DETERMINATION REPORT

CTF
CONSULTING LTD
(SUBSIDIARY OF CARBON TRADE & FINANCE SICAR S.A.)

DETERMINATION OF THE
"Implementation of arc-furnace steelmaking at Magnitogorsk Iron and Steel Works"

BUREAU VERITAS CERTIFICATION

REPORT NO. RUSSIA/0043-2/2009, V.2

Report No: RUSSIA/0043-2/2009 v.2

Determination Report on JI project
"Implementation of arc-furnace steelmaking at Magnitogorsk Iron and Steel Works"

Date of first issue:	Organizational unit:
18/01/2010	Bureau Veritas Certification Holding SAS
Client:	Client ref.:
CTF Consulting Ltd.	Mr. Konstantin Myachin

Summary:

Bureau Veritas Certification was commissioned by CTF Consulting Ltd. (subsidiary of Carbon Trade & Finance SICAR S.A,) to make the determination of the project "Implementation of arc-furnace steelmaking at Magnitogorsk Iron and Steel Works" on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI guidelines and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The determination scope is defined as an independent and objective review of the project design document, the project's baseline, monitoring plan and other relevant documents, and consists of the following three phases: i) desk review of the project design document and particularly the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final determination report and opinion. The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the determination process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A, Table 5. Taking into account this output, the project proponent has revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project applies the appropriate baseline and monitoring methodology and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.:	Subject Group:
RUSSIA/0043-2/2009	JI
Project title: "Implementation of arc-furnace steelmaking at Magnitogorsk Iron and Steel Works"	
Work carried out by: Vera Skitina – Team Leader, Lead verifier	
Work approved by: Leonid Yaskin – Internal reviewer, Operational Manager for Climate change	

Date of this revision:	Rev. No.:	Number of pages:
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Indexing terms:

Climate Change, Kyoto Protocol, JI, Emission Reductions, Verification,

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Abbreviations

AIE	Accredited Independent Entity
BVC	Bureau Veritas Certification
BFP	Blast-furnace plant
BOFP	Basic oxygen furnace plant
BPCP	By-product coke plant
CAR	Corrective Action Request
CCM	Continuous casting machine
CL	Clarification Request
CO_2	Carbon Dioxide
DDR	Draft Determination Report
DR	Document Review
DBSU	Double-Bath Steelmaking Units
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ERU	Emission Reduction Unit
EAF	Electric Arc Furnace
EAFP	Electric Arc Furnace Plant
GHG	Greenhouse House Gas(es)
I	Interview
IE	Independent Entity
IETA/PCF	Validation and Verification Manual
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
MoV	Means of Verification
MMK	Magnitogorsk iron and steel works
NGO	Non Governmental Organization
LFA	Ladle-furnace aggregate
OHFP	Open-hearth furnace plant
PDD	Project Design Document
PP	Project Participant
RF	Russian Federation
tCO_2e	Tonnes CO_2 equivalent
UNFCCC	United Nations Framework Convention for Climate Change

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1 Introduction

CTF Consulting Ltd. (hereafter called "CTF Consulting"), which is a subsidiary of Carbon Trade & Finance SICAR S.A,has commissioned Bureau Veritas Certification to determine its JI project "Implementation of arc-furnace steelmaking at Magnitogorsk Iron and Steel Works" (hereafter called "the project") located in the city of Magnitogorsk, Chelyabinsk region, Russian Federation. CTF Consulting being the PDD developer coordinated the project and the determination process on behalf of the project participant OJSC "Magnitogorsk iron and steel works" (hereafter called "MMK").

This report summarizes the findings of the determination of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The purpose of the determination is to provide an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan, and the project's compliance with relevant UNFCCC and host country criteria are determined in order to confirm that the project design, as documented, is sound and reasonable, and meet the stated requirements and identified criteria. Determination is a requirement for all JI projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reduction units (ERUs).

UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

1.2 Scope

The purpose of the determination is to provide an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan, and the project's compliance with relevant UNFCCC and host country criteria are determined in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Determination is a requirement for all JI projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reduction units (ERUs).

The determination is not meant to provide any consulting towards MMK and CTF Consulting. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

1.3 GHG Project Description

The Project Activity is to be implemented in the city of Magnitogorsk, Chelyabinsk region, Russian Federation and involves constructing the Electric Arc-Furnace Plant (further referred to also as EAFP) at MMK to provide OJSC "Magnitogorsk iron and steel works" (hereafter called "MMK") with a complex resource-saving effect from the transition to production of profiled steel in the electric arc furnaces and its teeming in the continuous casting

machines (further referred to also as CCM) instead of production of the same steel and profiled billet in the open-hearth plant (further referred to also as OHP) and blooming mill plant (further referred to also as BMP).

The implementing company MMK is the largest full cycle metallurgy steelmaking enterprise in the Russian Federation. Its share in the sales of metal production on domestic market is about 20%. MMK begins with preparation of iron ore raw materials and ends up with advanced processing of ferrous metals. The company currently produces the largest mix of metal products among all ironworks of the Russian Federation and CIS countries. Considerable part of its products is exported to different countries. In 2008 MMK smelted 11,957,000 tons of steel and produced 11,522,000 tons of hot rolled metal. The output of commercial production of metals was 10,911,000 tons, which was 11% less than the record output, reached in 2007 (12,200,000 tons). The reduction in output was caused by overall recession in Russian metallurgy sector in the result of economic crisis.

Situation prior to the project implementation
Before proposed project implementation, steel production took place in Open-Hearth Furnace Plant (further referred to also as OHFP) instead of EAFP. Basic Oxygen Furnace Plant (further referred to also as BOFP) historically specialized in production of slab steel billet while the OHFP specialized in production of profiled steel billet, until the latter was closed in 2006. Before project start, steel of profiled grades was mostly smelted in the furnaces applying open-hearth process: two Double-Bath Steelmaking Units (further referred to also as DBSU) No. 29 and 32 and three conventional open-hearth furnaces, with subsequent teeming and production of steel billet in the BMP.

Above mentioned technology has been applied at MMK since 1960s without major changes, and was quite well-developed. About 75% of steel was produced from liquid pig-iron, which came from the BFP of MMK. This is why the external risks associated with the procurement of scrap metal were quite low. The conventional open-hearth process is much more energy- and resource- intensive than modern technologies of steelmaking, because the steel hardened in casting moulds after teeming and then the hardened ingots were heated again by blast-furnace gas or coke oven gas in the heating furnaces of the blooming mill plant. After the iron mould was heated up to the rolling temperature it was rolled at the blooming mill with subsequent edge trimming because during teeming the edges of the steel mould are pimpled. After rolling in the blooming mill the steel billet was transported to the section mills for rolling of steel profiles with required dimensions.

Project scenario
According to the project scenario MMK constructed a new electric arc-furnace plant in 2006, which replaced the OHFP after the required reconstruction. The arc-furnace production cycle includes the following units: two high-capacity electric arc furnaces (EAF-180) manufactured by Austrian company "Voest-Alpine AG" with output capacity of 2 million tons of liquid steel per year each, out-of-furnace steel processing aggregates, one slabbing continuous-casting machine (CCM #5) with capacity of 2 million tones/year of slab steel billet and two section continuous casting machines manufactured by Austrian company "VAI" with total capacity of 2 mln. tones/year of profiled steel billet. One DBSU was

left to operate under partial load. Since the implementation of the proposed project MMK has not been using ingots teeming anymore because all liquid steel now comes through continuous casting.

The project boundary includes only production of the profiled steel billet which had been produced in the OHFP before the project implementation. Therefore the augmentation of liquid steel production due to higher capacity of EAFs (4 mln. tones of liquid steel totally) and presence of one DBSU in hot reserve is not accounted in the ERUs calculation because the baseline technology had no technical capability to produce slab steel billet.

The production capacity for profiled steel billet is limited by technical performance of section CCMs (2 mln. tones of steel billet annually). That is why the potential production of profiled steel billet in the baseline scenario equals to the project scenario. To ensure the flexibility of the liquid steel production the steel for further section grades casting and slab grades casting is melted at MMK in both EAFs and one DBSU according to short-term workshop production plans. Thus the performance characteristics of whole EAFP is considered in the project but then the CO_2 emissions associated with production profiled steel billet are separated.

The project area is limited to the Ural federal district in the territory of the adjacent federation constituents –Chelyabinsk Region.

Baseline scenario

The most likely scenario for providing MMK with production capacity for the profiled steel billet without the JI project (baseline scenario) is continuation of the existing practices including, production of profiled steel billet in double-bath steelmaking units No. 29 and 32, with subsequent production of steel shapes in the blooming mill plant. This would have required only a relatively small additional modernization: installation of ladle-furnace aggregates (LFA) for out-of-furnace steel processing, with the goal to improve quality and product mix of rolled steel. Conventional open-hearth furnaces could have been left, but the proposed project does not consider them in the baseline scenario, because the output of double-bath steelmaking units (1.2 million tons of steel per year each) was quite sufficient for full loading of new Danieli shape mills in the rolling plant of MMK; and moreover, DBSUs are more efficient comparing to conventional open-hearth furnaces.

Emission reductions

Electric steelmaking process in EAFP and further teeming in CCM is a resource-saving technology, which allows to save the carbon-containing materials and fuels – coking coal, coke, pig iron, natural gas compared to the conventional OHFP process with ingots teeming at the same output rate. After installation of EAF-180 the ratio of liquid pig iron to scrap metal has changed. Before reconstruction the share of pig iron in the load of the steel furnace was about 75%, while in 2007 it dropped down to 25% thus reducing the demand for production of pig iron, coke and related energy and resource demands. Besides that, a continuous casting produces fewer cuttings, than ingots teeming process.

As s result of project implementation total emission reductions in 2008-2012 are estimated as 7 500 735 tons of CO_2-eq.

1.4 Determination team

The determination team consists of the following personnel:

Vera Skitina
Bureau Veritas Certification – Team Leader, Lead verifier

The Determination Report was reviewed by:
Leonid Yaskin
Bureau Veritas Certification – Internal Technical Reviewer

2. Methodology

The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The determination consisted of the following three phases:

i) desk review of the project design document and the baseline and monitoring plan;
ii) on-site assessment on 16/12 - 18/12/2009 and on-line interactions with PDD developer throughout the determination process;
iii) resolution of outstanding issues (ref. to Appendix A Table 5 with CAR's and CL's) and the issuance of the final determination report and opinion.

In order to ensure transparency, a determination protocol was customized for the project, according to the Determination and Verification Manual (IETA/PCF).

The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The determination protocol serves the following purposes:

- it organizes, details and clarifies the requirements a JI project is expected to meet;
- it ensures a transparent determination process where the independent entity will document how a particular requirement has been validated and the result of the determination.

The original determination protocol consists of five tables. The different columns in these tables are described in Figure 1.

The completed determination protocol is enclosed in Appendix A to this report. It consists of four tables. Table 3 for "Baseline and Monitoring Methodologies" is omitted because the project participants established their own baseline and monitoring approach that is in accordance with appendix B of the JI Guidelines and because the questions regarding the used approach are presented in Table 2.

Determination Protocol Table 1: Mandatory Requirements			
Requirement	**Reference**	**Conclusion**	**Cross reference**
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (**OK**)**,** a **Corrective Action Request (CAR)** or a **Clarification Request (CL)** of risk or non-compliance with stated requirements. The CAR's and CL's are numbered and presented to the client in the Determination Report.	Used to refer to the relevant protocol questions in Tables 2, 3 and 4 to show how the specific requirement is validated. This is to ensure a transparent determination process.

Determination Protocol Table 2: Requirements checklist				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**)**,** or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification.

Determination Protocol Table 3: Baseline and Monitoring Methodologies				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements of baseline and monitoring methodologies should be met. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**)**,** or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification.

Determination Protocol Table 4: Legal requirements				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The national legal requirements the project must meet.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**)**,** or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification.

Determination Protocol Table 5: Resolution of Corrective Action and Clarification Requests			
Report corrective action and clarifications requests	**Ref. to checklist question in tables 1/2/3/4**	**Summary of project owner response**	**Determination conclusion**
If the conclusions from the Determination are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Tables 1-4 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the determination team should be summarized in this section.	This section should summarize the determination team's responses and final conclusions. The conclusions should also be included in Tables 1-4 under "Final Conclusion".

Figure 1 Determination protocol tables

2.1 Review of Documents

Bureau Veritas Certification (BVC) signed the contract with CTF Consulting on 15/10/2009 and received Project Design Document (PDD) Version 1.0 dated 19/10/2009 together with supporting documentation. The completeness check revealed some deviations from the JISC PDD Form. On 10/11/2009, BVC received the finally remade PDD Version 1.1 dated 10/11/2009. The PDD was made publicly available for comments on UNFCCC JI site from 25 November 2009 till 24 December 2009.

The PDD and supporting documentation as well as additional background documents related to the project design, baseline, and monitoring plan, such as Kyoto Protocol, host Country laws, JI guidelines, JI Guidance on criteria for baseline setting and monitoring, and Tool for demonstration and assessment of additionality were reviewed.

The first deliverable of the document review was the Draft Determination Report (DDR) Version 1 dated 19/11/2009 with 26 CAR's and 7 CL's.

The second deliverable of the document review was the Draft Determination Report (DDR) Version 2 dated 28/12/2009 with four new CAR's and one CL issued after the on-site assessment on 16/12 - 18/12/2009.

On 28/12/2009, CTF Consulting submitted the amended version of PDD together with summaries of responses to the verifiers' requests. Having reviewed this feedback, Bureau Veritas Certification issued DDR Version 3 dated 15/01/2010 with clarifications as to why some of CTF Consulting responses cannot be accepted.

On 15/01/2010, CTF Consulting submitted the PDD Version 1.4 which was accepted by BVC by issuance of DDR Version 4.

Having obtained the approval of the project from the RF Ministry for Economic Developments #709 dated 30/12/2010 CTF Consulting submitted the PDD Version 1.5 dated 31/01/2011 based on which this Determination Report Version 2 was issued.

The chronology of issuance of PDD and DDR is shown in Table 6.

The determination findings presented in this Determination Report Version 2 relate to the project as described in the published PDD Version 1.1 dated 10/11/2009 and the final PDD Version 1.5 dated 31/01/2011.

Table 6. Chronology of issued PDD and DDR

PDD version	PDD date	Received on	DDR version	DDR date
1.0	19/10/2009	19/10/2009	-	-
1.1 published 25/11	10/11/2009	10/11/2009	1	19/11/2009
1.2 after site visit	18/11/2009	28/12/2009	2	28/12/2009
1.3	10/01/2010	10/01/2010	3	15/01/2010
1.4	15/01/2010	15/01/2010	4	15/01/2010
1.5	31/01/2011	31/01/2011	Final DR V.2	02/02/2011

2.2 Follow-up Interviews

Bureau Veritas Certification verifier Vera Skitina conducted a visit to the project site on 16/12-18/12/2009. On-site interviews with the project participant OJSC "Magnitogorsk iron and steel works" (MMK) and the PDD Developer CTF Consulting were conducted to confirm the selected information and to clarify some issues identified in the document review. The interview topics are listed in Table 7. The interviewees are listed in Section 6 References.

Following the submission of the DDR Version 1, on-line interactions between CTF Consulting and Bureau Veritas Certification were conducted to resolve pending CAR's and CL's.

Table 7 Interview topics

Date / Interviewed organization	Interview topics
16/12/2009 - 18/12/2009 "MMK", CTF Consulting	➢ MMK current Investment Programme ➢ Reasoning for construction new Electric Arc-Furnace Plant (EAFP) ➢ Project management organization ➢ Project history and Implementation schedule ➢ Baseline scenario ➢ Barriers and uncommon practice ➢ Project scenario ➢ Recourse consumption saving effects ➢ Emission calculation ➢ Investment issues ➢ Commissioning and proven trials ➢ Capacity replacement issues ➢ QC & QA Procedures ➢ Training of personnel ➢ Environmental permissions ➢ Environmental Impact Assessment ➢ Public hearings

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be followed on by the project participants for Bureau Veritas Certification positive conclusion on the project design.

Corrective Actions Requests (CAR) are issued, where:

i) there is a clear deviation concerning the implementation of the project as defined the PDD;
ii) requirements set by the Methodological Procedure or qualifications in a verification opinion have not been met; or
iii) there is a risk that the project would not be able to deliver high quality ERUs.

Clarification Requests (CL) are issued where

iv) additional information is needed to fully clarify an issue.

The DDR summarising Bureau Veritas Certification's findings of the desk document review (Version 1) and on-site assessment (Version 2) were submitted to CTF Consulting and

MMK on 19/11/2009 and 28/12/2009 accordingly. Overall, the findings identified have been 30 Corrective Action Requests and 8 Clarification Requests.

The amendments made by CTF Consulting to the PDD and reported in PDD Version 1.4 dated 15/01/2010 satisfactorily addressed the verifiers' requests except CAR 01 about the missing project approval by the host Party. As a result, the Determination Report Version 1 was issued on 18/01/2010. On 18/01/2010, it was sent, together with the PDD Version 1.4, to BVC Internal Technical Reviewer (ITR) for review.

No comments on the PDD were received during the public review period.

CAR 01 was closed in this Determination Report Version 2 based on the received PDD Version 1.5 dated 31/01/2010 and copy of the project approval by the RF Ministry for Economic Developments #709 dated 30/12/2010.

To guarantee the transparency of the determination process, the CAR's and CL's raised are summarized in Appendix A, Table 5.

3 Determination Findings

In the following sections, the findings of the determination are presented for each determination subject as follows:

i) the findings from the desk review of the original project design document and the findings from interviews during the site visit are summarized. A more detailed record of these findings can be found in the Appendix A Determination Protocol.
ii) where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the determination protocol criteria or the project objectives, a Clarification or Corrective Action Request, respectively, has been issued. The Clarification and Corrective Action Requests are stated in the in Appendix A Determination Protocol.
iii) where Clarification and Corrective Action Requests have been issued, the response by the project participants to resolve these requests is summarized in Appendix A Table 5.
iv) the conclusions of the determination are presented consecutively.

3.1 Project Design

The project design engineering represents current good practices of using high efficiency modern and more efficient technology of steelmaking and casting from the resource consumption standpoint on preceding metallurgical conversion stages and besides reduces waste generation in comparison with the baseline technology.

The proposed Joint Implementation project envisages a complex resource-saving effect from the transition to production of profiled steel in the electric arc furnaces and its teeming in the continuous casting machines (CCM) instead of production of the same steel and profiled billet in the open-hearth plant and blooming mill plant.

Under the project, MMK has not been using ingots teeming anymore because all liquid steel now comes through continuous casting.

The main supplier of equipment and technologies are Austrian company "Voest-Alpine AG" (two high-capacity electric arc furnaces (EAF-180) with output capacity of 2 million tons of liquid steel per year each) and Austrian company "VAI" (two section continuous casting machines with total capacity of 2 mln. tones/year of profiled steel billet) – ones of the world leaders in the manufacture of equipment for the entire metallurgical cycle – from steel making and rolling to hot and cold finishing.

The proposed JI project implements modern and more efficient technology of steelmaking and casting reduces consumption of pig iron and carbon-containing fuels on preceding metallurgical conversion stages and reduces waste generation in comparison with the baseline. CO_2 emission reductions are achieved due to the resource-saving and enhancement of efficiency of the use of secondary energy resources.

The implementation of electric arc steelmaking process results in increase of the electricity consumption. Only in 2008, the electricity consumption increased by 440 GWh/year against the baseline (to produce the same quantities of profiled steel billet).

The estimated GHG emission reduction is 7 500 735 tons of CO_2 equivalent over the crediting period 2008 - 2012.

The identified areas of concern as to Project Design, PP's response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CAR 01, CAR 02, CAR 03, CL 01, CL 02, CL 03).

3.2 Baseline and Additionality

A JI specific approach regarding baseline setting and additionality demonstration and assessment has been developed in accordance with JISC "Guidance on criteria for baseline setting and monitoring" (Version 02).

Four alternative scenarios were listed. All the alternatives do not face any prohibited barriers from the RF legislation. Two of four scenarios were shown to be prevented by the organizational and technological barriers. Hence, they were taken out of further consideration.

After screening, two alternative scenarios left as viable, namely:

1. Continuation of production of profiled steel in open-hearth plant with two DBSUs, installation of two LFAs, ingots teeming and blooming in BMP;
2. The project without JI registration.

The first alternative was identified as most plausible scenario for the following reasons (a) it allows to produce the required by the project quantity of rolled metal (2 mln tones) and

meet the most stringent quality standards (after installation of two LFAs) without significant capital reconstruction; (b) it does not require increase of external purchases of scrap metal; (c) it requires twenty times less investments (Euro 19,6 million) than the project scenario (Euro 152 million). According to the chosen baseline scenario, two LFAs will be installed in OHFP. Those aggregates are equipped with electric-arc steel heating system; for conservativeness, the additional electricity consumption that would have taken place, and respective CO_2 emissions are not taken into account.

The second alternative was proven to be not financially and economically feasible. This follows from the investment analysis carried out in the frame of the additionality proof. Thus, the first alternative was reasonably taken as the baseline scenario as the most realistic and credible.

The proposed approach to additionality demonstration and assessment provides traceable and transparent information showing that the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to reductions of anthropogenic emissions by sources of GHG.

Justification of additionality has been done in several steps, based on consideration of economic attractiveness of alternative technological options of commercial steel production, namely: identification of alternatives to the project activity, investment analysis, barrier analysis, and common practice analysis. The key additionality proofs were the results of the benchmark and sensitivity analyses. The spreadsheet with the analysis was made available for the verifier, and Bureau Veritas Certification will submit it to JISC at the final determination as the supporting documentation.

The identified areas of concern as to Baseline and Additionality, PP's responses and BV Certification's conclusions are described in Appendix A Table 5 (refer to CAR 04, CAR 05, CAR 06, CAR 07, CAR 08, CAR 09, CAR 10, CAR 11, CAR 12, CAR 13, CAR 14, CL 04, CL 05, CL 06).

Identified areas of concern as to Project participant identification, Project Duration / Crediting Period, PP's responses and BV Certification's conclusions are described in Appendix A Table 5 (refer to CAR 15, CAR 16, CAR 17).

3.3 Monitoring Plan

A JI specific approach regarding monitoring has been developed in accordance with the JISC "Guidance on criteria for baseline setting and monitoring" (Version 02).

All categories of data to be collected in order to monitor GHG emissions from the project and determine the baseline of GHG emissions (Option 1) are described in required details. Comprehensive historical data for parameters of OHFP-BMP processes at MMK (2000-2002), used for the calculation of the baseline, are provided in PDD Annex 2.

Step-by-step application of the used approach to monitoring is described in PDD Section D and Annex 3 including monitoring procedures, formulae, parameters, data sources etc.

The parameters monitored throughout the crediting period include: CO_2 emission from metallurgical conversions within the project boundaries (using carbon balance method); specific CO_2 emission per ton of coke, pig iron and steel billet (profiled and slab all together); consumption of pig iron and scrap metal for production of one ton of steel billet and consumption of metallurgical coke per one ton of pig iron; project CO_2 emission from metallurgical conversions during production of profiled steel billet using defined specific values and coefficients; CO_2 emission coefficients during generation of electricity and air blast at MMK, and project emissions during consumption of electricity in EAFP and consumption of air blast in BFP required for production of the profiled steel billet. Total project CO_2 emissions associated with production of profiled steel billet are summarized.

Data and parameters that is not monitored throughout the crediting period, but determined only once and available already at the stage of determination regarding the PDD and that are available already at the stage of the PDD development, have been described and determined in PDD Section D.1 and Annex 2. They are also explained (in Section D.1.2.2) as per [2].

Operational structure that MMK implements to monitor emission reduction is clearly described in the PDD. Monitoring related quality control and quality assurance procedures are backed up by the existing MMK reporting system under the certified Quality Management System. To ensure the proper monitoring and reporting process for the JI project OJSC "MMK" will additionally establish the special internal procedure as a part of its certified quality management system.

Collection of data required for estimation of GHG emission reductions is planned to be performed to high industry standard.

The identified area of concern as to Monitoring Plan, PP's response and BV Certification's conclusion is described in Appendix A Table 5 (refer to CAR 17, CAR 18, CAR 19, CAR 20, CAR 21, CAR 22, CAR 23, CAR 24, CAR 25, CAR 26, and CL 07).

3.4 Calculation of GHG Emissions

Formulae used for calculation of GHG emissions are presented in PDD Sections D and E. Input data for calculations and the calculations per se are presented on the spreadsheet made available to the verifiers by CTF Consulting. The results are summarised in Section E. The verifier checked the calculations and found them accurate.

The estimated amount of the project emission reduction over the crediting period 2010 – 2012 is presented in PDD as follows:

	Years
Length of the crediting period:	5 years
Year	Estimate of annual emission reductions in tonnes of CO_2 equivalent
2008	1 699 642
2009	654 663
2010	1 097 296
2011	2 024 567
2012	2 024 567
Total estimated emission reductions over the crediting period in tonnes of CO_2 equivalent	7 500 735

The identified areas of concern as to Calculation of GHG Emissions, PP's response and BV Certification's conclusion are described in Appendix A Table 5 (refer to CAR 27, CAR 28, CAR 29, CAR 30, CL 08).

3.5 Environmental Impacts

The project received the positive opinion of Glavgosexpertiza of Russia on the Working Design materials; the latter include the Environmental Impact Assessment. The project Feasibility Study received a positive opinion of the Rostekhnadzor State Environmental Expertise. The project has all permissions, limits and license required by the Russian environmental legislation for the stage of technical design, construction and maintenance. The evidences are presented in PDD Section F and by the list of documents obtained by the verifier at the site visit (refer to Section 6 References).

3.6 Comments by Local Stakeholders

No comments from local stakeholders were received.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

In accordance with the Section E "Verification procedure under the Article 6 Supervisory Committee" of the JI guidelines, Bureau Veritas Certification published the PDD Version 1.1 on UNFCCC JI site on 25/11/2009 and invited comments within 24/12/2009 by Parties, stakeholders and UNFCCC accredited observers. No comments have been received.

5 DETERMINATION OPINION

Bureau Veritas Certification has been engaged by CTF Consulting Ltd. (CTF Consulting), which is the subsidiary of Carbon Trade & Finance SICAR S.A., to perform a determination of the JI project "Implementation of arc-furnace steelmaking at Magnitogorsk Iron and Steel Works". The determination was performed on the basis of UNFCCC criteria for JI projects, in particular the verification procedures under the JI Supervisory Committee, as

well as host country criteria and the criteria given to provide for consistent project operations, monitoring and reporting.

The determination is based on the information made available to us and on the engagement conditions detailed in this report. The determination has been performed using a risk-based approach as described above. The only purpose of the report is its use for the formal approval of the project under JI mechanism. Hence, Bureau Veritas Certification cannot be held liable by any party for decisions made or not made based on the determination opinion, which will go beyond that purpose.

The determination consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up on-line interviews with the project participant and PDD developer; iii) the issuance of the determination report and opinion.

The review of the project design documentation, the subsequent follow-up interviews, and the resolution of the Corrective Action Requests have provided Bureau Veritas Certification with the sufficient evidences to determine the fulfilment of the above stated criteria and to demonstrate that the project is additional.

The barriers analysis demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that it is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions of 7 500 735 tonnes CO2-equivalent for the period from 1st January 2008 to 31st December 2012.

The review of the project design documentation (Versions 1.1 through 1.5) and the follow-up interviews with the project participant and CTF Consulting have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

The determination is based on the information made available to us and the engagement conditions detailed in this report.

Bureau Veritas Certification Holding SAS
02 February 2010

Vera Skitina – Team leader, Lead verifier

6 REFERENCES

Reviewed document or type of information referred to in Appendix A and available before the site visit

1	"Implementation of arc-furnace steelmaking at Magnitogorsk Iron and Steel Works", PDD Version 1.1 dated 10/11/2009. Received on 10/11/2009. Published on UNFCCC site 25/11/2009. PDD Version 1.4 dated 15/01/2010. Received on 15/01/2010.
2	Guidelines for Users of the Joint Implementation Project Design Document Form/Version 04, JISC.
3	JISC Guidance on criteria for baseline setting and monitoring. Version 02.
4	Glossary of Joint Implementation terms. Version 02, JISC.
5	2006 IPC Guidelines on National Greenhouse Gas Inventories. Volume 3 Chapter 4.
6	"Regulation of realization of Article 6 of Kyoto Protocol to United Nation Framework Convention on Climate Change". Approved by the RF Government Decree # 843 of 28/10/2009 "About measures on realization of Article 6 of Kyoto Protocol to United Nation Framework Convention on Climate Change".
7	Excel spreadsheet with calculation of emission reduction. Provided by PDD Developer.

Reviewed document or type of information obtained at the site visit

8	Technical Protocol of the conference concerning energy industry reforming and forthcoming Kyoto Protocol by the State Duma of RF ratification, dated 07/10/04
9	A Register of potential JI Projects available at MMK dated 16/05/05
10	A Register of OHP reconstruction arrangement and EAFP designing at MMK (stage before investment decision)
11	Input financial data for of the OHP reconstruction arrangement and EAFP designing at MMK (stage before investment decision)
12	A pre-assessment calculation financial data for the OHP reconstruction arrangement and EAFP designing with total steel output of 4 mln. t yearly at MMK (stage before investment decision)
13	The baseline assessment data for emission reduction assessment values due to potential JI project available at MMK, dated 25/09/2008
14	A long term invest programme of OAO MMK for 2004-2013
15	Letter of Mr. V. F. Rashnikov, Director General of OJSC «MMK» to State Duma of the Russian Federation, dated 17.11.2004
16	Technical Protocol of the meeting held at First Deputy General Director about forthcoming changes in RF Environmental legislation due to forthcoming Kyoto Protokol by the State Duma of RF ratification

17	Order # 440 "About EAFC in EAFP contraction with total steel output of 4 mln. t yearly at MMK", dated 22/06/04
18	Arrangement #AM-21 dated 23/03/05 "About Working Group creation"
19	The Order and Annex 2 to the Order #635 dated 22.11.02 "About Working Group for OHP reconstruction
20	Conclusion issued by State Regional Committee as the unit tariff administrative tribunal about the fixed tariff data for the electricity consumed by OOO MMK, dared 2003
21	Environmental Action Plan "MMK", actual till 2015
22	Positive State Opinion on the the Working Design Project "OAO "MMK" OHP Complex. Reconstruction. #394 dated 06/07/2004
23	Positive State Opinion on the the Working Design Project "OAO "MMK" OHP Production reconstruction. #130 dated 31/05/2006
24	The Environmental Impact Assessment (OVOS)
25	Environmental permissions and limits issued for "MMK" by Interregional Department of Rostekhnadzor for Ural Federal Okrug for BFP, OHFP, and EAFP. All valid on the date of the site visit.
26	State statistic environmental form 2-tp (air) of "MMK" in 2006, 2008.
27	Schedule for the Electric Furnace Steel-smelting Complex (EAFP) construction & setting into operation at the planned technical capacity.
28	Technical Data of the steel output volumes at EAFP and OHP aggregates in the year 2009
29	Technical Guidance on the planned maintenance of the machinery in the iron and steel industry in Russian Federation.
30	Monthly Technical Reports of OHF, EAFP, BFP of "MMK", 2009.
31	Technical Data for carbon contents in production & technological gases used at MMK
32	Technical Data for electricity generation and consumption at production of MMK for 2005-2007
33	Technical Data for chemical compositions of charging materials, pig and pig iron, steel output, slag, dust, agglomerate and other raw materials, used for the baseline and project calculation (2002 and 2007)
34	A technological flow diagram of EAFP, OHP,
35	Data for emission reduction at OHP (EAFP) calculated based on CNIIChermet Methodology (RF research scientific institute) for 1988-2007
36	Gross and specific polluting substances emission at OHP (EAFP) calculated for 2002-2012
37	Gross main polluting substances emission at OHP (EAFP) calculated for 2002-2012

38	Graphical data of energy intensity of production at MMK for 1996-2008
39	Attachment 1&2 to the Contract (the project design) "MMK/Russia 180toEAF Project 2622. Basic Design Data and Process description. Projectterminplan
40	A production Programme for BOFP. December 2009
41	Technological Instruction TI 101-CN-EAFP – 64 – 2007 with changes ##1-7
42	A heat log 89603 at DBSU #32 dated 17/12/2009
43	A contract between RUP "Belorussian Metallurgical Plant" and OAO "MMK" to train technological personnel (26 persons), dated 2005
44	Internal Letter #116/SGO dated 29/09/2009 "About verification of the PDD (the project) with regard to the invest analysis results"
45	Data of production cost in MMK for 1-26/10/2009
46	Data of production cost of the steel (OHP) with two DBSUs for 2003
47	Data of production cost of the steel after DBSU (OHP) in 2004 and estimated data with cost of the steel after DBSU (OHP) and additional treatment in two LFA's (baseline scenario)
48	A timetable for capital maintenance overhaul of the metallurgical aggregates of MMK in 2009
49	Rate of scrap prices time history in 2003-2004. Data produced by MMK Economic Department
50	Measuring appliances records of BFP, OHFP, EAFP
51	A timetables for the obligatory testing of the measuring instrument calibration) under service conditions of BFP, OHFP, EAFP
52	Training personnel records dated 17/12/09 (EAFP)
53	BFP indexes trend for 2002-2009
54	Records of the coke furnace batteries out for the 17th of 2009
55	Accreditation attestation issued by State Federal Agency for Technical Regulation and Metrology (GOST R) # ROSS RU.0001.512269 valid till 25.09.2012
56	Provisions or Environmental protection Laboratory of MMK #425/12-01 dated 27/11/2009
57	Order issued by CTF Consulting Ltd. "To approve Monitoring Procedure" dated 11/12/09
58	Document & Records Management Procedure applied to the project monitoring report issuing, ver.01 dated 11/12/09
59	Environmental licenses of MMK valid on the date of the site visit.
60	State formal note to follow Russian Environmental state regulations by "MMK" dated 16/01/2009

Persons interviewed during site visit on 16/12-18/12/09 at MMK

1	R. Takhautdinov – The Strategy Development & Metallurgy First Vice President
2	Y.Bodayev – Executive Director of MMK
3	A. Mitchin – Manager of Department for relations with state authorities and markets protection (JI project implementation coordinator)
4	O. Mel'nikova – Chief of Department for relations with state authorities and markets protection (JI project implementation coordinator)
5	S. Sidel'nikov – Chief of Centre of Energy Saving Technologies (CEST)
6	L. Koptsev – Chief of Central Laboratory of Control in structure of Scientific and Technological Center
7	I. Kutcherova – Manager of Technological department
8	K. Stroganov – Lead Specialist of Scientific and Technological Center
9	A. Bakhol'skiy – Lead Economist
10	A. Maslennikov – Senior Manager of Metallurgical Economics Group
11	E. Artamonova – Manger of Scientific and Technological Center
12	S. Komarov – Lead Engineer of Technological department
13	V. Borisenko – Lead Engineer of Technological department
14	A. Velikiy – shop manager of the EAFP
15	Y. Dolgorukiy – Technological Deputy shop manager of the EAFP
16	A. Ovsyannikov – Economist of Metallurgical Economics Group
17	A. Saphin - Electric of the EAFP
18	E. Kravchenko - Metrologist of the EAFP
19	V. Zhuravlev– Lead Specialist of Metallurgical Economics Group of the BFP
20	V. Begilyuk - Technologist of the BFP
21	M. Semenyuk – Acting as Technologist of the BFP
22	M. Kontsov – Lead IT Specialist of the BFP
23	A. Elephirenko – Chief of Loading division of the BFP
24	O. Maevskiy – Lead Automatization Specialist of the BFP
25	I. Ivashkin – Acting as Senior Manager of the BPCP
26	N. Lutokhin – Senior Manager of Managing Production Group of the BPCP
27	O. Drobniy – Head of Environmental Protection Laboratory

28	V. Kozyulin – Deputy of Head of Environmental Protection Laboratory
29	E. Ptitsyn –Head of Air Protection Structure of Head of Environmental Protection Laboratory
30	V. Panin – Chief Metrologist
31	L. Ivanova – Lead Metrologic Engineer
32	V. Chebotov – Acting as CEST Specialist
33	T. Olennikova – Head of Electricity Usage Laboratory
34	T. Korolova – Head of Fuel and Power Resources Accounting Devision
35	N. Korolev – Head of Automatization Department
36	A. San'ko – Deputy Manager of Economic Department
37	I. Bondyaev – Deputy Chief of Department for relations with state authorities and markets protection
38	K. Myachin – Carbon Projects Manager, CTF Consulting Ltd. (PDD developer)
39	S. Gryazeva – Lead Specialist, CTF Consulting Ltd. (PDD developer)

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APPENDIX A: COMPANY JI PROJECT DETERMINATION PROTOCOL

Table 1 Mandatory Requirements for Joint Implementation (JI) Project Activities

1. REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
1. The project shall have the approval of the Parties involved.	Kyoto Protocol Article 6.1 (a)	**CAR 01**. The project has no approval of the Host Party. As stated in DR Version 1. **CAR 01 is closed in this DR Version 2 based on the available project approval by the RF Ministry for Economic Development #709 dated 30/12/2010.** Verifiers' Note: JISC Glossary of JI terms/Version 01 defines the following: a) At least the written project approval(s) by the host Party(ies) should be provided to the AIE and made available to the secretariat by the AIE when	Table 2, Section A.5.

1. REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		submitting the determination report regarding the PDD for publication in accordance with paragraph 34 of the JI guidelines; (b) At least one written project approval by a Party involved in the JI project, other than the host Party(ies), should be provided to the AIE and made available to the secretariat by the AIE when submitting the first verification report for publication in accordance with paragraph 38 of the JI guidelines, at the latest.	
2. Emission reductions, or an enhancement of removal by sinks, shall be additional to any that would otherwise occur.	Kyoto Protocol Article 6.1 (b)	Pending a response to CAR 12	Table 2, Section B.2
3. The sponsor Party shall not acquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7.	Kyoto Protocol Article 6.1 (c)	OK	N/A
4. The acquisition of emission reduction units shall be supplemental to domestic actions for the purpose of meeting commitments under Article 3.	Kyoto Protocol Article 6.1 (d)	OK	N/A
5. Parties participating in JI shall designate national focal	Marrakech Accords,	OK	The Russian national

1. REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
points for approving JI projects and have in place national guidelines and procedures for the approval of JI projects.	JI Modalities, §20		focal point is the Ministry of Economic Development. The Russian national guidelines and procedures are established by the "Regulation of realization of Article 6 of Kyoto Protocol to United Nation Framework Convention on Climate Change". Approved by the RF Government Decree # 843 of 28/10/2009 "About measures on realization of Article 6 of Kyoto Protocol to United Nation Framework Convention on Climate Change".
6. The host Party shall be a Party to the Kyoto Protocol.	Marrakech Accords, JI Modalities, §21(a)/24	OK	Russia has ratified the Kyoto Protocol by Federal Law N 128-ФЗ dated 04/11/04.
7. The host Party's assigned amount shall have been calculated and recorded in accordance with the modalities	Marrakech Accords, JI Modalities,	OK	The Russian Federation's assigned

1. REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
for the accounting of assigned amounts.	§21(b)/24		amount has been calculated and recorded In the 4th National Communication dated 12/10/06.
8. The host Party shall have in place a national registry in accordance with Article 7, paragraph 4.	Marrakech Accords, JI Modalities, §21(d)/24	OK	Russian Federation has established the GHG Registry by the RF Government Decree N 215-p dated 20/02/06.
9. Project participants shall submit to the independent entity a project design document that contains all information needed for the determination.	Marrakech Accords, JI Modalities, §31	OK	CTF Consulting has submitted a PDD to Bureau Veritas Certification, which contains all information needed for determination.
10. The project design document shall be made publicly available and Parties, stakeholders and UNFCCC accredited observers shall be invited to, within 30 days, provide comments.	Marrakech Accords, JI Modalities, §32	OK	The PDD was made publicly available for comments on UNFCCC site from 25.11.09 till 24.12.09.
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party shall be submitted, and, if those impacts are considered significant by the project participants or the host Party, an environmental impact as-	Marrakech Accords, JI Modalities, §33(d)	OK	Table 2, Section F

1. REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
sessment in accordance with procedures as required by the host Party shall be carried out.			
12. The baseline for a JI project shall be the scenario that reasonably represents the GHG emissions or removal by sources that would occur in absence of the proposed project.	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B.2
13. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B.2
14. The baseline methodology shall exclude to earn ERUs for decreases in activity levels outside the project activity or due to force majeure.	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B.2
15. The project shall have an appropriate monitoring plan.	Marrakech Accords, JI Modalities, §33(c)	OK	Table 2, Section D
16. A project participant may be: (a) A Party involved in the JI project; or (b) A legal entity authorized by a Party involved to participate in the JI project.	"Glossary of Joint Implementation Terms", Version 02 [4]	The Russian project participant is authorized by the Russian Federation through the issuance of the project approval by the RF Ministry for Economic Development #709 dated 30/12/2010.	Table 2, Section A

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of the project					
A.1 Title of the project					
A.1.1. Is the title of the project presented?	1,2	DR	The title of the project is: "Implementation of arc-furnace steelmaking at Magnitogorsk Iron and Steel Works". The indicated Sectoral Scope is (9) Metal production.		OK
A.1.2. Is the current version number of the document presented?	1,2	DR	The current version number of PDD is 1.4. CARs and CLs are issued based on a review of PDD Version 1.1 dated 10.11.2009, Version 1.2 dated 18.11.09, and findings of the project site visit held on 16/12-18/12/2009. The PDD Version 1.1 was published on UNFCCC JI website and is reviewed as a part of determination.		OK
A.1.3. Is the date when the document was completed presented?	1,2	DR	Version 1.1 dated 10.11.2009 Version 1.4 dated 15.01.2010		OK

A.2. Description of the project					
A.2.1. Is the purpose of the project included?	1,2	DR I	The project is implemented on the site of OJSC "Magnitogorsk Iron and Steel Works (MMK)". Project scenario The project envisaged, under the modernization program, the construction of a new electric arc-furnace plant in 2006 instead of the existed open-hearth furnace plant and, thus, the transition to production of profiled steel in the electric arc furnaces and its teeming in the continuous casting machines (CCM) instead of production of the same steel and profiled billet in the open-hearth plant and blooming mill plant. The project intends to undergo a multi-stage reconstruction of the existing Open-Hearth Furnace Plant (OHFP) followed by some temporary steel output reduction and ensure the production of profiled steel, needed for "MMK" steelmaking operations, by a more efficient technique. Under the project two high-capacity electric arc furnaces (EAF-180) manufactured by Austrian company "Voest-Alpine AG" with output capacity of 2 million tons of liquid steel per year each, out-of-furnace steel processing aggregates, one slabbing mill and two continuous casting machines manufactured by Austrian company "VAI" for produc-	CL 01	OK

			tion profiled billet were installed and one Double-Bath Steelmaking Units (DBSU) was left to operate under partial load. The key saving solutions and outcome implemented during "MMK" modernization program are indicated in PDD Section A.2 page 3. The goals of the project are defined as follows: - to increase production of a high quality rolled metal from 1.4 to 2 million tons by means of reconstruction of the three existed section mills by three state-of-the-art fully automated mills manufactured by Danieli Co. (Italy); - to increase a complex resource-saving effect from the transition to production of profiled steel in the electric arc furnaces and its teeming in the continuous casting machines (CCM). <u>Baseline scenario</u> The baseline scenario assumes the further use of the existing capacities for profiled steel billet production in DBSU No. 29 and 32, with subsequent production of steel shapes in the blooming mill plant. This would have required only a relatively small additional modernization: installation of ladle-furnace aggregates (LFA) for out-of-furnace steel processing. Three conventional open-hearth furnaces are excluded from the baseline scenario, be-		

			cause the output of the DBSU (1.2 million tons of steel per year each) was quite sufficient for full loading of new Danieli shape mills Installed under the project); and moreover, DBSUs are more efficient comparing to conventional open-hearth furnaces. The base line technology represents business-as-usual "MMK" operations under the RF legislation. **CL 01.** Please clarify whether the project intends to demount two existed DBSU's as described in PDD Section A.4.2, Table A.4.2-1, p.7 or one with remaining its partial load as per the alternative 4 (project scenario, refer to PDD Section B.2, p.25).		

A.2.2. Is it explained how the proposed project reduces greenhouse gas emissions?	1,2	DR	GHG emissions are reduced due to the implementation of the following key technological and operational resource saving measures: - replacement of DBSs and conventional OHFs by electric arc furnaces equipped by additional energy sources (gas-oxygen burners, oxygen tuyeres, tuyere injection of carbon-containing materials); - introduction of out-of-furnace steel processing in "ladle-furnace" aggregates (LFA) and steel refining aggregate (SRA); - replacement of ingots teeming and processing in the blooming mill plant by direct casting of steel of profiled grades in CCM №1, 2. It allows to significantly reducing the energy consumption due to exclusion ingot teeming and processing operations in the blooming mill plant. These measures would result in reduction of the carbon-containing materials and fuels (coking coal, coke, pig iron, natural gas) consumption, compared to the conventional OHFP process with ingots teeming at the same output rate. The ratio of liquid pig iron to scrap metal (project scenario) has changed from 75% (conventional open-hearth furnaces technique) to 25%. It reduced the demand for production of pig iron, coke and related energy and resource de-	CL 02	OK

			mands. Besides that, a continuous casting produces fewer cuttings, than ingots teeming process. **CL 02.** Please clarify whether the Slab CCM #5 is considered within the project boundary. The EAFP complex, installed under the modernization programme, includes it. The remark in PDD on page 7 reads: "it is beyond project boundaries" but alternative 4 (project scenario) in PDD Section B.2 consider the installation the slab CCM #5 (refer to PDD Section A..4.2, p.7 and B.2, p.24).		
A.3. Project participants					
A.3.1. Are project participants and Party(ies) involved in the project listed?	1,2	DR	The project participants are listed in PDD Section A.3 and Annex 1. Party A is the Russian Federation. Party B is to be determined at the later stage. Legal entities for Party A is OJSC "MMK", for Party B is Carbon Trade & Finance SICAR S.A.		OK
A.3.2. The data of the project participants are presented in tabular format?	1,2	DR	The data is presented in the tabular format as per [2].		OK
A.3.3. Is contact information provided in Annex 1 of the PDD?	1,2	DR	The contact information is provided in PDD Annex 1.		OK
A.3.4. Is it indicated, if it is the case, if the Party involved is a host Party?	1,2	DR	It is indicated that the Russian Federation is the host Party.		OK
A.4. Technical description of the project					
A.4.1. Location of the project activity					

A.4.1.1. Host Party(ies)	1,2	DR	The Russian Federation is indicated as the host Party in PDD Section A.3.		OK
A.4.1.2. Region/State/Province etc.	1,2	DR	Urals Federal District, Chelyabinsk Region, Magnitogorsk.		OK
A.4.1.3. City/Town/Community etc.	1,2	DR	City of Magnitogorsk, Chelyabinsk Region.		OK
A.4.1.4. Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	1,2	DR	The unique identification is given by the following information: "MMK" is located in the city of Magnitogorsk city, Chelyabinsk Region of the Russian Federation". Its coordinates are: 59° 4'57.29"E, 53°27'33.55"N. Legal address of the company is: Chelyabinsk Region, Magnitogorsk, 93, Kirova Street.		OK
A.4.2. Technology(ies) to be employed, or measures, operations or actions to be implemented by the project					
A.4.2.1. Does the project design engineering reflect current good practices?	1,2	DR, I	The project design engineering represents current good practices of using high efficiency modern and more efficient technology of steelmaking and casting from the resource consumption standpoint on preceding metallurgical conversion stages and besides reduces waste generation in comparison with the baseline technology.		OK
A.4.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technolo-	1,2	DR I	The project technology is the-state-of-art. The project technology envisages the reconstruction of OHFP and transition to EAF	CAR 02 CAR 03	OK OK

gies in the host country?			technique in a full-cycle ironworks for steel production and represents the advanced resource saving metallurgical technology of steel production at the conversion steel production stages within the project boundary (by-product coke plant, blast-furnace plant, steelmaking plant). Project realization allows reducing CO_2 emissions primarily due to: - reduction carbon-containing raw materials (mainly, pig iron) and secondary energy recourses per ton of steel production and consequent reduction of coke, natural gas, blast furnace gas and coke oven gas consumption during pig iron and coke production; - reduction of metal waste due to CCM continuous casting technology and consequent reduction of scrape steel consumption per ton of profiled steel billet (cutoff waste was up to 20% of total steel charge of the heating furnaces of the blooming mill plant); - reduction of specific energy consumption per ton of profiled steel billet due to the technological changes in EAF technique. It allows utilizing valuable secondary energy resources in other departments with the greater efficiency. The EAF process results in increase of the electricity consumption against the baseline		

			scenario. The CO_2 emission reductions arise resource-saving and enhancement of efficiency of the use of secondary energy resources. **CAR 02.** Please provide in Section A.2 the estimates of anticipated total reductions in tones of CO_2 equivalent as determined in Section E PDD as required per [2]. **CAR 03.** The length of Section A.4.3 PDD more than 1 page as required in [2].		
A.4.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1,2	DR I	The project technology is unlikely to be substituted by other or more efficient technologies within the project period.		OK
A.4.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	1,2	DR, I	**CL 03.** Please clarify if provisions for meeting training needs with regards monitoring are made if appropriate.	CL 03	OK
A.4.2.5. Does the project make provisions for meeting training and maintenance needs?	1,2	DR	Conclusion is pending a response to CL 03.	Pending	OK
A.4.3. Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances					
A.4.3.1. Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	1,2	DR	The explanation is given in Section A.4.3 as follows. Under the project, emissions of CO_2 will be significantly reduced as a result of "MMK" reconstruction of OHFP and transition	OK	

			to EAF technique in a full-cycle ironworks for steel production and introduction of the following resource saving steel production via the EAF process: - by reduction of the proportion of pig iron and respective increase of the fraction of scrap in EAF process (approximately from 25% to 75%) in the charge mixture at the electric arc furnace plant; - by transition from ingots teeming to CCM technology, which eliminate intermediate steps of the production processes: removal of saw ingots and blooming of ingots at the blooming mill plant (cutoff waste was up to 20% of total steel charge of the heating furnaces of BMP); - by phasing-out of the chemicals preparation plant and blooming mill plant, where the steel ingots, were heated up to the rolling temperature and bloomed to produce profiled steel billet. It results in additional using of the valuable secondary carbon barring energy resources in other departments with the greater efficiency. - by reduction of pig iron consumption. It results in reduction of coke, natural blast furnace gas and coke oven gas during pig iron production, which reduces CO_2 emissions. Under the baseline scenario, further use of the existing capacities for profiled steel billet production in DBSU No. 29 and 32, with subsequent production of steel shapes in the bloom-		

			ing mill plant is assumed and represents business-as-usual "MMK" operations under the RF legislation and with the same quality as in project.		
A.4.3.2. Is it provided the estimation of emission reductions over the crediting period?	1,2	DR	The estimated GHG emission reduction is 7 500 735 tons of CO_2 equivalent over the crediting period 2008 - 2012. Refer to PDD Section A.4.3.1. Conclusion is pending responses to CAR's 11-12, 14, 19, 20, and CL's 01-02, 08 which may result in recalculation of the CO_2 emissions.	Pending	OK
A.4.3.3. Is it provided the estimated annual reduction for the chosen credit period in tCO_2e?	1,2	DR	The estimated annual emission reduction is 1 699 642 (for the year 2008); 654 663 (for the year 2009); 1 097 296 (for the year 2010); 2 024 567 (for the year 2011); 2 024 567 (for the year 2012); tones of CO_2 equivalent. Refer to PDD Section A.4.3.1. Conclusion is pending responses to CAR's 11-12, 14, 19, 20, and CL's 01-02, 08, which may result in recalculation of the CO_2 emissions.	Pending	OK
A.4.3.4. Are the data from questions A.4.3.2 and A.4.3.3 above presented in tabular format?	1,2	DR	The data is presented in the tabular format. Refer to PDD Section A.4.3.1.		OK
A.5. Project approval by the Parties involved					
A.5.1. Are written project approvals by the Parties involved attached?	1,2	DR	Project received approval by the RF Ministry for Economic Development #709 dated 30/12/2010.		OK

***B.* Baseline**					
B.1. Description and justification of the baseline chosen					
B.1.1. Is the chosen baseline described?	1,2	DR	The baseline is defined as continuation of profiled steel production in the open hearth furnace plant using two DBSUs, installation of two LFAs, ingots teeming and production of profiled steel billet in the blooming mill plant. The assumptions, parameters, data sources and key factors are included in the description. PDD Section B.1 and Annex 1 provides the key information and data used to establish the baseline (variables, parameters, data sources etc.) in the required tabular form [2]. **CAR 04.** Please ensure that all rows of prescribed tabular form [Ref. 2, page 12] are filled in PDD Section B.1 tables. Conclusion is pending a response to CAR 19.	CAR 04	OK
B.1.2. Is it justified the choice of the applicable baseline for the project category?	1,2,3	DR	The own baseline approach is used in line with Appendix B of JI Guidelines and the JISC Guidance on criteria for baseline setting and monitoring. **CAR 05.** The term an "own methodology" used in PDD is not envisaged by Guidance on criteria for baseline setting and monitoring/Version 02. This term should be replaced by "JI specific approach" both in PDD Section B.1 and D.1	CAR 05 CAR 06	OK OK

			[3]. **CAR 06.** Please describe and justify in PDD Section B.1 the baseline chosen in accordance with appendix B of JI Guidelines and the JISC Guidance on criteria for baseline setting and monitoring [3] as required in [2].		
B.1.3. Is it described how the methodology is applied in the context of the project?	1,2	DR	Not applicable since this is the own project-specific approach.		OK
B.1.4. Are the basic assumptions of the baseline methodology in the context of the project activity presented (See Annex 2)?	1,2	DR	Main assumptions of the baseline approach are as follows: - year 2003 was considered as the base year the selection of feasible future scenarios/alternatives of profiled steel billet production at MMK; - specific CO_2 emission from metallurgical conversion during production of one ton of blast-furnace coke and pig iron are annually estimated ex post and the same in the project and baseline; - specific CO_2 emission from steel production in OHFP and of profiled steel billet in BMP are calculated by carbon balance method, based on historical data of consumption of carbon-containing materials and fuels (fixed ex-ante as annual average data for 2000-2002) and actual carbon content in the natural gas, coke oven gas and blast furnace gas. - general CO_2 emissions of profiled steel billet production in baseline are calculated based on	CL 04 CL 05	OK OK

			historical specific consumption of pig iron, scrap metal and steel per one ton of profiled steel billet in OHFP-BMP process (fixed ex-ante as annual average data for 2000-2002) and on actual specific consumption of blast-furnace coke per ton of pig iron, applying above mentioned specific coefficients of CO_2 emissions. It is assumed that output of profiled steel billet in baseline is the same as it is in the project. - actual CO_2 emission factors (EFs) in the baseline due to electricity consumption are calculated based on historical consumption of electricity in OHFP and BMP (fixed ex-ante as annual average data for 2000-2002); - baseline emissions from air blast generation for pig iron production in BMP (for of profiled steel billet production) are calculated based on the actual specific consumption of air blast per ton of pig iron and using CO_2 emission factor from air blast generation; - additional electricity consumption of the installed in OHFP LFAs and respective CO_2 emissions are conservatively neglected in the baseline scenario. **CL 04.** Please clarify the volume of planned total baseline profiled steel billet production accepted as equal to the project production. **CL 05.** Please clarify the approach applied as follows: to take 2003 as the base year during the selection of feasible future scenar-		

			ios/alternatives of profiled steel billet production at MMK taking into account that the used and fixed ex-ante data for emissions baseline calculation are based on average 2000-2002 historical production data (refer to PDD Section B.1, page 13 and Annex 2, page 88).		
B.1.5. Is all literature and sources clearly referenced?	1,2	DR	**CAR 07.** Please provide a correct reference for the Guidance on criteria for baseline setting and monitoring in PDD Section B.1 on p.13. The same request pertains actual with regard to the correct references to the JI guidelines on p. 13 and 32 Section D.1. **CAR 08.** Please provide the reference in PDD Section B.1 to the source of data for carbon content of crude benzol (%C benzol) fixed both for baseline and project scenario as 90,0% (refer to PDD, page 20). The same request pertains actual for the source (precise web address) for technological losses during transportation and distribution of grid electricity in Unified Energy System of Urals (TDL, %). Please refer to PDD Section D.1.1.2, p.50, formulae(D.1.1.2.-14) [2].	CAR 07 CAR 08	OK OK
B.2. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the JI project					
B.2.1. Is the proposed project activity additional?	1,2, 4,5	DR	To prove the project additionality, an approach is used in accordance with requirements of Annex I, item 2 (a) of "Guidance on criteria for	CAR 09 CAR 10	OK OK

			baseline setting and monitoring" (version 02). It explicitly stated in Section B.1 (rather than Section B.2 as per [2]) that the additionality is demonstrated trough a step-wise approach based on economic attractiveness of the listed technological alternatives of steel billet production is applied. All the alternatives do not face any prohibited barriers with regard to the Russian Federation legislation. At Step 1 and 2, four alternatives to the project activity were identified out of which, after screening, two were left: - Scenario 2 (having been identified as the baseline in Section B.1): "Continuation of production of profiled steel in open-hearth plant with two DBSUs, installation of two LFAs, ingots teeming and blooming in BMP"; - Scenario 4 (considered as the project scenario): "Multi-stage reconstruction of OHFP, and its conversion into electric arc furnace plant: (a) construction of two section CCMs №1, 2 with total output up to 2 million tons of steel billet per year, installation of two LFAs and dismounting of the three classic open-hearth furnaces; (b) construction of two electric arc furnaces with capacity 175 tons, and decommissioning of two DBSUs". Scenario 2 was identified as the most plausible one due to reasons: (a) it allows to produce the required by the project quantity of rolled metal	CAR 11 CAR 12 CL 06	OK OK OK

			(2 mln tones) and meet the most stringent quality standards (after installation of two LFAs) without significant capital reconstruction; (b) it does not require increase of external purchases of scrap metal; (b) it enquires twenty times less investments (Euro 7 million) than the project scenario (Euro 149 million). At Step 3, barriers were identified that would prevent the implementation of the project activity in terms of economic barrier through regulatory mechanism for price and availability of scrap metal. Installation of electric arc furnaces requires additional external supplies of scrap metal, since the company faces out the emerging of additional risk of unplanned increase of prime cost of the profiled steel production. As shown in PDD, at the time when the investment decision was made (April, 2004) till 2009 the market analysis shows that Russia would face shortage of scrap metal since 2006, additional increase in prices for this key raw material for EAF process and loss of positions on international electric steel market. Thus, there is a substantial economic barrier to smooth project implementation. At Step 4, investment analysis was carried out to prove that the project is not economically attractive for MMK. The investment analysis similar to the financial		

			benchmark analysis [4] with using the corporate "MMK" threshold 10% was used with and without the revenue from the sale of ERU's based on comparison of prime costs of production of the profiled steel billet in the baseline and project scenarios. Investment analysis of Scenarios 4 has shown that the project does not meet the corporate profitability requirements and cannot compensate for high investment costs (149 EURO mln.) Thus, the investment analysis adds to the result of barriers analysis that the project (Scenario 4) is unlikely to be attractive on its own. Therefore, the Scenario 2 is taken as the baseline scenario (refer to Step 2 above). *The verifiers will make a final conclusion about the benchmark and comparison analysis when compare its results with those in the Working Project Design Document, Section Effectiveness of Investments. Please provide this Section.* **CAR 09.** The assumption in PDD Section B.2, page 26 reads: "Baseline scenario assumes use of DBSUs, ingots teeming and blooming in BMP" contradicts with the baseline scenario being alternative 2 as "Continuation of production of profiled steel in open-hearth plant with two DBSUs, installation of two LFAs, ingots teeming and blooming in BMP" (refer to PDD Section B.2, page 22).		

			CAR 10. Provide evidence that input values used in the investment analysis (e.g. total project investments, electricity and raw material costs, inflation, internal threshold) were valid and applicable at the time of the investment decision taken by the project participant [2]. **CAR 11.** Common practice analysis is missing what does not allow determining if the project is additional. Provide an analysis to which extent similar activities to the proposed project activity have been implemented previously or are currently underway. If similar activities are observed, then essential distinctions between the proposed project activity and similar activities shall reasonably be explained. **CAR 12.** Please include a sensitivity analysis to show whether the conclusion regarding the financial/economic attractiveness is robust. **CL 06.** Please clarify if the investment analysis is the mandatory part of the additionality demonstration in addition to the barriers analysis which is in fact already sufficient means [4]. If yes, it should be complemented by the sensitivity analysis. If not, it should be explicitly indicated that the investment analysis is provided just for information. Also please clarify, what is the purpose of inclusion in PDD of the investment analysis with taking account of ERU sale. Does this demonstrate additionality? Conclusion is pending also a response to CAR		

			06.		
B.2.2. Is the baseline scenario described?	1,2	DR	Please refer to PDD Section B.2.		OK
B.2.3. Is the project scenario described?	1,2	DR	The project scenario, being Alternative 4, is described in PDD Sections A.4.2. A.4.3, B.2.		OK
B.2.4. Is an analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario included?	1,2	DR	The analysis is presented in PDD Section B.2.		OK
B.2.5. Is it demonstrated that the project activity itself is not a likely baseline scenario?	1,2	DR	According to PDD Section B.2, the project activity itself is not a likely baseline scenario due to significant barriers. Conclusion is pending a response to CAR 06.	Pending	OK
B.2.6. Are national policies and circumstances relevant to the baseline of the proposed project activity summarized?	1,2	DR	Currently "MMK" has no commitments to federal, regional or municipal authorities regarding the open-hearth furnace operations shutdown (refer to PDD Section B.2). **CAR 13.** National policies and circumstances relevant to the baseline of the proposed project activity are not summarized.	CAR 13	OK
B.3. Description of how the definition of the project boundary is applied to the project activity					
B.3.1. Are the project's spatial (geographical) boundaries clearly defined?	1,2,3	DR I	The baseline and project boundaries are in line with the provisions of paragraph 11 of the JISC Guidance on criteria for baseline setting and monitoring [3]. Refer to Diagram B 3.1 Project boundaries. Project scenario and B 3.2 Project boundaries. Baseline scenario with GHG sources in PDD Section B3.	CAR 14	OK

			CAR 14. The delineation of the project and baseline boundary and sources do not include incoming carbon content raw materials, used at BPCP, as follows: agglomerate, limestone, lime. Exclusions of these sources related both to the baseline and project scenario shall be justified as per [2].		
B.4. Further baseline information, including the date of baseline setting and the name(s) of the person(s)/entity(ies) setting the baseline					
B.4.1. Is the date of the baseline setting presented (in DD/MM/YYYY)?	1,2	DR	The date of the baseline setting is 15/09/2008.		OK
B.4.2. Is the contact information provided?	1,2	DR	The baseline was developed by CTF Consulting Ltd. Contact person: Konstantin Myachin, Carbon Project manager e-mail: konstantin.myachin@carbontradefinance.com Tel. +7 495 984 59 51 Fax +7 495 984 59 52		OK
B.4.3. Is the person/entity also a project participant listed in Annex 1 of PDD?	1,2	DR	**CAR 15.** It is not indicated that CTF Consulting Ltd. is a project participant listed in Annex 1 of the PDD [2].	CAR 15	OK
***C.* Duration of the project and crediting period**					
C.1. Starting date of the project					
C.1.1. Is the project's starting date clearly defined?	1,2	DR	June 2004 is justified as the project's starting		OK

			date (refer to PDD p.31 Section C1).		
C.2. Expected operational lifetime of the project					
C.2.1. Is the project's operational lifetime clearly defined in years and months?	1,2	DR	**CAR 16.** The project's operational lifetime in months is not defined [2].	CAR 16	OK
C.3. Length of the crediting period					
C.3.1. Is the length of the crediting period specified in years and months?	1,2	DR	**CAR 17.** The length of the crediting period in months is not defined [2].	CAR 17	OK
***D.* Monitoring Plan**					
D.1. Description of monitoring plan chosen					
D.1.1. Is the monitoring plan defined?	1,2,3	DR	The monitoring plan is defined on the basis of an own approach without using any approved methodologies. Option 1 – Monitoring of the emissions in the project scenario and baseline scenario – is chosen. The carbon balance method is used for calculation of direct CO_2 emissions with reference to carbon balance method in line with Section 4.2.2 of Chapter 4 of "2006 IPCC Guidelines for National Greenhouse Gas Inventories" and amendments in the part of monitoring of CO_2 emissions during generation of electricity at MMK own plants, consumption of electricity in EAFP, generation and consumption of air blast in BFP. Refer to PDD Section D.1.1. Emissions during production of pig iron in blast furnace plant include blast furnace dust and scrubber sludge with carbon context of 12,6 %		

			(company's data) and this fraction is conservatively considered as leakage emission outside MMK (refer to PDD Section D.1.3). Data to be collected is defined in PDD Sections D.1.1.1 and D.1.1.3.		
D.1.2. Option 1 – Monitoring of the emissions in the project scenario and the baseline scenario.	1,2	DR	This option is selected.		OK
D.1.3. Data to be collected in order to monitor emissions from the project, and how these data will be archived.	1,2	DR I	Data to be collected in order to monitor emissions from the project is defined in PDD Section D.1.1.1. These data and relevant monitoring points are defined in PDD as follows: - CO_2 emission from metallurgical conversions within the project boundaries (using carbon balance method); - specific CO_2 emission per ton of coke, pig iron and steel billet (profiled and slab all together); - consumption of pig iron and scrap metal for production of one ton of steel billet and consumption of metallurgical coke per one ton of pig iron; - project CO_2 emission from metallurgical conversions during production of profiled steel billet using defined specific values and coefficients; - CO_2 emission coefficients during generation of electricity and air blast at MMK, and project	CAR 18 CAR 19 CAR 20 CAR 21 CAR 22 CL 07	OK OK OK OK OK OK

			emissions during consumption of electricity in EAFP and consumption of air blast in BFP required for production of the profiled steel billet. - total project CO_2 emissions associated with production of profiled steel billet are summarized. Parameters that are not monitored throughout the crediting period, but are determined only once, and that are available already at the stage of the PDD development, have been described and determined in PDD Section D.1 Table D.1-1, page 33 and Annex 2. They are also explained in Section D.1.2.2. There are no parameters that are not monitored throughout the crediting period, but are determined only once, and that are not available already at the stage of determination regarding the PDD. It is defined that the data will be archived electronically and on paper. **CAR 18.** Annex 3 does not provide a detailed description of all key elements of the monitoring plan. [2]. **CAR 19.** It was found out at the site visit that as a product which leaves the coke batteries in BPCP is gross coke, which includes coke breeze and metallurgical coke. In PDD a parameter $P_{metallurgical\ coke\_PJ}$ (Production of dry metallurgical coke in BPCP) is used, coke		

			breeze has not been included. The conservatism of the exclusion is not assessed (refer to PDD Section D.1.1, page 36) [2]. **CAR 20.** It was found out at the site visit that parameters $M_{coking\ coal\_CP\_PJ}$ (Consumption of dry coal charge in BPCP), $P_{metallurgical\ coke\_PJ}$ (Production of dry metallurgical coke), $\sum P_{steel\_EAF}$ (Total smelting of steel in EAF-180), EC_{gross_PJ} (Total electricity consumption by MMK) are really calculated rather than measured as stated in PDD (refer to PDD Section D.1.1, page 36-37,40, 44) [2]. **CAR 21.** Please make sure the correct source of data for monitoring parameters as follows: P-30 – P-38 in PDD Section D.1 Table D.1.1.1 (refers to PDD Section D.1.1, page 41-42) [2]. **CAR 22.** Please explicitly and clearly distinguish the source of the fixed ex-ante data as follows: carbon content in carbon-containing powder, % by mass ($\%C_{carbon\ powder\_EAFP}$) , and carbon content in electrodes, % by mass ($\%C_{electrodes\_EAFP}$) (refer to PDD Section D.1 Table D.1-1, page 33) [2]. **CL 07.** Please clarify the approach of selecting the key information and data used for selection of the baseline and used for the project emissions monitoring [2]. Note that data of carbon content in carbon-containing powder and carbon content in electrodes, used both for base-		

			line and project emissions calculation, do not include in Section B.2 as the key information and data.		
D.1.4. Description of the Formulae used to estimate project emissions (for each gas, source etc.; emissions in units of CO_2 equivalent).	1,2,5	DR I	Description of the formulae used to estimate CO_2 emissions of GHG from metallurgical conversions during production of profiled steel billet are described in PDD Section D.1.1.2. These are Formulae (D.1.1.2-1) – (D.1.1.2-30) on p. 44-55 presented in PDD Section D.1.1.2. They allow calculating CO_2 project emissions on the basis of data defined in D.1.3 above. The formulae are numbered. The formulae were checked and found correct.	OK	OK
D.1.5. Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary, and how such data will be collected and archived.	1,2	DR I	Relevant data necessary for determining the baseline emissions are presented in tabular form (refer to PDD Section B.1 pp.14-21). Baseline direct CO2 emissions are calculated based on: - historical consumption of carbon-containing materials and fuels, output of production under baseline technology; - actual carbon content of BFG, COG and NG and of pig iron and scrap metal per ton of profiled steel in OHFP-BMP process; - actual specific consumption of metallurgical coke per ton of pig iron and actual output of profiled steel in the project; - actual electricity consumption in OHFP and	CAR 23	OK

			BMP (they produced only profiled steel); - actual CO_2 emission factors from electricity consumption; - actual specific consumption of air blast per ton of pig iron, CO_2 emission factor for generation of air blast and demand for pig iron during production of profiled steel billet in the baseline. Parameters that are not monitored throughout the crediting period, but are determined only once, and that are available already at the stage of the PDD development, have been described and determined in PDD Section D.1 Table D.1-1, page 33 and Annex 2. They are also explained within the Section D.1.1.4 (refer PDD Section D.1.1.4, pp. 57-63). There are no parameters that are not monitored throughout the crediting period, but are determined only once, and that are not available already at the stage of determination regarding the PDD. **CAR 23**. The fixed ex-ante, based on historical average data, parameters as follows: blast furnace gas consumption, coke oven gas consumption, pig iron consumption per ton of steel, scrap consumption per ton of steel, steel consumption per ton of profiled steel, coke consumption per ton of pig iron do not present in PDD Section D.1 [2].		

			Conclusion is pending a follow-up on CL 07.		
D.1.6. Description of the Formulae used to estimate baseline emissions (for each gas, source etc, emissions in units of CO_2 equivalent).	1,2	DR	These are Formulae (D.1.1.4.-1) – (D.1.1.4.-18) presented in PDD Section D.1.1.4, which allow to uniformly calculating CO_2 baseline emissions. Detailed and transparent description of the formulae is given. The formulae were checked and found correct.		OK
D.1.7. Option 2 – Direct monitoring of emissions reductions from the project (values should be consistent with those in section E)	1,2	DR	Not applicable.		OK
D.1.8. Data to be collected in order to monitor emission reductions from the project, and how these data will be archived.	1,2	DR	Not applicable.		OK
D.1.9. Description of the Formulae used to calculate emission reductions from the project (for each gas, source etc; emissions/emission reductions in units of CO_2 equivalent).	1,2	DR	Not applicable.		OK
D.1.10. If applicable, please describe the data and information that will be collected in order to monitor leakage effects of the project.	1,2	DR	The detailed explanation of potential leakages of the project is provided in PDD Section D.1.3 reads: "the proposed project may have leakage as the result of: - transportation of raw materials and products as result of the project implementation; - transportation of natural gas and electricity; - operations of decommissioned equipment beyond the project boundaries".		OK

			It is reasonably assumed that the volumes of transported materials shall be the same in the project and baseline scenarios, the resource-saving effect of the proposed project shall bring a reduction in transportation needs regarding raw materials and energy resources (natural gas). The losses during transmission of electricity are accounted in the monitoring plan. Under the project the existed equipment at OHFP and BBMP was dismantled and disposed except one DBSU, which is included in the project. Thus, there will be no leakages from this source. A certain fraction of blast furnace dust formed in the BFP is transported to the cement factory outside MMK. This fraction and its carbon content (12,6 %) are included in the monitoring plan. CO_2 emissions during utilization of this dust at the cement factory are considered as leakages. There are two types of data to be measured, collected and monitored, treated as leakage effects of the project: (1) $M_{dust\ utilization\ \_PJ}$, Supply of blast furnace dust to the cement factory outside MMK; and (2) $\%C_{dust\ \_BF\_PJ}$, Carbon content in blast furnace dust. They are archived electronically and in paper.		
D.1.11. Description of the Formulae used to estimate	1,2	DR	These are Formulae (D.1.3.2.-1) – (D.1. 4.-1)		OK

leakage (for each gas, source etc,; emissions in units of CO_2 equivalent).			presented in PDD Section D.1.3.2, which allow to uniformly estimating leakage for identified sources. Detailed and transparent description of the formulae is given. The formulae were checked and found correct.		
D.1.12. Description of the Formulae used to estimate emission reductions for the project (for each gas, source etc.; emissions in units of CO_2 equivalent).	1,2	DR	This is the straightforward Formula (D.1.4.-1) $ER_y = BE_y – PE_y$. Refer to PDD Section D.1.4.		OK
D.1.13. Is information on the collection and archiving of information on the environmental impacts of the project provided?	1,2	DR I	The environmental monitoring at "MMK" is carried out in accordance with environmental legislative requirements of the Russian Federation. The company periodically monitors its emission parameters, according to the schedules of environmental impact monitoring. Supporting documentation will be checked during the site visit.		OK
D.1.14. Is reference to the relevant host Party regulation(s) provided?	1,2	DR	**CAR 24.** References to the Russian Federation regulations with regard to the environmental impacts of the project are not provided in PDD as required in [2], Section D.1.5.	CAR 24	OK
D.1.15. If not applicable, is it stated so?	1,2	DR	Refer to D.1.14.	Pending	OK
D.2. Qualitative control (QC) and quality assurance (QA) procedures undertaken for data monitored					
D.2.1. Are there quality control and quality assurance procedures to be used in the monitoring of the measured data established?	1,2	DR I	The measurement devices are envisaged to be calibrated periodically by the specialized organization. This was confirmed at the site visit.		OK

D.3. Please describe of the operational and management structure that the project operator will apply in implementing the monitoring plan					
D.3.1. Is it described briefly the operational and management structure that the project participants(s) will implement in order to monitor emission reduction and any leakage effects generated by the project	1,2	DR I	**CAR 25.** Please ensure that the operational and management structure that the project participants(s) will implement in order to monitor emission reduction and any leakage effects generated by the project is adequate to the real one at MMK.	CAR 25	OK

D.4. Name of person(s)/entity(ies) establishing the monitoring plan					
D.4.1. Is the contact information provided?	1,2	DR	Contact person: Konstantin Myachin, Carbon Project manager e-mail: konstantin.myachin@carbontradefinance.com Tel. +7 495 984 59 51 Fax +7 495 984 59 52		OK
D.4.2. Is the person/entity also a project participant listed in Annex 1 of PDD?	1,2	DR	**CAR 26.** It is not indicated that CTF Consulting Ltd. is a project participant listed in Annex 1 of the PDD [2].	CAR 26	OK
***E.* Estimation of greenhouse gases emission reductions**					
E.1. Estimated project emissions					
E.1.1. Are described the Formulae used to estimate anthropogenic emissions by source of GHGs due to the project?	1,2	DR	These are Formulae (E.1.-1) – (E.1.-3) presented in PDD Section E.1. These were checked and found correct.		OK

E.1.2. Is there a description of calculation of GHG project emissions in accordance with the Formula specified in for the applicable project category?	1,2	DR	GHG project emissions PE are calculated by Formulae (E.1.-1) – (E.1.-3) on the excel spreadsheet, which was made available to the verifier. Calculations of GHG emissions PE by the Formulae (E.1.-1) – (E.1.-3) are shown in PDD Section E.1 and in Table E.1.7 on page 76 PDD. **CAR 27.** Please ensure the correct references to Formulae number for parameters as follows: specific CO2 emission per ton of produced metallurgical coke ($SPE_{metallurgical\_coke}$), CO_2 emissions from consumption of grid electricity by EAF-180 via 220/35 kV step-down substation per ton of all smelted steel, Specific consumption of grid electricity by EAF-180 via 220/35 kV step-down substation per ton of all steel smelted in EAF ($SEC_{grid\_steel\_EAF}$), CO2 emission factor for grid electricity (EF_{grid}), and Technological losses during transmission and distribution of grid electricity in Unified Energy Systems of Urals (TDL), Specific consumption of grid electricity by EAF-180 via 220/35 kV step-down substation per ton of all steel smelted in EAF ($SEC_{grid\_steel\_EAF}$), CO2 emission factor for grid electricity (EF_{grid}), CO_2 emission factor for air blast generation ($EF_{air\ blast\ generation}$) in PDD Section E.1, and specific CO2 emissions per ton of steel smelted in OHFP (SBE_{OHFP}), specific consumption of electricity in OHFP ($SEC_{steel\ OHFP}$), CO_2	CAR 27 CAR 28 CAR 29	Ok OK OK

			emission factor for electricity produced by own generating capacities of MMK (EF $_{own\ generation\_PJ}$), CO_2 emission factor for air blast generation (EF $_{air\ blast\ generation}$) in PDD Section E.4 [2]. **CAR 28.** Please provide the forecasting data for MMK plans for industrial expansion in 2009-2012, used in PDD Section E.1 for the project CO_2 emission calculation to ensure the transparency [2]. **CAR 29.** Please provide in PDD Sections E.1, E.2, and E.4 estimates of CO_2 emissions by each identified in PDD Sections D.1.1.1 and D.1.1.3 sources both of the project and baseline within the project boundary as required in [2]. Conclusion is pending also a response to CAR's 11-12, 14, 19, 20, CL 01 and CL 02, which may result in recalculation of the CO_2 emissions.		
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	1,2	DR	The value of the CO_2 emission factor for electricity generated by MMK own capacities in 2008 and fixed ex-ante for 2009-2012 was conservatively applied both in calculation of CO_2 emissions of electricity from corporate MMK grid by other equipment of EAFP (including DBSU) during production of profiled steel billet and CO_2 emissions from consumption of electricity from corporate MMK grid for production of nitrogen, pure nitrogen, and argon during production of profiled steel billet in EAFP.		OK

E.2. Estimated leakage					
E.2.1. Are described the Formulae used to estimate leakage due to the project activity where required?	1,2	DR	This is Formulae (D.1.3.2.-1) presented in PDD Section E.1.		OK
E.2.2. Is there a description of calculation of leakage in accordance with the Formula specified in for the applicable project category?	1,2	DR	Refer to PDD Section E.2.		OK
E.2.3. Have conservative assumptions been used to calculate leakage?	1,2	DR	Leakage for 2008 is conservatively fixed ex-ante for the years 2009-2012.		OK
E.3. The sum of E.1 and E.2.					
E.3.1. Does the sum of E.1. and E.2. represent the project activity emissions?	1,2	DR	**CAR 20.** Table E.3.1 in PDD Section E.3 does not represent the summarized project activity emissions as per [2].	CAR 30	OK
E.4. Estimated baseline emissions					
E.4.1. Are described the Formulae used to estimate the anthropogenic emissions by source of GHGs in the baseline using the baseline methodology for the applicable project category?	1,2	DR	These are Formulae (E.19) – (E.36) presented in PDD Section E.4. The Formulae were checked and found correct.		OK
E.4.2. Is there a description of calculation of GHG baseline emissions in accordance with the Formula specified for the applicable project category?	1,2	DR	GHG baseline emissions BE are calculated by Formulae (D.1.1.4.-1) – (D.1.1.4.-18) in Section D.1.1.4 and (E.4.-1) - (E.4.-2) in PDD Section E.4 on the excel spreadsheet, which was made available to the verifier. Calculations of GHG baseline emissions BE by the Formulae are shown in PDD Section E.4 and Table E.4.6.		OK

E.4.3. Have conservative assumptions been used to calculate baseline GHG emissions?	1,2	DR	Carbon content of raw materials and fuel are conservatively used as a maximum historical measured by MMK values. Carbon content in power station coal is conservatively used with reference to IPCC Guidelines for National Greenhouse Gas Inventories (2006) Volume 3, Chapter 4, and Table 4.3. The value of the CO_2 emission factor for electricity generated by MMK own capacities in 2008 and fixed ex-ante for 2009-2012 was conservatively applied in calculation of CO_2 emissions from electricity consumption in OHFP and BMP. Conclusion is pending a response to CAR 23.	Pending	OK
E.5. Difference between E.4. and E.3. representing the emission reductions of the project					
E.5.1. Does the difference between E.4. and E.3. represent the emission reductions due to the project during a given period?	1,2	DR	The difference between E.4 and E.3 equal 7.609.000 tCO_2-eq and represents the total emission reductions in 2008-2012 due to the project implementation. Refer to PDD Section E. 5. Conclusion is pending also a response to CAR's 11-12, 14, 19, 20, CL 01 and CL 02, which may result in recalculation of the CO_2 emissions.	Pending	OK
E.6. Table providing values obtained when applying Formulae above					
E.6.1. Is there a table providing values of total CO_2	1,2	DR	PDD Section E.6 Table E.6-1 provides the total	Pending	OK

abated?			values of project emissions, leakage, baseline emissions, and emission reductions in accordance with the JI reporting format. Conclusion is pending also a response to CAR's 11-12, 14, 19, 20, CL 01 and CL 02, which may result in recalculation of the CO_2 emissions.		
***F.* Environmental Impacts**					
F.1. Documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party					
F.1.1. Has an analysis of the environmental impacts of the project been sufficiently described?	1,2	DR I	Yes. Refer to PDD Section F.1.		OK
F.1.2. Are there any host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	1,2,5	DR I	Under the RF Urban Development Code N 190-ФЗ [5], the capital construction cannot start without an authority's permission. The latter is granted if there is a positive conclusion of the state expertise on the project documentation, which shall contain the results of EIA. Permissions of the environmental authority Rostekhnadzor shall also be issued for both the construction of the object and for its exploitation. Once the new equipments have been constructed and commissioned, it should have all the permissions granted. . Environmental permissions was checked during verifier's site-visit and found out in compliance with RF environmental legal require-		OK

			ments.		
F.1.3. Are the requirements of the National Focal Point being met?	1,2, 6,7	DR I	The requirements of the National Focal Point to present the EIA should be met before the submission of the project to the Coordination Centre of National Focal Point [7, 8]. Refer to F.1.		OK
F.1.4. Will the project create any adverse environmental effects?	1,2	DR I	Permits for Air Emissions would be checked during verifier's site-visit and found out in compliance with RF environmental legal requirements.		OK
F.1.5. Are transboundary environmental impacts considered in the analysis?	1,2	DR I	The project activity has no transboundary environmental impacts.		OK
F.1.6. Have identified environmental impacts been addressed in the project design?	1,2	DR I	To be checked during site visit.	Pending	OK
G. Stakeholders' comments					
G.1. Information on stakeholders' comments on the project, as appropriate					
G.1.1. Is there a list of stakeholders from whom comments on the project have been received?	1,2	DR I	There is no information about any comments from stakeholders.		OK
G.1.2. The nature of comments is provided?	1,2	DR I	Refer to G.1.		OK
G.1.3. Has due account been taken of any stakeholder comments received?	1,2	DR I	Refer to G.1.		OK

Table 4 Legal requirements

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Legal requirements					
1.1. Is the project activity environmentally licensed by the competent authority?	1,2	DR	Refer to F.1.	Pending	OK
1.2. Are there conditions of the environmental permit? In case of yes, are they already being met?	1,2	DR	The conditions of the environmental permissions would be checked during verifier's site-visit.	Pending	OK
1.3. Is the project in line with relevant legislation and plans in the host country?	1,2	DR	Yes, the project is in line with relevant legislation and plans in the host country.		OK

Table 5 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CAR 01. The project has no approval of the Host Party.	1 Table 1	The project received approval by the RF Ministry for Economic Development #709 dated 30/12/2010. The copy of the approval is provided to AIE.	This CAR is closed based on the copy of the project approval made available to AIE.
CAR 02. Please provide in Section A.2 the estimates of anticipated total reductions in tones of CO_2 equivalent as determined in Section E PDD as required per [2].	A.4.2.2	The total emission reduction estimation has been added to Section A.2. on page 4. As s result of project implementation total emission reductions in 2008-2012 are 7 500 735 tons of CO_2-eq.	This CAR is closed based on a concise addition made in PDD Section A.2. Total emission reductions in 2008-2012 are 7 500 735 tons of CO_2-eq. The calculation of the estimates of anticipated total emission reductions in tones of CO_2 equivalent as determined in Section E PDD was checked and found correct.
CAR 03. The length of Section A.4.3 PDD more than 1 page as required in [2].	A.4.2.2	The length of Section A.4.3 page 9 is reduced accordingly.	This CAR is closed based on a concise amendments made in PDD.
CAR 04. Please ensure that all rows of pre-	B.1.1	All rows of tabular form in Section B.1 pages 17-27 are	This CAR is closed based

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
scribed tabular form [Ref. 2, page 12] are filled in PDD Section B.1 tables.		filled.	on a concise corrections made in PDD.
CAR 05. The term an "own methodology" used in PDD is not envisaged by Guidance on criteria for baseline setting and monitoring/Version 02. This term should be replaced by "JI specific approach" both in PDD Section B.1 and D.1 [3].	B.1.2	The tern an "own methodology" is replaced by "JI specific approach" throughout the PDD.	The corrections are accepted, the CAR is closed.
CAR 06. Please describe and justify in PDD Section B.1 the baseline chosen in accordance with appendix B of JI Guidelines and the JISC Guidance on criteria for baseline setting and monitoring [3] as required in [2].	B.1.2	Response 1 of 11.01.10. Has been made in PDD page 12. For the establishing the baseline we directly took into account: • Metallurgical sector reform policies and legislation; • Economic situation in the metallurgical sector of Russia as well as resulting predicted demand; • Availability of capital (including investment barriers) specific for OJSC "MMK"; • Local availability of technologies/techniques; • Fuel prices and availability. Response 2 of 15.01.10. Description and justification of the baseline chosen was	Conclusion on Response 1 The response is not accepted since the response is not appropriate to the requested correction in PDD Section B.1. Conclusion on Response

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		provided with application of step-wise approach, which include: Step 1. Identification and description of the approach chosen regarding baseline setting; Step 2. Application of the approach chosen. For that reason Sections B.1. and B.2. were edited to response 1 of 11.01.10 as appropriate (see pages 12-33). Identification and description of the approach chosen regarding baseline setting was added by taking into account "Technical specifics of the steel melting and casting for EAF and OHF/BMP technology" (see page 12). Remaining content of Sections B.1. and B.2. is provided in accordance with appendix B of JI Guidelines and the JISC Guidance on criteria for baseline setting and monitoring as required in Guidelines for Users of the Joint Implementation Project Design Document Form/Version 04, JISC.	2 The corrections are accepted, the CAR is closed.
CAR 07. Please provide a correct reference for the Guidance on criteria for baseline setting and monitoring in PDD Section B.1 on p.13. The same request pertains actual with regard to the correct references to the JI guidelines on p. 13 and 32 Section D.1.	B.1.5	Has been made in PDD Section B.1. page 12 and in PDD Section D.1. page 38. The correct reference is Guidance on criteria for baseline setting and monitoring (Version 02).	Correct references for the Guidance on criteria for baseline setting and monitoring throughout PDD are given. This CAR is closed.
CAR 08. Please provide the reference in	B.1.5	The reference page 25 is made with the following con-	This CAR is closed based

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
PDD Section B.1 to the source of data for carbon content of crude benzol (%C benzol) fixed both for baseline and project scenario as 90,0% (refer to PDD, page 20). The same request pertains actual for the source (precise web address) for technological losses during transportation and distribution of grid electricity in Unified Energy System of Urals (TDL, %). Please refer to PDD Section D.1.1.2, p.50, formulae (D.1.1.2.-14) [2].		tent: "In accordance with analysis of chemical composition of crude benzol (was made by CL (BpCP Lab)) carbon content of crude benzol is 87.8%. As a conservative assumption, we use maximum value, with a certain margin (2%)." The reference of the web address is made in the Section D.1.1.2 p.56, formulae (D.1.1.2.-14): http://www.mrsk-ural.ru/ru/460	on concise amendments given in PDD. The use of conservative assumption, the maximum value, with a certain margin (2%) instead of averaged measured data of carbon content of crude benzol is 87.8% is accepted.
CAR 09. The assumption in PDD Section B.2, page 26 reads: "Baseline scenario assumes use of DBSUs, ingots teeming and blooming in BMP" contradicts with the baseline scenario being alternative 2 as "Continuation of production of profiled steel in open-hearth plant with two DBSUs, installation of two LFAs, ingots teeming and blooming in BMP" (refer to PDD Section B.2, page 22).	B.2.1	Response 1 of 11.01.10. Baseline scenario assumes use of two DBSUs, installation of two LFAs, ingots teeming and blooming in BMP. Such wording is cited in Section B.2 page 29. Response 2 of 15.01.10. Described and justified baseline scenario in PDD Section B.1. page 15 assumes "Continuation of production of profiled steel in open-hearth plant with two DBSUs, installation of two LFAs, ingots teeming and blooming in BMP". For assurance of the unambiguousness the same definition of baseline scenario is provided in PDD Section B.2. pages 28-30.	Conclusion on Response 1 The response is not accepted since the response is not appropriate to the requested correction in PDD Section B.2. The designation of the baseline, given in PDD page 29, does not ensure the unambiguousness with regard to the given one on page 12 Section B.1: "Continuation of production of profiled steel in

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
			open-hearth plant with two DBSUs, installation of two LFAs, ingots teeming and blooming in BMP". Conclusion on Response 2 The corrections are accepted, the CAR is closed.
CAR 10. Provide evidence that input values used in the investment analysis (e.g. total project investments, electricity and raw material costs, inflation, internal threshold) were valid and applicable at the time of the investment decision taken by the project participant [2].	B.1.4	The input values such as the cost of raw materials and energy recourses (actual for April 2004): Pig iron (liquid) 3 750 rub/ton Scrap metal 3 268 rub/ton Natural gas 981 rub/ths.m^3 . Electricity 1 055 rub/ths.kWh Total project investments 2 667 672 ths. rub Annual inflation 12 % Rate of discount 8 % Calculation horizon 12 years This information in tabulat form was added to the Section B.2. page 30.	The appropriate evidences of the input values used in the investment analysis (e.g. total project investments, electricity and raw material costs, inflation, and internal threshold) were available for the verifier on the site visit. The issue was a subject of discussion with the project developers and plant's specialists on the site visit. The CAR is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CAR 11. Common practice analysis is missing what does not allow determining if the project is additional. Provide an analysis to which extent similar activities to the proposed project activity have been implemented previously or are currently underway. If similar activities are observed, then essential distinctions between the proposed project activity and similar activities shall reasonably be explained.	B.2.1	Common practice analysis is added in PDD, Section B.2. page 32.	The response is accepted provided the amendments made in PDD, Section B.2 page 31. The CAR is closed.
CAR 12. Please include a sensitivity analysis to show whether the conclusion regarding the financial/economic attractiveness is robust.	B.2.1	Sensitivity analysis is added in PDD, Section B.2. page 31.	The response is accepted provided the amendments made in PDD, Section B.2 page 30. Sensitivity analysis is based on changing the price for ferrous scrap metal as a one of the main input parameter of investment analysis. Sensitivity analysis showed that IRR and pay-back period are very sensitive to the changes in price for scrap. Increase in price for ferrous scrap metal even of 2% rendered the

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
			project unprofitable (IRR = 7.8, pay-back period = 12.6 years). The CAR is closed.
CAR 13. National policies and circumstances relevant to the baseline of the proposed project activity are not summarized.	B.2.6	Relevant national policies and circumstances such as Strategy of development metallurgy industry in Russian Federation and requirements of environmental protection legislation were summarized in Section B.1 page 13.	The project is in line with the Strategy of development metallurgy industry in Russian Federation. There are no special requirements of environmental protection legislation or requirements of other regulatory agencies to reduce the emission of CO_2. The additions are agreed. The CAR is closed.
CAR 14. The delineation of the project and baseline boundary and sources do not include incoming carbon content raw materials, used at BPCP, as follows: agglomerate, limestone, lime. Exclusions of these sources related both to the baseline and project scenario shall be justified as per [2].	B.3.1	Section A.4.2. page 8 is supplemented: "The consumption of agglomerate, limestone and lime has not been taken into account. The carbon content in agglomerate is average 0.04 % by mass, which is confirmed by technical report of BFP. The EAF consumes lime, which is preliminary calcined in furnace of limestone calcinations (CO_2 is emitted). Lime is used as an oxidant, together with oxides of silicon, manganese, carbon and	The delineation has been eliminated. Exclusions of the consumption of agglomerate, limestone and lime, related both to the baseline and project scenario are justified as per

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		iron form base ferruginous slag promotes removal of phosphorus from the metal. The OHF in other turn consumes a limestone, it is calcined right in the furnace and result in forming of the lime and CO_2. The quantity of lime used in EAF and limestone in OHF is comparable because it is conditioned by chemical specifics of the steel production process, so the consumption of these raw materials has not been taken into account because it generally does no matter where CO_2 is emitted as result of the calcination: in the furnace of limestone calcinations or in the open-hearth furnace."	[2]. The CAR is closed based on the sufficient explanations given in PDD Section A.4.2. page 8 by the project developers.
CAR 15. It is not indicated that CTF Consulting Ltd. is a project participant listed in Annex 1 of the PDD [2].	B.4.3	The information about CTF Consulting Ltd. was added in Sections B.4. page 36, D.4. page 81. "CTF Consulting Ltd." is not a project participant.	The CAR is closed based on appropriate corrections made in PDD.
CAR 16. The project's operational lifetime in months is not defined [2].	C.2.1	The project's operation lifetime is 192 months. This information was added in PDD, Section C.2. page 37.	The CAR is closed based on appropriate corrections made in PDD.
CAR 17. The length of the crediting period in months is not defined [2].	C.3.1	The length of the crediting period is 60 months. This information was added in Section C.3. page 37.	The CAR is closed based on appropriate corrections made in PDD.
CAR 18. Annex 3 does not provide a detailed description of all key elements of the monitoring plan. [2].	D.1.3	All key elements of the monitoring plan are described in details the PDD. Special notification has been made in Annex 3.	
CAR 19. It was found out at the site visit that	D.1.3	The production of metallurgical coke is accompanied by	It is proven by the project

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
as a product which leaves the coke batteries in BPCP is gross coke, which includes coke breeze and metallurgical coke. In PDD a parameter $P_{metallurgical\ coke\_PJ}$ (Production of dry metallurgical coke in BPCP) is used, coke breeze has not been included. The conservatism of the exclusion is not assessed (refer to PDD Section D.1.1, page 36) [2].		the formation of by-product - coke breeze. The coke batteries produce gross coke, which after quenching gross coke is sifted to coke breeze and metallurgical coke in BPCP, then metallurgical coke is transported to BFP. Coke breeze is transported to the sintering plant where it is used as fuel for sintering machines. Excess of coke breeze is sold to other companies, where the coke breeze is used as a special high-carbon fuel or as a component of the carbon-containing powder in metallurgy. As the coke breeze completely burned to CO_2 in the process of its use, these carbon dioxide emissions are attributable to the production of raw material for BFP – metallurgical coke, which is a major end product of the BPCP. Thus the integrated emission factor is calculated for the production of metallurgical coke. In BFP metallurgical coke is sifted once again with separation of additional coke breeze, which is formed during the transportation from BPCP to BFP. According the conservative approach this coke breeze has not been considered in the calculation of BFP and BPCP CO_2 emissions. This information was added to the Section D.1. pages 38-39.	developers that the exclusion of coke breeze from the calculation of BFP and BPCP CO_2 emissions does not enhance the baseline CO_2 emissions. That could be considered as conservative approach. The response is accepted and CAR is closed.
CAR 20. It was found out at the site visit that parameters $M_{coking\ coal\_CP\_PJ}$ (Consumption of dry coal charge in BPCP), $P_{metallurgical\ coke\_PJ}$	D.1.3	Indeed, the consumption of coal charge $M_{coking\ coal\_CP\_PJ}$ is calculated. Despite the fact that there is tools measure the coal charge, delivered to MMK, this parameter	The response is accepted. This CAR is closed based

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
(Production of dry metallurgical coke), $\sum P_{steel\_EAF}$ (Total smelting of steel in EAF-180), EC_{gross_PJ} (Total electricity consumption by MMK) are really calculated rather than measured as stated in PDD (refer to PDD Section D.1.1, page 36-37,40, 44) [2].		is calculated in BPCP according to Instruction of raw materials consumption, approved by chief engineer MMK. The production of dry metallurgical coke $P_{metallurgical\ coke\_PJ}$ is calculated in BPCP on the basis of consumption of skip metallurgical coke in BFP and coke breeze which is directed to sintering plant. Total smelting of steel in EAF-180 $\sum P_{steel\_EAF}$ is estimated on the basis of theoretical mass of profiled billet. The mass of clipping and waste is estimated on the basis of geometry of billet. Total electricity consumption by MMK EC_{gross_PJ} is complex parameter which is determined on the basis of electricity meters reading. Relevant changes are made in Table D.1.1.1. pages 42-50.	on the adequate corrections and explanations made to the PDD.
CAR 21. Please make sure the correct source of data for monitoring parameters as follows: P-30 – P-38 in PDD Section D.1 Table D.1.1.1 (refers to PDD Section D.1.1, page 41-42) [2].	D.1.3	The source of data for monitoring parameters P-30 – P-38 is Technological department. This information was changed Table D.1.1.1. pages 47-48.	The response is accepted. This CAR is closed based on the adequate corrections made to the PDD.
CAR 22. Please explicitly and clearly distinguish the source of the fixed ex-ante data as follows: carbon content in carbon-containing powder, % by mass ($\%C_{carbon\ powder\_EAFP}$) , and carbon content in electrodes, % by mass	D.1.3	The source data of the carbon content in carbon-containing powder is in accordance with standard specification 1971-003-13303593-2006, which is confirmed by quality certification. The source data of the carbon content in electrodes is	The response is accepted. This CAR is closed based on the adequate corrections made to the PDD

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
(%C $_{electrodes\_EAFP}$) (refer to PDD Section D.1 Table D.1-1, page 33) [2].		in accordance with standard specification 1911-109-052-2003, which is confirmed by quality certification. Section D.1 Table D.1-1, page 40 was added by this information.	Section D.1 Table D.1-1, page 39.
CAR 23. The fixed ex-ante, based on historical average data, parameters as follows: blast furnace gas consumption, coke oven gas consumption, pig iron consumption per ton of steel, scrap consumption per ton of steel, steel consumption per ton of profiled steel, coke consumption per ton of pig iron do not present in PDD Section D.1 [2].	D.1.5	The parameters fixed ex-ante based on historical average data are as follows: blast furnace gas consumption in BMP, coke oven gas consumption in BMP, pig iron consumption per ton of steel in OHFP, scrap consumption per ton of steel in OHFP, steel consumption per ton of profiled steel billet were added in Sections B.1. Tables pages 17-27, D.1 page 41. The parameter of coke consumption per ton of pig iron is not fixed ex-ante according to the monitoring plan.	The response is accepted. This CAR is closed based on the adequate corrections made to the PDD Section B.1 and Section D.1.
CAR 24. References to the Russian Federation regulations with regard to the environmental impacts of the project are not provided in PDD as required in [2], Section D.1.5.	D.1.14	The references to the Russian Federation regulations (Articles 14, 22 the Federal Law on environmental protection # 7-FZ) and detailed information on the collection and archiving of information on the environmental impacts was added in the Section D.1.5. Page 74.	The response is accepted provided the additions, given Section D.1.5 page 74.
CAR 25. Please ensure that the operational and management structure that the project participants(s) will implement in order to monitor emission reduction and any leakage effects generated by the project is adequate to the real one at MMK.	D.3.1	Detailed information about operational and management structure put in order in Section D.3. Pages 78-81.	The response is accepted provided the additions, given Section D.3 pages 78-81.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CAR 26. It is not indicated that CTF Consulting Ltd. is a project participant listed in Annex 1 of the PDD [2].	D.4.2	The information about CTF Consulting Ltd. was added in Sections B.4. page 37, D.4. page 81. "CTF Consulting Ltd." is not a project participant.	The response is accepted. This CAR is closed based on the adequate corrections made to the PDD.
CAR 27. Please ensure the correct references to Formulae number for parameters as follows: specific CO2 emission per ton of produced metallurgical coke (SPE $_{metallurgical\_coke}$), CO_2 emissions from consumption of grid electricity by EAF-180 via 220/35 kV step-down substation per ton of all smelted steel, Specific consumption of grid electricity by EAF-180 via 220/35 kV step-down substation per ton of all steel smelted in EAF (SEC $_{grid\_steel\_EAF}$), CO2 emission factor for grid electricity (EF $_{grid}$), and Technological losses during transmission and distribution of grid electricity in Unified Energy Systems of Urals (TDL), Specific consumption of grid electricity by EAF-180 via 220/35 kV step-down substation per ton of all steel smelted in EAF (SEC $_{grid\_steel\_EAF}$), CO_2 emission factor for grid electricity (EF $_{grid}$), CO_2 emission factor for air blast generation (EF $_{air\ blast\ generation}$) in PDD	E.1.2	The number of formulae was corrected in Section E.1 for the following parameters: - CO_2 emissions from consumption of grid electricity by EAF-180 via 220/35 kV step-down substation per ton of all smelted steel; - Specific consumption of grid electricity by EAF-180 via 220/35 kV step-down substation per ton of all steel smelted in EAF (SEC $_{grid\_steel\_EAF}$); - CO_2 emission factor for grid electricity (EF $_{grid}$); - CO_2 emission factor for air blast generation (EF $_{air\ blast\ generation}$); - Technological losses during transmission and distribution of grid electricity in Unified Energy Systems of Urals (TDL) The number of formulae was corrected in Section E.4 for the following parameters: - CO2 emission factor for electricity produced by own generating capacities of MMK (EF $_{own\ generation\_PJ}$);	The number of formulae was corrected and checked by the verifier. The response is accepted. The CAR is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
Section E.1, and specific CO_2 emissions per ton of steel smelted in OHFP (SBE $_{OHFP}$), specific consumption of electricity in OHFP (SEC $_{steel\_OHFP}$), CO_2 emission factor for electricity produced by own generating capacities of MMK (EF $_{own\ generation\_PJ}$), CO_2 emission factor for air blast generation (EF $_{air\ blast\ generation}$) in PDD Section E.4 [2].		- CO_2 emission factor for air blast generation (EF $_{air\ blast\ generation}$) For the following parameters the number of formulae was right: - specific CO_2 emission per ton of produced metallurgical coke (SPE $_{metallurgical\_coke}$); - specific CO_2 emissions per ton of steel smelted in OHFP (SBE $_{OHFP}$); - specific consumption of electricity in OHFP (SEC $_{steel\_OHFP}$)	
CAR 28. Please provide the forecasting data for MMK plans for industrial expansion in 2009-2012, used in PDD Section E.1 for the project CO_2 emission calculation to ensure the transparency [2].	E.1.2	The forecasting data for plans for industrial expansion in 2009-2012 is approved by MMK. The information about plans for industrial expansion in 2009-2012 is provided in table E.1.2. pages 82-83.	The response is accepted. This CAR is closed based on the adequate corrections made to the PDD.
CAR 29. Please provide in PDD Sections E.1, E.2, and E.4 estimates of CO_2 emissions by each identified in PDD Sections D.1.1.1 and D.1.1.3 sources both of the project and baseline within the project boundary as required in [2].	E.1.2	The detailed information of each sources of project emission is provided in Sections E.1. pages 86-87, E.3. pages 87-88, E.4. pages 90-91.	The response is accepted. This CAR is closed based on the adequate corrections made to the PDD.
CAR 30. Table E.3.1 in PDD Section E.3 does not represent the summarized project	E.3.1	The value of emission is represented in tones in Section E.3. pages 87-88.	The response is accepted.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
activity emissions as per [2].			This CAR is closed based on the adequate corrections made to the PDD.
CL 01. Please clarify whether the project intends to demount two existed DBSU's as described in PDD Section A.4.2, Table A.4.2-1, p.7 or one with remaining its partial load as per the alternative 4 (project scenario, refer to PDD Section B.2, p.25).	A.2.1	Originally planned that both DBSUs should have been shut down. But during construction of EAF-2 one DBSU was liquidated, and the second DBSU has been left for working under partial load. This decision allowed MMK to meet its steel production targets during reconstruction period. Moreover this provided enough flexibility for MMK to react on changes in external prices for scrap metal and process its own waste (DBSU furnace charge may contain almost 100% of pig iron, while EAF charge can have not more than 40% of pig iron).	The explanations are accepted. The CL is closed.
CL 02. Please clarify whether the Slab CCM #5 is considered within the project boundary. The EAFP complex, installed under the modernization programme, includes it. The remark in PDD on page 7 reads: "it is beyond project boundaries" but alternative 4 (project scenario) in PDD Section B.2 consider the installation the slab CCM #5 (refer to PDD Section A.4.2, p.7 and B.2, p.24).	A.2.2	During the process of design of the EAF plant having as a ground the ladle capacity (175 tons) the project developers explored that the maximum output of each electric arc furnace with such capacity can be 2 million tones of liquid steel per year if the producer is Voest-Alpine AG. OJSC "MMK" signed with this company a procurement contract in March of 2004. The capacity of electric arc furnaces surpassed the capacity of two section CCMs, which were already under construction at that time. Therefore the management of MMK decided to construct additional slab CCM №5 in EAFP (the rest slab CCMs are installed in the basic oxygen furnace plant).	The explanations are accepted. The CL is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		The proposed JI project does not include resource-saving effect of technological modernization of slab steel billet production because the decision about transition to CCM process and construction of EAFP was taken in the beginning of 2003, and the construction of slab CCM № 5 was a consequence of that decision. Also the baseline technology would not allow to produce slab steel billet.	
CL 03. Please clarify if provisions for meeting training needs with regards monitoring are made if appropriate.	A.4.2.4	All training needs emerged due to project implementation have been properly addressed in the past during preparation for the start up of the new equipment. Nowadays all the project equipment is operated and training needs are routinely satisfied for new employee or during rising of qualification of existing staff.	The appropriate evidences of provisions for meeting training and maintenance needs were available for the verifier on the site visit. Please include in the PDD appropriate clarifications regarding the provisions for meeting training and maintenance needs. The CL is closed.
CL 04. Please clarify the volume of planned total baseline profiled steel billet production accepted as equal to the project production.	B.1.4	Yes, the volume of planned total baseline profiled steel billet production accepted as equal to the project production	The explanations are accepted. The CL is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CL 05. Please clarify the approach applied as follows: to take 2003 as the base year during the selection of feasible future scenarios/alternatives of profiled steel billet production at MMK taking into account that the used and fixed ex-ante data for emissions baseline calculation are based on average 2000-2002 historical production data (refer to PDD Section B.1, page 13 and Annex 2, page 88).	B.1.4	The construction of two CCMs began in 2003, the second step of OHFP modernization project went through a preinvestment stage in 2004, and the final decision about construction of electric arc steelmaking complex was made in June of 2004 (order №440 of 22.06.2004). So historical dada for emissions baseline calculation based on 2000-2002.	The explanations are accepted. The CL is closed.
CL 06. Please clarify if the investment analysis is the mandatory part of the additionality demonstration in addition to the barriers analysis which is in fact already sufficient means [4]. If yes, it should be complemented by the sensitivity analysis. If not, it should be explicitly indicated that the investment analysis is provided just for information. Also please clarify, what is the purpose of inclusion in PDD of the investment analysis with taking account of ERU sale. Does this demonstrate additionality?	B.2.1	The investment analysis is the mandatory part of the additionality demonstration in addition to the barriers analysis and it was complemented by the sensitivity analysis in Section B.2. page 31.	The explanations are accepted. The CL is closed.
CL 07. Please clarify the approach of selecting the key information and data used for selection of the baseline and used for the project emissions monitoring [2]. Note that	D.1.3	The source data of the carbon content in carbon-containing powder is in accordance with standard specification 1971-003-13303593-2006 carbon content in carbon-containing powder should be not less 95%.	The explanations are accepted. The CL is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
data of carbon content in carbon-containing powder and carbon content in electrodes, used both for baseline and project emissions calculation, do not include in Section B.2 as the key information and data.		The source data of the carbon content in electrodes is In accordance with standard specification 1911-109-052-2003, which is confirmed by quality certification. The information about these parameters was added in Section B.1. in tables pages 26-27.	
CL 08. Please clarify in PDD Section E.1 whether OJSC "MMK" started to purchase a part of required metallurgical coke in order to ensure the smooth operation and continuous production process at the coke-oven batteries. It was found out at the site visit that MMK made provision in self allowance of coke.	E.1	At the end of 2008 OJSC "MMK" has been forced to shut down some of the coke-oven batteries due to decrease of the pig iron production caused by global economic recession. While planning of the amounts of pig iron and steel to be produced in 2009 the forecasted crisis conditions and economic situation in Russia and worldwide were taken into account. However in spring of 2009 the demand for OJSC "MMK" production has risen and need in output of pig iron and steel has augmented. Due to the specifics of design and continuous production process at the coke-oven batteries, the quick start-up or shut down of coke batteries is impossible, because the large scale rehabilitation work shall be done, which takes several months. Therefore in 2 and 3 quarters of 2009 OJSC "MMK" purchased a part of required metallurgical coke from other coke producers but in 4 quarter BPCP fully supplied BFP with metallurgical coke. This information was mentioned in Section E.1. page 82.	The explanations are accepted. The CL is closed.

Appendix B: Verifier's CV

Mrs. Vera Skitina, PhD (metallurgical)
Lead Verifier
Bureau Veritas Certification Russia Technical Director - Lead Auditor, Lead Tutor, Lead Verifier

She has over 15 years of experience in powder metallurgy, aluminium metallurgy, plastic metal working, physical-chemistry processes, gas production at power plant, environmental science. She worked in Irkutsk Aluminium Plant, SUAL powder metallurgy plant, Nadvoitzky aluminium plant, Central Scientific Institute of Metals. She is a Lead auditor of Bureau Veritas Certification for Quality Management Systems (IRCA registered), Environmental Management System (IRCA registered), Occupational Health and Safety Management System (IRCA registered). She performed over 200 audits since 2004. Also she is a Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and a Lead Tutor of the IRCA registered ISO 9001 Lead Auditor Training Course. She is an Assuror of Social Reports. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and was/is involved in the determination of over 20 JI projects and verification of over 10 JI projects.