BM$ is 0.25 by default. |
| **Value(s) applied** | 1.028025 |
| **Purpose of data** | The data is used for the baseline emission calculation. |
| **Additional comment** | The baselines emission factor was determined ex ante and will be used throughout the first crediting period. |

**D.2. Data and parameters monitored**

<table>
<tr><td>Data/Parameter</td><td>$EG_{PJtoGRID,y}$</td></tr>
<tr><td>Unit</td><td>MWh</td></tr>
<tr><td>Description</td><td>Electricity exported to grid by the proposed project through the main line in year y.</td></tr>
<tr><td>Measured/Calculated /Default</td><td>Continuously measured by the bidirectional meters (one main meter and one backup meter) installed at the Step-up substation at the Project Site and monthly recorded.</td></tr>
<tr><td>Source of data</td><td>Measured by meter.</td></tr>
<tr><td>Value(s) of monitored parameter</td><td>124,209.89</td></tr>
<tr><td>Monitoring equipment</td><td>
<table>
<tr><td>Meters</td><td>Serial No.</td><td>Accuracy class</td><td>Calibration date</td><td>Validity</td><td>Calibration frequency</td></tr>
<tr><td>M1</td><td>96347009</td><td>0.2s</td><td>02/06/2011</td><td>Yes</td><td>Annually</td></tr>
<tr><td></td><td></td><td>0.2s</td><td>01/06/2012</td><td>Yes</td><td>Annually</td></tr>
<tr><td>M2</td><td>96707201</td><td>0.2s</td><td>02/06/2011</td><td>Yes</td><td>Annually</td></tr>
<tr><td></td><td></td><td>0.2s</td><td>01/06/2012</td><td>Yes</td><td>Annually</td></tr>
</table>
</td></tr>
<tr><td>Measuring/Reading/ Recording frequency</td><td>Continuously measurement and monthly recording</td></tr>
<tr><td>Calculation method (if applicable)</td><td>NA</td></tr>
<tr><td>QA/QC procedures</td><td>The electricity supplied to the grid is monitored and recorded and the project operator is responsible for recording this set of data. Data will be archived for 2 years following the end of the last crediting period by means of electronic and paper backup. Receipts from electricity sales are obtained for double check. The calibration frequency is once a year.</td></tr>
<tr><td>Purpose of data</td><td>Baseline emission calculation</td></tr>
<tr><td>Additional comment</td><td>-</td></tr>
</table>

<table>
<tr><td>Data/Parameter</td><td>$EG_{GRIDtoPJ,y}$</td></tr>
<tr><td>Unit</td><td>MWh</td></tr>
<tr><td>Description</td><td>Electricity imported from the grid to the project through the main line in year y.</td></tr>
<tr><td>Measured/Calculated /Default</td><td>Continuously measured by the bidirectional meters (one main meter and one backup meter) installed at the Step-up substation at the Project Site and monthly recorded.</td></tr>
<tr><td>Source of data</td><td>Measured by meter.</td></tr>
<tr><td>Value(s) of monitored parameter</td><td>185.50</td></tr>
<tr><td>Monitoring equipment</td><td>
<table>
<tr><td>Meters</td><td>Serial No.</td><td>Accuracy class</td><td>Calibration date</td><td>Validity</td><td>Calibration frequency</td></tr>
<tr><td>M1</td><td>96347009</td><td>0.2s</td><td>02/06/2011</td><td>Yes</td><td>Annually</td></tr>
<tr><td></td><td></td><td>0.2s</td><td>01/06/2012</td><td>Yes</td><td>Annually</td></tr>
<tr><td>M2</td><td>96707201</td><td>0.2s</td><td>02/06/2011</td><td>Yes</td><td>Annually</td></tr>
<tr><td></td><td></td><td>0.2s</td><td>01/06/2012</td><td>Yes</td><td>Annually</td></tr>
</table>
</td></tr>
<tr><td>Measuring/Reading/ Recording frequency</td><td>Continuously measurement and monthly recording</td></tr>
<tr><td>Calculation method (if applicable)</td><td>Not applicable</td></tr>
<tr><td>QA/QC procedures</td><td>The measurement will be in compliance with the national guidelines and requirements of the grid company for accuracy and reliability. The calibration will be carried out according to relevant national standards and regulations by authorized organization.</td></tr>
<tr><td>Purpose of data</td><td>Baseline emission calculation</td></tr>
<tr><td>Additional comment</td><td>-</td></tr>
</table>

| Data/Parameter | $EG_{facility, y}$ |
|---|---|
| Unit | MWh |
| Description | Quantity of net electricity generation supplied to the Grid by the project activity in year y. |
| Measured/Calculated /Default | Measured by $EG_{PJtoGRID,y}$ minus $EG_{GRIDtoPJ,y}$ |
| Source of data | Measured by meter. |
| Value(s) of monitored parameter | 110,497.01 |
| Monitoring equipment | N/A |
| Measuring/Reading/ Recording frequency | Continuously measurement and monthly recording |
| Calculation method (if applicable) | Not applicable |
| QA/QC procedures | The metering equipments at the project site will be calibrated by a qualified Meter Calibration Organization according to the management standard. Power imported from the grid will be double checked according to electricity sales receipts. The accuracy of the metering equipments is not lower 0.5s. |
| Purpose of data | Baseline emission calculation |
| Additional comment | - |

**D.3. Implementation of sampling plan**

>>

The parameters monitored described in section D.2 above are not involved the sampling approach.

**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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The baseline emission $BE_y$ ($tCO_2$) during the monitoring period results from:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$$

Where:

$BE_y$ is the baseline emissions in year y (tCO2e);

$EG_{PJ,y}$ is the quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh);
$EF_{grid,CM,y}$ is the combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of *Tool to Calculate the Emission Factor for an Electricity System* (tCO2e/MWh).

The Project is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the project activity, so:

$EG_{PJ,y} = EG_{facility,y}$
$EG_{facility,y} = EG_{PJtoGRID,y} - EG_{GRIDtoPJ,y}$

Where:
$EG_{PJtoGRID,y}$ - Electricity supplied by the project activity to the grid in year y (MWh)..
$EG_{GRIDtoPJ,y}$ - Electricity imported from the grid by the proposed project during year *y* (MWh).
$EG_{fancility,y}$ - Quantity of net electricity generation supplied to the Grid by the project activity in year y (MWh).

**Electricity supplied to the Northeast China Grid by the Project**

| **Monitoring period** | **Electricity supplied to the grid ($EG_{PJtoGRID,y}$) unit: MWh** | **Electricity imported from the grid ($EG_{GRIDtoPJ,y}$) unit: MWh** |
|---|---|---|
| 16/02/2011-28/02/2011 | 4951.03 | 2.87 |
| 01/03/2011-31/03/2011 | 11684.26 | 4.90 |
| 01/04/2011-30/04/2011 | 11999.47 | 7.35 |
| 01/05/2011-31/05/2011 | 11920.49 | 8.41 |
| 01/06/2011-30/06/2011 | 9645.53 | 10.56 |
| 01/07/2011-31/07/2011 | 5097.96 | 14.28 |
| 01/08/2011-31/08/2011 | 2942.73 | 25.34 |
| 01/09/2011-30/09/2011 | 5761.98 | 10.99 |
| 01/10/2011-31/10/2011 | 8349.53 | 6.86 |
| 01/11/2011-30/11/2011 | 3370.64 | 10.50 |
| 01/12/2011-31/12/2011 | 0.00 | 0.00 |
| 01/01/2012-31/01/2012 | 1470.63 | 19.39 |
| 01/02/2012-29/02/2012 | 6677.23 | 7.35 |
| 01/03/2012-31/03/2012 | 7811.23 | 9.80 |
| 01/04/2012-30/04/2012 | 11013.87 | 4.97 |
| 01/05/2012-31/05/2012 | 7954.10 | 10.01 |

| | | |
|---|---|---|
| 01/06/2012-30/06/2012 | 7119.63 | 13.09 |
| 01/07/2012-31/07/2012 | 6439.58 | 18.83 |

**Net Electricity supplied to the Northeast China Grid by the Project**

| **Monitoring Period** | **Electricity supplied to the grid for CERs calculation** $EG_{PJtoGRID,y}$ **(MWh)** | **Electricity imported from the grid for CERs calculation** $EG_{GRIDtoPJ,y}$ **(MWh)** | **Quantity of net electricity generation supplied to the Grid for CERs calculation** $EG_{fancility,y}$ **(MWh)** |
|---|---|---|---|
| | **A** | **B** | **D=A-B** |
| 16/02/2011-31/07/2012 | 124,209.89 | 185.50 | 124,024.39 |

According to the registered PDD, the Emission factor of the grid is determined ex-ante; the ex-ante determined emission factor is 1.028025 $CO_2e$/MWh.

$BE_y = EG_{PJ,y} \times EF_{grid,CM,y} = 127,500$ $tCO_2e$.

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

>>

According to the ACM0002 (Version 12), the emissions of wind power project activity is zero, PEy=0

**E.3. Calculation of leakage**

>>

According to the applied methodology, as a renewable energy project, the project leakage of this project is zero

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

| **Time Period** | **Baseline emissions or baseline net GHG removals by sinks ($tCO_2e$)** | **Project emissions or actual net GHG removals by sinks ($tCO_{2e}$)** | **Leakage ($tCO_2e$)** | **Emission reductions or net anthropogenic GHG removals by sinks ($tCO_2e$)** |
|---|---|---|---|---|
| **Total** | **127,500** | **0** | **0** | **127,500** |

**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 ($tCO_2e$)** | **155,418** | **127,500** |

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

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The actual emission reductions during this monitoring period are 127,500 tCO2e, which is lower than the estimation in the registered PDD.

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## History of the document

| Version | Date | Nature of revision |
|---|---|---|
| 02.0 | EB 66<br>13 March 2012 | Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20). |
| 01 | EB 54, Annex 34<br>28 May 2010 | Initial adoption. |
| **Decision Class**: Regulatory<br>**Document Type**: Form<br>**Business Function**: Issuance | | |