

LIEPYNES WIND POWER PARK JOINT IMPLEMENTATION PROJECT

MONITORING REPORT NO.2

FOR PERIOD 01.01.2011-31.12.2011

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A handwritten signature in blue ink, consisting of a large, stylized 'E' followed by a 'J' and a horizontal line extending to the right.

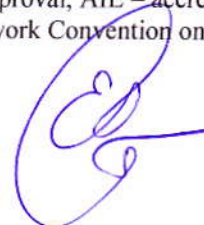
1. GENERAL INFORMATION

Project name	Liepynes wind power park joint implementation project
UNFCCC No.	0178
ITL project ID	LT2000019
Type of project	Small
Sectoral scope	Energy industries (renewable/non-renewable sources)
Project location	Kretingos district, near village Liepyne 
Host parties	Vejo gūsis, UAB (Lithuania)
Investor parties	Ecocom BG, LTD (the Netherlands)
Project description	The project includes installation of 6 wind turbines with the total capacity of 9,13MW (2MW x 4 units, 0,8MW x 1 unit, 0,33MW x 1 unit). Wind turbines manufactured by German company Enercon GmbH. The wind power park is connected to 110 kV power line. An existing transformer substation with incoming voltage of 20 kV, outgoing voltage of 110 kV and 25 MVA capacities was used for this purpose.

2. IMPLEMENTATION OF THE JI PROJECT

LoE issuance by host country DFP	31 Mar 09
PDD publication on UNFCCC website	23 Apr 09-22 May 09
LoA issuance by host country DFP	15 Jan 10
LoA issuance by investor country DFP	25 Feb 10
Determination report issuance by AIE	25 May 10
Final Determination on UNFCCC website	30 Jul 10

Notes: DFP – designated focal point, LoE – Letter of Endorsement, LoA – Letter of Approval, AIE – accredited independent entity, PDD- Project design document, UNFCCC - United Nations Framework Convention on Climate Change



3. MONITORING METHODOLOGY

Monitoring period	01 Jan 11 – 31 Dec 11
Methodology description	JI Project use own methodology (not CDM approved). Methodology is based on procedures defined in Section D of the project PDD. The amount of net electricity supply to the grid from JI project is defined as key activity to monitor.

4. MONITORING EQUIPMENT AND ITS CALIBRATION

Monitoring equipment	<p>Due to reason that Liepynes Wind Power Park Joint Implementation Project (9,13MW) and Rudaiciai wind power park (30MW) are connected to the same substation with one commercial power metering device it is necessary to separate each park energy generation/consumption. According to monitoring plan description Liepynes wind power park joint implementation project operations are controlled by common commercial meter (excluding its duplicate) and 1 control meter. Rudaiciai wind park's operations are controlled by common commercial meter (excluding its duplicate) and 3 control meters. All meters are connected to SCADA system and monitored remotely.</p> <p>Second commercial meter is necessary in the case of main commercial meter's failure. Control meters indicate commercial meter's deviations and helps evaluate energy consumption for own purposes (difference between generated and supplied to the grid values).</p> <p>All metered data is double checked by receipts of electricity sales with SCADA system as backup.</p>
Calibration/maintenance of energy meters	Commercial power meter together with control meters were installed by AB Litgrid, national grid operator which buys electricity from the wind power parks. The meters belong to AB Litgrid. Power meters as well as current and voltage transformers are calibrated once every 8 years.
Deviations	During all monitoring period wind power park operated without major technical interruptions.

Liepynes wind power park joint implementation project monitoring equipment technical data

Energy meter	T-101	T-101/D	T-101 new	T-101/D new	P4 (L-107)
Purpose	Commercial meter	Duplicate-commercial meter	Commercial meter	Duplicate-commercial meter	Control meter
Producer	UAB "Elgama-Elektronika"	UAB "Elgama-Elektronika"	UAB "Elgama-Elektronika"	UAB "Elgama-Elektronika"	UAB "Elgama-Elektronika"
Type	EPQS 113.09.04	EPQS 113.21.29	EPQS 114.22.27	EPQS 114.22.27	EPQM 312.01.534
Measurement range	3x57,7/100V; 1(1,25)A	3x57,7/100V; 1(1,25)A	3x57,7/100V; 1(1,25)A	3x57,7/100V; 1(6)A	3x57,7/100V; 1(1,25)A
Serial number	289135	289203	942682	942681	75232
Metrological test date	29.09.2005	29.09.2005	04.08.2011	04.08.2011	16.12.2009
Breakdowns (if any)	Till 26.10.2011	Till 26.10.2011	From 26.10.2011	From 26.10.2011	-

The commercial energy meters were changed by AB Litgrid as preventive maintenance (deeds No.000336-368 and No.000335-368. Annex 2)

Rudaiciai wind power park project monitoring equipment technical data (excluding commercial meters)

Energy meter	Kiauleikiai	Kveciai	Rudaiciai
Purpose	Control meter	Control meter	Control meter
Producer	UAB "Elgama-Elektronika"	UAB "Elgama-Elektronika"	UAB "Elgama-Elektronika"
Type	EPQS 113.09.04	EPQS 113.09.04	EPQS 113.09.04
Measurement range	3x57,7/100V; 1(1,25)A	3x57,7/100V; 1(1,25)A	3x57,7/100V; 1(1,25)A
Accuracy class	0,5s	0,5s	0,5s
Serial number	508196	508202	508174
Metrological test date	29.10.2008	29.10.2008	29.10.2008
Breakdowns (if any)	-	-	-

All meters functioned properly during monitoring period and therefore can be used as basis for proper achieved emission reduction calculations.

5. POWER PRODUCTION

Net project production during year 2011

Month	Power supplied to the grid, kWh*	Power consumed from the grid, kWh*	Net power production, kWh
Jan	2.438.330	219	2.438.111
Feb	2.533.052	491	2.532.561
Mar	2.802.475	424	2.802.051
Apr	1.736.832	895	1.735.937
May	1.584.506	530	1.583.976
Jun	1.247.962	437	1.247.525
Jul	2.471.822	621	2.471.201
Aug	1.946.325	302	1.946.023
Sep	2.186.393	162	2.186.231
Oct	2.716.444	606	2.715.838
Nov	2.002.584	772	2.001.812
Dec	4.047.930	1.669	4.046.261
Total:	27.714.655	7.128	27.707.527

* data of AB Litgrid

According to the Enercon SCADA records the average wind speed value on wind turbines hub height (78m) during 2011 was 6,43 m/s when during 2010 – 5,80 m/s. It was led wind park capacity factor 34,8% in 2011 when in 2010 it was only 25,8%. Such result gives explanation why wind park's productivity level each year is different and why so high result was achieved during 2011.

6. CALCULATION OF EMISSION REDUCTIONS

In accordance to Monitoring plan described in the Project PDD the following formula is used to calculate Project emission reductions:

$$ER = E_{Liep(+/-)} \times EF_{LE} \quad [1]$$

Where:

ER – annual emission reductions, tCO₂

$E_{Liep(+/-)}$ – Net annual power production at Liepynes wind power park joint implementation project (the difference between produced and consumed power), MWh.

EF_{LE} – emission factor for power production at Lietuvos elektrine, i.e. 0,626 tCO₂/MWh

$$E_{Liep(+/-)} = E_{T101} - E_{Rud(+/-)} \quad [2]$$

Where:

E_{T101} – the data of commercial power meter No.T101, i.e. net power dispatched to the grid from Rudaiciai wind power park (30MW) and Liepynes Wind Power Park Joint Implementation Project (9,13MW), kWh

$E_{Rud(+/-)}$ – net power dispatched to the grid from Rudaiciai wind power park, kWh

According to the power sale-purchase agreement between project owner with AB Lietuvos energija net power dispatched to the grid from each park will be recorded by 4 control meters installed on substation parallel to commercial meter

$$P = P1_{(+/-)} + P2_{(+/-)} + P3_{(+/-)} + P4_{(+/-)} \quad [3]$$

Where:

P – the sum of net power dispatched to the grid measured by all control meters, kWh

$P1_{(+/-)} + P2_{(+/-)} + P3_{(+/-)} + P4_{(+/-)}$ - the data from four separate control meters on net power dispatched to the grid, kWh

Based on data of all meters AB Lietuvos energija will separate Liepynes Wind Power Park Joint Implementation Project's generation/consumption proportion from net power dispatched to the grid calculated by [4] formulae:

$$P4\% = P4_{(+/-)} / P \quad [4]$$

Where:

$P4\%$ – Liepynes Wind Power Park Joint Implementation Project's energy generation proportion from total net power amount, %

$P4_{(+/-)}$ - the data of Liepynes Wind Power Park Joint Implementation Project's control meter, kWh

The factual net power dispatched to the grid from Liepynes Wind Power Park Joint Implementation Project calculated by [5] formulae:

$$E_{Liep(+/-)} = P4\% \cdot E_{T101} \quad [5]$$



	2011
<u>Fixed data</u>	
Emission factor for power production at Lietuvos elektrine (EF _{LE}), tCO ₂ /MWh	0,626
<u>Monitored data</u>	
Net power generation (E _{Liep(+/-)}), MWh	27.707,5
Calculated emission reductions (ER), tCO₂e	17.345

Liepynes wind power park joint implementation project generated 17.345 tCO₂e of emission reductions during the monitoring period Jan-Dec 2011.


ANNEXES

ANNEXE 1 – Monitoring form

ANNEXE 2 – AB Litgrid deeds (26.10.2011 No.000336-368 and No.000335-368)

ANNEX 1

YEAR: 2011

Month	Power dispatch confirmation document No.	Date of issuance of power dispatch confirmation document	Power supplied to the grid (E _{sup}), MWh	Power consumed from the grid (E _{con}), MWh	Net annual power production E _{Liep(+/-)} , MWh	Amount of Emission Reduction (ER), tCO ₂ e	Name of the person in charge	Signature
January	VJ-1/11/01	2011.02.02	2.438.330	219	2.438.111	1.526	E.Simutis	
February	VJ-1/11/02	2011.02.28	2.533.052	491	2.532.561	1.585	E.Simutis	
March	VJ-1/11/03	2011.04.04	2.802.475	424	2.802.051	1.754	E.Simutis	
April	VJ-1/11/04	2011.05.04	1.736.832	895	1.735.937	1.087	E.Simutis	
May	VJ-1/11/05	2011.06.01	1.584.506	530	1.583.976	992	E.Simutis	
June	VJ-1/11/06	2011.07.04	1.247.962	437	1.247.525	781	E.Simutis	
July	VJ-1/11/07	2011.08.01	2.471.822	621	2.471.201	1.547	E.Simutis	
August	VJ-1/11/08	2011.09.01	1.946.325	302	1.946.023	1.218	E.Simutis	
September	VJ-1/11/09	2011.10.03	2.186.393	162	2.186.231	1.369	E.Simutis	
October	VJ-1/11/10	2011.11.03	2.716.444	606	2.715.838	1.700	E.Simutis	
November	VJ-1/11/11	2011.12.05	2.002.584	772	2.001.812	1.253	E.Simutis	
December	VJ-1/11/12	2012.01.02	4.047.930	1.669	4.046.261	2.533	E.Simutis	
Total:			27.714.655	7.128	27.707.527	17.345		

$$ER = E_{Liep(+/-)} \times 0,626$$

$$E_{VP} = E_{sup} - E_{con}$$

