KREIVENAI WIND POWER PARK

MONITORING REPORT NO.2

FOR PERIOD 01.01.2011-31.12.2011

Prepared by:

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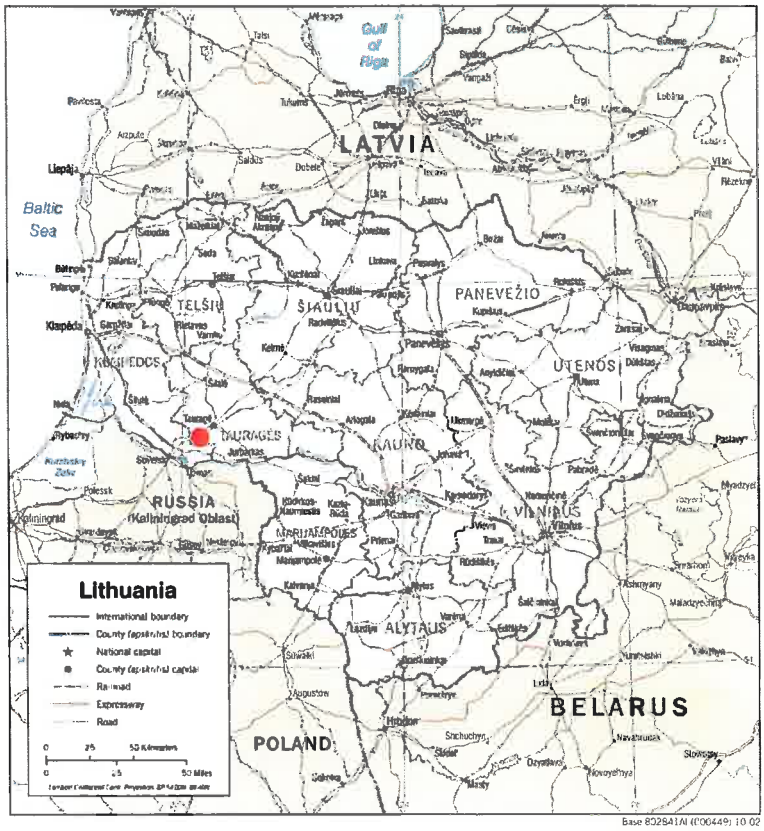
1. GENERAL INFORMATION

Project name	Kreivenai wind power park
UNFCCC No.	0163
ITL project ID	LT2000023
Type of project	Large
Sectoral scope	Energy industries (renewable/non-renewable sources)
Project location	Taurages district, near village Kreivenai 
Host parties	Energogrupe, UAB (Lithuania)
Investor parties	Ecocom BG LTD (the Netherlands)
Project description	The project includes installation of 10 units of Enercon E-82 type (2MW) wind turbines manufactured by German company Enercon GmbH with total capacity 20 MW. The wind power park is connected to 110 kV power line. A transformer substation with incoming voltage of 20 kV, outgoing voltage of 110 kV and 25 MVA capacity has been installed for this purpose.

2. IMPLEMENTATION OF THE JI PROJECT

LoE issuance by host country DFP	11 May 07
PDD publication on UNFCCC website	25 Oct 08-23 Nov 08
LoA issuance by host country DFP	15 Jan 10
LoA issuance by investor country DFP	25 Feb 10
Determination report issuance by AIE	17 Aug 10
Final Determination on UNFCCC website	23 Oct 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	Wind power park operations are controlled by 5 meters. 2 meters are commercial (together with duplicate) and 3 meters are control. All meters are connected to SCADA system and monitored remotely. 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). All metered data is double checked by receipts of electricity sales with SCADA system as backup.
Calibration/maintenance of energy meters	Commercial power meter together with control meters were installed by AB Lietuvos Energija, national grid operator which buys electricity from the wind power park. The meters belong to AB Lietuvos Energija. 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.

Monitoring equipment technical data

Energy meter	T-101	T-101/D	L-103	L-104	L-105
Purpose	Commercial meter	Duplicate-commercial meter	Control meter	Control meter	Control meter
Producer	UAB "Elgama-Elektronika"	UAB "Elgama-Elektronika"	UAB "Elgama-Elektronika"	UAB "Elgama-Elektronika"	UAB "Elgama-Elektronika"
Type	EPQS 113.21.29	EPQS 113.21.29	EPQS 113.21.29	EPQS 111.21.29	EPQS 131.21.29
Measurement range	3x57,7/100V; 1(1,25)A	3x57,7/100V; 1(1,25)A	3x57,7/100V; 5(6,25)A	3x57,7/100V; 5(6,25)A	3x230/400V; 5(6,25)A
Accuracy class	0,2s	0,2s	0,2s	0,2s	0,2s
Serial number	649233	649235	524226	649153	649240
Metrological test date	11.12.2008	11.12.2008	12.12.2008	10.12.2008	11.12.2008
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	4.425.517	800	4.424.717
Feb	5.836.793	2.677	5.834.116
Mar	5.939.656	1.217	5.938.439
Apr	3.819.167	1.321	3.817.846
May	3.761.420	1.222	3.760.198
Jun	3.256.533	698	3.255.835
Jul	1.891.798	2.145	1.889.653
Aug	3.405.642	1.159	3.404.483
Sep	3.858.511	717	3.857.794
Oct	4.801.987	1.215	4.800.772
Nov	3.931.317	2.550	3.928.767
Dec	8.120.038	5.039	8.114.999
Total:	**53.048.379**	**20.760**	**53.027.619**

* data of AB Litgrid

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:

$ER = E_{VP} \times EF_{LE}$

Where:
ER – annual emission reductions, tCO2
E_{VP} – Net annual power production at Kreivenai wind power park (the difference between produced and consumed power), MWh.
EF_{LE} – emission factor for power production at Lietuvos elektrine, i.e. 0,626 tCO2/MWh

Due to reason that Griezpelkiai wind power park (10 MW) has been connected to the existing substation in December 2010, the Project monitoring plan described in the Project PDD section D was updated (see Annex 1). It based on attitudes of joint venture agreement signed between UAB Energogrupe and UAB Vejo gusis on 01 12 2008 and approved by transmission system operator AB Litgrid.

Based on updated monitoring plan principles Kreivenai wind power park's generation/consumption of year 2011 were monitored. The deed of transfer-acceptance between two wind energy park operators and AB Lietuvos energija has been signed and invoices has been issued.

	2011
Fixed data	
Emission factor for power production at Lietuvos elektrine (EF_{LE}), tCO2/MWh	0,626
Monitored data	
Net power generation (E_{VP}), MWh	53.028
Calculated emission reductions (ER), tCO2e	**33.195**

Kreivenai wind power park generated 33.195 tCO2e of emission reductions during the monitoring period Jan-Dec 2011.

In accordance to Monitoring plan completed project's monitoring form is presented in Annex 2.

ANNEXES

ANNEXE 1 – Updated monitoring plan
ANNEXE 2 – Monitoring form

ANNEX 1

SECTION D. Monitoring plan

D.1. Description of monitoring plan chosen:

Kreivenai wind power park's (20 MW) operations are controlled by commercial meter (excluding its duplicate) and 2 control meters. Griezpelkiai wind park's (10MW) operations are controlled by the same commercial meter (excluding its duplicate) and 1 additional control meter. All meters are connected to SCADA system and monitored remotely. AB Lietuvos energija is responsible for the monthly deeds of transfer-acceptance preparation and submission for wind energy parks operators (UAB Energogrupe and UAB Vejo gusis). After received data verification the invoices from wind energy parks operators will be issued.

The following formulas were used to calculate Kreivenai wind power park's Project emission reductions from December 2010:

$ER = E_{VP} \times EF_{LE}$ [1]

Where:
ER – annual emission reductions, tCO2
E_{VP} – Net annual power production at Kreivenai wind power park (the difference between produced and consumed power), MWh
EF_{LE} – emission factor for power production at Lietuvos elektrine, i.e. 0,626 tCO2/MWh

$E_{VP} = E_{T101} - E_{W2}$ [2]

Where:
E_{T101} – the data of commercial power meter No.T101, i.e. net power dispatched to the grid from Kreivenai wind power park (20MW) and other wind power park (10MW), kWh
E_{W2} – net power dispatched from the other 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 3 control meters installed on substation parallel to commercial meter

$P = P1_{L103} + P2_{L104} + P3_{L105}$ [3]

Where:
P – the sum of net power dispatched to the grid measured by all control meters, kWh
$P1_{L103} + P2_{L104} + P3_{L105}$ - 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 Kreivenai wind power park's generation/consumption proportion from net power dispatched to the grid calculated by [4] formulae:

$P1\text{-}2_{\%} = P1_{L103} + P2_{L104} / P$ [4]

Where:
$P1\text{-}2_{\%}$ – Kreivenai wind power park's energy generation proportion from total net power amount, %
$P1_{L103}$ and $P2_{L104}$ - the data of Kreivenai wind power park's control meters, kWh

The factual net power dispatched to the grid Kreivenai wind power park calculated by [5] formulae:

$$E_{VP} = P1\text{-}2_{\%} \cdot E_{T101} \qquad [5]$$

DIREKTORIUS
Iustinas Vilpišauskas

LIETUVOS RESPUBLIKA
UAB
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ANNEX 2

YEAR: 2011

Month	Power dispatch confirmation document No.	Date of issuance of power dispatch confirmation document	Power supplied to the grid (Esup), MWh	Power consumed from the grid (Econ), MWh	Net annual power production (E_{VP}), MWh	Amount of Emission Reduction (ER), tCO_2e	Name of the person in charge	Signature
January	VJ-5/11/01	2011.02.02	4.425.517	800	4.424.717	2.770	J.Vilpišauskas	
February	VJ-5/11/02	2011.02.28	5.836.793	2.677	5.834.116	3.652	J.Vilpišauskas	
March	VJ-5/11/03	2011.04.04	5.939.656	1.217	5.938.439	3.717	J.Vilpišauskas	
April	VJ-5/11/04	2011.05.03	3.819.167	1.321	3.817.846	2.390	J.Vilpišauskas	
May	VJ-5/11/05	2011.06.01	3.761.420	1.222	3.760.198	2.354	J.Vilpišauskas	
June	VJ-5/11/06	2011.07.04	3.256.533	698	3.255.835	2.038	J.Vilpišauskas	
July	VJ-5/11/07	2011.08.01	1.891.798	2.145	1.889.653	1.183	J.Vilpišauskas	
August	VJ-5/11/08	2011.09.01	3.405.642	1.159	3.404.483	2.131	J.Vilpišauskas	
September	VJ-5/11/09	2011.10.03	3.658.511	717	3.657.794	2.290	J.Vilpišauskas	
October	VJ-5/11/10	2011.11.03	4.801.987	1.215	4.800.772	3.005	J.Vilpišauskas	
November	VJ-5/11/11	2011.12.05	3.931.317	2.550	3.928.767	2.459	J.Vilpišauskas	
December	VJ-5/11/12	2012.01.02	8.120.038	5.039	8.114.999	5.080	J.Vilpišauskas	
Total:			**53.048.379**	**20.760**	**53.027.619**	**33.195**		

ER = E_{VP} x 0,626

E_{VP} = Esup-Econ

LIETUVOS RESPUBLIKA UAB "Energogrupė" ALYTUS

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