



**OÜ Paldiski Tuulepark**

**Determination Report Paldiski  
Wind Farm  
JI project under ERUPT 3**

KPMG Certification BV  
Amstelveen, 28 May 2004  
PDISK3/EK/sm



***OÜ Paldiski Tuulepark***  
*Determination Statement and Report*  
*Paldiski Wind Farm*  
*28 May 2004*

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***OÜ Paldiski Tuulepark***  
*Determination Statement and Report*  
*Paldiski Wind Farm*  
*28 May 2004*

# 1 Determination Statement

## **Introduction**

The management of OÜ Paldiski Tuulepark requested us to validate the Project Design Document (PDD) of the potential Joint Implementation (JI) project for reduction of CO<sub>2</sub> emissions at the “Paldiski Wind Farm” in Estonia in the context of the application of this project at Senter Internationaal in The Netherlands. The PDD is the responsibility of the management of OÜ Paldiski Tuulepark. Our responsibility is to issue a validation statement regarding the PDD.

## **Scope**

The PDD contains the assessment of OÜ Paldiski Tuulepark’s of the most likely baseline scenario the forecasted emission reductions, a monitoring plan and an overview of the stakeholder consultation activities initiated by OÜ Paldiski Tuulepark until July 2003. Our determination was focused on:

- The assumptions and methods applied in the preparation/determination of the forecasted emission reductions;
- Compliance of the PDD with the Operational Guidelines for Baseline Studies, Validation, Monitoring and Verification of Joint Implementation Projects (volume 2A; version 2.1; September 2002) published by the Ministry of Economic Affairs of the Netherlands as well as the requirements for Joint Implementation Projects described in the Kyoto Protocol and in the Marrakesh Accords (FCCC/CP/2001/13/ADD.2; 21 January 2002);
- Approval of this JI project by the Parties.

## **Activities undertaken**

Our determination, planned and conducted by KPMG Certification assisted by a consultant of KPMG Estonia, was performed on a test basis and provides a moderate level of assurance. In the context of determination we recognize that non-financial data are, in general, subject to more inherent limitations than financial data due to their nature and methods used for determining, calculating or estimating such data.

Our activities included:

- A review of the underlying systems and procedures to collect and process the reported information;
- Interviews with the staff in OÜ Paldiski Tuulepark responsible for the collection of the reported data and the main author of the PDD;
- Review of the internal documents used for preparing the Baseline Study;

- Review of the applied assumptions and methods for determination of the forecasted emission reductions.

### **Opinion**

Based on our activities undertaken, nothing came to our attention that causes us to believe that the applied assumptions and methods do not provide a reasonable basis for the forecasted emission reductions compared to the selected most likely baseline scenario.

Further, in our opinion, the PDD has been properly prepared on the basis of the Operational Guidelines for Baseline Studies, Validation, Monitoring and Verification of Joint Implementation Projects (volume 2A; version 2.1; September 2002) published by the Ministry of Economic Affairs of the Netherlands as well as the requirements for Joint Implementation Projects described in the Kyoto Protocol and the Marrakesh Accords (FCCC/CP/2001/13/ADD.2; 21 January 2002).

The Ministry of the Environment of Estonia approved the project on behalf of the Republic of Estonia by issuing a Letter of Approval on 25 August 2003.

The Dutch Minister of Economic Affairs approved the project on behalf of the State of The Netherlands by issuing a Declaration of Approval on 23 April 2004.

Actual emission reductions may differ from the forecast since anticipated events do not always occur as expected.

Amstelveen, 28 May 2004



KPMG Certification BV  
**J.J. Laan**

## **2 Introduction**

OÜ Paldiski Tuulepark has commissioned KPMG Certification to validate the Project Design Document of the Paldiski wind farm project in Estonia.

The project consists of the installation of a large scale wind power plant in Paldiski in Estonia. The planned capacity of the wind farm is 50,6 MW. Construction is planned to start in June 2004, the wind farm is due to be commissioned by the end of 2004.

This chapter describes the objective, scope, and the validation activities for this determination project. Key data have been included in Appendix A.

### **2.1 Objective**

The aim of this determination is to evaluate the planned project activity against the requirements of the JI as set out in decision FCCC/CP/2001/13/Add.2 of 21 January 2002 on the basis of the PDD developed by the project proponent, OÜ Paldiski Tuulepark.

Also the requirements of Senter Internationaal, the potential buyer of any AAU's and ERU's resulting from this project, are taken into account. These requirements are set out in the Operational Guidelines for Baseline Studies, Validation, Monitoring and Verification of Joint Implementation Projects of September 2002.

### **2.2 Scope**

The scope of this determination consists of assessing the following elements of the PDD against the requirements set out by UNFCCC and Senter Internationaal respectively.

The following elements of the PDD are evaluated. The results thereof are described in chapter 3.

- (i) Baseline study. The baseline study is intended to assess the level of greenhouse gas emissions attributable to human activities that would have occurred without the project. The baseline study also assesses the level of greenhouse gas emissions that will occur after implementation of the project.
- (ii) Monitoring plan, describing which data will be collected for monitoring purposes. The monitoring plan includes a description of the quality assurance and control provisions for monitoring, collecting and reporting.
- (iii) Environmental Impacts, providing documentation on the analysis of environmental impacts of the project. If the impacts are considered important, conclusions and supporting documentation of an environmental impact assessment has to be provided. The environmental impact assessment has to be

undertaken in accordance with the procedures of the country where the project is implemented.

- (iv) Stakeholder comments. The international stakeholder comments have been collected on the basis of a 30 day publication of the project design document on the CarbonCredits.nl website. The national stakeholder comments have been included in the PDD.

On the basis of the provided PDD and of the evaluation thereof (see above), we have formed an opinion on the basis of the following criteria:

- The relevance of the defined project boundaries, assuring that the covered greenhouse gas emissions appropriately reflect the greenhouse gas emissions of the project and that all relevant greenhouse gases have been taken into account;
- The completeness of assumptions, data, references and calculations applied in the definition of:
  - Project boundaries;
  - The emission level that would occur in the absence of the project;
  - The emission level that is likely to occur upon completion of the project;
  - Inclusion of all greenhouse gas emission sources and activities within the defined project boundaries, with any exclusions stated and specified;
  - Leakage – whether the project might in a net change of greenhouse gas emissions outside the project boundaries;
  - Additionality – whether the project activity is expected to result in reduction of greenhouse gas emissions that are additional to any that would occur in the absence of the proposed project.
- The consistency of the applied methodology and input data with:
  - The Marrakesh accords of November 2001, Draft decision -/CMP.1 (Article 12);
  - The Operational Guidelines for Baseline Studies, Validation, Monitoring and Verification of Joint Implementation Projects (volume 2A; version 2.1; September 2002) published by the Ministry of Economic Affairs of the Netherlands.
- The transparency of the baseline study, based on:
  - Coherent and factual description and justification of all assumptions on the basis of which the baseline was calculated;
  - The description and justification of all assumptions on the basis of which the emission levels after project completion were calculated;
  - Disclosure of underlying data and references that were used in compiling the baseline study.



- The accuracy of the greenhouse gas emission calculations, ensuring that these have the precision needed for their intended use, including the possibility of performing a sensitivity analysis.

### 2.3 Determination methodology

The determination consisted of a desk review of the PDD with its Annexes and additional underlying evidence. The headquarter of OÜ Paldiski Tuulepark in Tallinn and the designated site on the Pakri peninsula have been visited and the main authors of the PDD have been interviewed.

### 2.4 Determination team

The following team has carried out the determination:

<b>Name</b>	<b>Organization and role in project</b>
Eric Koudijs	KPMG Certification, Senior Consultant, Project responsible
Erik-Jan Stork	KPMG Certification, Environmental Auditor, Project leader
Veiko Kullaste	KPMG Estonia, manager, Project Consultant.

*Table 1. Determination team*

### 2.5 Determination activities

KPMG Certification received the draft PDD on 1 July 2003. The draft documents were reviewed and discussed during the visit of the determination team to Estonia on 7, 8 and 9 July 2003. After the review of the draft documents OÜ Paldiski Tuulepark made a number of changes in the documentation.

<b>Date</b>	<b>Interviewee</b>	<b>Position</b>
7 July 2003	Interviews at headquarter of OÜ Paldiski Tuulepark in Tallinn. Hannu Lamp Inge Roos	Manager of OÜ Paldiski Tuulepark. Research scientist at Estonian Energy Research Institute (author of the baseline).
	Interview at Eesti Energia. Valdur Lahtvee	Estonian Energy Department Environmental Manager
8 July 2003	Interviews at headquarter of OÜ Paldiski Tuulepark in Tallinn. Hannu Lamp Inge Roos	Manager of OÜ Paldiski Tuulepark. Research scientist at Estonian Energy Research Institute (author of the baseline).
7 July 2003	Site Visit	

*Table 2 Overview of site visits and interviews*

After our visit to Estonia clarifying questions were communicated between Hannu Lamp and Erik-Jan Stork.

The second version of the PDD was received on 14 July 2003. KPMG Certification has checked whether all main components of the PDD were included.

The PDD was published on the carboncredits.nl website between 15 July and 15 August 2003. On this website a KPMG e-mail address was mentioned where stakeholders could make comments, or ask questions. No comments were received by KPMG.

### 3 Determination

The activities carried out during determination and the period during which these have taken place are described in paragraph 2.5.

The findings for each component of the PDD's are compared with the requirements. The source for the requirements is FCCC/CP/2001/13/Add.2, Draft Decision -/CMP.1, Appendix B, 21 January 2002, unless stated otherwise.

#### 3.1 Baseline study

The *baseline* for an article 6 project (Joint Implementation) is the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the project activities within the project boundary.

The project specific baseline has to be established by the project participants in accordance with UNFCCC requirements. The baseline has to describe in a transparent and conservative manner the choices of (i) approaches, (ii) assumptions, (iii) methodologies; (iv) parameters, (v) data sources, (vi) key factors and (vii) additionality, and (viii) take into account uncertainty.

The requirements for baseline emissions have been set out against our findings in Table 3. Baseline emissions. The source for the requirements is decision 17/CP. 7, FCCC/CP/2001/13/ADD.2; 21 January 2002.

<b>Requirement</b>	<b>Findings</b>
The baseline shall be established on a project specific basis and/or using a multi project emission factor.	The baseline has been based on the specific situation in Estonia. For the electricity-sector baseline specific data from one power plant were used. Furthermore these data are compared with several other Estonian sources in order to establish that the used baseline is representative.
The baseline shall be established in a transparent manner with regards to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors.	The report structure of the Operational Guidelines has been used. The spreadsheet for calculating the baseline and project emissions is part of the PDD. The assumptions as well as an explanation of the spreadsheet have been listed in appendices to increase transparency. Approaches, methodologies, parameters, data sources and key factors have been described in a transparent manner. To conclude a comparative analysis is made in order to establish that the used scenario is representative.

<b>Requirement</b>	<b>Findings</b>
The baseline shall be established taking into account relevant national and/or sectoral policies and circumstances such as sector reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector.	The key factors influencing the baseline and the project have been briefly described in section 5.3 and appendix 3 of the PDD. In these parts the development of the electricity demand and the availability of fuels are described. Furthermore the national GHG inventory for the power generation sector is included in section 5.4.2 of the PDD.
The baseline shall be established in such a way that ERU's cannot be earned for decreases in activity levels outside the project activity or due to force majeure	Emissions reductions will only be realised if the wind farm produces electricity.
The baseline shall be established taking into account using conservative assumptions	Although forecasts are by nature always uncertain the baseline seems conservative, because of the conservative assumptions used. In comparison with other power plants the emission factor used is conservative. Furthermore a conservative estimate has been made concerning the electricity production of the wind turbines.
Explanation how the baseline was established in a transparent and conservative manner	The spreadsheet calculating the baseline emissions has been attached to the baseline report together with an explanation of the spreadsheet and of the assumptions used.
Statement of how anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered JI project activity <sup>1</sup>	In section 5.8 of the PDD OÜ Paldiski Tuulepark motivates why the project is considered to generate additional emission reductions.  In the absence of the project the Paldiski wind farm would not be realised. Electricity would remain to be produced by traditional fossil fuel based power plants.

*Table 3. Baseline emissions*

## 3.2 Sensitivity analysis

According to the Operational Guidelines the project developer must assess systematically and through sensitivity analysis the extent to which the key factors affect the future baseline.

<sup>1</sup> Registration can only take place upon Determination of the JI project activity.

In section 5.4 of the PDD OÜ Paldiski Tuulepark describes 4 scenarios. Furthermore the specific assumptions for the selections of the scenarios are described in section 5.4.2. To conclude a motivation is described for the choice of one of the scenarios.

### 3.3 Monitoring plan

The monitoring plan describes the data collection and archiving systems that are required to estimate or measure the anthropogenic emissions by sources of greenhouse gases within the project boundary during the crediting period.

The sector baseline is considered to be fixed for the duration of the project period. Therefore the monitoring is limited to the produced electricity by the project.

The requirements for the monitoring plan have been set out against our findings in Table 4. Monitoring plan. The source for the requirements is decision 17/CP. 7, FCCC/CP/2001/13/ADD.2; 21 January 2002.

<b>Requirement</b>	<b>Findings</b>
The monitoring plan shall include a plan for the collection and archiving of all relevant data necessary for estimating or measuring anthropogenic emissions by sources and/or anthropogenic removals by sinks of greenhouse gases occurring within the project boundaries.	The monitoring plan has been described in chapter 6 of the PDD. Monitoring is performed on a monthly basis using invoices and billing meters. Invoices will be archived. The calculation formula is also mentioned
The monitoring plan shall include a plan for the collection and archiving of all relevant data necessary for determining the baseline of anthropogenic emissions by sources and/or anthropogenic removals by sinks of greenhouse gases within the project boundary during the crediting period;	The monitoring plan has been described in chapter 6 of the PDD. The baseline is considered fixed.
The monitoring plan shall include a plan for the identification of all potential sources of, and the collection and archiving of data on increased anthropogenic emissions by sources and/or reduced anthropogenic removals by sinks of greenhouse gases outside the project boundary that are significant and reasonably attributable to the project during the crediting period. The project boundary shall encompass all anthropogenic emissions by sources and/or removals by sinks of greenhouse gases under the control of the project participants that are significant and reasonably attributable to the Article 6 project;	The monitoring plan has been described in chapter 6 of the PDD. Removals and sinks outside the project boundaries as well as leakage are considered to be insignificant..

<b>Requirement</b>	<b>Findings</b>
The monitoring plan shall include a plan for collection and archiving information about environmental impacts, in accordance with procedures as required by the host Party, where applicable;	On the basis of a description of potential impacts the responsible Estonian authorities did not require a full-scale Environmental Impact Assessment. Management of environmental impacts will be subject of the host Party legal requirements.
The monitoring plan shall include a plan for quality assurance and control procedures for the monitoring process;	The manager who is responsible for the monthly monitoring received training. The monthly monitoring will be integrated in the planning and control procedures related to the sales of electricity. Monitoring reports and invoices will be archived. The certification of these systems is not yet anticipated.
The monitoring plan shall include a plan for procedures for the periodic calculation of the reductions of anthropogenic emissions by sources and/or enhancements of anthropogenic removals by sinks by the proposed Article 6 project, and for leakage effects, if any. Leakage is defined as the net change of anthropogenic emissions by sources and/or removals by sinks of greenhouse gases which occurs outside the project boundary, and that is measurable and attributable to the Article 6 project;	During the monitoring period the same parameters will be applied using the same spreadsheet as used in the baseline report. Removals and sinks outside the project boundaries as well as leakage are considered to be insignificant.

*Table 4. Monitoring plan*

### 3.4 Environmental impacts

The requirements of the environmental impacts component of the PDD's are set out against our findings in Table 5. Environmental impacts. The source for the requirements is decision 17/CP. 7, FCCC/CP/2001/13/ADD.2; 21 January 2002.

<b>Requirements</b>	<b>Findings</b>
Documentation on the analysis of environmental impacts, including transboundary impacts.	A description of the environmental impacts (section 3 of the PDD) is part of the detailed land use planning processes that is also subject to public stakeholder consultation. On the basis of this description the responsible Estonian authorities did not require a full-scale Environmental Impact Assessment.

<b>Requirements</b>	<b>Findings</b>
<p>Conclusions and references of an Environmental Impact Assessment (EIA). An EIA has to be carried out if project participants or the host Party consider the impacts to be significant. The EIA has to be undertaken in accordance with the procedures as required by the host Party.</p>	<p>A description of the environmental impacts (section 3 of the PDD) is part of the detailed land use planning processes that is also subject to public stakeholder consultation. On the basis of this description the responsible Estonian authorities did not require a full-scale Environmental Impact Assessment.</p>

*Table 5. Environmental impacts*

## **3.5 Stakeholder consultation**

The stakeholder consultation process as proposed by Senter Internationaal consists of two stakeholder participation rounds. The first consultation round was performed in Estonia with all relevant stakeholders. The design and the results are described in the PDD in chapter 4. The second consultation round consists of putting the PDD on the CarbonCredits.nl website for 30 days, and the collection of comments.

### **3.5.1 Stakeholder consultation Estonia**

As part of the planning and approval of the project by the responsible authorities, OÜ Paldiski Tuulepark is required to have at minimum one public discussion with relevant stakeholders. The process of this stakeholder consultation is described in chapter 4 of the PDD. One public discussion was held during this discussion the following groups were present: a member of parliament, local government, geological institute and a nature NGO. Some issues were identified which are mentioned in the PDD. The consultations with the stakeholders will continue.

### **3.5.2 International stakeholder consultation**

The PDD was published on the carboncredits.nl website between 15 July and 15 August 2003. On this website a KPMG e-mail address was mentioned where stakeholders could make comments, or ask questions. No comments were received by KPMG.

### **3.6 Country Approval**

The Ministry of the Environment of Estonia approved the project on behalf of the Republic of Estonia by issuing a Letter of Approval on 25 August 2003.

The Dutch Minister of Economic Affairs approved the project on behalf of the State of The Netherlands by issuing a Declaration of Approval on 23 April 2004.

Copies of these letters have been attached in appendix C and D.

### **3.7 Corrective action requests**

The corrective actions requested by KPMG Certification have been included in annex B.



## A Key data

<b>Project name</b>	<b>"Paldiski Wind Farm"</b>
Project number (Senter)	ERU03/28
Contact at Senter	Egbert Liese
Project description	The project consists of the installation of a large scale wind power plant in Paldiski in Estonia. The planned capacity of the wind farm is 50,6 MW. Construction is planned to start in June 2004, the wind farm is due to be commissioned by the end of March 2005.
Project proponents	OÜ Paldiski Tuulepark Hannu Lamp (Manager)
Validator	KPMG Certification P.O. Box 155 3454 ZK DE MEERN Tel. + 31 30 658 1795 Fax. + 31 30 658 1800 E-mail: Koudijs.Eric@kpmg.nl
CO <sub>2</sub> reduction claimed by project	In the period 2005-2007: 401.336 tons CO <sub>2</sub> equivalents (AAU's). In the period 2008-2012: 730.594 tons CO <sub>2</sub> equivalents (ERU's).  In total the project claims 1.131.930 tons CO <sub>2</sub> equivalents.

*Table 6. Key data project*

## **B Corrective action requests**

On the basis of the examination of the PDD's version of 1 July 2003, the following questions have been asked.

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<b>KPMG Comment</b>	<b>Clarification / corrective action</b>
Why does OÜ Paldiski Tuulepark chose Balti Power Plant (PP) as a reference instead of using a baseline that represents the Estonian energy production sector?	<p>OÜ Paldiski Tuulepark argued that Balti PP was used as a reference because the electricity produced in the wind farm would replace electricity produced in the Balti PP. The national power company (Eesti Energia) advised to use this argument.</p> <p>Furthermore in the initial text of PDD the suggestion is made that due to the construction of the wind farm in the Balti PP 8 old energy inefficient units can be closed down.</p> <p>During the interviews OÜ Paldiski Tuulepark indicated that the 8 old units will be closed in any case. In the baseline calculations the closing down of the 8 old units is taken into account.</p> <p>We agreed that the Balti PP could only be used as a reference if the plant is representative for the sector (also see next comment). OÜ Paldiski Tuulepark added information in the baseline report showing that the emission factor (tCO<sub>2</sub>/GWh) used in the model (Balti PP) is representative for the electricity production sector.</p>

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**KPMG Comment****Clarification / corrective action**

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Can you prove that Balti PP is can be a good and conservative representative for the energy sector?

OÜ Paldiski Tuulepark provide the following arguments:

- 93% of the electricity is produced in two power plants (Eesti PP and Balti PP), these plants have comparable technology and both use Oil Shale as fuel;
- The CO<sub>2</sub> emission factor used in the model for Balti is approximately 1075 ton CO<sub>2</sub> eq. / GWh. The CO<sub>2</sub> emission factor for Eesti is approximately 1120 ton CO<sub>2</sub> eq. / GWh;
- In the “National electricity sector baseline analysis”, the CO<sub>2</sub> emission factors used decrease from 1090 ton CO<sub>2</sub> eq. / GWh in 2005 to 1010 ton CO<sub>2</sub> eq. / GWh in 2012. Using these emission factor the total emission reduction would be 1.093.162 ton CO<sub>2</sub> that is 3,4% lower that the emission reduction proposed by OÜ Paldiski Tuulepark using the Balti PP.

In addition KPMG consulted an UNCTAD/ ISAR manual as reference. In this manual (page 78) for Estonia the value of 1476 ton CO<sub>2</sub>/ GWh is mentioned (before 2005 that value is correct, when old energy units of the Balti PP (1-8) are still in use)

We agreed that the Balti PP is representative for the sector. OÜ Paldiski Tuulepark will add information in the baseline report showing that the Balti PP is representative for the sector.

Reference of the UNCTAD/ISAR source: *Accounting Framework and Guidelines for Eco-efficiency Indicators, a manual for prepares and users, prepared for the United Nations Conference for Trade and Development (UNCTAD) and the intergovernmental working group of experts on International Standards of Accounting and Reporting (ISAR), release 1.1, November 2002.*

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<b>KPMG Comment</b>	<b>Clarification / corrective action</b>
<p>Can you show on the basis of a long term energy demand scenario how the energy production sector will change in the period 2005 – 2012.</p>	<p>During the interviews OÜ Paldiski Tuulepark indicated that the national power company (Eesti Energia) does not have a detailed long term energy demand forecast.</p> <p>For Estonia only a governmental ambition is available. In this ambition two upgrading projects are proposed that will be implemented in 2004. Furthermore plans exist for more upgrades and more renewable energy (from 0,2% now to 5,1% in 2015). During an interview at the national power company (Eesti Energia) the contact suggested that 2 gas units of each 50 MW might be constructed before 2015 (this is not an official plan). An other source with a forecast is the “National electricity sector baseline analysis”, in this document the growth is expected to be fulfilled by renewable energy.</p> <p>On the basis of an energy demand growth of 1,5% per annum in (PDD enclosure 5) we concluded that beside the projected new renewable capacity in the “National electricity sector baseline analysis” an additional 600 GWh production from new plants is required to meet the demand in 2010. If this production amount is met with gas-fired power plants a very rough estimate indicates that the emissions reduction for 2010 could be 5% lower than proposed in the PDD.</p> <p>For production of 600 GWh electricity (for final demand) about 86 MW capacities is needed (including 26% of own need and losses).</p> <p>OÜ Paldiski Tuulepark provided the following arguments to support that Oil Shale is more likely to be used than gas as a main fuel until 2015:</p> <ul style="list-style-type: none"> <li>■ Oil shale is cheap and local resource;</li> <li>■ Social issues (employment);</li> <li>■ Balance of payments (use of natural gas would increase the trade deficit);</li> <li>■ Security of supply of gas is questionable as the only source is Russia;</li> <li>■ Existing capacity of Oil Shale based Narva Power Plants – i.e. it is much more expensive to establish new power plants;</li> <li>■ Limited CHP capacity in Estonia due to economic reasons (depends on heat demand and climatic conditions).</li> </ul> <p>A respective chapter will be added to the PDD text (current situation).with reference to chapter 5.4 (baseline selection) where the above arguments have also been listed.</p> <p>OÜ Paldiski Tuulepark will include a paragraph in the PDD concerning the growth of the energy demand and the required production capacity, describe the possibilities in order to meet the future energy demand and the effect it will have on the fuel mix and the emission factor of the energy sector. OÜ Paldiski Tuulepark will clearly indicate if the fuel mix will be influenced by these long-term developments.</p>

<b>KPMG Comment</b>	<b>Clarification / corrective action</b>
<p>Why did OÜ Paldiski Tuulepark use Balti PP instead of the “National electricity sector baseline analysis” as reference?</p>	<p>OÜ Paldiski Tuulepark provide the following arguments:</p> <ul style="list-style-type: none"> <li>■ The use of Balti was agreed with the national power company (Eesti Energia);</li> <li>■ For the Balti plant detailed information and long term plans were available;</li> <li>■ OÜ Paldiski Tuulepark only found out during the visit that the “National electricity sector baseline analysis” exists;</li> <li>■ The “National electricity sector baseline analysis” is an indicative study of which OÜ Paldiski Tuulepark cannot assess the reliability;</li> <li>■ Balti PP is representative or even conservative.</li> </ul> <p>We agreed with the use of Balti as a reference.</p>
<p>Balti PP also produces heat. How is the fuel use for the production of heat separated from the fuel use from electricity production?</p>	<p>The national power company (Eesti Energia) provided the fuel use data. The fuel use is indicated for each unit (1-12) thus the fuel use of the boilers (for heat production) can be separated.</p> <p>The total energy efficiency (heat + electricity) of the Balti PP is approximately 32%. The energy efficiency of heat production is approximately 75%.</p> <p>The fuel amount for heat production is calculated on the basis of heat sold.</p> <p>In reality some units in the Balti PP work in co-generation mode but the heat comes not from cooling water of turbine (a classical CHP) but the extraction steam is used.</p> <p>We concluded that the assignment of fuel use for electricity consumption is reasonable.</p>
<p>What is the basis for the calorific value used for Oil Shale (8,37 GJ/ton).</p>	<p>Inge Roos (author of the baseline) on behalf of OÜ Paldiski Tuulepark indicated that the factor is taken from a document concerning the product quality that was part of the contractual agreements between the Oil Shale company and the national power company (Eesti Energia). Since this document is confidential OÜ Paldiski Tuulepark could only provide the name of the document.</p> <p>In addition KPMG consulted an UNCTAD/ ISAR manual (see footnote 1) as reference. In this manual (page 51) a calorific values for lignite and brown coal in Estonia, Finland and Sweden of 8,37 GJ/ton is mentioned.</p>

<b>KPMG Comment</b>	<b>Clarification / corrective action</b>
<p>What is the basis for the formula used to calculate the CEF (Carbon emission factor)?</p>	<p>The formula used is taken from the IPCC methodology. This formula is also used to calculate the national GHG emission inventory of Estonia. OÜ Paldiski Tuulepark will provide us with a reference to the IPCC document.</p> <p>Two CEF are calculated. The only difference in the calculations is the parameter “k”. For pulverised combustion k=1 and for circulating fluidised combustion. The last value is based on results from tests with fluidised bed reactors using Oil Shale by Lurgie, Allstrom Power and Foster Wheeler for the national power company (Eesti Energia). OÜ Paldiski Tuulepark will provide us with a copy of the report indicating that the value k=0,85 is representative.</p> <p>The resulting CEF are 29,1 tC/TJ for pulverised combustion and 28,76 tC/TJ for circulating fluidised combustion.</p> <p>In addition KPMG consulted an UNCTAD/ ISAR manual (see footnote 1) as reference. In this manual (page 75) a for lignite and brown coal a CEF of 27,9 tC/TJ is mentioned. In the Senter guidelines for JI projects for lignite a CEF of 29,1 tC/TJ is mentioned.</p> <p>We agree to use the formula and the variables and the resulting CEF. The impact of the technology improvements is very small.</p>
<p>How is the emission reduction of N2O calculated?</p>	<p>A detailed calculation is provided in the enclosures of the PDD, the calculation is performed by scientific institute, additional reference to sources was provided during the visit.</p> <p>The impact of the emissions reduction of N2O is negligible (1%) but according to Guidelines we have to calculate all GHGs.</p>
<p>How did you account for down time (due to malfunction or maintenance/ repairs) of the wind turbine in the baseline?</p>	<p>The technical availability factor of 98,5% has been suggested by the wind turbine supplier (Nordex) and it is also in line with the industry average. Further to that OÜ Paldiski Tuulepark has reduced the expected electricity production by 10% (method uncertainty) which is used as an extra safety measure to compensate for unforeseen changes in the wind regime and technical availability.</p> <p>We agreed and think it is a conservative approach.</p>

<b>KPMG Comment</b>	<b>Clarification / corrective action</b>
What is the basis for the estimated electricity production by the windfarm?	<p>OÜ Paldiski Tuulepark indicated that it is based on an extensive research study described in the PDD. The documents that OÜ Paldiski Tuulepark provided during the visit included: 1) a third party study by a well-acknowledged Danish-based wind research consultant Energi- og Miljødata and 2) production estimate of the wind farm performed by Nordex (enclosure 6 to PDD).</p> <p>We agreed that the wind survey and underlying studies are solid basis for the estimated electricity production.</p>
How is stakeholder involvement organised?	<p>In the PDD the stakeholder dialogue is described. KPMG received notes from a session with stakeholders. At this session the following groups were present a member of parliament, local government, geological institute and a nature NGO. The session was organised by external consultant. Issues that were identified are mentioned in the report. More sessions will follow according the detailed planning that was agreed with local government.</p> <p>We requested OÜ Paldiski Tuulepark to add in the PDD how they will respond to the issues mentioned.</p> <p>We agree that the required procedures were followed.</p>
Is an EIA required by local legislation?	<p>A full-scale EIA is not required by legislation. As part of the public consultation (as described in the detailed planning) a description of environmental impacts is made.</p> <p>We agree that the required procedures were followed.</p>
The key factors do not mention the historic development of the economy, population and energy demand. There is no description of the sector structure and the dynamics.	<p>OÜ Paldiski Tuulepark will add the information.</p>
Does the purchase price of electricity sold by the wind farm pose a risk to the continuity of the project?	<p>OÜ Paldiski Tuulepark indicated that the price is linked to the price of Oil Shale that is based on the electricity sold by Narva Power Plants. This price is not likely to go down, it is more likely to go up. A price increase will have a positive effect on the wind farm project. The respective research report has been provided (enclosure 5 to PDD).</p>

<b>KPMG Comment</b>	<b>Clarification / corrective action</b>
How are losses and in the grid and own use of the electricity plants accounted for in the baseline.	<p>The loss and own use of Narva (Eesti PP + Balti PP) is 26%. This value is taken from a document of the Research Institute of Economy.</p> <p>The loss and own use is not accounted for in the models. The emission of CO<sub>2</sub> is divided by the total produced electricity (loss and own use are not deducted). Thus the emission factor is including the own use and losses. This is a conservative approach.</p> <p>The wind farm has own use, this is deducted from the generated electricity.</p> <p>OÜ Paldiski Tuulepark will describe in the PDD how the loss and own use are accounted for. Furthermore they will provide KPMG with a copy of the mentioned document and the energy balance.</p> <p>We concluded that the method in which the loss and own use is accounted for is conservative.</p>
Why is emission factor 1090 in 2008 in all other years it is approx 1075?	<p>OÜ Paldiski Tuulepark will check the data and provide an explanation for the increase.</p> <p>Special emission factor tCO<sub>2</sub>/GWh depends on energy generation and fuel consumption. The prognoses of Eesti Energia on energy production are proportionally with EE replacement plans of energy units. It means that energy production will be different by years and also the emission factor correspondingly.</p>
Some modifications are needed in the Monitoring and verification plan (MVP).	<p>OÜ Paldiski Tuulepark will mention in the MVP that monthly spreadsheets, invoices and annual report will be available for the verifiers. Furthermore they will add that on a monthly basis a trend analysis will be carried out and that explanations for large fluctuations in the electricity production are documented. To conclude the central database should register the availability and the wind conditions.</p>
The ambition of the Estonian government is to increase the amount of renewable energy from 0,2% to 5,1%. What is your argumentation that this project is additional?	<p>OÜ Paldiski Tuulepark will add a paragraph in which they explain in more detail why the project is additional.</p> <p>In addition to information provided in PDD concerning the insufficient governmental support mechanism to wind power generation the project (financial) additionality is further justified in the budget and cash-flow estimates and project financial indicators (IRR, etc.).</p>



<b>KPMG Comment</b>	<b>Clarification / corrective action</b>
Is the proposed starting date of 1-1-2005 realistic if the construction of the wind farm starts in July 2004?	<p>OÜ Paldiski Tuulepark already took the initiative to reduce the amount of electricity provided in 2005. OÜ Paldiski Tuulepark assumes that the wind farm will only be operational by April 1 2005.</p> <p>We agree that this is a conservative approach.</p>
Does OÜ Paldiski Tuulepark have host country approval?	<p>OÜ Paldiski Tuulepark does not have host country approval yet.</p> <p>OÜ Paldiski Tuulepark will provide a signed host country approval indicating both the amount of AAU's and the amount of ERU's.</p>
A large difference exists between the emission factor (approx. 650 ton CO <sub>2</sub> / GWh) proposed by SENTER from small scale projects and the value used in the baseline calculations (approx. 1075 ton CO <sub>2</sub> / GWh). Can you provide an explanation for the difference?	OÜ Paldiski Tuulepark cannot explain the difference as it does not know the methodology behind the SENTER approach.
Through ERUPT, OÜ Paldiski Tuulepark, will acquire funding for the transfer of ERU's. In addition OÜ Paldiski Tuulepark might also acquire funding through Renewable Energy Certificates (REC's). Thus the positive environmental aspects might be double funded. Since both the JI procedures and modalities and the REC requirements do not provide guidance on this issue we did not consider this as a critical issue for the determination statement.	In addition OÜ Paldiski Tuulepark indicated that double-funding is not possible because the Estonian Electricity Market Act prohibits the (possible) sales of REC's at the international markets if the renewable energy plant sells electricity by using the obligatory green power purchase scheme.



***OÜ Paldiski Tuulepark***  
*Determination Statement and Report*  
*Paldiski Wind Farm*  
*28 May 2004*

## **C Letter of Approval of the Host Country**



**KESKKONNAMINISTEERIUM  
MINISTRY OF THE ENVIRONMENT  
REPUBLIC OF ESTONIA**

Senter Den Haag  
Juliana van Stolberglaan 3  
P.O.Box 93144  
2509 AC the Hague

25 August 2003

**Letter of Approval**

Proposal no. 1  
named Paldiski Wind Farm, hereinafter to be referred to as “the JI project”,  
located at Pakri peninsula on the southern coast of the Gulf of Finland, ca. 50 km west  
from Tallinn,  
by OÜ Paldiski Tuulepark, Pärnu mnt. 15, 10141 Tallinn, Estonia, hereafter to be  
referred to as “Supplier”, dated January 6<sup>th</sup> 2002.

Estonian Ministry of the Environment would like to inform that the Government of  
Estonia has approved the Memorandum of Understanding (MoU) between the  
Government of the Republic of Estonia and the Government of the Netherlands on  
29<sup>th</sup> July. The MoU will be signed in the beginning of the September 2003. Due to the  
fact Estonian Ministry of the Environment gives the approval of this project before  
signing procedure.

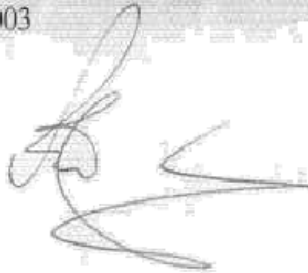
Ministry of the Environment declares that:

1. Estonia has ratified the Kyoto Protocol.
2. Estonia plans to comply with the requirements to participate in Article 6 KP projects as stated in the Marrakech Declaration by 1 September 2006.
3. Estonia recognizes the JI project to be a Joint Implementation (JI) project in accordance with article 6 of the Kyoto Protocol and its underlying decisions.
4. Estonia authorizes the Supplier and any future owners of the JI project to generate Claims on ERUs, by operation of the JI project, in accordance with article 6 of the Kyoto Protocol.
5. Estonia accepts the transfer of verified ERUs (estimated 730594 tCO<sub>2</sub>eq), generated through the JI project plus any generated surplus, to the Government of the Netherlands during the period 2008-2012 of the JI project, through the transfer of ERUs by Estonia. The transfer of ERUs is irrespective of any legal or other transfer of the JI project to third parties.
6. The transfer of ERUs from Estonia to the Netherlands is irrespective of any legal or other transfer of the JI project to third parties.

7. In case the Kyoto Protocol will not enter into force, Estonia and the Netherlands consider the transfer to the Netherlands as a transfer of greenhouse gas emission reduction on a bilateral basis.
8. In case Estonia and the Netherlands fully comply with the participation requirements of the Marrakech Declaration, the transfer of ERUs will be based on article 23 of these declarations ("JI track one").
9. Estonia acknowledges the fact that the JI project will already be operational prior to 2008 and will reduce GHG emissions in that period. Estonia will transfer to the Netherlands Assigned Amount Units (AAUs) through the Emissions Trading mechanism of Article 17 of the Kyoto Protocol to amount (estimate 401 336 tCO<sub>2</sub>eq) of the emission reductions realized by the JI project prior to 2008. Estonia agrees to use the same methods of verification as used for the verification of ERUs.
10. At the latest in 2011 Estonia and the Netherlands will start discussions on eventual transfer of ERUs generated by the JI project after 2012.

**Signed**

**For the Host Country: Estonia**  
**Full Name Country: The Republic of Estonia**  
**Name: Villu Reiljan**  
Position: Minister  
Date: 25.08.2003  
Signature:

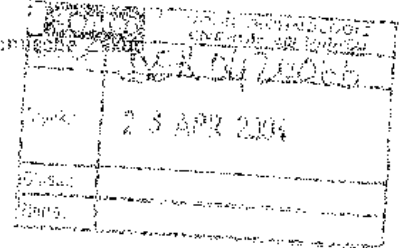


**Cc: AS Tuulepargid**  
**Pärnu mnt. 15**  
**10141 Tallinn**  
**Estonia**

**D Declaration of Approval of the Netherlands**



Ministerie van Economische



**DECLARATION OF APPROVAL**

THE STATE OF THE NETHERLANDS ACTING THROUGH THE NETHERLANDS' MINISTRY OF ECONOMIC AFFAIRS, being the competent national authority for approving Joint Implementation projects,

Referring to:  
Proposal number ERU03/28,  
named Paldiski Wind Farm J1 project,  
located in Estonia,  
by OÜ Paldiski Tuulepark,

declares that:

it has ratified the Kyoto Protocol on 31 May 2002;

it has designated its Ministry of Economic Affairs as its National Authority for approving Joint Implementation projects;

it recognises the project to be a Joint Implementation project in accordance with article 6 of the Kyoto Protocol and its underlying decisions;

it is committed to meet all eligibility requirements for using Emission Reduction Units to contribute to compliance with part of its quantified emission limitation and reduction commitment under Article 3 of the Kyoto Protocol as determined by the COP or COP/MOP in due time;

it will consider the transfer of greenhouse gas emission reductions resulting from the project on a bilateral basis, in case the Kyoto Protocol eventually will not enter into force.

L.J. Brinkhorst  
Minister of Economic Affairs

Signed on 22/4/2004, The Hague