Developed by	Approved by
Director Vovchak V.V. ______________ (signature) (L.S.)	Director general Shevchenko T.G. ______________ (signature) (L.S.)

Quarterly monitoring report

JI project

Revamping and Modernization of the Alchevsk Steel Mill, Ukraine

Track 1 JI Registration Reference UA 1000022

1st quarter 2009

ІНСТИТУТ ПРОБЛЕМ ЕКОЛОГІЇ
ТА ЕНЕРГОЗБЕРЕЖЕННЯ

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1. Introduction and project description

Open Joint Stock Company "Alchevsk Iron and Steel Mill" (OJSC "AISW") has implemented the JI project by revamping and modernization of the Steel Plant. The project activity aims to replace existing production line with Open Hearth Furnaces, Ingot Casting and Blooming Mills by new LD Converters, Ladle Furnace, Vacuumator and Slab Casting Machines (Slab Casters).

OJSC "AISW" has used a traditional steel making technology – Open Hearth Furnaces, Ingot Casting and Blooming Mill to produce semi-finished products. The produced ingots are conglomeration of cavities. Around 20-21% of ingots have to be cut off at the exit of the Blooming Mills and put back to the Open Heath Furnaces.

Alternatively with introduction of new Slab Casters and Ladle Furnace only around 3% of slabs have to be cut and put back to Open Hearth Furnaces of LD Converters. So the difference between traditional and existing production line and new Slab Caster line in terms of material losses is around 17-18% leading to reduced GHG emissions.

The project category is energy efficiency that is serving the reduction of end-user energy consumption in industrial applications and processes.

The project was started in 2005 with introduction of the first Slab Caster. According to the investment plan, the following major stages of project implementation have been envisaged:

Phase 1: Installation of Slab Caster #1 along with Ladle-Furnace;
Phase 2: Installation of Slab Caster #2 along with Vacuumator;
Phase 3: Installation of LD Converter #2;
Phase 4: Installation of LD Converter #1;
Phase 5: Reconstruction of Oxygen Plant #4;
Phase 6: Installation of Oxygen Plant #7;
Phase 7: Installation of Oxygen Plant #8.

Phases 5-7 consists in implementation of secondary units in the metallurgical process, which are indissolubly linked with the main steel production units (Phases 1-4). Thus, Phases 5-7 are indissolubly linked with Phases 1-4.

There is no leakage of GHG emissions associated with the project.

2. Current status of the project

By the end of 2007 only first two stages (Phases) were completed. The Slab Caster #1 was put into operation in August 2005 and Slab Caster # 2 - in March 2007.

Phase #3 was completed in January 2008 when LD Converter #2 was launched (was supposed to be completed in the 3rd quarter of 2007). Such delay was caused by several factors: financial, technical, technological, customs problems and also by declines in schedules of delivery of equipment and materials. LD Converter #1 started operation in September 2008 (Phase #4 was completed). However then, in about a month, LD Converter #1 has stopped its operation because of impact of the financial and economical crisis.

LD Converter #1 was launched again in March 2009. Thus, in the reporting period LD Converter #1 was operational for only one month.

Phase #5 was completed on 30th of September 2005 (almost together with Slab Caster-1). Phase #6 was completed on 19th of March 2008 (was supposed to be completed in the 2nd-3rd quarter of 2007). The delay of implementation of Phase #6 is caused by the same reasons as Phase #3 and in order to accomplish Phase #6, Phase #3 should be completed first because Oxygen Plant #7 is designed for LD Converter #2 in order to supply oxygen. Phase #7 is at the final stage of completion (must be completed in the 3rd quarter of 2009). Such delay is caused by the influence of financial and economical crisis, because the Steel Mill is not operating at full capacity and there is no need to produce big volumes of oxygen.

Thereby, in the reporting period 6 units, which are mentioned in the phases of project implementation above, were operational.

The emission reductions were considered from 01.01.2009 till 31.03.2009.

3. Monitoring period and version of the report

Monitoring period is from 01/01/2009 till 31/03/2009.
Version of the monitoring report: #2.

4. Statement to what extent the project has been implemented as planned

The project was operational for the whole monitoring period, and emission reduction were considered for the whole period. As it was mentioned above, only Phase #7 wasn’t completed as planned, which was caused by the impact of global crisis. The crisis stipulated reduction of steel production capacities and also caused the considerable change of planned indicators for electricity consumption and other materials consumption based on producing 1 t. of steel and therefore impacting on projectline and baseline emissions and also on emission reductions.

Thus, the production of OHF steel was significantly decreased (concerning the decrease of overall production capacity from 71% in 2008 to 40% in the first quarter of 2009). Approximately output of slabs from Blooming was decreased by half (baseline slabs). The main portion of slabs was produced in Slab Caster-1,2.

The reduction of productivity in the baseline causes increase of conditionally-constant volumes of energy consumption (increase of specific costs per unit). In the same time, the increase of productivity in the project line (in LD Converters and Slab Casters) causes the decrease of specific volumes of energy consumption.

Monitoring was based on actual data (mentioned in the reporting documents) of products output and consumption of energy and material resources as in projectline and in baseline scenario as it is required by the joint implementation project-design document (PDD).

5. Sustainability – economic and social well-being

The project activity is an energy efficient project which saves consumption of natural gas and coke oven gas as well as coal and coke. During the monitoring period, significant amount of fossil fuel and electricity, that would have been required if the project had not been implemented, has been saved.

This project, by reducing GHG emissions, contributes towards a better environment. Project implementation will lead to increase of payments to the budgets of all levels for social needs, prevention of reduction of working places and better working conditions at Still Mill.

After modernization AISW became the most Integrated Steel Producer based on Converter Steel Making in Ukraine. This has large demonstration effect for other Ukrainian Steel Mills.

6. Parameters being monitored according to monitoring plan

All data used in this chapter are based on information that is confirmed by the documents at AISW. This information is available to verifier, including with regard to links with table given below. The schematic drawing of system to ensure the preparation and supply of information, used in this monitoring report, is given in the bottom of this chapter.

Baseline

ID Number	Data variable	Units	1st quarter 2009
	Baseline Emissions (BE)	Tonnes CO2	**1 763 888**
B-1	**Total Steel Output (TSO)**	Tonnes	613 533
B-2	**Total CO2 of Pig Iron (TCPI)**	Tonnes CO2	**1 609 536**
B-3	**Total CO2 from Fuel Consumption in Pig Iron production (TCFCPI)**	Tonnes CO2	**117 526**
B-4	**Percentage of Total amount of Pig Iron Produced Used in project Steel Making Activity (PII)**	share	1,00
B-5	**Total Pig Iron Input into Steel Making Process (TPII)**	Tonnes	665 895
B-6	**Total Pig Iron Produced (TPIP)**	Tonnes	665 895
B-7	**Quantity of each fuel (fpi) used in making Pig Iron (Q_{fpi})**	m3, 1000 m3	
	NG	m3,	62 563 157
	COG	1000 m3	2470,675
B-8	**Emission factor of each fuel (fpi) EF_{fpi}**	Tonnes CO2 per m3	
	NG	Tonnes CO2 per m3	**0,00185**
	COG	Tonnes per 1000 Nm3	**0,798**
B-9	**Total CO2 from Electricity used in Pig Iron production (TCEPI)**	Tonnes CO2	**84 627**
B-10	**Electricity Consumed in producing Pig Iron (ECPI)**	MWh	94 450
B-11	**Emissions Factor for Electricity Consumption in making Pig Iron (EFECPI)**	Tonnes CO2/MWh	0,896
B-12	**Total CO2 from inputs into Pig Iron (TCIPI)**	Tonnes CO2	**1 407 383**
B-13	**Total Carbon from Fuel Consumption in Sintering (TCFIO)**	Tonnes CO2	**33 838**
B-14	**Quantity of each fuel (fio) used in Sintering (Q_{fio})**	m3	
	NG	m3	11 480 334
	COG	ths. m3	15827,417
B-15	**Emission factor of each fuel in Sintering (fio) EF_{fio}**	m3	
	NG		0,00185
	COG		0,798
B-16	**Total CO2 from Electricity used in Sintering (TCEIO)**	Tonnes CO2	**34 599**
B-17	**Electricity Consumed in Sintering (ECIO)**	MWh	38 615
B-18	**Emissions Factor for Electricity Consumption in Sintering (EFECIO)**	Tonnes CO2/MWh	0,896
B-19	**Total CO2 from Reducing Agents (TCRAPI)**	Tonnes CO2	**1 235 865**
	Total Reducing Agent	Tonnes	398 196
	Default Emission Factor	Tonnes CO2/Tonne	3,10
	Total Reducing Agent	Tonnes	583
	Default Emission Factor	Tonnes CO2/Tonne	2,50
B-20	**Total CO2 from limestone (TCLPI) in Pig iron production**	Tonnes CO2	**103 080**
	Total Limestone	Tonnes	380 370
	Default Emission Factor	Tonnes CO2/Tonne	0,27
	Total dolomite	Tonnes	0
	Default Emission Factor	Tonnes CO2/Tonne	0,294
B-21	**Total CO2 from steam production in Pig Iron Production (TCSPI)**	Tonnes CO2	**0**
B-22	**Quantity of each fuel (fspi) used in steam production in Pig Iron Production (Q_{fspi})**	m3	
	NG		0
	COG		0

B-23	**Emission factor of each fuel in steam production (fspi) EF_{fspi}**	Tonnes CO2 per m3	
	NG		
	COG		
B-24	**Total CO2 emissions from the furnace process (TCFP)**	Tonnes CO2	**122 532**
B -25	**Total CO2 emissions from fuel consumption in the furnace process (TCFCFP)**	Tonnes CO2	**38 709**
B -26	**Quantity of each fuel (ffp) used in furnace process (Q_{ffp})**	m3	
	NG	m3	20 957 538
	COG		0
B -27	**Emission factor of each fuel in furnace process (ffp) EF_{ffp}**	Tonnes CO2 per m3	
	NG	Tonnes CO2 per m3	**0,0018470**
B -28	**Total CO2 emissions from electricity consumption in the furnace process (TCECFP)**	Tonnes CO2	**69 240**
B -29	**Electricity Consumed in furnace process (ECFP)**	MWh	77 277
B -30	**Emissions Factor for Electricity Consumption in furnace process (EFECFP)**	Tonnes CO2/MWh	0,896
B -31	**Total CO2 emissions from inputs to the furnace process (TCIFP)**	Tonnes CO2	**14 583**
B -32	**Total CO2 from Argon entering the furnace (TCAFP)**	Tonnes CO2	0
B -33	**Total CO2 from steam production in furnace process (TCSFP)**	Tonnes CO2	**0**
B -34	**Quantity of each fuel (fsp) used in steam production in furnace process (Q_{fsp})**	m3	
	NG		0
	COG		0
B -35	**Emission factor of each fuel in furnace process (fsp) EF_{fsp}**	Tonnes CO2 per m3	
	NG		**0**
	COG		**0**
B -36	**Total CO2 from compressed air production in furnace process (TCCAFP)**	Tonnes CO2	**762**
B -37	**Quantity of each fuel (fca) used in compressed air production in furnace process (Q_{fca})**	m3	
	NG	m3	0
	COG		0
B -38	**Emission factor of each fuel in furnace process (fca) EF_{fca}**	Tonnes CO2 per m3	
	NG		**0,00185**
	fuel 2		**0**
B -39	**Electricity Consumed in making compressed air for the furnace process in steel making (ECCA)**	MWh	850
B -40	**Emissions Factor for Electricity Consumption (EFECCA)**	Tonnes CO2/MWh	0,896
B -41	**Total CO2 from oxygen production (TCOFP)**	Tonnes CO2	0
B -42	**Quantity of each fuel (fop) used in oxygen production (Q_{fop})**	m3	
	NG		0
	COG		0
B -43	**Emission factor of each fuel in oxygen production (fop) EF_{fop}**	Tonnes CO2 per m3	
	NG	**0**	**0**
	COG	**0**	**0**
B -44	**Electricity Consumed in making oxygen (ECOP)**	MWh	0
B-45	**Emissions Factor for Electricity Consumption in making oxygen (EFECOP)**	Tonnes CO2/MWh	0,896

B-46	**Total CO2 from limestone for furnace process (TCLFP)**	Tonnes CO2	**13 822**
	Total Limestone	Tonnes	26 481
	Default Emission Factor	Tonnes CO2/Tonne	0,27
	Total dolomite	Tonnes	22 603
	Default Emission Factor	Tonnes CO2/Tonne	0,294
B-47	**Total CO2 from blooming (TCBM)**	Tonnes CO2	**31 931**
B-48	**Total CO2 from fuel consumption in blooming (TCFCBM)**	Tonnes CO2	**12 741**
B-49	**Quantity of each fuel (fbm) used in blooming (Q_{fbm})**	m3	
	NG	m3	116 032
	COG	1000 m3	15 693
B -50	**Emission factor of each fuel in blooming (fbm) EF_{fbm}**	Tonnes CO2 per m3	
	NG	**m3**	**0,00185**
	COG	**1000 m3**	**0,79824**
B-51	**Total CO2 from electricity consumption in blooming (TCECBM)**	Tonnes CO2	**19 191**
B-52	**Electricity Consumed in blooming (ECBM)**	MWh	21 418
B-53	**Emissions Factor for Electricity Consumption in blooming (EFECBM)**	Tonnes CO2/MWh	0,896

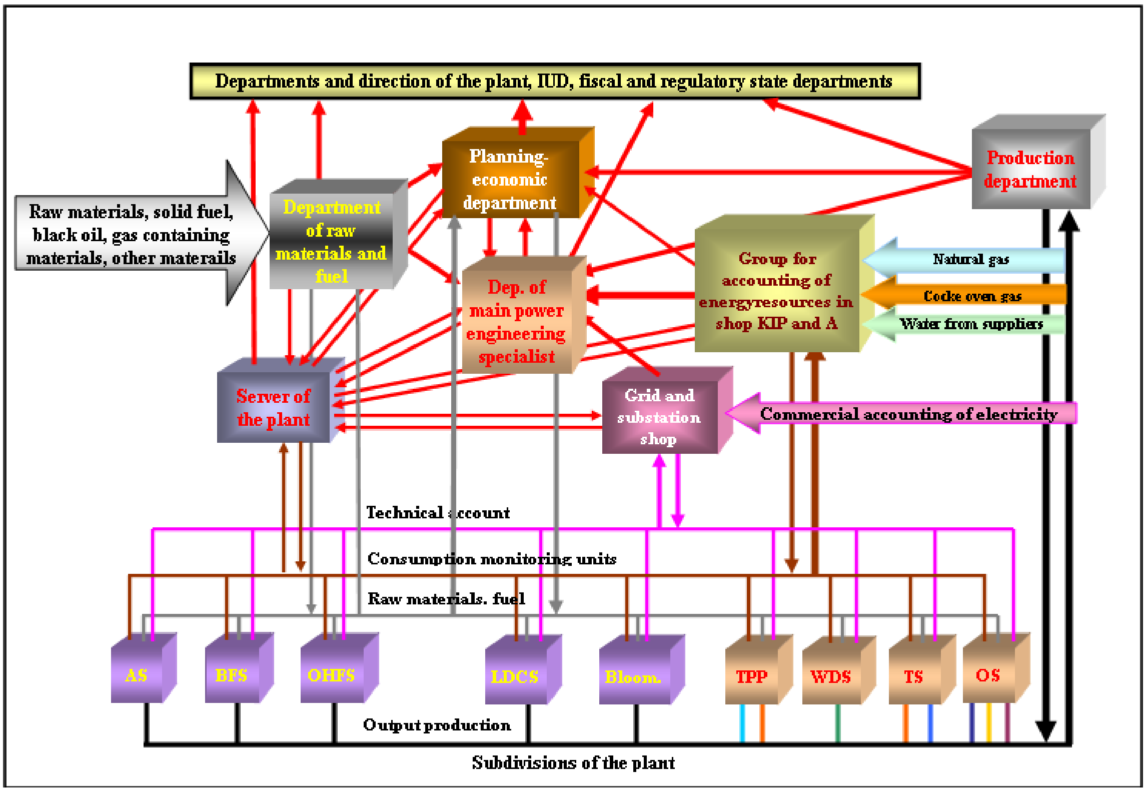
Projectline

ID number	Data variable	Units	1st quarter 2009
	Project Emissions (PE)	Tonnes CO2	**1 499 738**
P-1	**Total Steel Output (TSO)**	Tonnes	613 533
P-2	**Total CO2 of Pig Iron (TCPI)**	Tonnes CO2	**1 401 349**
P-3	**Total CO2 from Fuel Consumption for Pig Iron (TCFCPI)**	Tonnes CO2	**97 204**
P-4	**Percentage of Total amount of Pig Iron Produced Used in project Steel Making Activity (PII)**	share	1,00
P-5	**Total Pig Iron Input into Steel Making Process (TPII)**	Tonnes	572 891
P-6	**Total Pig Iron Produced (TPIP)**	Tonnes	572 891
P-7	**Quantity of each fuel (fpi) used in making Pig Iron (Q_{fpi})**	m3	
	NG	m3	51 711 079
	COG	1000 m3	2 122
P-8	**Emission factor of each fuel in Pig Iron Production (fpi) EF_{fpi}**		
	NG	Tonnes CO2 per m3	0,00185
	COG	Tonnes per 1000 Nm3	0,79824
P-9	**Total CO2 from Electricity used in Pig Iron production (TCEPI)**	Tonnes CO2	**72 849**
P-10	**Electricity Consumed in producing Pig Iron (ECPI)**	MWh	81 305
P-11	**Emissions Factor for Electricity Consumption in Pig Iron Production (EFECPI)**	Tonnes CO2/MWh	0,896
	Total Electricity Used in Steel Making Process		0
	Grid Emission Factor	Tonnes CO2/MWh	0,896
	CHP Plant Emission Factor	Tonnes CO2/MWh	0,00
	Total Electricity Produced by CHP	MWh	0
	Blast Furnace Gas	1000 m3	0
	NG	m3	0
	Emission factor for BFG	Tonnes CO2 per 1000 m3	0
	Emission factor NG	Tonnes CO2 per m3	0,00185

P-12	**Total CO2 from inputs into Pig Iron (TCIPI)**	Tonnes CO2	**1 231 296**
P-13	**Total CO2 from Fuel Consumption in Sintering (TCFIO)**	Tonnes CO2	**36 545**
P-14	**Quantity of each fuel (fio) used in Sintering (Q_{fio})**	m3	
	NG	m3	13 897 535
	COG	1000 m3	13 626
P-15	**Emission factor of each fuel in Sintering (fio) EF_{fio}**	m3	
	NG	Tonnes CO2 per m3	0,00185
	COG	Tonnes per 1000 Nm3	0,79824
P-16	**Total CO2 from Electricity used in Sintering (TCEIO)**	Tonnes CO2	**30 148**
P-17	**Electricity Consumed in Sintering (ECIO)**	MWh	33 647
P-18	**Emissions Factor for Electricity Consumption (EFECIO)**	Tonnes CO2/MWh	0,896
P-19	**Total CO2 from Reducing Agents (TCRAPI)**	Tonnes CO2	**1 063 545**
	Total Reducing Agent	Tonnes	342 675
	Default Emission Factor	Tonnes CO2/Tonne	3,10
	Total Reducing Agent	Tonnes	501
	Default Emission Factor	Tonnes CO2/Tonne	2,50
P-20	**Total CO2 from limestone (TCLPI) in Pig iron production**	Tonnes CO2	**101 058**
	Total Limestone	Tonnes	372 907
	Default Emission Factor	Tonnes CO2/Tonne	0,2710
	Total dolomite	Tonnes	0
	Default Emission Factor	Tonnes CO2/Tonne	0,2940
P-21	**Total CO2 from steam production in Pig Iron Production (TCSPI)**	Tonnes CO2	0
P-22	**Quantity of each fuel (fspi) used in steam production in Pig Iron Production (Q_{fspi})**	m3	
	NG		0
	COG		0
P-23	**Emission factor of each fuel in Steam Production (fspi) EF_{fspi}**	Tonnes CO2 per m3	
	NG		
	COG		
P-24	**Total CO2 emissions from the furnace process (TCFP)**	Tonnes CO2	**62 716**
P-25	**Total CO2 emissions from fuel consumption in the furnace process (TCFCFP)**	Tonnes CO2	**7 410**
P-26	**Quantity of each fuel (ffp) used in furnace process (Q_{ffp})**		
	NG	m3	4 012 113
P-27	**Emission factor of each fuel in the furnace process (ffp) EF_{ffp}**	Tonnes CO2 per m3	
	NG	Tonnes CO2 per m3	0,00185
P-28	**Total CO2 emissions from electricity consumption in the furnace process (TCECFP)**	Tonnes CO2	**53 899**
P-29	**Electricity Consumed in the furnace process (ECFP)**	MWh	60 155
P-30	**Emissions Factor for Electricity Consumption in the furnace process (EFECFP)**	Tonnes CO2/MWh	0,896
P-31	**Total CO2 emissions from inputs to the furnace process (TCIFP)**	Tonnes CO2	**1 407**
P-32	**Total CO2 from Argon entering the furnace (TCAFP)**	Tonnes CO2	0
P-33	**Total CO2 from steam production in the furnace process (TCSFP)**	Tonnes CO2	**21**
P-34	**Quantity of each fuel (fsp) used in steam production in the furnace process (Q_{fsp})**	m3	

	NG	m3	0
	COG	1000 m3	20
P-35	**Emission factor of each fuel in the furnace process (fsp) EF_{fsp}**	Tonnes CO2 per m3	
	NG	m3	0,001847
	COG	1000 m3	0,79824
P-36	**Total CO2 from compressed air production for the furnace process (TCCAFP)**	Tonnes CO2	**233**
P-37	**Quantity of each fuel (fca) used in compressed air production (Q_{fca})**	m3	
	NG	m3	0
	COG		0
P-38	**Emission factor of each fuel in compressed air production (fca) EF_{fca}**	Tonnes CO2 per m3	
	NG	m3	0,00185
	COG		0
P-39	**Electricity Consumed in making compressed air for the furnace process (ECCA)**	MWh	260
P-40	**Emissions Factor for Electricity Consumption in compressed air production (EFECCA)**	Tonnes CO2/MWh	0,896
P-41	**Total CO2 from oxygen production (TCOFP)**	Tonnes CO2	0
P-42	**Quantity of each fuel (fop) used in oxygen production (Q_{fop})**	m3	
	NG		0
	COG		0
P-43	**Emission factor of each fuel in oxygen production (fop) EF_{fop}**	Tonnes CO2 per m3	
	NG		0
	COG		0
P-44	**Electricity Consumed in making oxygen (ECOP)**	MWh	0
P-45	**Emissions Factor for Electricity Consumption in making oxygen (EFECOP)**	Tonnes CO2/MWh	0,896
P-46	**Total CO2 from limestone for furnace process (TCLFP)**	Tonnes CO2	**1 153**
	Total Limestone	Tonnes	2 358
	Default Emission Factor	Tonnes CO2/Tonne	0,2710
	Total dolomite	Tonnes	1 748
	Default Emission Factor	Tonnes CO2/Tonne	0,2940
P-47	**Total CO2 from casting (TCBM)**	Tonnes CO2	**35 748**
P-48	**Total CO2 from fuel consumption in casting (TCFCBM)**	Tonnes CO2	**1 348**
P-49	**Quantity of each fuel (fbm) used in casting (Q_{fbm})**	m3	
	NG	m3	509 470
	coal electrodes		113
P-50	**Emission factor of each fuel used in casting (fbm) EF_{fbm}**	Tonnes CO2 per m3	
	NG	m3	0,00185
	coal electrodes		3,6
P-51	**Total CO2 from electricity consumption in casting (TCECBM)**	Tonnes CO2	**34 400**
P-52	**Electricity Consumed in casting (ECBM)**	MWh	38 393
P-53	**Emissions Factor for Electricity Consumption in casting (EFECBM)**	Tonnes CO2/MWh	0,896

The scheme of collecting information at AISW for monitoring report is given below:



Legend:
AS - agglomeration shop wilth limestone section; BFC - blast furnace shop; OHFS - open hearth furnace shop; LDCS - LD Convertor shop; Bloom.- blooming; TPP - thermal power plant (blowing production, heat power); WDS - water delivery shop (pump over of technocal and circulating water); TS - thermal shop (compressed air production and secondary heat power); OS - oxygen shop (oxygen, nitrogen, agron production).

7. Emission reduction

Following table shows emission reduction through the project:

	1st quarter 2009
Baseline Emissions, t CO_2e	1 763 888
Project Emissions, t CO_2e	1 499 738
Emission Reductions[1], t CO_2e	**264 150**

8. Measures to ensure the results/uncertainty analysis

At AISW operates the established system of collecting information on raw materials and power consumption. All production facilities are equipped with the measuring devices such as scales, meters and gas, water, steam, electricity consumption meters. Thus, it allows to continuously monitor the parameters that

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[1] Market situation influences on the manufacturing of steel, assortment of steel and also on the emission reductions of CO_2. Taking into account that calculations of both baseline and projectline are based on the real data of fuel and raw materials consumption, as methodology requires, the amount of emission reductions is purely based on the market situation.
Besides, since crisis has provoked the fall of output it reflected on baseline and projectline. Because AISW didn't work at full capacity, this has caused certain fluctuations in fuel and raw materials consumption, as can be seen from given calculations of the first quarter of 2009, these calculations reflected stronger than initially envisaged in PDD on baseline scenario. However, all this fluctuations are determined by market and are not beyond project owner and developers control.

are relating to the project. All equipment is delivered from approved manufacturers. The information concerning equipment is included in the schedules of verification (calibration) and is checked (calibrating) with the established intervals. Documented operating instructions are stored at the workplace, which can be proved by verifier.

All monitoring equipment meets the regulatory requirements of Ukraine regarding accuracy and measurement error. The accuracy of devices is guaranteed by the manufacturer; the error is calculated and is confirmed by device certificate. Thus, the level of measurements uncertainty corresponds with technologies that are used and it is taken into account when the data is taken from devices.

All monitoring equipment is covered by the detailed plan of verification (calibration). Verification process is being under strict control. According to the schedule of verification, all devices are in satisfactory condition, as it was defined earlier in verification reports.

The monitoring procedures for the most part are straightforward in term of what AISW already does to collect energy consumption data and measure inputs and outputs. Three set of instructions at the AISW regulate the monitoring procedures and responsibilities. They are called Guiding Metrological Instructions:

1) “Metrological product quality assurance” (RMI-I-19.0.1-07)
2) “Metrological expertise of documentation” (RMI-I-19.0.2-07)
3) “Management of measurement technique” (RMI-I-19.1.1-07)

The procedures for calibration of all monitoring equipment are described in RMI-I.19.0.1-07 and RMI-I.19.1.1-07.

The above mentioned instructions also secure the traceability of monitoring/metering devices.

The instructions have been developed in accordance with ISO 9001 requirements. They secure required accuracy of all the measurements done using monitoring equipment.

Best available techniques are used in order to minimize uncertainties. Uncertainties are generally low, typically below 2% with as all parameters are or will be monitored. All the equipment used for monitoring purposes is in line with national legislative requirements and standards and also in line with ISO 9001 standards.

Details are given in Guiding Metrological Instructions.

9. Roles and responsibilities

The Chief Metrological Specialist of the AISW is in charge for maintenance of the monitoring equipment and installations as well as for their accuracy required Regulation PP 229-Э-056-863/02-2005 “On metrological services of the iron works” and on Guiding Metrological Instructions. In case of defect is discovered in the monitoring equipment the actions are determined in Guiding Metrological Instructions. The measurements are conducted on continuous basis and automatically.

Data is collected into electronic database of AISW as well as in paper format. Data is further compiled in day-to-day records and annual records. All records are finally stored in Planning Department.

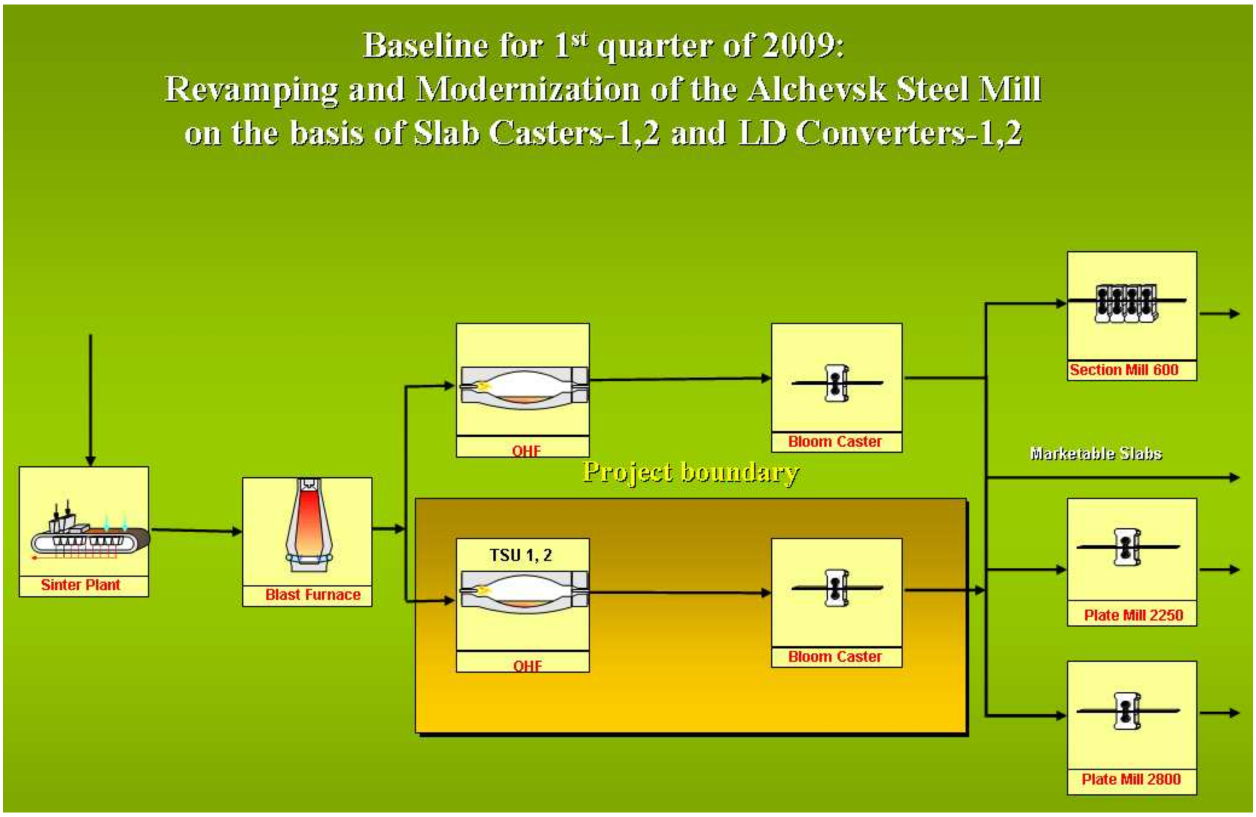
The results of the measurements are being used by relevant services and technical personnel of the iron works. They are reflected in the technological instructions for the regimes of conducting the technological processes and in the revision of Guiding Metrological Instructions.

The data are cross checked as well as internal audits and corrective actions are taken as defined in Instructions. For the project case, similar procedures are followed and based on Orders of Director General of the Plant. Responsibilities for JI monitoring are indicated in table, which can be given additionally.

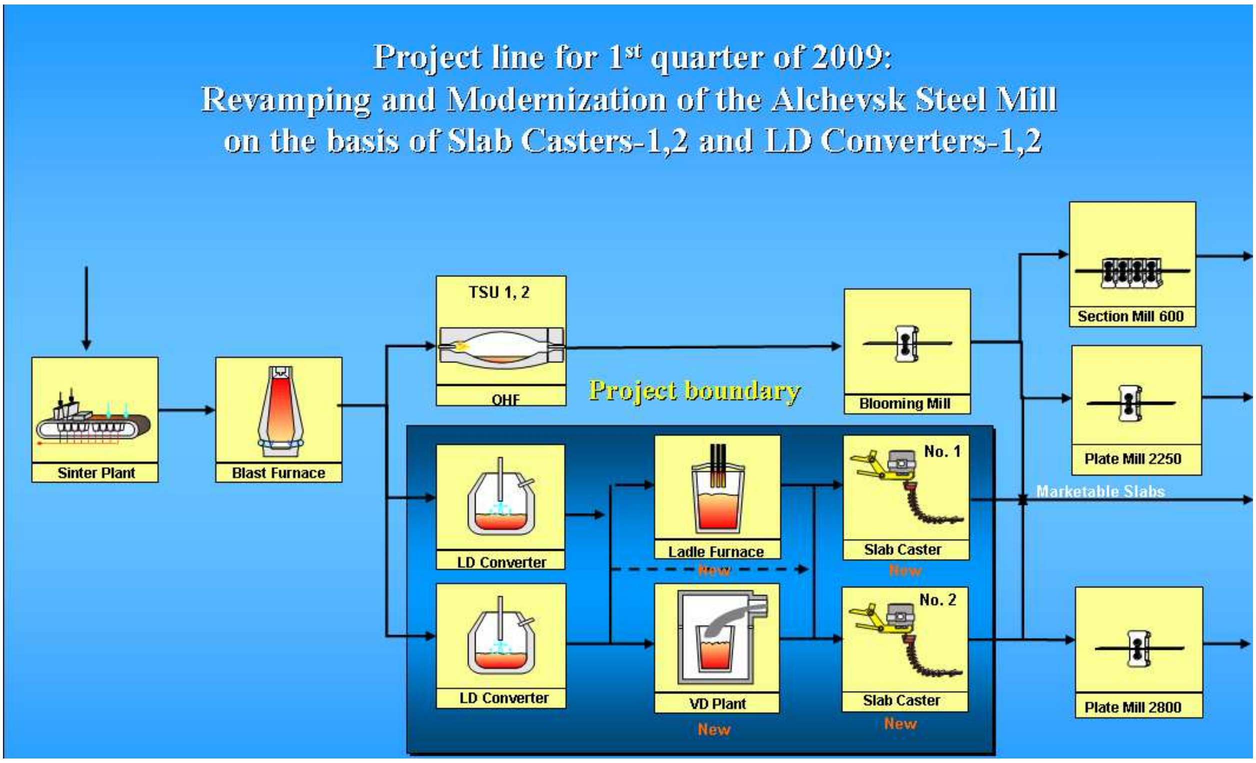
To operate the project equipment the direction of OJSC “AISW” organized regular training sessions and staff training. Thus, for operating Slab Casters and LD Converters the trainings were conducted at the neighboring plants and also abroad. With the introduction of project equipment the workers of OJSC “AISW” are having the opportunity to update their working skills, which are stimulated by the permanent educational, theoretical and practical courses at the Steel Plant. The information about the trainings and courses of professional development can be given additionally.

10. Sample schemes for estimate of emission reductions

Project boundary for the baseline is given at Picture below. In fact baseline is continuation of the historical practice of the AISW to produce steel.



Project boundary for the project line is depicted at picture below.



General Director OJSC “Alchevsk Iron and Steel Works”	T.G.Shevchenko
Chief Accountant OJSC “Alchevsk Iron and Steel Works”	V.P. Elchaninova