Developed by	Approved by
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Annual monitoring report

2nd quarter 2009

JI project

Revamping and Modernization of the Alchevsk Steel Mill, Ukraine

Track 1 JI Registration Reference UA 1000022

ІНСТИТУТ ПРОБЛЕМ ЕКОЛОГІЇ ТА ЕНЕРГОЗБЕРЕЖЕННЯ

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List of abbreviations

OJSC "AISW" - Open Joint Stock Company "Alchevsk Iron and Steel Mill";

JIP – Joint Implementation Project;

Slab Caster – Slab Casting Machine;

LF – Ladle Furnace;

FER – Fuel and Energy Resources.

1. Introduction and project description

The modernization program of Open Joint Stock Company "Alchevsk Iron and Steel Mill" (OJSC "AISW"), which was started in 2004, pursues complex goals: implementation of energy efficient technologies to increase competitiveness of the plant, improvement of ecological impacts, and also expansion of market presence due to increase of manufacture capacity.

The realization of the technical revamping and modernization of the steel manufacturing process, which envisaged displacement old Open-Hearth Furnaces (OHF's) by the complex of oxygen-converter shop with two new LD Converters, was the top priority task of the project. LD Converters are joined together into one cycle with two Slab Casters, with Ladle-Furnaces (LF's) and Vacuumator (VD Plant), which together displaces the Blooming Mills. From the beginning it was envisaged that the project will be implemented as Joint Implementation (JI) project under the Kyoto protocol on climate change.

Before the project implementation OJSC "AISW" was using a traditional steel making technology: OHF's, Ingot Casting and Blooming Mills. According to this technology, around 20-21% of produced slabs in cutoff pieces were returned back to the OHF's.

According to the investment plan the project envisages the following basic Phases:

#1 – installation of Slab Caster #1 along with LF;

#2 – installation of Slab Caster #2 along with VD Plant;

#3 – installation of LD Converter #2

#4 – installation of LD Converter #1

#5 – reconstruction of Oxygen Plant #4

#6 – installation of Oxygen Plant #7

#7 – installation of Oxygen Plant #8

Phases 5-7 aimed to reconstruction and introduction of Oxygen Plants are indissolubly linked with the operation of main steel facilities (Phases #1-4).

With the project implementation, generally with introduction of new Slab Casters with LF's and VD Plant, only around 3% of steel in cutoff pieces returns back to OHF's or to the LD Converters for recasting. As a result, such a difference between projectline and baseline scenarios leads to economy of pig iron, natural gas and also blast furnace gas, which is then used as the result of project activity, for blast furnace blowing production at the existing power plant. However the project leads to increase of electricity consumption in comparison with the baseline.

In general the JI project leads to reduction of fuel and energy resources (FER) consumption and, therefore, to GHG emission reductions.

2. Project monitoring period and version of the document

The emission reductions, examined in this report, include the period from 01/04/2009 till 30/06/2009.

Version of the document – #1

3. Current status of the project

Phases #1 and #2 were implemented: Slab Caster #1 was implemented in August 2005 and Slab Caster # 2 – in March 2007.

The implementation of LD Converter #2 (Phase #3) was completed in January 2008 (it had to be finished in the third quarter of 2007). Such a delay was caused by the financial, technical and customs difficulties and also by the delay of equipment supply.

LD Converter #1 was implemented in September 2008 (completion of Phase #4). However then, in about a month, the operation of LD Converter #1 was suspended because of financial and economic crisis. LD Converter #1 was launched again in March 2009.

The reconstruction of Oxygen Plant #4 (Phase #5) was completed on 30th of September 2005 (almost together with Slab Caster #1).

The installation of Oxygen Plant #7 (Phase #6) was completed on 19th of March 2008 (according to the previous plan it should have been completed in the third quarter of 2007). The delay was caused by the same reasons (financial, technical and customs difficulties), which were mentioned for the Phase #3, because Oxygen Plant #7 supplies oxygen for LD Converter #2.

The installation of Oxygen Plant #8 (Phase #7) is at the final stage of completion (it has to be finished in the third quarter of 2009). Such a delay was caused by financial and economic crisis, because the Steel Mill is not operating at full capacity and there is no need to produce significant oxygen volumes.

Thereby, 6 basic units, mentioned in Phases of project implementation, were operational in the reporting period.

At the end of the first half a year 2009, the Steel Mill was not operating at full capacity. This was caused by the influence of global financial crisis. The crisis stipulated reduction of the steel production volumes and also caused considerable changes in the level of planned raw-materials and FER consumption volumes per 1 ton of steel output, which therefore influenced on specific and absolute level of GHG emission reductions.

During reporting monitoring period the level of OHF steel and rolled-formed slabs output (baseline slabs) was decreased. The main volume of slabs was manufactured at Slab Casters #1,2. The productivity decrease in the baseline has caused the increase of constant FER consumption data (increase of specific FER per 1 ton of steel output). At the same time, the productivity increase in the projectline (at LD Converters and Slab Casters instead of OHF's) has caused the decrease of specific FER consumption data.

The emission reductions, examined in this monitoring report, were generated during the whole monitoring period. The monitoring was based on actual data (mentioned in the reporting documents) of output production and FER consumption in projectline and in baseline scenarios as it is required by the Joint Implementation Project Design Document (PDD).

4. Sustainability – economic and social well-being

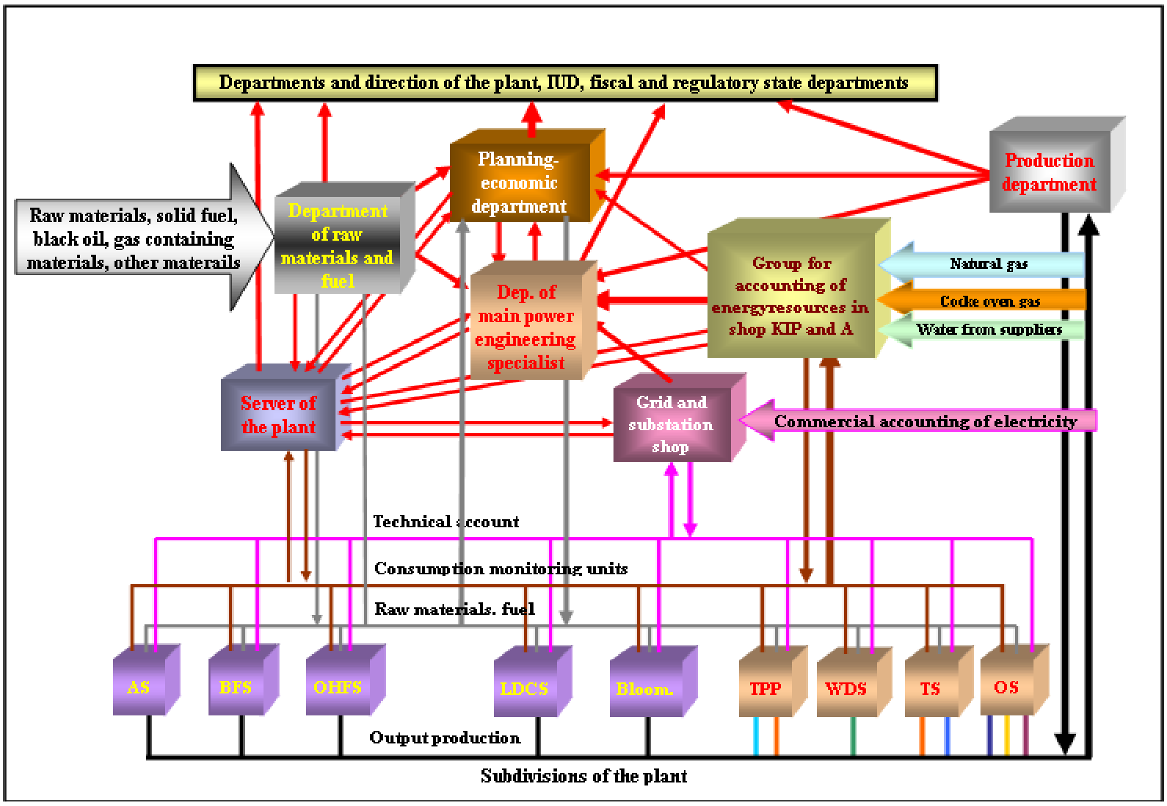
The project consists in the increase of energy efficiency, which reduces consumption of FER per 1 ton of steel output and improvement of the environmental safety due to replacing the main technological components by the modern equipment, highly efficient gas cleaning and aspiration facilities, which stops the increase of mass pollution formation due to raise of output. Besides, according to the project almost all new facilities are constructed with the complex of circulating water supply, which leads to reduction of sewage water and harmful substances spillage into the surface basins.

Therefore the realization of joint implementation project leads to significant improvement of environmental and working conditions at the Steel Mill not only because of GHG emission reductions, but also from reduction of harmful substances discharge.

In addition, project implementation leads to increase of payments to the budgets of all levels and, therefore, to increase of inhabitants social well being.

5. Parameters being monitored according to monitoring plan

The Schematic drawing of information preparation and supply system, which are used in this monitoring report, is presented 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).

All data, used in this chapter, are based on information, confirmed by AISW documents. This information is available to the verifier, also regarding the interconnection with the baseline and projectline tables, presented below.

Colors that are used in the tables are described below:

Projectline	**Baseline**
Name of each indicator	Name of each indicator
Volume of FER consumption	Volume of FER consumption
Emission factor for FER	Emission factor for FER
Volume of CO_2 emissions	
Blank cell	

Baseline

ID Number	Data variable	Units	April 2009	May 2009	June 2009
	Baseline Emissions (BE)	Tonnes CO2	**381 605**	**438 421**	**452 118**
B-1	**Total Steel Output (TSO)**	Tonnes	140 997	172 317	168 499
B-2	**Total CO2 of Pig Iron (TCPI)**	Tonnes CO2	**324 905**	**399 031**	**418 014**
B-3	**Total CO2 from Fuel Consumption in Pig Iron production (TCFCPI)**	Tonnes CO2	**25 199**	**28 043**	**20 456**
B-4	**Percentage of Total amount of Pig Iron Produced Used in project Steel Making Activity (PII)**	share	**1,00**	**1,00**	**1,00**
B-5	**Total Pig Iron Input into Steel Making Process (TPII)**	Tonnes	142 298	183 327	180 914
B-6	**Total Pig Iron Produced (TPIP)**	Tonnes	142 298	183 327	180 914
B-7	**Quantity of each fuel (fpi) used in making Pig Iron (Q_{fpi})**	m3, 1000 m3			
	NG	m3,	12 709 419	12 864 430	9 954 768
	COG	1000 m3	2121,32	5564,267	3065,608
B-8	**Emission factor of each fuel (fpi) EF_{fpi}**	Tonnes CO2 per m3			
	NG	Tonnes CO2 per m3	0,00185	0,00183	0,00181
	COG	Tonnes CO2 per 1000 Nm3	0,798	0,798	0,798
B-9	**Total CO2 from Electricity used in Pig Iron production (TCEPI)**	Tonnes CO2	**18 746**	**22 831**	**23 886**
B-10	**Electricity Consumed in producing Pig Iron (ECPI)**	MWh	20 922	25 481	26 659
B-11	**Emissions Factor for Electricity Consumption in making Pig Iron (EFECPI)**	Tonnes CO2/MWh	0,896	0,896	0,896
B-12	**Total CO2 from inputs into Pig Iron (TCIPI)**	Tonnes CO2	**280 960**	**348 157**	**373 672**
B-13	**Total Carbon from Fuel Consumption in Sintering (TCFIO)**	Tonnes CO2	**6 877**	**8 157**	**7 403**
B-14	**Quantity of each fuel (fio) used in Sintering (Q_{fio})**	m3			
	NG	m3	2 179 463	2 448 494	1 640 484
	COG	ths. m3	3566,208	4591,204	5555,871
B-15	**Emission factor of each fuel in Sintering (fio) EF_{fio}**	m3			
	NG	Tonnes CO2 per 1000 m3	0,00185	0,00183	0,00181
	COG	Tonnes CO2 per m3	0,79824	0,79824	0,79824
B-16	**Total CO2 from Electricity used in Sintering (TCEIO)**	Tonnes CO2	**8 350**	**9 836**	**9 860**
B-17	**Electricity Consumed in Sintering (ECIO)**	MWh	9 319	10 978	11 005
B-18	**Emissions Factor for Electricity Consumption in Sintering (EFECIO)**	Tonnes CO2/MWh	0,896	0,896	0,896
B-19	**Total CO2 from Reducing**	Tonnes CO2	**254 240**	**318 491**	**344 655**

	Agents (TCRAPI)				
	Total Reducing Agent	Tonnes	82 013	102 739	105 209
	Default Emission Factor	Tonnes CO2/Tonne	3,10	3,10	3,10
	Total Reducing Agent	Tonnes	0	0	7 403
	Default Emission Factor	Tonnes CO2/Tonne	2,50	2,50	2,50
B-20	**Total CO2 from limestone (TCLPI) in Pig iron production**	Tonnes CO2	**11 492**	**11 673**	**11 753**
	Total Limestone	Tonnes	42 442	43 110	43 673
	Default Emission Factor	Tonnes CO2/Tonne	0,27	0,27	0,27
	Total dolomite	Tonnes	0	0	278
	Default Emission Factor	Tonnes CO2/Tonne	0,29	0,29	0,29
B-21	**Total CO2 from steam production in Pig Iron Production (TCSPI)**	Tonnes CO2			
B-22	**Quantity of each fuel (fspi) used in steam production in Pig Iron Production (Q_{fspi})**	m3			
	fuel 1				
	fuel 2				
B-23	**Emission factor of each fuel in steam production (fspi) EF_{fspi}**	Tonnes CO2 per m3			
	fuel 1				
	fuel 2				
B-24	**Total CO2 emissions from the furnace process (TCFP)**	Tonnes CO2	**49 701**	**30 752**	**25 902**
B -25	**Total CO2 emissions from fuel consumption in the furnace process (TCFCFP)**	Tonnes CO2	**28 496**	**9 970**	**10 060**
B -26	**Quantity of each fuel (ffp) used in furnace process (Q_{ffp})**	m3			
	NG	m3	15 408 120	5 434 336	5 561 102
	fuel 2				
B -27	**Emission factor of each fuel in furnace process (ffp) EF_{ffp}**	Tonnes CO2 per m3			
	NG	Tonnes CO2 per m3	0,0018494	0,0018346	0,0018090
B -28	**Total CO2 emissions from electricity consumption in the furnace process (TCECFP)**	Tonnes CO2	**17 726**	**16 952**	**12 765**
B -29	**Electricity Consumed in furnace process (ECFP)**	MWh	19 784	18 920	14 247
B -30	**Emissions Factor for Electricity Consumption in furnace process (EFECFP)**	Tonnes CO2/MWh	0,896	0,896	0,896
B -31	**Total CO2 emissions from inputs to the furnace process (TCIFP)**	Tonnes CO2	**3 479**	**3 830**	**3 077**
B -32	**Total CO2 from Argon entering the furnace (TCAFP)**	Tonnes CO2			
B -33	**Total CO2 from steam production in furnace process (TCSFP)**	Tonnes CO2			
B -34	**Quantity of each fuel (fsp) used in steam production in furnace process (Q_{fsp})**	m3			

	fuel 1				
	fuel 2				
B -35	**Emission factor of each fuel in furnace process (fsp) EF_{fsp}**	Tonnes CO2 per m3			
	fuel 1				
	fuel 2				
B -36	**Total CO2 from compressed air production in furnace process (TCCAFP)**	Tonnes CO2	**208**	**164**	**145**
B -37	**Quantity of each fuel (fca) used in compressed air production in furnace process (Q_{fca})**	m3			
	NG	m3			
	fuel 2				
B -38	**Emission factor of each fuel in furnace process (fca) EF_{fca}**	Tonnes CO2 per m3			
	NG	Tonnes CO2 per m3	0,00185	0,00183	0,00181
	fuel 2				
B -39	**Electricity Consumed in making compressed air for the furnace process in steel making (ECCA)**	MWh	232	183	162
B -40	**Emissions Factor for Electricity Consumption (EFECCA)**	Tonnes CO2/MWh	0,896	0,896	0,896
B -41	**Total CO2 from oxygen production (TCOFP)**	Tonnes CO2			
B -42	**Quantity of each fuel (fop) used in oxygen production (Q_{fop})**	m3			
	fuel 1				
	fuel 2				
B -43	**Emission factor of each fuel in oxygen production (fop) EF_{fop}**	Tonnes CO2 per m3			
	fuel 1				
	fuel 2				
B -44	**Electricity Consumed in making oxygen (ECOP)**	MWh			
B-45	**Emissions Factor for Electricity Consumption in making oxygen (EFECOP)**	Tonnes CO2/MWh	0,896	0,896	0,896
B-46	**Total CO2 from limestone for furnace process (TCLFP)**	Tonnes CO2	**3 271**	**3 666**	**2 931**
	Total Limestone	Tonnes	7 064	10 416	10 968
	Default Emission Factor	Tonnes CO2/Tonne	0,27	0,27	0,27
	Total dolomite	Tonnes	4 626	2 880	0
	Default Emission Factor	Tonnes CO2/Tonne	0,29	0,29	0,29
B-47	**Total CO2 from blooming (TCBM)**	Tonnes CO2	**7 001**	**8 632**	**8 199**
B-48	**Total CO2 from fuel consumption in blooming (TCFCBM)**	Tonnes CO2	**3 036**	**3 349**	**2 926**
B-49	**Quantity of each fuel (fbm) used in blooming (Q_{fbm})**	m3			
	NG	m3	18 549	5 554	0
	COG	1000 m3	3 761	4 183	3 666

B -50	**Emission factor of each fuel in blooming (fbm) EF_{fbm}**	Tonnes CO2 per m3			
	NG	Tonnes CO2 per m3	0,00185	0,00183	0,00181
	COG	Tonnes CO2 per 1000 Nm3	0,79824	0,79824	0,79824
B-51	**Total CO2 from electricity consumption in blooming (TCECBM)**	Tonnes CO2	**3 965**	**5 283**	**5 273**
B-52	**Electricity Consumed in blooming (ECBM)**	MWh	4 425	5 896	5 885
B-53	**Emissions Factor for Electricity Consumption in blooming (EFECBM)**	Tonnes CO2/MWh	0,896	0,896	0,896

Projectline

ID number	Data variable	Units	April 2009	May 2009	June 2009
	Project Emissions (PE)	Tonnes CO2	**319 997**	**382 181**	**392 221**
P-1	**Total Steel Output (TSO)**	Tonnes	140 997	172 317	168 499
P-2	**Total CO2 of Pig Iron (TCPI)**	Tonnes CO2	**296 248**	**356 515**	**364 677**
P-3	**Total CO2 from Fuel Consumption for Pig Iron (TCFCPI)**	Tonnes CO2	**20 496**	**24 412**	**17 402**
P-4	**Percentage of Total amount of Pig Iron Produced Used in project Steel Making Activity (PII)**	share	**1,00**	**1,00**	**1,00**
P-5	**Total Pig Iron Input into Steel Making Process (TPII)**	Tonnes	127 784	160 604	153 902
P-6	**Total Pig Iron Produced (TPIP)**	Tonnes	127 784	160 604	153 902
P-7	**Quantity of each fuel (fpi) used in making Pig Iron (Q_{fpi})**	m3			
	NG	m3	10 260 215	11 185 365	8 468 786
	COG	1000 m3	1 905	4 875	2 608
P-8	**Emission factor of each fuel in Pig Iron Production (fpi) EF_{fpi}**				
	NG	Tonnes CO2 per m3	0,00185	0,00183	0,00181
	COG	Tonnes CO2 per 1000 Nm3	0,79824	0,79824	0,79824
P-9	**Total CO2 from Electricity used in Pig Iron production (TCEPI)**	Tonnes CO2	**16 834**	**20 003**	**20 319**
P-10	**Electricity Consumed in producing Pig Iron (ECPI)**	MWh	18 788	22 325	22 678
P-11	**Emissions Factor for Electricity Consumption in Pig Iron Production (EFECPI)**	Tonnes CO2/MWh	0,896	0,896	0,896
	Total Electricity Used in Steel Making Process				
	Grid Emission Factor	Tonnes CO2/MWh	0,896	0,896	0,896
	CHP Plant Emission Factor	Tonnes CO2/MWh			
	Total Electricity Produced	MWh			

	by CHP				
	Blast Furnace Gas	1000 m3			
	NG	m3			
	Emission factor for BFG	Tonnes CO2 per 1000 m3			
	Emission factor NG	Tonnes CO2 per m3	0,00185	0,00183	0,00181
P-12	**Total CO2 from inputs into Pig Iron (TCIPI)**	Tonnes CO2	**258 917**	**312 100**	**326 956**
P-13	**Total CO2 from Fuel Consumption in Sintering (TCFIO)**	Tonnes CO2	**8 648**	**9 789**	**9 603**
P-14	**Quantity of each fuel (fio) used in Sintering (Q_{fio})**	m3			
	NG	m3	3 293 838	3 585 776	3 222 794
	COG	1000 m3	3 202	4 022	4 726
P-15	**Emission factor of each fuel in Sintering (fio) EF_{fio}**	m3			
	NG	Tonnes CO2 per m3	0,001849439	0,001834642	0,00180904
	COG	Tonnes CO2 per 1000 Nm3	0,79824	0,79824	0,79824
P-16	**Total CO2 from Electricity used in Sintering (TCEIO)**	Tonnes CO2	**7 624**	**8 727**	**8 529**
P-17	**Electricity Consumed in Sintering (ECIO)**	MWh	8 509	9 740	9 519
P-18	**Emissions Factor for Electricity Consumption (EFECIO)**	Tonnes CO2/MWh	0,896	0,896	0,896
P-19	**Total CO2 from Reducing Agents (TCRAPI)**	Tonnes CO2	**228 306**	**279 016**	**293 198**
	Total Reducing Agent	Tonnes	73 647	90 005	89 501
	Default Emission Factor	Tonnes CO2/Tonne	3,10	3,10	3,10
	Total Reducing Agent	Tonnes	0	0	6 298
	Default Emission Factor	Tonnes CO2/Tonne	2,50	2,50	2,50
P-20	**Total CO2 from limestone (TCLPI) in Pig iron production**	Tonnes CO2	**14 339**	**14 568**	**15 626**
	Total Limestone	Tonnes	52 957	53 801	58 206
	Default Emission Factor	Tonnes CO2/Tonne	0,27	0,27	0,27
	Total dolomite	Tonnes	0	0	237
	Default Emission Factor	Tonnes CO2/Tonne	0,29	0,29	0,29
P-21	**Total CO2 from steam production in Pig Iron Production (TCSPI)**	Tonnes CO2			
P-22	**Quantity of each fuel (fspi) used in steam production in Pig Iron Production (Q_{fspi})**	m3			
	fuel 1				
	fuel 2				
P-23	**Emission factor of each fuel in Steam Production (fspi) EF_{fspi}**	Tonnes CO2 per m3			
	fuel 1				
	fuel 2				
P-24	**Total CO2 emissions from the furnace process (TCFP)**	Tonnes CO2	**15 170**	**16 397**	**16 439**

P-25	**Total CO2 emissions from fuel consumption in the furnace process (TCFCFP)**	Tonnes CO2	**1 234**	**1 350**	**1 108**
P-26	**Quantity of each fuel (ffp) used in furnace process (Q_{ffp})**				
	NG	m3	667 270	736 095	612 555
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	0,00183	0,00181
P-28	**Total CO2 emissions from electricity consumption in the furnace process (TCECFP)**	Tonnes CO2	**13 882**	**14 652**	**14 806**
P-29	**Electricity Consumed in the furnace process (ECFP)**	MWh	15 493	16 353	16 524
P-30	**Emissions Factor for Electricity Consumption in the furnace process (EFECFP)**	Tonnes CO2/MWh	0,896	0,896	0,896
P-31	**Total CO2 emissions from inputs to the furnace process (TCIFP)**	Tonnes CO2	**55**	**395**	**525**
P-32	**Total CO2 from Argon entering the furnace (TCAFP)**	Tonnes CO2			
P-33	**Total CO2 from steam production in the furnace process (TCSFP)**	Tonnes CO2			
P-34	**Quantity of each fuel (fsp) used in steam production in the furnace process (Q_{fsp})**	m3			
	NG	m3			
	COG	1000 m3			
P-35	**Emission factor of each fuel in the furnace process (fsp) EF_{fsp}**	Tonnes CO2 per m3			
	fuel 1				
	fuel 2				
P-36	**Total CO2 from compressed air production for the furnace process (TCCAFP)**	Tonnes CO2	**55**	**72**	**80**
P-37	**Quantity of each fuel (fca) used in compressed air production (Q_{fca})**	m3			
	NG	m3			
	fuel 2				
P-38	**Emission factor of each fuel in compressed air production (fca) EF_{fca}**	Tonnes CO2 per m3			
	NG	m3	0,00185	0,00183	0,00181
	fuel 2				
P-39	**Electricity Consumed in making compressed air for the furnace (ECCA)**	MWh	61	80	89

P-40	**Emissions Factor for Electricity Consumption in compressed air production (EFECCA)**	Tonnes CO2/MWh	0,896	0,896	0,896
P-41	**Total CO2 from oxygen production (TCOFP)**	Tonnes CO2			
P-42	**Quantity of each fuel (fop) used in oxygen production (Q_{fop})**	m3			
	fuel 1				
	fuel 2				
P-43	**Emission factor of each fuel in oxygen production (fop) EF_{fop}**	Tonnes CO2 per m3			
	fuel 1				
	fuel 2				
P-44	**Electricity Consumed in making oxygen (ECOP)**	MWh			
P-45	**Emissions Factor for Electricity Consumption in making oxygen (EFECOP)**	Tonnes CO2/MWh	0,896	0,896	0,896
P-46	**Total CO2 from limestone for furnace process (TCLFP)**	Tonnes CO2	**0**	**323**	**445**
	Total Limestone	Tonnes	0	1 141	1 585
	Default Emission Factor	Tonnes CO2/Tonne	0,27	0,27	0,27
	Total dolomite	Tonnes	0	48	75
	Default Emission Factor	Tonnes CO2/Tonne	0,29	0,29	0,29
P-47	**Total CO2 from casting (TCBM)**	Tonnes CO2	**8 577**	**9 268**	**11 067**
P-48	**Total CO2 from fuel consumption in casting (TCFCBM)**	Tonnes CO2	**259**	**228**	**267**
P-49	**Quantity of each fuel (fbm) used in casting (Q_{fbm})**	m3			
	NG	m3	81 601	88 800	82 000
	coal electrodes	Tonnes	30	18	33
P-50	**Emission factor of each fuel used in casting (fbm) EF_{fbm}**	Tonnes CO2 per m3			
	NG	m3	0,00185	0,00183	0,00181
	coal electrodes	Tonnes CO2/Tonne	3,6	3,6	3,6
P-51	**Total CO2 from electricity consumption in casting (TCECBM)**	Tonnes CO2	**8 318**	**9 041**	**10 799**
P-52	**Electricity Consumed in casting (ECBM)**	MWh	9 284	10 090	12 053
P-53	**Emissions Factor for Electricity Consumption in casting (EFECBM)**	Tonnes CO2/MWh	0,896	0,896	0,896

Data indicated in the tables above, shows that the production volumes of steel in the second quarter of 2009 are lower than it had been expected in the PDD for the baseline scenario, because financial crisis caused production decline. It caused some fluctuations of specific FER consumption indicators per 1 ton of steel output.

The calculations of GHG emission reductions, indicated in the tables, are based on the real data of FER consumption both for baseline and projectline, according to the methodology. All productivity fluctuations and, therefore, the GHG emission reductions are determined by the market and are not under control by project owner and project developer.

Thereby, actual level of GHG emission reductions within the project, which were received during for the reporting period, is a bit lower than it was expected. The emission reductions data are given in the next chapter.

6. Emission reductions

Following table shows emission reductions through the project:

	April 2009	May 2009	June 2009	2nd quarter 2009
Baseline Emissions, t CO_2e	381 605	438 421	452 118	1 272 144
Project Emissions, t CO_2e	319 997	382 181	392 221	1 094 399
Emission Reductions[1], t CO_2e	**61 608**	**56 240**	**59 897**	**177 745**

7. Measures to ensure the accuracy of the results

The monitoring of JI project indicators of at AISW is realized on regular basis where the system of data collection on FER consumption is being used. The data needed for the monitoring of the project is collected during the process of normal equipment use. The production facilities of the plant are equipped with the measuring devices such as scales, meters and gas, water, steam, electricity consumption meters. The monitoring of the project forms an organic part of routine monitoring of manufacturing process. This allows receiving data regarding the project continuously.

AISW uses the accredited system of quality regulation according to the requirements of the ISO 9001 standard. The Guiding Metrological Instructions were developed in accordance with ISO 9001. They secure required level of accuracy by using monitoring equipment and by the possibility to crosscheck the data adequacy.

Monitoring equipment meets the regulatory requirements of Ukraine regarding accuracy and measurement error. All the equipment used for monitoring purposes, are in line with national legislative requirements and standards and also with ISO 9001 standards. The accuracy of devices is guaranteed by the manufacturers; the error is calculated and confirmed by device certificates. All monitoring equipment is covered by the detailed verification (calibration) plan. The verification process is under strict control. All measuring equipment is included in the verification schedule and verified with established periodicity. According to the schedule of

[1] Market situation influences on the manufacturing of steel, assortment of steel and also on the emission reductions of CO_2.

verification, all devices are in satisfactory condition. The documented instructions to operate the facilities are stored at the working places.

The monitoring procedures are quite comprehensible, because they had already been used at OJSC "AISW" for measuring input and output production parameters, and also for receiving data on level of FER and raw-materials consumption. The most effective accessible methods are used for the error minimization. Generally the error level is low for all parameters (less than 2%) that are subjected to the monitoring. Thus, the measurements uncertainty level corresponded with technologies, used in the production process, and is taken into the account when the data are taken from devices.

The procedures of receiving data for monitoring execution and responsibility for its realization at OJSC "AISW" are regulated by the normative documents of OJSC "AISW" and by the "Guiding Meteorological Instructions" in accordance with project documentation and monitoring plan.

8. Roles and obligations

The Chief Metrological Specialist of the AISW is in charge for maintenance of the facilities and monitoring equipment as well as for their accuracy required by Regulation PP 229-Э-056-863/02-2005 of "Metrological services of the metallurgical mills" and by "Guiding Metrological Instructions". In case of defect, discovered in the monitoring equipment, the actions of the staff are determined in Guiding Metrological Instructions. The measurements are conducted constantly in automatic regime.

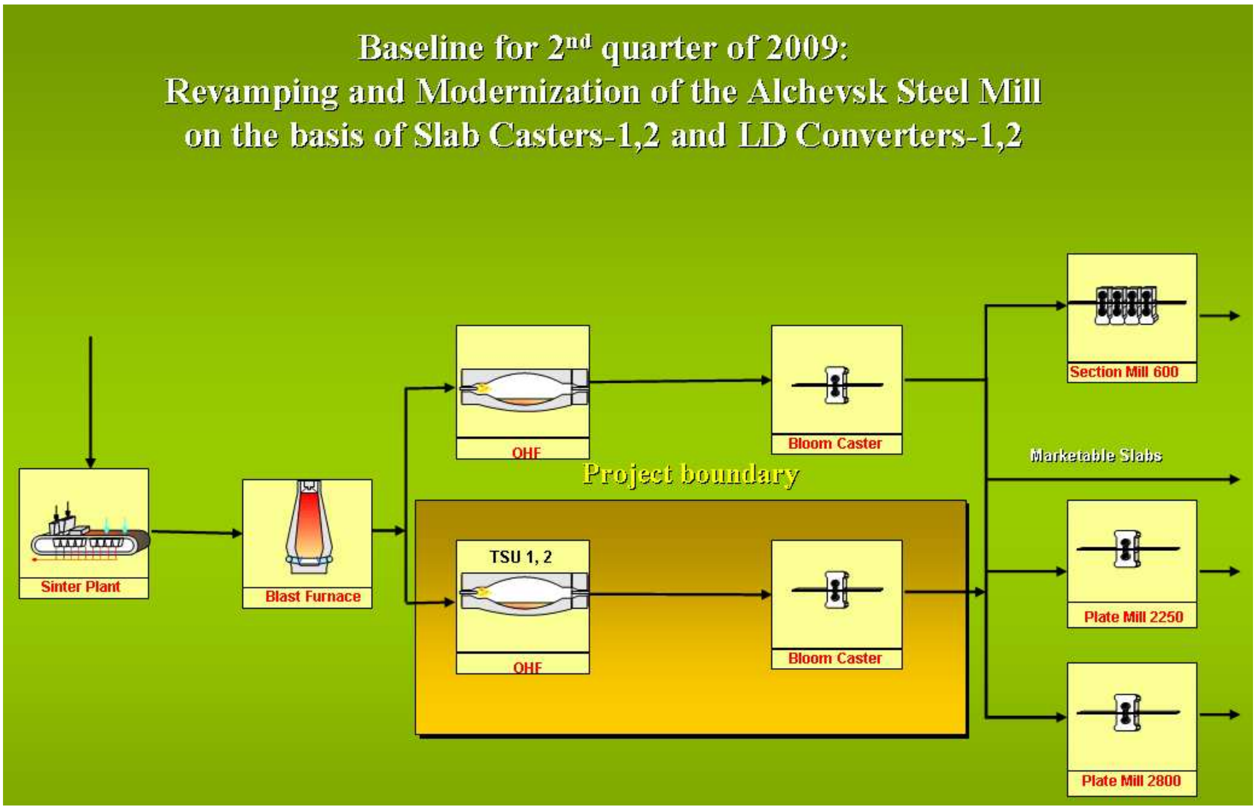
Data are collected in the electronic AISW database and in printed documents. Also data are systematized in the documents of the daily, monthly and annually registration. All those documents are saved in the planning-economic department.

The measurement results are being used by the Chief power-engineering specialist department, by the following services and technical staff of the Steel Mill. They are reflected in the technological instructions of production processes regime and also in the "Guiding Metrological Instructions" revised versions. The monitoring data reports and calculations are under the competence of the Chief power-engineering specialist assistant in accordance to the interior orders of the Steel Mill.

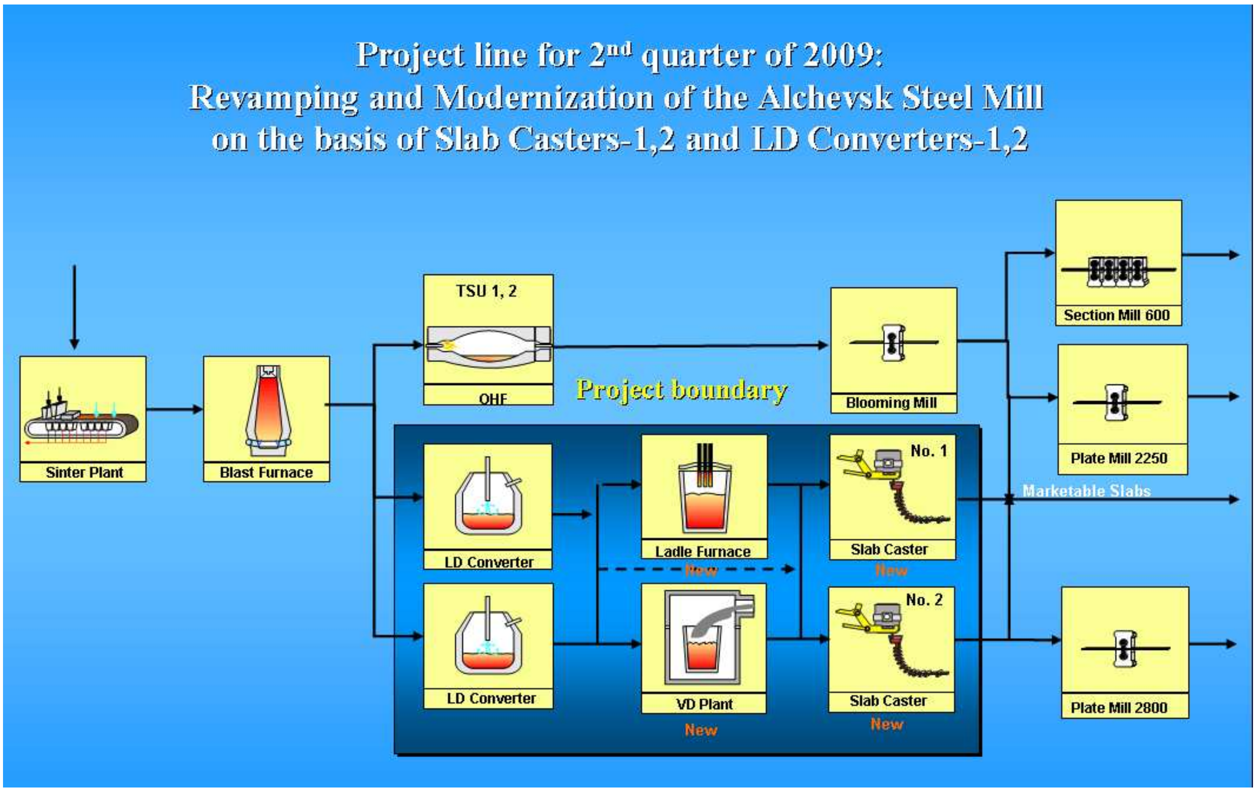
The direction of OJSC "AISW" has organized appropriate staff training to operate the project equipment. Thus, the trainings were conducted at the Ukrainian and foreign plants in order to operate Slab Casters and LD Converters. With the project equipment introduction the workers of OJSC "AISW" have the opportunity to update their working skills, stimulated by the permanent educational theoretical and practical courses at the Steel Plant. The information about the trainings can be given additionally.

9. Schemes for estimate of emission reductions

The baseline is the prolongation of the OJSC "AISW" historical practice of steel output; it means that situation observed in the baseline is the hypothetical situation of what could be without project implementation. The project baseline measures are represented at the picture below.



The projectline measures (the situation, formed during the monitoring period) are examined at the picture below.



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