

TÜV Rheinland Group

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## VERIFICATION REPORT

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IMPLEMENTATION OF ARC FURNACE  
STEELMAKING PLANT "ELECTROSTAL" AT  
KURAKHOVO, DONETSK REGION

ITL Project ID: UA1000181

Third Periodic Verification  
for the period:  
01.03.2011 – 31.07.2011

Report No. TRU009JI – VR3  
Revision 01

Customer: Global Carbon BV

## VERIFICATION REPORT

<u>Date of first issue:</u> 22 <sup>th</sup> of July 2011	<u>Project No.</u> UA1000181	TUV Rheinland Ukraine LLC Krasnoarmeyskaya Str. 77, 4th floor 03150 Kiev
<u>Executor:</u> TUV Rheinland Group	<u>Organizational Unit:</u> TUV Rheinland Ukraine LLC	
<u>Customer:</u> Global Carbon BV	<u>Customer Ref.:</u> Denis Rzhakov	
<u>Summary:</u>		
<p>TUV Rheinland Group/TUV Rheinland Ukraine LLC has performed the verification of emission reductions reported for the "Implementation of Arc Furnace Steelmaking Plant "Electrostal" at Kurakhovo, Donetsk Region" (ITL Project ID UA1000181) for the period from the 1<sup>st</sup> of March 2011 till the 31<sup>st</sup> of July 2011.</p> <p>The purpose of verification is to assess the reductions in anthropogenic emissions by sources or enhancements of anthropogenic removals by sinks generated by a JI project and reported by the project participants through the monitoring report in accordance with paragraph 37 of the JI guidelines.</p> <p>In our opinion, the greenhouse gas (GHG) emission reductions reported for the project in the monitoring report (Version 2.0) dated 10 of August 2011 are fairly stated and are accurate and free of material errors, omissions, or misstatements.</p> <p>During the monitoring period the project has been implemented in accordance with the Project Design Document Version 2.0 dated 27th of May 2010.</p> <p>The GHG emission reductions were calculated correctly on the basis of the approved monitoring plan contained in the Project Design Document Version 2.0 dated 27<sup>th</sup> of May 2010.</p> <p>TUV Rheinland Group/TUV Rheinland Ukraine LLC is able to verify that the emission reductions from the "Implementation of Arc Furnace Steelmaking Plant "Electrostal" at Kurakhovo, Donetsk Region" during the period from the 1<sup>st</sup> of March 2011 till the 31<sup>st</sup> of July 2011 amount to 143 885 tonnes of CO<sub>2</sub> equivalent.</p>		

<u>Report No.:</u> TUR009JI – VR3	<u>Subject Group:</u> JI
<u>Report Title:</u> IMPLEMENTATION OF ARC FURNACE STEELMAKING PLANT "ELECTROSTAL" AT KURAKHOVO, DONETSK REGION	
<u>Work carried out by:</u> Irina Danilkina, Team Leader  Dmitry Rakovich 	
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<u>Date of this revision:</u> 17 <sup>th</sup> of August 2011	<u>Rev. No.:</u> 02
<u>Number of Pages:</u> 25	

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## 1. INTRODUCTION

Global Carbon BV has commissioned TUV Rheinland Group/TUV Rheinland Ukraine LLC to carry out the verification and emission reductions reported for the "Implementation of Arc Furnace Steelmaking Plant "Electrostal" at Kurakhovo, Donetsk Region" (the project) in the period from the 1<sup>st</sup> of March 2011 till the 31<sup>th</sup> of July 2011. This report contains the findings from the verification and conclusion on the verified amount of emission reductions (verification opinion).

### 1.1 Objective

Verification is the periodic independent review and *ex post* determination by an Independent Entity (IE) of the monitored reductions in GHG emissions that have occurred as a result of a Joint Implementation (JI) project activity during a defined verification period.

The purpose of verification is to assess the reductions in anthropogenic emissions by sources or enhancements of anthropogenic removals by sinks generated by a JI project and reported by the project participants through the monitoring report in accordance with paragraph 37 of the JI guidelines<sup>1</sup>.

The objective of this verification was to verify emission reductions reported for the "Implementation of Arc Furnace Steelmaking Plant "Electrostal" at Kurakhovo, Donetsk Region" for the period from 1<sup>st</sup> of March 2011 till the 31<sup>th</sup> of July 2011.

TUV Rheinland is an accredited Designated Operational Entity (DOE) under the Clean Development Mechanism (CDM) and is a provisionally acting accredited independent entity under Joint Implementation (JI) scheme.

### 1.2 Scope

The scope of this verification is the assessment of:

- Project implementation in accordance with the Project Design Document (PDD);
- Compliance with the monitoring plan, including the revision of the monitoring plan;
- Calculation of emission reductions and expression of a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data are accurate and free of material errors, omissions, or misstatements;
- Quality and management of data and verification that reported GHG emission reductions data is sufficiently supported by evidence.

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for corrective actions in order to provide for more accurate future monitoring and reporting.

### 1.3 Description of the project

The project activity details are summarized below:

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<sup>1</sup> <http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=2>

Project Parties involved:	Ukraine (Host) and The Netherlands
Title of the project:	Implementation of Arc Furnace Steelmaking Plant "Electrostal" at Kurakhovo, Donetsk Region
ITL Project ID:	UA1000181
Baseline and monitoring methodology:	Jl Specific Approach based on PDD ver.2.0 dated 27 <sup>th</sup> of May 2010
Project entity participant:	"Electrostal" Ltd, 70 Industrial zone, Kurakhovo, Donetsk region, 85612, Ukraine
Other project participants:	Global Carbon BV, Graadt van Roggenweg 328, Building D, 3531 AH Utrecht, The Netherlands
Location of the project:	Premises of the Electrostal Plant of the "Electrostal" Ltd, 70 Industrial zone, Kurakhovo, Donetsk region, 85612, Ukraine
Crediting period of the project:	From 01/04/2008 to 31/12/2012
Period verified in this report:	From 01/03/2011 to 31/07/2011
Period verified in previous verification report:	From 01/06/2010 to 28/02/2011

The purpose of this project is to reduce emissions of greenhouse gases by using modern technologies to improve steel production in the Ukraine. The project envisages the construction of a green field steel manufacturing plant, based on a modern electric arc furnace (EAF). The EAF installed allows production of steel from almost 100% scrap metal feedstock. The new production facility will use less carbon intensive method to produce steel than a typically used by the majority of existing Ukrainian enterprises. This will allow reducing of GHG emissions. The project is expected to generate 1 956 668 tonnes of CO<sub>2</sub> equivalent of emission reductions during the crediting period.

The project has been registered as Track 1 JI project with the PDD ver.2.0 dated 27<sup>th</sup> May 2010 (the PDD). The documentation on the project including the PDD, Approvals by the Parties Involved, Determination Report, Initial, First and Second Periodic Verification report is available at: <http://ji.unfccc.int/JIITLProject/DB/4THB9WT0PK6F721UQA5H6PTHZEXT4C/details> and at <http://www.carbonunitsregistry.gov.ua/en/publication/content/781.htm>

#### 1.4 Methodology for the determination of Emission Reductions

The emission reductions are calculated as the difference between baseline emissions and project emissions. The baseline emissions are calculated as the product of the steel produced by the project steelmaking plant and global baseline emission factor for steel produced. The global baseline emission factor for steel produced has been calculated and fixed *ex ante* in the PDD ver.2.0 dated 27<sup>th</sup> of May 2010.

The project emissions are calculated as the sum of GHG emissions associated with: electrodes consumption by EAF; oxygen consumption; electricity consumption by EAF and ladle furnace (LF); natural gas consumption; anthracite consumption; lime consumption; electrodes consumption by LF. For the calculation of project emissions the default emission factors for electrodes consumption, natural gas consumption, anthracite consumption and lime consumption provided by IPCC were used. Emission factor for electricity consumption has been sourced from Order of the National Environmental Investment Agency of Ukraine № 75 from 12.05.2011 for electricity consumption for 1st class consumers in 2011 year.

Emission factor for oxygen consumption has been conservatively calculated in the PDD and based on data from the Electrostal plant concerning electricity transferring level for oxygen production.

According to the PDD steel production levels for baseline and for the project scenario are considered to be the same.

## 2. METHODOLOGY

The verification process has been carried out using TUV Rheinland internal procedures. In order to ensure transparency, a check-list for verification was customized for the project, according to the Joint Implementation Determination and Verification Manual Version 01, issued by the Joint Implementation Supervisory Committee at its 19<sup>th</sup> meeting on 04/12/2009. The check-list for verification shows, in a transparent manner, criteria (requirements) for verification and the results from verifying the identified criteria. The check-list for verification serves the following purposes:

- It organizes details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent verification process where the verifier will document how a particular requirement has been verified and the result of the verification.

The completed check-list for verification is enclosed in Appendix A to this report.

The verification process (steps) taken include: desk review of the documentation, project site visit, interview with project participants, follow-up exchanges and resolution of outstanding issues.

### 2.1 Verification Team

The work for this verification has been carried out by the following team:

Role:	Name:	Country	Type of work					
			Desk Review	Site Visit	Reporting	Supervision	Technical Review	Expert Input
Team Leader/JI Verifier	Irina Danilkina	Ukraine	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Ji Verifier/Technical Expert	Dmitry Rakovich	Ukraine	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
Technical Reviewer	Valeriy Yakubovskiy	Ukraine					<input checked="" type="checkbox"/>	

The duration of verification is as follows:

Preparations and desk review: From 21/07/2011 to 26/07/2011

Site visit and interviews: 26/07/2011

Reporting, Resolution of Issues, QA/QC: From 26/07/2011 to 15/08/2011

### 2.2 Review of Documentation

Project participants provided TUV Rheinland all needs document for document review. The monitoring report version 1.0 dated 21/07/2011 [3] has been assessed as part of the verification. In addition, the project's Project Design Document [1] and project's determination report [2] as well as initial, first and second verification report [5,6] were also reviewed. Supporting documents, such as, technical reports [22-

26] of the steelmaking plant, acceptance-transfer certificates [17-21] and meter passports with calibration protocols [10-16] etc. were available during the site visit.

Information and formulas provided in the monitoring report was compared with PDD and stated data sources.

To address TUV Rheinland corrective action and clarification requests, project participants revised the monitoring report and resubmitted it as version 2.0 dated 10/08/2011.

The verification findings presented in this report relate to the monitoring report versions 1.0 and 2.0 and project as described in the PDD ver.2.0 dated 27<sup>th</sup> of May 2010.

## 2.3 Site Visit

The steel making plant of the "Electrostal" Ltd has been visited on the 26<sup>th</sup> of July 2011 by the TUV Rheinland Verification Team of Irina Danilkina and Dmitry Rakovich. Supporting documents related to the project were presented at the administrative office of "Electrostal" Ltd in Kurakhovo, Donetsk Region on that date. During this site visit, representatives of TUV Rheinland have interviewed key personnel of the plant and verified that during the monitoring period project has been operating as planned.

The personnel interviewed are summarized in the table below:

Name	Organization and position	Topic of interview
Anna Vilde	Global Carbon BV, Project Developer	Reporting and calculation of emission reductions, data sources
Natalya Belskaya	Global Carbon BV, Project Developer	Reporting and calculation of emission reductions, data sources
Yevgeniy Altukhov	Global Carbon BV, Representative in South-East Ukraine	Project management, site visit
Denis Blinov	Electrostal, Deputy Head of Plant	QA/QC of the project, Project management, Project implementation, Personnel training
Alexander Serov	Electrostal, Technical Department Head	Operational reporting, logbooks, plant visit, monitoring equipment
Valeriy Dmitrenko	Electrostal, Energy Department Head	Operational reporting, logbooks
Nikanor Frolov	Electrostal, Metrologist	Monitoring equipment
Bondar S.V.	Electrostal, Senior Foreman of CCM	Preparation of the shipping yard technical reports
Tatyana Isotova	Electrostal, Certification Engineer	
Sergey Tolmachev	Electrostal, Senior Foreman of EAF and LF	Operational reporting, logbooks
V.S. Hrapun	Electrostal, Plant Electrician	Operational reporting, logbooks
A.M. Ushakov	Electrostal, Head of Technical Control Unit	Operational reporting, logbooks
A.D. Mladenov	Electrostal, Head of Scrap Base	Operational reporting, logbooks

## 2.4 Resolution of Clarification, Corrective and Forward Action Requests

Where TUV Rheinland, in assessing the monitoring report and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to the monitoring requirements, it should raise these issues and inform the project participants of these issues in the form of:

- Corrective action request (CAR), requesting the project participants to correct a mistake that is not in accordance with the monitoring plan;

- Clarification request (CL), requesting the project participants to provide additional information for the AIE to assess compliance with the monitoring plan;
- Forward action request (FAR), informing the project participants of an issue, relating to the monitoring that needs to be reviewed during the next verification period.

The verification of the project resulted in 14 Corrective Action Requests and 1 Clarification Requests. There was no unresolved FARs from previous verification.

TUV Rheinland made an objective assessment as to whether the actions taken by the project participants and presented in Appendix B of this report satisfactorily resolve the issues raised and should concluded its findings of the verification.

### 3. VERIFICATION FINDINGS

This section summarizes the findings from the verification of the emission reductions reported for the "Implementation of Arc Furnace Steelmaking Plant "Electrostal" at Kurakhovo, Donetsk Region" for the period from the 1<sup>st</sup> of March 2011 till the 31<sup>st</sup> of July 2011.

#### 3.1 Remaining Issues, CARs, FARs from Previous Verification

Not applicable as there were no remaining issues, CARs, FARs from previous verification.

#### 3.2 Project Implementation

The first melting at the Arc Furnace Steelmaking Plant "Electrostal" has been completed on the 2<sup>nd</sup> of March 2008. All necessary equipment for the operation of the plant has been installed before this date. Official commissioning of the plant has been performed on the 16<sup>th</sup> of December 2008 and the delay since the first melting has been explained by complexity of this bureaucratic procedure.

Therefore the project can be considered as implemented and its normal operation has been verified by the Verification Team on-site.

Activity	Date in accordance with PDD	Actual date
Starting date of the project	27 February 2006	27 February 2006
First melting	2 March 2008	2 March 2008
Official commissioning	-	16 December 2008

The total emission reductions amount reported for the period from the 1<sup>st</sup> of March 2011 till the 31<sup>st</sup> of July 2011 was verified to be 143 885 tCO<sub>2</sub>e. The emission reductions are lower than that the emission reduction of 243 080 tCO<sub>2</sub>e predicted in the registered PDD, taking into account that the verification period is only 6 months of 2011. The lower emission reductions for the verification period are attributed to the lower demand for steel and financial difficulty with purchase initial material that has not been possible to predict exactly at the time PDD has been drafted.

The verifiers can confirm through the visual inspection that all physical features of the proposed JI project activity including data collecting and storage systems have been implemented, the project is completely operational and has been implemented as described in the PDD.

#### 3.3 Project Approval by Parties Involved

The project has been approved by the DFPs of the Parties Involved and documentation is available:



- 1) Letter of Approval by the Netherlands ref. 2010JI11 issued at 22 April 2010
- 2) Letter of Approval by the Ukraine ref. 1243/23/7 issued at 19 August 2010

Evidence is available at:

<http://ji.unfccc.int/JIITLProject/DB/4THB9WT0PK6F721UQA5H6PTHZEXT4C/details> and at <http://www.carbonunitsregistry.gov.ua/en/publication/content/781.htm>

### 3.4 Compliance of the monitoring plan with the monitoring methodology

The determined monitoring plan is contained in the registered PDD that is available on the UNFCCC JI website (See Section 1.3 of this report). There were no deviations from this monitoring plan as well as no open issues since last verification.

For calculating the emission reductions key factors influencing the baseline emissions as well as risks associated with the project were taken into account, as appropriate.

Such factors as:

- Sectoral reform policies and legislation;
- Forecast level of steel production;
- Global Emission factor for steel production under the baseline;

have been taken into account.

For more detailed information, please, refer to the determined and registered PDD version 2.0.

The monthly technical reports of the Electrostal have been identified as the data source for the following monitoring parameters: steel production, EAF electrode consumption, oxygen consumption, anthracite consumption, lime consumption, LF electrode consumption. This data source is based on the existing reporting system of the company and is clearly identified, reliable and transparent.

Receipts for natural gas and monthly technical notes (reports) have been identified as the data source for the monitoring of natural gas consumption. This data source is based on the commercial metering system of the company and is clearly identified, reliable and transparent.

The receipts of the supplier have been identified as data sources used for the monitoring of electricity consumption. This data source is based on the commercial metering system of the company and is clearly identified, reliable and transparent.

The emission factors used to calculate emission reductions are selected in accordance with the registered PDD. The choice of these emission factors is appropriately justified in the PDD and in general accuracy and reasonableness are carefully balanced. Emission factor for global baseline emission factor for steel produced is referenced to the registered determined PDD and corresponds with it. Baseline emission factor for electrodes consumption during the steelmaking process; baseline emission factor for natural gas consumption during the steelmaking process; baseline emission factor for anthracite consumption during the steelmaking process are referenced to the 2006 IPCC Guidelines. Emission factor for electricity consumption was taken in accordance with the Order of the National Environmental Investment Agency of Ukraine № 75 from 12.05.2011 for 1<sup>st</sup> class customers. The baseline emission factor for lime consumption during the steelmaking process is referenced to the 2006 IPCC Guidelines. Baseline emission factor for oxygen consumption was updated in accordance with the Order of the National Environmental Investment Agency of Ukraine № 75 from 12.05.2011 for 1<sup>st</sup> class customers.

The calculation of emission reductions is done based on correct values, conservative assumptions and the most plausible scenarios in a transparent manner.

The initial finding of the Verification Team, resolution of any CARs, CLs and FARs raised and review of such resolution is provided in the Appendixes A and B to this report.

### 3.5 Data Management and Quality

Data collection procedure is carried out in accordance with the monitoring plan, including the quality control and quality assurance procedures and has been checked by the Verification Team on-site. The monitoring plan is presented in the section D of the registered PDD. The data and their sources, provided in monitoring report, are clearly identified, reliable and transparent.

The monitoring equipment employed by the project has functioned in accordance with the monitoring plan and in general is in order. The verification team has verified that the reported metering devices are in fact installed and operational. The metering devices have appropriate documentation, such as passports and calibration certificates. Calibration has been performed in accordance with the procedures of the Host Party and evidence of these calibrations has been provided (calibration certificates and/or evidence of calibration in the passports of the devices). It has been verified that the calibration did occur at the correct calibration intervals for all metering devices.

The evidence and records used for the monitoring are maintained in a traceable manner. Verification Team has got access to all necessary data on monitoring system and emission reductions and received necessary evidence on site.

The data collection and management system for the project is in accordance with the monitoring plan as described in the registered PDD. Roles and responsibilities of the technical staff in the framework of the monitoring are described in the monitoring report. The responsibilities and authorities are described for each individual in job descriptions as required statutorily. Persons working at sites are aware of their responsibilities, and relative records are maintained. Data relevant to the emission reduction calculation are daily registering in the log books. During the operation, there are minor variations in its level. Therefore, any measurement error can be easily identified, in case of getting values that significantly differ from the common (in case of equal conditions). Relevant education has been provided in case of lack of qualification. Education was provided by "Electrostal" plant, equipment producers and specialized organizations.

The initial finding of the Verification Team, resolution of any CARs, CLs and FARs raised and review of such resolution is provided in the Appendixes A and B to this report.

## 4. VERIFICATION OPINION

TUV Rheinland Group/TUV Rheinland Ukraine LLC has performed the verification of the emission reductions that have been reported for the "Implementation of Arc Furnace Steelmaking Plant "Electrostal" at Kurakhovo, Donetsk Region" (ITL Project ID UA1000181) for the period from the 1<sup>st</sup> of March 2011 till the 31<sup>st</sup> of July 2011.

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project.

It is TUV Rheinland's responsibility to express an independent verification opinion - conclusion on the verified amount of emission reductions from the project.

TUV Rheinland has conducted the verification on the basis of the monitoring plan contained in the registered Project Design Document Version 2.0 dated 27<sup>th</sup> of May 2010 and the Monitoring Report Version 2.0 dated 10<sup>th</sup> of August 2011.

The verification included the assessment of:

- Project implementation in accordance with the Project Design Document (PDD);
- Compliance with the monitoring plan;
- Calculation of emission reductions and expression of a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data are accurate and free of material errors, omissions, or misstatements;
- Quality and management of data and verification that reported GHG emission reductions data is sufficiently supported by evidence.

TUV Rheinland's verification approach draws on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. TUV Rheinland planned and performed the verification by obtaining evidence and other information and explanations that TUV Rheinland considers necessary to give reasonable assurance that reported GHG emission reductions are fairly stated, accurate and free of material errors, omissions, or misstatements.

In our opinion the GHG emissions reductions of the "Implementation of Arc Furnace Steelmaking Plant "Electrostal" at Kurakhovo, Donetsk Region" (ITL Project ID UA1000181) for the period from the 1<sup>st</sup> of March 2011 till the 31<sup>st</sup> of July 2011 are fairly stated, accurate and free of material errors, omissions, or misstatements in the Monitoring Report Version 2.0 dated 10<sup>th</sup> of August 2011.

The GHG emission reductions were calculated correctly on the basis of the monitoring plan contained in the registered Project Design Document Version 2.0 dated 27<sup>th</sup> of May 2010.

TUV Rheinland Group/TUV Rheinland Ukraine LLC is able to verify that the emission reductions from the "Implementation of Arc Furnace Steelmaking Plant "Electrostal" at Kurakhovo, Donetsk Region" (ITL Project ID UA1000181) for the period from the 1<sup>st</sup> of March 2011 till the 31<sup>st</sup> of July 2011 amount to 143 885 tonnes of CO<sub>2</sub> equivalent.

Kiev, 17<sup>th</sup> of August 2011

## APPENDIX A – CHECK LIST FOR VERIFICATION

DVM paragraph	Check Item	Initial Finding	Action requested to project participants	Review of project participants' action	Conclusion
Project approvals by Parties Involved					
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	<p>The project has been approved by the DFPs of the Parties Involved and documentation is available:</p> <ol style="list-style-type: none"> <li>1) Letter of Approval by the Netherlands ref. 2010JI11 issued at 22 April 2010</li> <li>2) Letter of Approval by the Ukraine ref. 1243/23/7 issued at 19 August 2010</li> </ol> <p>Evidence is available at UNFCCC website:  <a href="http://ji.unfccc.int/JIITLProject/DB/4THB9WTOPK6F721UQA5H6PTHZEXT4C/details">http://ji.unfccc.int/JIITLProject/DB/4THB9WTOPK6F721UQA5H6PTHZEXT4C/details</a>            And at Ukrainian Carbon Registry website:  <a href="http://www.carbonunitsregistry.gov.ua/en/publication/content/781.htm">http://www.carbonunitsregistry.gov.ua/en/publication/content/781.htm</a></p>	-	-	OK
91	Are all the written project approvals by Parties involved unconditional?	All the written project approvals by Parties involved are unconditional. "Electrostal" Ltd. And Global Carbon BV legal entities authorized by the designated focal points of the Parties Involved to participate in the JI project.	-	-	OK
Project implementation					
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	The project has been implemented in accordance with the registered PDD. This JI project is registered as Track 1 project and information is available (See Section 1.3 of this report).	-	-	OK
93	What is the status of operation of the project during the monitoring period?	During the monitoring period that covers time period between the 01/03/2011 and 31/07/2011 the project operated as planned.	-	-	OK

		<p>The first steel has been produced in March of 2008 in accordance with the registered PDD and official commissioning took place on 16/12/2008.</p> <p>Now, the project operates with its planned operational capacity and has been operating during the whole monitoring period. The verification team has verified during the site visit that the project, being a Steelmaking plant based in EAF steelmaking facility, is operational and evidence exists that it has operated during the whole monitoring period.</p>			
Compliance with monitoring plan					
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	The determined monitoring plan is contained in the registered PDD ver. 2.0. that is available on the UNFCCC JI website (see reference in section 1.3 of this report). There were no deviations from this monitoring plan as well as no open issues since last verification.	-	-	OK
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	For calculating the emission reductions key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions as well as risks associated with the project were taken into account, as appropriate. For more detailed information, please, refer to Section B.2. of the determined and registered PDD version 2.0.	-	-	OK
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and	The monthly technical reports of the LLC Electrostal have been identified as the data source for the following monitoring parameters: steel production, EAF electrode	CAR 01: Provide updated monitoring information for July and appropriate	See Appendix B	OK

	transparent?	<p>consumption, oxygen consumption, anthracite consumption, lime consumption, LF electrode consumption. This data source is based on the existing reporting system of the company and is clearly identified, reliable and transparent. However, during the time of preparations and reviewing of the monitoring report provided by the project participants became evidence that the monitoring period hasn't finished on the time verification have been started and values for July did not supported by technical report and act.</p> <p>Receipts for natural gas and monthly technical notes (raports) have been identified as the data source for the monitoring of natural gas consumption. This data source is based on the commercial metering system of the company and is clearly identified, reliable and transparent.</p> <p>The receipts of the supplier have been identified as data sources used for the monitoring of electricity consumption. This data source is based on the commercial metering system of the company and is clearly identified, reliable and transparent.</p> <p>The monitoring report mentions code "Tr №1" as the code to identify electricity consumption by the project in receipt. However, the receipt for 2011 [17-22] that has been provided by the project participants and checked by the verification team does not contain such code.</p>	<p>supporting documents.</p> <p><b>CAR 02:</b> Please provide the correct reference code used to identify electricity consumption of the project in the receipts that have been identified as the applicable data source.</p> <p><b>CAR 03:</b> Please update the tables in section B and D of monitoring report with insertion of updated information for all monitoring period.</p>		
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions	The emission factors used to calculate emission reductions are selected in accordance with the registered PDD ver. 2.0.	<b>CAR 04:</b> Please update emission factor for	See Appendix B	OK

	<p>or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?</p>	<p>The choice of these emission factors is appropriately justified in the PDD ver. 2.0 and in general accuracy and reasonableness are carefully balanced. Emission factor for global baseline emission factor for steel produced is referenced to the registered determined PDD and corresponds with it, but value used in supporting document is incorrect. Baseline emission factor for anthracite consumption during the steelmaking process are referenced to the 2006 IPCC Guidelines but the values are not traceable to the source referenced. Baseline emission factor for oxygen consumption during the steelmaking process is correctly referenced to the PDD ver. 2.0 but the value presented in the monitoring report is incorrect.</p>	<p>oxygen consumption in accordance with the new emission factor for electricity consumption from the grid established in Order of the National Environmental Investment Agency of Ukraine №75 from 12.05.2011. Please provide clear evidence on which type of electricity is used.</p> <p><b>CAR 05:</b> Please correct emission factor for steel production for the baseline scenario in accordance with the value determined in the PDD and update respective supporting document</p> <p><b>CAR 06:</b> Please provide complete reference for NCV of natural gas</p>		
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			<p>CL 01: Please provide complete reference for NCV of anthracite. In IPCC 2006 Guidelines for National Greenhouse Gas Inventories, Volume 2 Energy, Chapter 1 Introduction (table 1.2, page 18) the value 23 865 kJ/kg wasn't found.</p>		
<p>95 (d)</p>	<p>Is the calculation of emission reductions or enhancements of net removals calculated based on conservative assumptions and the most plausible scenarios in a transparent manner?</p>	<p>The calculation of emission reductions is done based on conservative assumptions and the most plausible scenarios in a transparent manner. Project emissions are presented as the sum of the emissions values by components of the steel making process. The following sources of emissions can be observed during the EAF operation:</p> <ol style="list-style-type: none"> <li>1. Electrodes consumption by EAF</li> <li>2. Oxygen consumption</li> <li>3. Electricity consumption by EAF and LF</li> <li>4. Natural gas consumption</li> <li>5. Anthracite consumption</li> <li>6. Lime consumption</li> <li>7. Electrodes consumption by LF</li> </ol> <p>The calculation of the baseline emissions is based on the JI specific approach in accordance with the registered PDD and rests on the global baseline emission factor for steel produced. This factor is applied to the steel production</p>	<p>CAR 07: Please correct reference to the equation in table D.1.</p> <p>CAR 08: Update reference for World Steel Statistical Yearbook.</p> <p>CAR 09: Please correct modification of fonts (sizes etc.) and text throughout the monitoring report.</p>	<p>See Appendix B</p>	<p>OK</p>



		<p>level which is assumed equal in both project and baseline scenario.</p> <p>The calculation of emission reductions is done by subtracting the project emissions from the baseline emissions. However, the formula numbering in table D.1. is not correct.</p>			
Data management					
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	Data collection procedure is carried out in accordance with the monitoring plan, including the quality control and quality assurance procedures and has been checked by the verification team on-site. The monitoring plan is presented in the section D of the registered PDD ver.2.0.	-	-	OK
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	The monitoring equipment employed by the project has functioned in accordance with the monitoring plan and in general is in order. The verification team has verified that the reported metering devices are in fact installed and operational. The metering devices have appropriate documentation, such as passports and calibration certificates. Calibration has been performed in accordance with the procedures of the Host Party and evidence of these calibrations has been provided (calibration certificates and/or evidence of calibration in the passports of the devices). It has been verified that the calibration did occur at the correct calibration intervals for all metering devices. However, it been found that calibration interval of the Floor Scales S/N: 73642 has been performed equal 3 years. Also, calibration interval of the Electricity meter "Alpha A1140" S/N 01144644 has been	<p><b>CAR 10:</b> Please update information for Hopper weigher: actual calibration dates and passport information.</p> <p><b>CAR 11:</b> Please, clarify the correct calibration interval for the Floor Scales S/N: 73642.</p> <p><b>CAR 12:</b> Please, clarify the correct calibration interval for the Electricity meter "Alpha A1140" S/N 01144644 and provide</p>	See Appendix B	OK

		<p>performed equal 16 years is mentioned. Correct calibration interval needs to be clarified for Floor Scales S/N: 73642 and Electricity meter "Alpha A1140" S/N 01144644. The monitoring report mentions calibration procedures and the body responsible for calibration. During the site-visit become appeared that information using in monitoring report about Hopper weigher outdate.</p>	<p>the actual date of the last calibration of the device as well as correct date of the next calibration.</p> <p><b>CAR 13:</b> Please, clarify the correct calibration interval for the Natural gas fiscal metering system "Floetech" S/N 3060147 and provide the actual date of the last calibration of the device as well as correct date of the next calibration.</p>		
101 (c)	<p>Are the evidence and records used for the monitoring maintained in a traceable manner?</p>	<p>The evidence and records used for the monitoring are maintained in a traceable manner. Verification team has got access to all necessary data on monitoring system and emission reductions and received necessary evidence on site.</p>	-	-	OK
101 (d)	<p>Is the data collection and management system for the project in accordance with the monitoring plan?</p>	<p>The data collection and management system for the project is in accordance with the monitoring plan as described in the registered PDD. Roles and responsibilities of the technical staff in the framework of the monitoring are described in the monitoring report. The</p>	<p><b>CAR 14:</b> Please indicate term of education license validity.</p>	See Appendix B	OK

		<p>responsibilities and authorities are described for each individual in job descriptions as required statutorily. Persons working at sites are aware of their responsibilities, and relative records are maintained. Data relevant to the emission reduction calculation are daily registering in the log books. During the operation, there are minor variations in its level. Therefore, any measurement error can be easily identified, in case of getting values that significantly differ from the common (in case of equal conditions). Relevant education has been provided in case of lack of qualification. Education was provided by "Electrostal" plant, equipment producers and specialized organizations.</p>			
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## APPENDIX B – RESOLUTION OF CARs, CLs, FARs

Action requested to project participants	Project participants' action	Conclusion
<b>CAR 01:</b> Provide updated monitoring information for July and appropriate supporting documents.	Copies of Technical report and Electricity Delivery-Acceptance Acts for July, 2011 were provided to AIE as supporting documents for the primary data on the key monitoring parameters. ERUs were recalculated accordingly. Please, see the updated calculation file version 2.0 and MR version 2.0.	Information updated in the monitoring report ver. 2.0. Issue is closed.
<b>CAR 02:</b> Please provide the correct reference code used to identify electricity consumption of the project in the receipts that have been identified as the applicable data source.	The misprint in the reference code was corrected in the MR version 2.0 (see page 7).	References and explanation were included in the monitoring report ver. 2.0. Issue is closed.
<b>CAR 03:</b> Please update the tables in section B and D of monitoring report with insertion of updated information for all monitoring period.	Tables in section B and D were updated in accordance with Technical report and Electricity Delivery-Acceptance Act for July, 2011 in the MR version 2.0 (pages 16, 21-23).	Corrections were made in the monitoring report ver. 2.0. Issue is closed.
<b>CAR 04:</b> Please update emission factor for oxygen consumption in accordance with the new emission factor for electricity consumption from the grid established in	Emission factor for oxygen consumption was automatically calculated in the ERUs calculation model. The resulting value was misprinted in the MR version 1.0, which was corrected in the MR version 2.0 (see page 13). Electrostal is a 1st class consumer in classification in accordance with National Electricity Regulatory Commission Resolution No1052 from 13.08.19982. The appropriate emission factor for electricity consumption was used3. This information was added in the MR version 2.0 (see page 13).	Corrections were made in the monitoring report ver. 2.0. Issue is closed.

<sup>2</sup> <http://zakon.nau.ua/doc/?code=v1052227-98>

<sup>3</sup> Order of the National Environmental Investment Agency of Ukraine №75 from 12.05.2011  
<http://www.neia.gov.ua/nature/doccatalog/document?id=127498>

<p>Order of the National Environmental Investment Agency of Ukraine №75 from 12.05.2011. Please provide clear evidence on which type of electricity is used.</p>		
<p><b>CAR 05:</b> Please correct emission factor for steel production for the baseline scenario in accordance with the value determined in the PDD and update respective supporting document.</p>	<p>Emission factor for steel production for the baseline scenario in calculation model was 1.54305727310108 with PDD referencing the rounded value 1.543. For accuracy and consistency with PDD the value in the calculation file version 2.0. was changed to 1.543.</p>	<p>Corrections were made in the monitoring report ver. 2.0. Calculating model was corrected. Issue is closed.</p>
<p><b>CAR 06:</b> Please provide complete reference for NCV of natural gas</p>	<p>The value of NCV of natural gas used in the MR can be confirmed by methodology available through: <a href="http://www.complexdoc.ru/ntdtext/536274/6">http://www.complexdoc.ru/ntdtext/536274/6</a>. The reference was added to MR version 2.0 (page 14) and ERUs calculation file.</p>	<p>References and explanation were included in the monitoring report ver. 2.0. Issue is closed.</p>
<p><b>CAR 07:</b> Please correct reference to the equation in table D.1.</p>	<p>Formula numbering was corrected in table D.1. on page 21 of MR version 2.0.</p>	<p>Numbering was made in the monitoring report ver. 2.0. Issue is closed.</p>
<p><b>CAR 08:</b> Update reference for World Steel Statistical Yearbook.</p>	<p>Reference for World Steel Statistical Yearbook was updated in footnote on page 3 in the MR version 2.0.</p>	<p>Reference was made in the monitoring report ver. 2.0. Issue is closed.</p>
<p><b>CAR 09:</b> Please correct modification of fonts (sizes etc.)</p>	<p>Modification of fonts was corrected throughout the monitoring report. See MR version 2.0.</p>	<p>Corrections were made in the monitoring report ver. 2.0. Issue is closed.</p>

and text throughout the monitoring report.		closed.
<b>CAR 10:</b> Please update information for Hopper weigher: actual calibration dates and passport information.	Calibration dates for Hopper weigher were corrected in MR version 2.0 (page 10).	Information has been updated to the monitoring report ver. 2.0. Issue is closed.
<b>CAR 11:</b> Please, clarify the correct calibration interval for the Floor Scales S/N: 73642.	Calibration interval for Floor Scales S/N: 73642 is 1 year according to its passport. It was corrected on page 11 of MR version 2.0.	Clarification has been provided to the monitoring report ver. 2.0. Issue is closed.
<b>CAR 12:</b> Please, clarify the correct calibration interval for the Electricity meter "Alpha A1140" S/N 01144644 and provide the actual date of the last calibration of the device as well as correct date of the next calibration.	Calibration interval for Electricity meter "Alpha A1140" S/N 01144644 is 8 years according to its passport. It was corrected on page 11 of MR version 2.0.	Clarification has been provided to the monitoring report ver. 2.0. Issue is closed.
<b>CAR 13:</b> Please, clarify the correct calibration interval for the Natural gas fiscal metering system "Floetech" S/N 3060147 and provide the actual date of the last calibration of the device as well as correct date of the next calibration.	Calibration dates for Natural gas fiscal metering system "Floetech" S/N 3060147 were changed in MR version 2.0 (pages 10).	Calibration dates were provided to the monitoring report ver. 2.0. Issue is closed.
<b>CAR 14:</b> Please	License issued by Ukrainian Ministry of Education and Science №	Information has

<p>indicate term of education license validity.</p>	<p>363304 is valid from 26.06.2007 to 26.06.2012. This was added to the footnote on page 19 in MR version 2.0.</p>	<p>been added to the monitoring report ver. 2.0. Issue is closed.</p>
<p>CL 01: Please provide complete reference for NCV of anthracite. In IPCC 2006 Guidelines for National Greenhouse Gas Inventories, Volume 2 Energy, Chapter 1 Introduction (table 1.2, page 18) the value 23 865 kJ/kg wasn't found.</p>	<p>The value 23 865 kJ/kg can be found in IPCC 2006 Guidelines for National Greenhouse Gas Inventories, Volume 2 Energy, Chapter 1 Introduction (table 1.1, page 1.14). The reference was corrected in MR version 2.0 (page 15) and ERUs calculation file.</p>	<p>Reference was provided to the monitoring report ver. 2.0. Issue is closed.</p>

## REFERENCES

1. Project Design Document "Implementation of Arc Furnace Steelmaking Plant "Electrostal" at Kurakhovo, Donetsk Region" Version 2.0 dated 27th May 2010
2. Determination Report NO. UKRAINE/0111/2010 Rev. 01 dated 04/06/2010
3. Third Periodic Annual Monitoring Report Version 1.0 dated 21 June 2011
4. Third Periodic Annual Monitoring Report Version 2.0 dated 10 August 2011
5. Second Periodic Annual JI Monitoring Report Version 1.0 dated 21 March 2011
6. Initial and First Periodic Verification Report No UKRAINE/0131/2010 Rev.02 dated 16.09.2010 (01.04.2008 – 31.05.2010)
7. Second Verification Report №TRU009JI – VR2 Revision 02 dated 20<sup>th</sup> of April 2011 (01.06.2010 – 28.02.2011)
8. Letter of Approval by the Netherlands ref. 2010JI11 issued at 22 April 2010
9. Letter of Approval by the Ukraine ref. 1243/23/7 issued at 19 August 2010
10. Passport of the meter EA 02RAL-BE4, ser. №01144644. Verification date 13/09/2006.
11. Passport BBET – 150 ser. №061202763. Certificate of the verification dated 21/06/2011.
12. Passport automobile electrical metric scale BTA-60 ser. №061002044. Certificate of verification dated 22/06/2011.
13. Passport weight meter 4BDU\_1500. Certificate of verification dated 28/01/2011.
14. Passport natural gas meter Flowtek. Certificate of verification dated 12/11/2009.
15. Passport oxygen meter Optimass8000. Certificate of verification dated 03/01/2011.
16. Passport measurement device BCS\_M584. Certificate of verification dated 19/07/2011.
17. Statement of acceptance - transferring of the electricity for March 2010 of LLC "Electrostal" dated 01/03/2011.
18. Statement of acceptance - transferring of the electricity for April 2011 of LLC "Electrostal" dated 01/04/2011.
19. Statement of acceptance - transferring of the electricity for May 2011 of LLC "Electrostal" dated 01/05/2011.
20. Statement of acceptance - transferring of the electricity for June 2011 of LLC "Electrostal" dated 01/06/2011.
21. Statement of acceptance - transferring of the electricity for July 2011 of LLC "Electrostal" dated 01/07/2011.
22. Technical report of the steel complex LLC "Electrostal for March 2010
23. Technical report of the steel complex LLC "Electrostal for April 2011
24. Technical report of the steel complex LLC "Electrostal for May 2011
25. Technical report of the steel complex LLC "Electrostal for June 2011
26. Technical report of the steel complex LLC "Electrostal for July 2011
27. Statement of evidence on the electricity counters for May 2011
28. Statement of evidence on the electricity counters for June 2011
29. Technical report on oxygen consumption for March 2011
30. Technical report on oxygen consumption for April 2011
31. Technical report on oxygen consumption for May 2011
32. Technical report on oxygen consumption for June 2011
33. Technical report on natural gas consumption for March 2011
34. Technical report on natural gas consumption for April 2011
35. Technical report on natural gas consumption for May 2011
36. Technical report on natural gas consumption for June 2011
37. Production reports of the technical report CCM 2011 (March 2011)



38. Production reports of the technical report CCM 2011 (April 2011)
39. Production reports of the technical report CCM 2011 (May 2011)
40. Production reports of the technical report CCM 2011 (June 2011)
41. Journal of accounting resistance electrodes EAF
42. License #363304 for provision of educational services issued to LLC "Electrostal" (valid till 26/06/2012).
43. Calculation Spreadsheet ver. 1.0 dated 21 June 2011
44. Calculation Spreadsheet ver. 2.0 dated 12 August 2011