

# **MONITORING REPORT NO. 2**

**FOR PERIOD 01.01.2010-31.12.2010**

## **SUDENAI AND LENDIMAI WIND POWER**

**JOINT IMPLEMENTATION PROJECT**

**UNFCCC No. LT2000007**

PREPARED BY:

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## 1. GENERAL INFORMATION

Project name:	Sudenai and Lendimai Wind Power Joint Implementation Project
Project location:	Sudenu and Lendimu villages in Kretingos county in Lithuania
Project owner:	<p>UAB Lariteksas (Sudenai) and UAB Vejo Elektra (Lendimai)</p> <p>UAB Lariteksas Reg. adr. Lentvario g. 15A, LT-02300 Vilnius, Lithuania Address for correspondence: Šv. Ignoto 1, 01120 Vilnius</p> <p>UAB Vejo Elektra Reg. adr. Laisves pr. 3 LT-04215 Vilnius, Lithuania Address for correspondence: Šv. Ignoto 1, 01120 Vilnius</p>
Carbon credit purchaser:	Nordic Environment Finance Corporation, NEFCO in its capacity as Fund Manager to the Baltic Sea Region Testing Ground Facility Emission Reduction Purchase Agreement (ERPA) as of 2007-12-11
Project description:	<p>The project involves an 8 MW wind farm at Sudenai (consisting of 4 Enercon E82 2000 kW wind turbines) and a 6 MW wind farm at Lendimai (consisting of 3 Enercon E82 2000 kW wind turbines).</p> <p>GHG emission reduction is achieved via displacement of carbon intensive electricity produced from fossil fuel sources in the Lithuanian power network.</p> <p>Crediting period for emission reductions: 01 September 2008 – 31 December 2012</p>
Operation during monitoring period:	During the whole monitoring period both Sudenai and Lendimai wind farms operated without major technical interruptions except for one turbine fault due to the cable ladder system defect in Lendimai farm in June, 2010. The fault was resolved in 3 weeks.

## 2. MONITORING METHODOLOGY

Description:	<p>Monitoring is based on the procedures defined in the document “Monitoring Plan of Sudenai and Lendimai Wind Power Joint Implementation Project. Version 1.0 July 15, 2010”.</p> <p>The amount of net electricity supply to the grid from the JI project is defined as the key activity to monitor.</p>
Grid connection and measuring meters:	<p>The Sudenai and Lendimai wind farm connection to the Main Grid (110kV) is established via one coupling point to the national electricity transmission system operator (TSO) Litgrid AB.</p> <p>The Main Grid meter is connected to the TSO SCADA and monitored remotely by TSO. The meter is backed up with a back up meter. Totally there are 7 wind turbines. There are 3 20kV lines on the 20kV side of the 110/20kV transformer - 2 lines have 2 turbines each connected and 3<sup>rd</sup> line has 3 turbines connected. These lines are equipped with separate power meters that are owned by TSO and read as needed, to verify if any deviation from data of the main meter exists. If it was then data from the backup meter would be read.</p> <p>Net power production is calculated as a difference between actual power production and active power consumption.</p> <p>Active power consumption is measured with the same measuring equipment (as mentioned above) as used for measuring of actual power production. The equipment has 2 separate electronic registers (1 (one) for actual power production and 1 (one) for active power consumption). The overall delivered and consumed power amount is divided up between Lariteksas UAB and Vejo Elektra UAB using ratio 4:3.</p> <p>The two commercial power meters belong to TSO. Calibration of measuring meters is processed according to Lithuanian legislation and standards, and the TSO, owner of the meters is responsible for the calibration and maintenance. According to the national legislation the calibration of the meters is required every 8 years.</p> <p>Two commercial electric power meters installed:</p> <ul style="list-style-type: none"> <li>- VJ-3.T-101 (commercial accounting): serial number 289132, calibrated on Sep 29, 2005;</li> <li>- VJ-3.T-101/D (duplicated commercial accounting): serial number 379391, calibrated on Aug 16, 2006.</li> <li>-</li> </ul> <p>The contractual party of purchase of power generated by Sudenai and Lendimai wind farms is Lietuvos Energija AB and Litgrid AB (purchaser of the public obligation services (POS) part).</p>

	<p>Additionally each turbine has separate meters which send data to Enercon SCADA database. The database data are used monthly to verify the production. It can be read any moment and real time as well.</p> <p>No meters have been changed and all meters functioned properly during the period January 1, 2010 – December 31, 2010 and can therefore be properly used as basis for the calculation of achieved emission reductions.</p>
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**3. ACHIEVED EMISSION REDUCTIONS**

In accordance with the Monitoring Plan the formula for calculation of achieved emission reductions is the following:

$$ERy (tCO2e) = EGy (MWh) \times EFy (tCO2/MWh)$$

Emission reductions have been calculated in accordance with the Monitoring Plan as follows:

	<u>2010</u>
<u>Project constants</u>	
Emission factor EFy, tCO2/MWh	0,629
<u>Actual data</u>	
Net power production EGy, kWh, Sudenai	15242869
Net power production EGy, kWh, Lendimai	11433485
Annual Emission reduction, tCO2, Sudenai	9587,765
Annual Emission reduction, tCO2, Lendimai	7191,662
<b>Total emission reduction, tCO2e, Sudenai &amp; Lendimai</b>	<b>16 779</b>

Sudenai and Lendimai Wind Power JI Project generated 16 779 tCO2e of emission reductions during the monitoring period of year 2010.

#### 4. ANNEXES

1	Annual production report of Sudenai wind farm 2010
2	Annual production report of Lendimai wind farm 2010
3	Monitoring protocol 2008-2012
4	Internal staff training records
5	Replies to 2008-2009 Verification Report FARs

Tadas Navickas  
Managing Director  
UAB Lariteksas and UAB Vejo elektra

### Annex 1. Annual production report of Sudenai wind farm, 2010

	Actual power production (kWh)*	Active power consumption (kWh)*	Net power production (kWh)
January	1 462 070	1 702	1 460 368
February	1 013 171	694	1 012 477
March	1 702 425	457	1 701 968
April	1 042 004	1 074	1 040 930
May	1 021 979	925	1 021 054
June	824 074	288	823 786
July	584 548	1 088	583 460
August	978 085	1 072	977 013
September	1 702 601	428	1 702 173
October	1 748 257	315	1 747 942
November	1 668 464	314	1 668 150
December	1 508 094	4 546	1 503 548
<b>Total 2010</b>	<b>15 255 772</b>	<b>12 903</b>	<b>15 242 869</b>

\* Data according to TSO Litgrid AB power meter.

### Annex 2. Annual production report of Lendimai wind farm, 2010

	Actual power production (kWh)*	Active power consumption (kWh)*	Net power production (kWh)
January	1 096 683	1 279	1 095 404
February	759 966	520	759 446
March	1 276 969	344	1 276 625
April	781 593	804	780 789
May	766 577	697	765 880
June	618 126	215	617 911
July	438 462	816	437 646
August	733 650	805	732 845
September	1 277 102	323	1 276 779
October	1 311 345	236	1 311 109
November	1 251 492	234	1 251 258
December	1 131 201	3 408	1 127 793
<b>Total 2010</b>	<b>11 443 166</b>	<b>9 681</b>	<b>11 433 485</b>

\* Data according to TSO Litgrid AB power meter.

### Annex 3. Monitoring Protocol 2008-2012

	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
<u>Project constants</u>					
Emission factor EFy, tCO2/MWh	0,629	0,629	0,629	0,629	0,629
<u>Actual data</u>					
Net power generation EGy, kWh, Sudenai	1106070	15820969	15242869		
Net power generation EGy, kWh, Lendimai	715134	11867113	11433485		
Annual Emission reduction, tCO2, Sudenai	695,718	9951,390	9587,765		
Annual Emission reduction, tCO2, Lendimai	449,819	7464,414	7191,662		
<b>Total emission reduction, tCO2e, Sudenai and Lendimai</b>	<b>1146</b>	<b>17416</b>	<b>16779</b>		
<b>Cumulative emission reduction of the JI project, tCO2e</b>	<b>1146</b>	<b>18562</b>	<b>35341</b>		

#### **Annex 4. Internal staff trainings during the monitoring period**

<b>Date</b>	<b>Training by</b>	<b>Participants</b>	<b>Topic</b>
July 2010	Hannu Lamp, 4energia JI consultant	Tadas Navickas, 4energia UAB Managing Director Julius Mikalauskas, 4energia UAB Project Manager	Preparation of improved Monitoring Plan on basis of monitoring procedure as defined in project PDD and on basis of FARs as stated in verification report of BV.
January 2011	Julius Mikalauskas, Project Manager	Ieva Vaisvilas, 4energia UAB Project Assistant	Introduction to requirements related to monitoring and verification for JI project. Produced electric power accounting and control.
February 2011	Hannu Lamp, 4energia JI Consultant	Ieva Vaisvilas, 4energia UAB Project Assistant	Preparation of Monitoring Report for 2010.



## **Annex 5. Comments to 2008-2009 Verification Report FARs**

***FAR 1:*** Please provide basic JI requirements training for the project manager.

Refer to the Training sections of the Monitoring Plan ver. 1.0 and of this Monitoring Report. The trainings to the involved staff have been provided in year 2008, 2010 and 2011.

***FAR 2:*** Please document the responsibilities of the project manager which are related with power accounting and monitoring emission reduction.

The responsibilities of the project manager are defined in Monitoring Plan ver. 1.0.

***FAR 3:*** Documented routines might be prepared for archiving data, which is required for monitoring. The procedure might define responsibilities and the retention period for the data archiving to ensure that the data will be available for at least two years after the end of the crediting period.

The document archiving procedure and retention period is documented in Monitoring Plan ver. 1.0.

***FAR 4:*** Identification data, calibration and maintenance dates of the electric power metering devices might be included in the monitoring report.

Meter identification information and calibration data is included in Monitoring Plan ver. 1.0 and in this Monitoring Report No. 2.

***FAR 5:*** Checks by a second person not performing the calculations over manual data transfers, changes in assumptions and the overall reliability of the calculation processes should be implemented.

Data verification procedure is defined in Monitoring Plan ver. 1.0.

***FAR 6:*** Please define the requirements for net power production calculation in revised monitoring plan, and submit it for the determination by the accredited independent entity until the next verification.

Net power production calculation is defined in the Monitoring Plan ver. 1.0 and in this Monitoring Report No. 2.