

Monitoring Report

Miaoli 49.8MW Wind Farm Project

Gold Standard Project Number: 931

Gold Standard Version 2.1

Second Periodic Verification



Monitoring Period: 03/07/2012 – 02/07/2014

Date: 07/08/2015

Version: 6.0

Document prepared by:

Andrea Yu

South Pole Carbon Asset Management Ltd.

1. Report Purpose and Project Background

The purpose of this Monitoring Report is for the verification and certification of the emission reductions received and sustainable development indices monitored during the period of 03 July 2012 to 02 July 2014 by the project activity “Miaoli 49.8MW Wind Farm Project” as per requirements of UNFCCC Methodology ACM0002 (version 11) and Gold Standard v.2.1.

The project activity Miaoli 49.8MW Wind Farm (hereafter referred to as “the Project”) involves the development of a 49.8MW Wind Farm located in Miaoli County, Taiwan. The Project was developed by Miaoli Wind Co. (hereafter referred to as “Miaoli Wind”) which at the time was owned by Macquarie International Infrastructure Fund Limited (MIIF) and is currently owned by Emerging Markets Infrastructure Fund (EMIF). The wind farm is comprised of 25 wind turbines in two separate areas of Miaoli County: Dapong Wind Farm located in Houlong Township, which comprises twenty-one 2000 kW Enercon E-70 E4 wind turbines, and Chunan Wind Farm located in Chunan Township, which comprises three 2000 kW Enercon E-70 E4 turbines, and one 1800 kW Enercon E-70 E4 turbine, for a total of 49.8MW. The Project started construction on 20 May 2005 and started operation on 10 February 2006. The Project was registered under Gold Standard version 2.1 on 03 July 2012.

The Project displaces part of the electricity supplied by the national grid, Taipower grid (“TPCG”), which is currently dominated by fossil fuel-fired power plants, and thus reduces greenhouse gas emissions. The yearly net generated electricity delivered to the grid was estimated at 186,509 MWh, and the average annual emission reduction was estimated at 133,167 tCO₂e.

Contribution to sustainable development:

The Project contributes significantly to the region’s sustainable development. The specific goals for the Project are to:

- reduce the greenhouse gas emissions in Taiwan by replacing fossil fuel-based power generation;
- produce clean renewable energy that contributes to alleviate the global warming;
- contribute to the development of the wind energy sector in Taiwan;
- provide clean electricity to the equivalent of 49,847 households¹;
- create local employment both during the construction and operational phases;

¹1 Taipower Statistic Data (2006-2010): Average household power usage is 311.8 kWh/month (3,741.6 kWh/year)

http://www.taipower.com.tw/left_bar/jing_ying_ji_xiao/5year_effects.htm

- to enhance technology and know-how transfer as the employees are trained by German wind turbine manufacturer Enercon on maintenance, safety and operational issues;
- contribute to the reduction of pollutants such as sulfur dioxide, nitrogen oxides and particles resulting from the electricity generation from fossil fuels in Taiwan;
- contribute to Taiwan's energy sustainability and security by reducing the dependency on fossil fuel imports.

The turbines installed are imported from German wind turbine supplier, Enercon. Wind turbines type Enercon E-70 E4 are used, with 71m diameters and 64m hub heights. The turbines in Chunan site are directly connected to Taipower Grid at Shanjia substation through 22.8KV underground cables. The turbines in Dapong site are connected to the Tung Ho Steel Substation through 22.8KV underground cables, then connected to the step-up transformer to 161 kV Taipower grid. The Project utilizes 2 bi-directional electricity meters, which are located at Shanjia and Tung Ho Steel Substations. Both are 3-phase/4-wire type electricity meters, with accuracy level 0.5. The technical data of the turbine units of turbine type E-70 E4 is given in the table below.

Wind Turbine Type:	E-70 E4		
Site:	Chunan Site		Dapong Site
Rated power:	2,000 kW	1,800 ² kW	2,000 kW
Number of turbines	3	1	21
Total Output	49.8 MW		
Rotor diameter:	71 m		
Hub height:	64m		
Generator:	Direct-driven synchronous Enercon ring generator		
Grid feeding:	ENERCON inverter		

Source: Turbine Supply Contract Annex 5

Table 1. Characteristics of the wind turbine E-70

Further background information on the project activity can be found in the Project Design Document (PDD) and associated documents, which have been validated as per requirements of the Gold Standard version 2.1. The PDD and associated documents (including the GS passport) are available on the GS registry.

²All turbines are the same Enercon E-70 E4 type, but one turbine in Chunan Site has an output capacity of 1.8 MW.

2. Monitoring Background

Section B of the PDD (Application of the baseline and monitoring methodology) provides all details regarding calculation of emission reductions and the monitoring plan to be followed by the project activity. Both the emission reduction calculations and the monitoring plan are based on the UNFCCC Methodology ACM0002 version 11 and Gold Standards 2.1. The monitoring plan of sustainable development parameters are as per GS Passport at the time of registration.

3. Monitoring Data

This section presents the required monitoring parameters as contained in the PDD and GS Passport at the time of registration.

3.1 Monitoring parameters for sustainable development

No		1
Indicator		Air Quality
Mitigation measure		N/A
Chosen parameter		NO _x , SO _x emission reductions
Situation of parameter at registration		According to Taipower's latest announcement and statistic, an average of 342 kg of SO _x and 354 kg of NO _x are generated from every 1000 MWh electricity produced in 2010. Based on such assumption, the proposed project further abates approximately 63,784 kg SO _x , and 66,022 kg NO _x , annually. So far, the Project has generated 505,499.6 MWh since it started operation on 10/02/2006 up until 31/12/2009. It has abated approximately 172.9 tonnes of SO _x , and 178.9 tonnes of NO _x .
Estimation of baseline situation of parameter		SO _x and NO _x emissions deriving from the electricity generated in the grid-connected fossil fuel fired power plants
Future target for parameter		Continuous monitoring of how much SO _x and NO _x are abated by the proposed project.
Way of monitoring	How	Calculated, based on the announced SO _x and NO _x emissions/kWh announced by the grid company.
	When	Data will be compiled and monitored annually. All related records will be provided verified by the DOE.
	By who	The Project owner. The calculation of SO _x and NO _x abatement will be presented in the monitoring report during verification.

No		2
Indicator		Quantitative employment and income generation
Mitigation measure		N/A
Chosen parameter		Number of jobs, salary level
Situation of parameter at registration		Currently there are 2 permanent employees in charge of the project operation. All employees are fairly compensated (salaries qualify above the required minimum wage as evidenced by the labor insurance salary level in labor insurance sheet).
Estimation of baseline situation of parameter		Employment opportunity did not exist before the Project was developed
Future target for parameter		The proposed project provides employment to 1-3 permanent staffs for wind farm operation and all staff will be fairly compensated (above the required minimum wage)
Way of monitoring	How	Copy of employment contract and the labor insurance list from Labor Insurance Bureau will be used to specify number of permanent employees of the project owner and to indicate the salary levels.
	When	Data will be compiled and monitored annually. All related records will be provided verified by the DOE.
	By who	The project owner will keep all employment record.

No		3
Indicator		Biodiversity
Mitigation measure		Obstruction lightings were installed on the turbines, in order to enhance the safety precautions of the wind farm towards the birds.
Chosen parameter		Precaution measures to minimize impact towards plants and birds
Situation of parameter at registration		Precaution measures are in place. All wind turbines are installed and the proposed project will not expand in the future nor would it operate in a way that would impact the plants or birds.
Estimation of baseline situation of parameter		There was no wind turbine in the area thus there is no precaution measures in place.
Future target for parameter		Continuous existence of the precaution measures including the obstruction light.
Way of monitoring	How	The obstruction lights are installed on the wind turbines and operate automatically. Photographs will be kept as a record for its continuous existence. The DOE will verify the continuous existence of the operational obstruction lights during the periodic verification site visit.
	When	Data will be compiled and monitored annually. All related records will be provided verified by the DOE.
	By who	The project owner will monitor the facility and keep all

		photographs. DOE will verify on site.
--	--	---------------------------------------

No	4	
Indicator	Biodiversity	
Mitigation measure	N/A	
Chosen parameter	Landscaping at Bantianliao (Haowangjiao)	
Situation of parameter at registration	No green landscaping exists at Bantianliao	
Estimation of baseline situation of parameter	No green landscaping exists at Bantianliao	
Future target for parameter	Continuous maintenance of the green landscaping at Bantianliao.	
Way of monitoring	How	The DOE will verify the continuous existence of the green landscaping by visiting Bantianliao during the periodic verification site visit.
	When	Each periodic site visit
	By who	The project owner will monitor the location. DOE will verify on site.

3.2 Monitoring parameters for emissions reductions

Data / Parameter:	$EG_{e,y}$
Data unit:	MWh
Description:	Quantity of electricity generation supplied by the project plant/unit to the grid
Source of data to be used:	<i>Electricity meter</i>
Value of data applied for the purpose of calculating expected emission reductions in section B.5	186,509MWh
Description of measurement methods and procedures to be applied:	Continuous measurement and at least monthly recording. There are 2 bi-directional electricity meters applied in the Project, one is located in the Shanjia Substation which measures power generation from Chunan site; while another meter is located in Tung-Ho Steel Substation, which measures power generation from Dapong site. Meters accuracy level are 0.5, and calibration frequency is 8 years, as regulated by CNMV 46³. Data from the electricity meters will be collected and monitored by both, the project owner and Taipower. The confirmed electricity supplied to the grid is then recorded in the electricity receipts obtained from Taipower every month.

³ www.bsmi.gov.tw/wSite/public/Attachment/f1224657229438.doc

QA/QC procedures to be applied:	Meter reading records will be crosschecked with the electricity receipts. The electricity meters will undergo maintenance/calibration according to Taiwan national standards (based on The Weight and Measures Act, Regulation no. CNMV 46, 'Technical Specification for Verification and Inspection of Electricity Meters') Accordingly, meter calibration is conducted every 8 years period. In addition, electricity receipt is kept for cross reference as per ACM0002.
Any comment:	-

Data / Parameter:	EG _{i,y}
Data unit:	MWh
Description:	Quantity of electricity consumption of the project plant/unit from the grid
Source of data to be used:	<i>Electricity meter</i>
Value of data applied for the purpose of calculating expected emission reductions in section B.5	N/A
Description of measurement methods and procedures to be applied:	Continuous measurement and at least monthly recording. There are 2 bi-directional electricity meters applied in the Project, one is located in the Shanjia Substation which measures power generation from Chunan site; while another meter is located in Tung-Ho Steel Substation, which measures power generation from Dapong site. Meters accuracy level are 0.5, and calibration frequency is 8 years, as regulated by CNMV 46⁴. Data from the electricity meters will be collected and monitored by both, the project owner and Taipower. The confirmed electricity consumption is then recorded in the electricity receipts obtained from Taipower every month.
QA/QC procedures to be applied:	Meter reading records will be crosschecked with the electricity receipts. The electricity meters will undergo maintenance/calibration according to Taiwan national standards (based on The Weight and Measures Act, Regulation no. CNMV 46, 'Technical Specification for Verification and Inspection of Electricity Meters'). Accordingly, meter calibration in every 8 years period. In addition, electricity receipt is kept for cross reference as per ACM0002
Any comment:	-

Data / Parameter:	EG _{p,j,y}
--------------------------	---------------------

⁴www.bsmi.gov.tw/wSite/public/Attachment/f1224657229438.doc

Data unit:	MWh
Description:	Quantity of net electricity generation supplied by the project plant/unit to the grid
Source of data to be used:	<i>Calculated by the difference of $EG_e - EG_i$</i>
Value of data applied for the purpose of calculating expected emission reductions in section B.5	186,509MWh
Description of measurement methods and procedures to be applied:	Calculated by the difference of EG_e and EG_i which are measured continuously and at least monthly recording.
QA/QC procedures to be applied:	Meter reading records of EG_e and EG_i will be crosschecked with the electricity receipts, and calculation will be double checked and verified.
Any comment:	-

4. Monitoring Outcomes

4.1 Monitoring period

The Project was retroactively registered. It has a registration date of 03 July 2012. For retroactive projects, emission reductions can be earned for 2 years prior to project registration. This monitoring period covers July 3, 2012 to July 2, 2014.

4.2 Sustainable Development Indicators

4.2.1 Air Quality

Chosen Parameter: NO_x, Sox emission reductions

Current Situation of Parameter: The air quality indicator is roughly monitored via the Project's electricity generation with reference to the atmospheric pollution emissions associated with the fossil fuel-based grid electricity generation in the region. Calculation is done according to the national grid's announcement related to its emissions of sulfur oxides (SO_x) and nitrogen oxides (NO_x). According to Taipower's latest announcement, an average of 328 kg of Sox and 337 kg of NO_x are generated for every GWh electricity produced in 2012, and an average of 302 kg of SO_x and 327 kg of NO_x are generated for every GWh electricity produced in 2013-2014. The total net generation within this monitoring period is 61.7096 GWh in 2012, and 202.8688 GWh in 2013-

2014. Based on this data, the proposed project abated approximately **81.50** tons SOx and **87.13** tons NOx during the monitoring period. The information is presented in the table below.

Year	SOx emission (ton/GWh)	NOx emission (ton/GWh)	Project Net Power Generation (GWh)	Sox Emission Reductions (ton)	Nox Emission Reductions (ton)
2012	0.328	0.337	61.7096	20.2407	20.7961
2013 2014	0.302	0.327	202.8688	61.2664	66.3381
Total			264.5784	81.5071	87.1342

Table 2. Project SOx and NOx Reductions for the period July 3, 2012-July2, 2014

Source: Taipower Official Website: Corporate Governance (公司治理), Performance of the Past 5 Years (近 5 年績效).

<http://www.taipower.com.tw/content/govern/govern01.aspx?MType=5&MSType=14>

4.2.2 Quantitative Employment and Income Generation

Chosen Parameter: Number of jobs, salary level

Current situation of Parameter: The project activity generates employment of 2 persons during the operational period. The project owner provides Labor Insurance for the staffs as required by the national regulations (Labor Standards Act, etc.). Hal Falls has been receiving a salary since October 01,2008. Jason Wang has been receiving a salary since November 10, 2011. The salaries both of them are above the required minimum wage in Taiwan.

Year	Number of jobs	Salary level	The National regulations (Labor Standards Act.)			
			Launch date	Execution time		The minimum wage (NT\$)
				Start	End	
2010	1	> 17,280	06/22/2007	01/07/2007	31/12/2010	17,280
2011	2	> 17,880	29/09/2010	01/01/2011	31/12/2011	17,880
2012	2	> 18,780	06/09/2011	01/01/2012	31/03/2013	18,780
2013	2	> 19,047	02/04/2013	01/04/2013	30/06/2014	19,047
2014	2	> 19,273	03/10/2013	01/07/2014	Currently it is still in use.	19,273

Table 3. The minimum wage in Taiwan

Source: Ministry of Labor official Website: item 4/ the formulation and adjustment of the minimum wage standard (基本工資之制定與調整經過.doc)

<http://www.mol.gov.tw/cht/index.php?code=list&ids=157>

Supporting documents provided to the DOE during Site Visit:

- Health insurance records in local language
- Employment contract
- Withholding & Non-Withholding Tax Statement

4.2.3 Biodiversity

Chosen parameter: Precaution measures to minimize impact towards plants and birds

Current situation of parameter: The project owner has put obstruction lights on wind turbines.

Pictures of the lights are provided below.



The DOE has verified the existence of such lighting during site visit.

4.2.4 Biodiversity

Chosen parameter: Landscaping at Bantianliao (Haowangjiao)

Current situation of parameter: The project owners provided lands that they leased from the Forest Bureau and National Property Bureau for the Houlong Government to set up a tourism park at Haowangjiao. Pictures of the park are provided below.



Landscape next to park



Vendors at park



Vendors at park



Above 3: Park



View from Park



Walkway leading up to park

The DOE has verified the continuous existence of the green landscaping by visiting Bantianliao during the periodic verification site visit.

4.3 Project Electricity Generation and Usage

Data for electricity generation and emission reductions are summarized in the MS Excel Spreadsheet *20150807_Miaoli MR Electricity and ER Tables_v4_ayu*.

To calculate net electricity delivered to the grid (EG_{pj}), electricity imported from the grid (EG_i) was subtracted from electricity delivered to grid by the Project (EG_e). Thus, net electricity is calculated as electricity production minus electricity consumption.

The monthly cut-off time of the meter reading for electricity export and import are equal to the billing cycle.

For the monitoring period 03 July 2012 to 02 July 2014, net electricity delivered to the grid is 265,932,505 KWh. Supporting documents provided to the DOE during site visit:

- Meter readings
- Electricity receipts from Taipower (i.e. Electricity Transaction Notes "ETN")
- Turbine Generation Continuous Measurement Records

Electricity meters

Electricity generation ($EG_{e,y}$)

The electricity generated by the wind turbines are transmitted to Taipower substation in which electricity meters are installed to record the transmitted electricity. The Project utilizes 2 bi-directional electricity meters, which are located at Shanjia Substation (Chunan Site) and Tung Ho Steel Substation (Dapong Site). Both are 3-phase/4-wire type electricity meter, with accuracy level 0.5.

Electricity consumption ($EG_{i,y}$)

The wind farm needs to use electricity from grid during the turbines start up. Electricity consumptions are also recorded by Taipower. The Project utilizes 2 bi-directional electricity meters, which are located at Shanjia Substation (Chunan Site) and Tung Ho Steel Substation (Dapong Site). Both are 3-phase/4-wire type electricity meter, with accuracy level 0.5.

Electricity generation and consumption data recording

Electricity data from the Meter of Facility (MOF) in Taipower substations is recorded by project owner and downloaded using the electronic device by Taipower monitoring staff. The MOF measures both electricity generation and consumption, both data are recorded by project owner in monthly and annual report. Subsequent to meter reading sessions, Taipower sends separate confirmations in form of "ETN" (or MOF card) to the project owner regarding amount

of both generation and consumption. MOF data copies and the confirmation records will be archived for at least two years after the end of the crediting period by the project owner.

The ER calculations are based on the generation data in the meter reading records. Electricity receipts (i.e. ETN) and Turbine Generation Continuous Measurement Records are also provided for cross-check purpose.

Calibration Record

The Dapong meter 04940025 was replaced on 08 September 2010 by the meter 10940038. The Chunan meter 68940058 has not been replaced during this monitoring period⁵. The Dapong meter 04940025 was manufactured by Chung Hsin Electric & Machinery Mfg. Corp. Ltd., located at No.25, Wende Rd., Guishan Township, Taoyuan County 333, Taiwan (R.O.C.). The Dapong electricity meter 10940038 was manufactured by Cheng Hsin Engineering & Services Co., Ltd., located at 3F., No.801, Zhongzheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C.). The Chunan electricity meter 68940058 was manufactured by Chung Hsin Electric & Machinery Mfg. Corp. Ltd., located at No.25, Wende Rd., Guishan Township, Taoyuan County 333, Taiwan (R.O.C.)

Below is a table listing the specifications of Miaoli's meters.

Monitoring Parameter	Project Site	Monitoring Period Meter Consistency	Location	SN	Accuracy	Calibration Date	Operation date	
							Start	End
EG _e and EG _i	Dapong	Old	Tung-Ho Steel 161kV Substation	04940025	0.5	16/07/2004	19/04/2006	08/09/2010
		New	Tung-Ho Steel 161kV Substation	10940038	0.5	27/08/2010	08/09/2010	Currently it is still in use.
	Chunan	Same	Shanjia 22.8kV Substation	68940058	0.5	21/02/2008	10/02/2006	Currently it is still in use.

Table 4. Specifications of Miaoli's meters

⁵The incorrect meter number 04940006 was written on the consumption meter readings until 28 July 2011, when a Taipower employee corrected the mistake. In a written statement from Taipower dated 17 January 2013, Taipower explained the mistake and stated that the meter readings were still attributed to the correct account.

MOF specification complies with The Weight and Measures Act, Regulation no. CNMV 46, 'Technical Specification for Verification and Inspection of Electricity Meters'⁶. The accuracy class of the electricity meters used for the project activity is 0.5 (120-480V2.5A), which is in line with the official standard error for electricity meter (MOF) at $\pm 0.5\%$ ⁷. The official period of validity for the *electronic electricity meter* in this Project is determined as 8 years. Taipower's calibration procedures are in accordance with those governed by the Bureau of Standards, Metrology and Inspection, Ministry of Economic Affairs, Taiwan R.O.C.

Taiwan Electric Research and Testing Center No. 1329 (TERTEC), located at No. 6-6, Rungung S. Rd., GuanyinShiang, Taoyuan County 328, Taiwan (R.O.C.) is responsible for calibrating the electricity meters. They are certified by the Taiwan Accreditation Foundation (TAF), the only national accreditation body in Taiwan⁸. TERTEC accreditation criteria are ISO/IEC 17025:2005. TERTEC were originally accredited 15 November 2004, sustaining and renewal accredited every three years⁹, and their current accreditation certification is effective from 15 November 2013 to 14 November 2016¹⁰.

The schematic diagram of both wind farms are provided in Annex II. Meter calibration records and calibrator accreditation certification are provided to DOE.

4.4 Emission Reductions

Baseline Emissions:

As per ACM0002, baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity, calculated as follows:

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

⁶The Weight and Measures Act www.bsmi.gov.tw/wSite/public/Attachment/f1224657229438.doc

Technical Specification for Verification and Inspection of Electricity Meters

<http://www.bsmi.gov.tw/wSite/public/Attachment/f1224657229438.doc> Clause 3.9.3

⁷The Weight and Measures Act www.bsmi.gov.tw/wSite/public/Attachment/f1224657229438.doc

Technical Specification for Verification and Inspection of Electricity Meters

<http://www.bsmi.gov.tw/wSite/public/Attachment/f1224657229438.doc> Clause 3.3.4 Table 4

⁸ Taiwan Accreditation Foundation – About TAF

<http://www.taftw.org.tw/dispPageBox/TAFENCP.aspx?ddsPageID=TAFENABOUT&>

⁹ TAF confirmed TERTEC of the accreditation has not been interrupted. Confirmation record is provided to DOE separately.

¹⁰ Taiwan Electric Research & Testing Center Accreditation English <http://hr.taftw.org.tw/service/labinfoE.aspx?code=1329>

where:

$EF_{grid,CM,y}$	Combined Margin Emission Factor in year y (tCO ₂ /MWh)
BE_y	Baseline Emissions in year y (tCO ₂ /yr)
$EG_{PJ,y}$	Quantity of net electricity generation supplied by the project plant/unit to the grid(MWh/yr)

The result of the Baseline Emission Factor ($EF_{grid,CM,y}$) calculation was **0.714tCO₂e/MWh**. A detailed calculation of the Combined Margin Emission Factor can be found in the PDD and EF calculation sheet that were provided to the DOE during the validation. The documents are provided to the appointed DOE during verifications, as well.

As the emission factor is fixed for the whole crediting period, the aim of monitoring is therefore only to monitor the net electricity generated using electricity meter. The project proponent used electricity from the grid for startup purposes so both electricity imports and exports are monitored:

$$EG_{PJ,y} = EG_{e,y} - EG_{i,y}$$

$EG_{PJ,y}$	Quantity of net electricity generation supplied by the project plant/unit to the grid
$EG_{e,y}$	Quantity of electricity generation supplied by the project plant/unit to the grid
$EG_{i,y}$	Quantity of electricity consumption of the project plant/unit from the grid

Project Emissions:

As per ACM0002, the project emission for Green field renewable energy (including wind farm) project activities is zero (**PE_y = 0**).

Leakage:

As stated in methodology ACM0002, leakage calculation and monitoring for this kind of activity is not considered.

Based on methodology ACM0002, the emission reductions are calculated below:

$$ER_y = BE_y - PE_y = BE_y = EF_{grid,CM,y} * EG_{PJ,y}$$

Summary of total electricity generation and the calculated total emission reductions

The detailed monthly electricity data comparison and emission reduction for this monitoring period can be found in **Annex I**.

The total ER generated through this second periodic monitoring period 03 July 2012 to 02 July 2014 is **188,909** tCO₂e, which is approximately 29.07% lower than the estimated amount of ER as stated in the PDD (total ex-ante ERs from 03/07/2012-02/07/2014: 266,334.00 tCO₂e).

5. Roles and Responsibilities

Monitoring Management

As per the registered PDD, there are 3 parameters that must be monitored, electricity generation supplied to the grid ($EG_{e,y}$), electricity consumption of the project plant from the grid ($EG_{i,y}$), and the net electricity supplied to the grid by the Project ($EG_{PJ,y}$). EMIF and Taipower ensure the availability and high quality of the necessary monitoring data. As accorded by the Gold Standard, all data necessary for emission reductions calculations will be kept by the project owner for at least two years after the end of crediting period. Data acquisition, management and quality assurance procedures are already in place; therefore, no additional procedures need to be established for the monitoring plan.

Emerging Markets Infrastructure Fund (EMIF), an investment holding company, owns the project development company Miaoli Wind Co., Ltd (Miaoli Wind). Miaoli Wind sub-contracts Solvent for turbine service and maintenance. The contract between Solvent and Miaoli has been provided to DOE. The organizational structure is as follows:

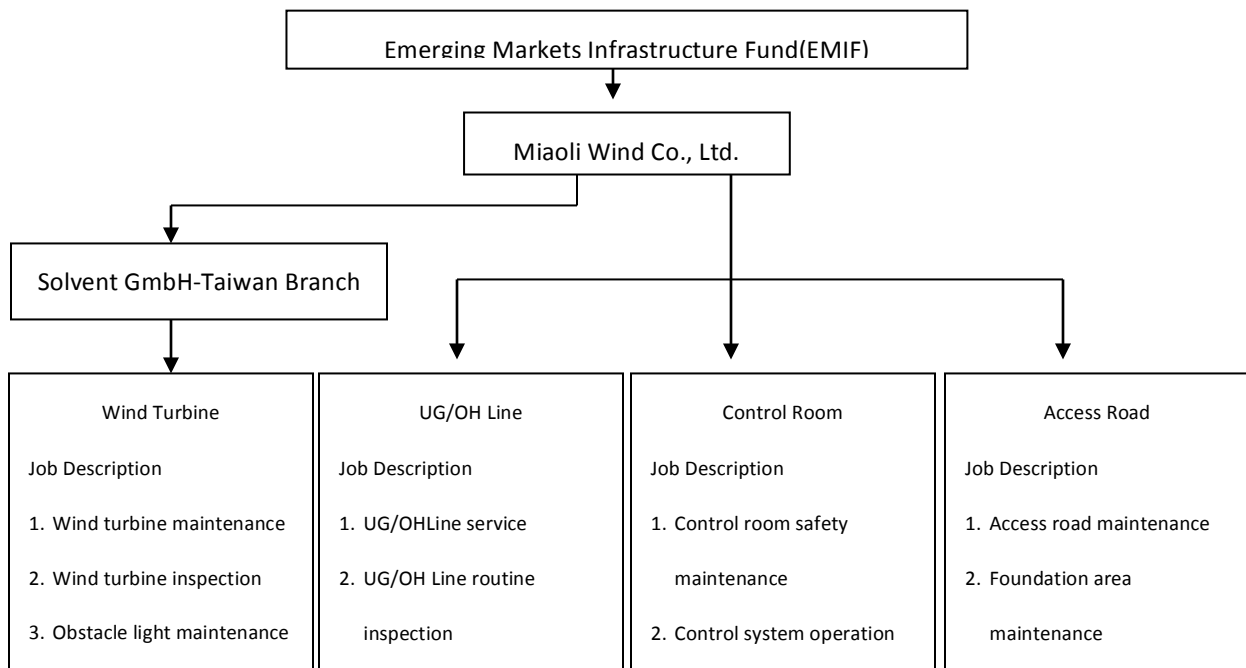


Figure 1. Organizational Structure

The operational and management structure of the project implemented by EMIF is as follows:

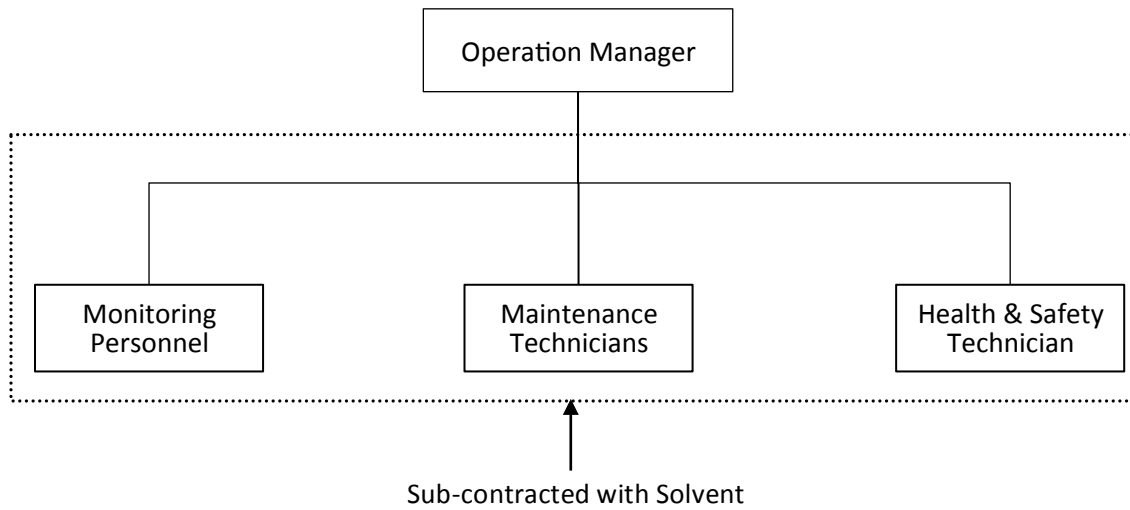


Figure 2. The operational and management structure of the Project

As indicated in the above figure, the personnel responsible for Monitoring and Maintenance and Health & Safety are managed and trained by the sub-contracted company “Solvent”. 12 personnel from Solvent will be assigned to take charge of the monitoring and maintenance of the Project. The job descriptions and the prescribed trainings are presented below in Table 4.

Job name	Job description	Prescribed trainings
Measurement Technician	- Measuring and recording the electricity generation through the proper methods and instruments. - Data storing and reporting to Operational Manager.	Trainings on measurement and recording by Solvent
Maintenance Technician	Making periodical and failure maintenance programmes and activities	Electrical and Mechanical Maintenance Trainings by Solvent
Health & Safety Technician	- Fulfilling occupational safety and health responsibilities. - Monitoring Environmental issue.	Safety and health trainings by Solvent

Table 5. Job descriptions and prescribed trainings

Quality assurance and quality control procedures

Meter reading records are crosschecked with the electricity receipts. The electricity meters will undergo maintenance/calibration according to Taiwan national standards (based on The Weight and Measures Act, Regulation no. CNMV 46, 'Technical Specification for Verification and Inspection of Electricity Meters'). Accordingly, meter calibration is conducted every 8 years period. In addition, electricity receipt is kept for cross reference as per ACM0002.

Further internal audit is carried out by Hal Falls, the qualified electrical technician. Mr. Falls periodically reviews the data from Taipower. He sends monthly reports to both Taipower and EMIF detailing electricity generation performance. He also sends more detailed monthly reports to EMIF which include summary of technical activities, review of operation infrastructure, operation details for both wind farm sites, technical and operation plan for the upcoming month, and monthly overview status for each wind turbine generator.

Annex I

Monthly Data Comparison and Emission Reduction Calculation GS Project Number 931 Miaoli 49.8MW Wind Farm Project Second Monitoring Period: 03/07/2012-02/07/2014										
Period		Production			Consumption			Net electricity delivered to grid (EGPJ,y, unit: kWh)	Emission Reduction (ER _y , unit: tCO ₂ e)	
Year	Month	Meter Reading (unit: kWh)	Receipt (unit: kWh)	Values Used for EGe,y	Meter Reading (unit: kWh)	Receipt (unit: kWh)	Values Used for EG _i ,y			
		A	B	C	D	E	F = max(D,E)	G = C-F	H = G/1000 *EF _{grid,CM,y}	I = G/1000 *EF _{grid,CM,y}
2012	Jul	4,090,880	4,090,880	4,090,880	31,200	26,400	31,200	4,059,680	2,898.61	44,061
	Aug	10,125,600	10,125,600	10,125,600	29,600	29,096	29,600	10,096,000	7,208.54	
	Sep	5,360,800	5,360,800	5,360,800	33,600	34,026	34,026	5,326,774	3,803.32	
	Oct	19,625,600	19,625,600	19,625,600	10,400	10,866	10,866	19,614,734	14,004.92	
	Nov	9,964,800	9,964,800	9,964,800	16,000	15,515	16,000	9,948,800	7,103.44	
	Dec	12,675,200	12,675,200	12,675,200	10,400	11,589	11,589	12,663,611	9,041.82	
2013	Jan	21,591,200	21,591,200	21,591,200	7,200	7,944	7,944	21,583,256	15,410.44	103,588
	Feb	14,422,400	14,422,400	14,422,400	11,200	11,248	11,248	14,411,152	10,289.56	
	Mar	10,132,000	10,132,000	10,132,000	12,800	11,328	12,800	10,119,200	7,225.11	
	Apr	9,482,400	9,482,400	9,482,400	14,400	14,869	14,869	9,467,531	6,759.82	
	May	6,664,800	6,664,800	6,664,800	34,400	33,886	34,400	6,630,400	4,734.11	
	Jun	6,765,600	6,765,600	6,765,600	24,000	25,938	25,938	6,739,662	4,812.12	
	Jul	4,441,600	4,441,600	4,441,600	25,600	26,272	26,272	4,415,328	3,152.54	
	Aug	4,926,400	4,926,400	4,926,400	31,200	30,724	31,200	4,895,200	3,495.17	
	Sep	10,235,200	10,235,200	10,235,200	23,200	22,688	23,200	10,212,000	7,291.37	
	Oct	21,616,800	21,616,800	21,616,800	4,800	5,222	5,222	21,611,578	15,430.67	
	Nov	15,435,200	15,435,200	15,435,200	18,400	17,868	18,400	15,416,800	11,007.60	
	Dec	19,588,000	19,588,000	19,588,000	8,000	8,016	8,016	19,579,984	13,980.11	
2014	Jan	16,230,400	16,230,400	16,230,400	12,800	14,040	14,040	16,216,360	11,578.48	41,260
	Feb	13,438,400	13,438,400	13,438,400	15,200	14,711	15,200	13,423,200	9,584.16	
	Mar	7,682,400	7,682,400	7,682,400	22,400	21,258	22,400	7,660,000	5,469.24	
	Apr	6,007,200	6,007,200	6,007,200	22,400	23,456	23,456	5,983,744	4,272.39	
	May	5,530,400	5,530,400	5,530,400	30,400	30,337	30,400	5,500,000	3,927.00	
	Jun	7,865,600	7,865,600	7,865,600	20,800	19,371	20,800	7,844,800	5,601.19	
	Jul	1,187,145	1,187,145	1,187,145	28,000	28,554	28,554	1,158,591	827.23	
Total		265,086,025	265,086,025	265,086,025	498,400	495,222	507,640	264,578,385	188,909	188,909

Dapong

- ***Consumption***

For electricity consumption during first 24 days and last 2 days, to be conservative, the whole month consumption of the last transacted months has been adopted in the ER calculation.

- ***Production***

In the ER calculation, the electricity generation has also adopted the conservative approach to the average values for the first 24 days and last 2 days.

Chunan

- ***Consumption***

A discrepancy of Chunan consumption data (EGi) exists between the meter readings and the receipt provided by Taipower (TPC) for cross-check purposes. This difference arises because Chunan wind farm the meter is still in use the mechanical type meter instead of the smart meter. The manual meter reading can only read the smallest number in units digit so the difference in reading the electricity consumption is inevitable. The difference between PP's records and Taipower's records all are the multiples of 800 because the meter multiples are 8000. This difference was also recognized by grid company. In long term view, the grid company was also adding additional reading to make up the shortage or overpay. For conservative purposes, when comparing Chunan's consumption meter readings to the receipt, the higher number is used for calculating net electricity.

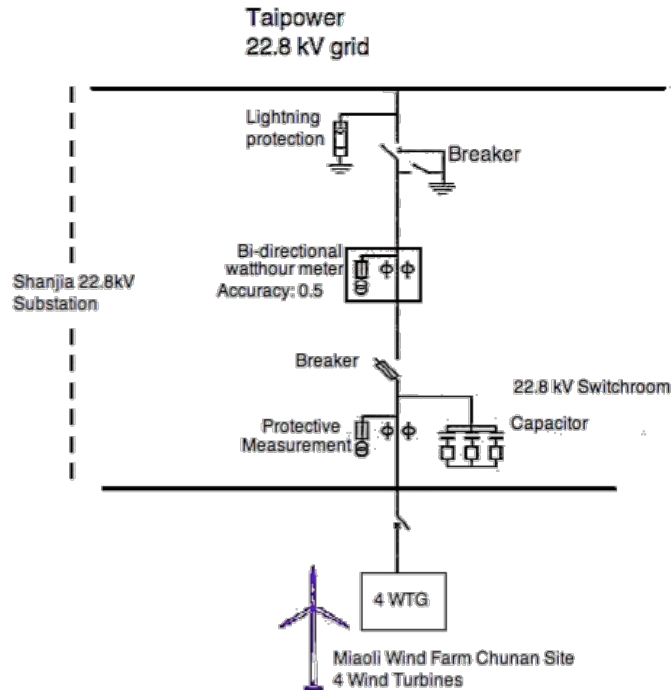
For electricity consumption during the first 24 days and last 20 days, to be conservative, the whole month consumption of the last transacted months has been adopted in the ER calculation.

- ***Production***

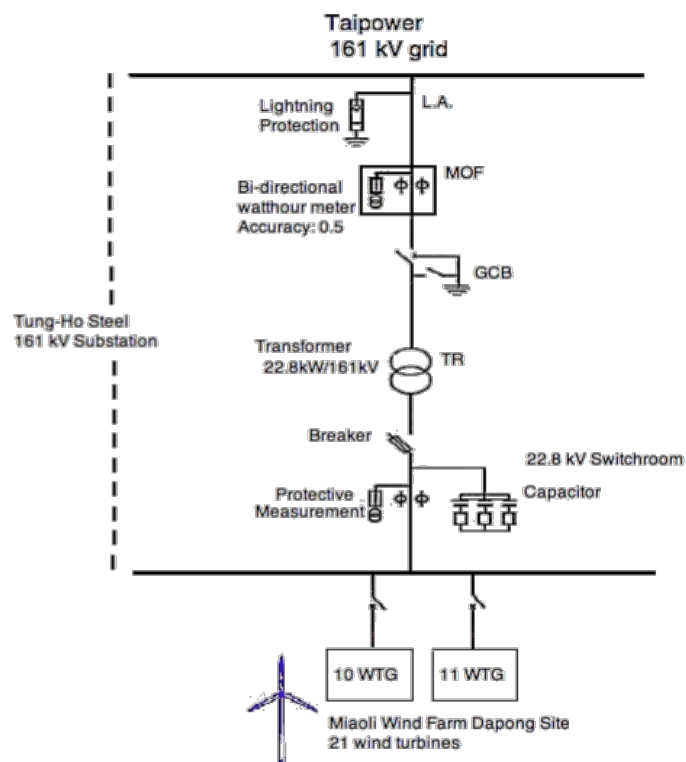
In the ER calculation, the electricity generation has also adopted the conservative approach to the average values for the first 24 days and last 20 days.

Annex II

Chunan Wind Farm Schematic Diagram



Dapong Wind Farm Schematic Diagram



Annex III

Miaoli Wind Co. warrants it has, and continues to have, (or if acting in the capacity as an Agent, the person or entity it represents has and continues to have) full legal and beneficial title to any Units listed by User in accordance with the Gold Standard Registry Terms of Use and the underlying Environmental Benefits corresponding to such Units and it has not sold, transferred, assigned, licensed, disposed of, granted or otherwise created any interest or encumbrance in or agreed to sell, assign, license, dispose of, grant or otherwise create any interest or encumbrance in the Units or the underlying Environmental Benefits corresponding to such Units other than as contemplated under the Gold Standard Registry Terms of Use.