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# Steel & Rolled Steel in the Ukraine (2001-2010)

*The 8<sup>th</sup> edition*

*Sample PFD*

*Moscow  
November, 2010*

## CONTENTS

<b>Part I. Standing of Ferrous Metallurgy of the Ukraine .....</b>	<b>9</b>
<b>Introduction: Current General Situation in Ferrous Metallurgy of Ukraine:</b>	
<b>Problems and Outlook .....</b>	<b>9</b>
<b>1. Production, Capacity Utilisation .....</b>	<b>16</b>
<b>2. Financial Standing .....</b>	<b>31</b>
<b>3. Provision with Raw Materials .....</b>	<b>36</b>
3.1 Iron ore resources.....	36
3.2 Iron.....	40
3.3 Scrap and Wastes .....	45
<b>4. Restructuring and privatization of Ukrainian ferrous metallurgy .....</b>	<b>50</b>
<b>5. Key export markets of Ukrainian steelmakers .....</b>	<b>59</b>
<b>6. Antidumping probes and investigations against Ukrainian steelmakers ....</b>	<b>67</b>
<b>7. Domestic Consumption of Steel and Rolled Steel.....</b>	<b>72</b>
<b>8. The main domestic end-uses of rolled steel in Ukraine .....</b>	<b>77</b>
Production of pipes .....	77
Metalware .....	81
Machine Building.....	83
Motor Industry .....	88
Building industry and building material industry .....	92
Railway Sector.....	93
<b>9. Pricing and prices on products of Ukrainian ferrous metallurgy .....</b>	<b>95</b>
<b>10. Forecast of production and consumption of crude and finished rolled steel</b>	
<b>in Ukraine .....</b>	<b>105</b>
 <b>Part II. Standing of the Main Ukrainian Steelmaking Enterprises .....</b>	 <b>109</b>
<b>2.1 ArcelorMittal Kryviy Rih .....</b>	<b>109</b>
General Information.....	109
The enterprise structure, capacities, range of products.....	110
Production and tendencies of the Works development.....	114
Sources and suppliers of raw materials.....	118
Sales .....	123
Domestic market .....	123
Exports .....	126
Competitiveness.....	132
Realised Project and Program for Development.....	135
Ecology .....	142
Financial Standing .....	147
Privatization and Ownership.....	152
Appendix.....	159
 <b>2.2 Mariupol Ilyich Integrated Iron-and-Steel Works .....</b>	 <b>179</b>
General information.....	179
The enterprise structure, capacities, range of products.....	180
Blast furnace production .....	180
Steelmaking production .....	183

Rolling production includes:.....	184
Production volumes and tendencies of the Works development .....	188
Sales .....	201
Domestic market .....	201
Exports .....	203
Competitiveness .....	212
A Program of Mariupol Ilyich Development and Investment Activity .....	214
Financial Standing .....	221
Privatization and Ownership .....	223
Personnel and Social Responsibility .....	225
Appendix.....	227
 <b>2.3 Azovstal Integrated Iron-and-Steel Works .....</b>	<b>250</b>
General information .....	250
The enterprise structure, capacities, range of products.....	251
Production output and tendencies of the Works development.....	256
Suppliers of Resources.....	260
Sales .....	265
Domestic market .....	265
Exports .....	268
Competitiveness .....	275
Realised Projects. A Program of Azovstal Upgrading and Investments .....	278
Financial Standing .....	286
Privatization and Ownership.....	289
Personnel, Wages, Social Responsibility.....	294
Appendix.....	297
 <b>2.4 Zaporozhstal Integrated Iron-and-Steel Works .....</b>	<b>312</b>
General Information.....	312
The enterprise structure, capacities, range of products.....	312
Production and tendencies of its development.....	317
Sources and suppliers of raw materials.....	319
Sales .....	325
Domestic market .....	325
Exports .....	329
Competitiveness.....	333
Financial Standing, Credits.....	335
Environmental Measures .....	338
The Works Personnel and Wages, Social Responsibility .....	341
Privatization and Ownership.....	344
Realised Projects and Program of Zaporozhstal Development and Investments .....	346
Appendix.....	361
 <b>2.5. JSC Dneprovsky Integrated Iron&amp;Steel Works named after Dzerzhinsky</b>	<b>396</b>
.....	396
General information .....	396
Structure, capacities, range of products .....	397
Output of products and tendencies of development.....	400
Sources and suppliers of raw materials.....	403
Sales .....	408
Same to other Ukrainian steelmakers, DMK exports the bulk of its production volume owing to limited domestic demand. ....	408

Domestic market .....	408
Exports .....	410
Competitiveness .....	418
Personnel .....	419
Financial Results .....	420
Privatization and ownership .....	423
The Program of DMK im. Dzerzhinsky Development and Investments .....	426
Appendix .....	432
 <b>Appendix: Contact information of main Ukrainian Steelmakers .....</b>	 <b>449</b>

## LIST OF TABLES

- Table 1: Production capacities of Ukrainian metallurgical enterprises, broken by rout of steelmaking, kt per year
- Table 2: Ukrainian crude steel production in 1999-2009, broken by the rout, kt
- Table 3: Production of the main types of rolled steel in Ukraine in 2000-2009 (mln t)
- Table 4: Availability of capacities on production of various steel products in Ukrainian enterprises
- Table 5: Production of flat and long steel\* in Ukraine in 2006-2009, kt
- Table 6: Steel and rolled steel production of Ukrainian enterprises in 2000-2009, kt
- Table 7: Parameters of steel production effectiveness by the greatest steelmakers in Ukraine (steel output per 1 employee, t/employee) in 2000-2009
- Table 8: Financial results of the greatest Ukrainian steelmakers in 2007-2009 (bln UAH)
- Table 9: Iron production by Ukrainian enterprises in 2000-2010, kt
- Table 10: Ukrainian iron exports in 2001-2010, kt
- Table 11: Scrap supply to Ukrainian metallurgical enterprises\* in 2000-2009, kt
- Table 12: Ukrainian ferrous scrap exports in 2001-2009, kt
- Table 13: Privatisation of the main assets in Ukrainian ferrous metallurgy in 1999-2005
- Table 14: Structure of key assets of Metinvest Holding Group
- Table 15: Ukrainian Ferrous Metals Exports in 2001-2010, kt
- Table 16: The greatest Ukrainian exporters of ferrous metallurgy products in 2009, kt
- Table 17: The greatest country-importers of Ukrainian rolled steel products in 2002-2009, kt
- Table 18: Actual consumption of rolled steel in Ukrainian industry by sector in 2001-2009, kt
- Table 19: Metalware production by the greatest Ukrainian producers for 2001-2008, kt
- Table 20: Production of the main kinds of high-steel-consuming industrial products in Ukraine in 1993-2009
- Table 21: Growth of wholesale prices on some industrial products in Ukraine in 1995-2009 (times compared with previous year)
- Table 22: Rates of freight railage tariffs growth (broken by product), in 2002-2009 (% , Q4 y-o-y)
- Table 23: Average annual export prices for the main types of Ukrainian rolled steel in 1996-2009, USD/t
- Table 24: Forecast of production of the main kinds of ferrous metallurgy products in Ukraine up to 2015, mln tonnes (2005-2009 – actual figures)
- Table 25: Forecasted supply-demand balance of rolled steel in Ukraine up to 2015, mln tonnes
- Table 26: Production of basic products of Krivorozhstal by years, kt
- Table 27: Production volumes of the basic products of JSC ArcelorMittal Kriviy Rih in the 1st half of 2009 and 2010 (by month, change y-o-y)

- Table 28: Supplies of Ukrainian iron ore resources to «Krivorozhstal»/AMRK in 2001-2009, kt
- Table 29: Import supplies of coal to JSC «Krivorozhstal» in 2001-2009, kt
- Table 30: Domestic prices on rolled steel of «Krivorozhstal» in 2002-2003, exclusive of VAT, UAH/t
- Table 31: Pattern of Krivorozhstal exports in 1998-2009, %
- Table 32: Share of exports in total rolled steel production of Krivorozhstal in 1998-2009, %
- Table 33: Average annual export prices of Krivorozhstal/AMKR' products in 2001-2009, \$/t
- Table 34: Financial results of Krivorozhstal' in 2001-2009, million UAH
- Table 35: Average composition of charge in the open hearth steelmaking at Mariupol Ilyich Works in 2006 and 2008, kg/t steel
- Table 36: Production of the main products at Mariupol Ilyich Works by year in 1997-2009, thous. tonnes
- Table 37: Coke and coal imports by «Mariupol Ilyich» in 2001-2009, kt
- Table 38: Supplies of iron ore resources to «Mariupol Ilyich» in 2001-2009, kt
- Table 39: Supplies of iron ore resources (with HBI) to Mariupol Ilyich from Russia in 2001-2009
- Table 40: Mariupol Ilyich Iron and Steel Works imports of zinc metal in 2001-2009, kt
- Table 41: Share of exports in rolled steel output of Mariupol Ilyich in 1997-2009
- Table 42: Exports pattern of Mariupol Ilyich Works (by kind) in 1997-2009, %
- Table 43: Average annual export prices on Mariupol Ilyich products for 2001-2009, \$/t
- Table 44: Financial results of Mariupol Ilyich Works in 2001-2009, mln UAH
- Table 45: Average Steelmaking charge chemistry in 2006 and 2008, kg/t steel
- Table 46: Azovstal production by kind of product in 1997-2009, by year, kt
- Table 47: Iron, crude steel and rolled steel production in 1st half-year in 2009 and 2010 by months
- Table 48: Imports of coking coal by Azovstal in 2001-2009, kt
- Table 49: Dynamics of basis prices (ignoring extra charges, discounts, railage tariffs, VAT) on iron ore resources for Azovstal in 2009 by month, UAH/t
- Table 50: Supplies of iron ore resources to Azovstal in 2001-2009, kt
- Table 51: Imports of iron ore resources by Azovstal in 2001-2008, kt/thousand UAH
- Table 52: Imports of iron ore resources by Azovstal in 2001-2008, kt/thousand UAH
- Table 53: Share of exports in total production of Azovstal rolled steel in 1997-2009\*
- Table 54: Commodity pattern of Azovstal Works exports in 1997-2009, %
- Table 55: Average annual export prices on Azovstal steel in 2001-2009, \$/t
- Table 56: Financial results of Azovstal in 2001-2009, million UAH
- Table 57: JSC Azovstal average annual personnel in 2001-2009
- Table 58: Production of basic products of Zaporozhstal in 1997-2008, kt
- Table 59: JSC «Zaporozhstal» imports of coke and coal in 2001-2008, kt
- Table 60: Supplies of iron ore resources to «Zaporozhstal» in 2001-2009, kt

- Table 61: Supplies of iron ore resources from Russia to JSC «Zaporozhstal» in 2001-2009, kt
- Table 62: Geographic pattern of domestic sales of JSC «Zaporozhstal» in 2003-2009, %
- Table 63: Pattern of Zaporozhstal domestic sales, broken by end-use (branch of industry) (share in Zaporozhstal domestic sales, %) in 2000-2009
- Table 64: Share of exports in total production of rolled steel by Zaporozhstal in 2000-2009
- Table 65: Exports structure of Zaporozhstal Works (by kind of products) in 1997-2009, %
- Table 66: Geographic pattern of Zaporozhstal exports by region in 2005-2009, kt/%
- Table 67: Average annual export prices on «Zaporozhstal» products in 2001-2009, \$/tonne
- Table 68: Financial results of Zaporozhstal in 2001-2009, million UAH
- Table 69: Data on Zaporozhstal personnel in 2001-2009
- Table 70: Investment projects of JSC Zaporozhstal
- Table 71: Dynamics of Dneprovsky Integrated Iron&Steel Works named after Dzerzhinsky production in 2001-2009, kt
- Table 72: Supplies of iron ore resources to DMK im. Dzerzhinsky in 2001-2009, kt
- Table 73: DMK im. Dzerzhinsky imports of iron ore resources from Russia in 2001-2009, kt/mln UAH
- Table 74: Share of exports in production volume of DMK im. Dzerzhinsky in 2000-2009, kt, %
- Table 75: Pattern of exports of «DMK im. Dzerzhinsky» in 2000-2009 from data of Ukrainian State Customs Committee, %
- Table 76: Pattern of exports of «DMK im. Dzerzhinsky» in 2002-2008 from data of Ukrainian railage statistics, %
- Table 77: Exports of other products of DMK im. Dzerzhinsky in 2001-2009, kt
- Table 78: Export deliveries of rolled steel of JSC "DMK" in 2009, kt
- Table 79: Breakage of DMK's Rolled Steel Sales by Region-Consignee in 2009, kt/%
- Table 80: Average annual export prices on rolled steel of DMK im. Dzerzhinsky in 2001-2009, \$/t
- Table 81: Staff and salary fund at DMK Dzerzhinsky in 2000-2009
- Table 82: Financial results of DMK im. Dzerzhinsky in 2000-2009, mln UAH



## LIST OF FIGURES

- Figure 1: Steel and rolled steel production in Ukraine in 2000-2009\*, kt  
Figure 2: Continuously cast steel production in Ukraine in 1992-2009, mln t  
Figure 3: Location of the largest Ukrainian steelmakers  
Figure 4: Pattern of crude steel production in Ukraine (broken by producer) in 2008 and 2009  
Figure 5: Pattern of rolled steel production in Ukraine (broken by producer) in 2008 and 2009  
Figure 6: Production of iron in Ukraine in 1992-2010  
Figure 7: Dynamics of average monthly exports of Ukrainian flat-rolled steel in 2008-2010, kt  
Figure 8: Ukrainian Pipe Production in 1995-2010 (kt)  
Figure 9: Average monthly dynamics of metalware production and apparent wire rod consumption in Ukraine in 2007-2010, kt  
Figure 10: Monthly dynamics of Ukrainian imports of coated sheet in 2008-2010, kt  
Figure 11: Average annual electric power prices in 1992-2009, \$ /kWh  
Figure 12: Dynamics of average monthly export prices on Ukrainian rolled steel in 2007-2010, USD/t FOB  
Figure 13: Dynamics of average monthly prices on Ukrainian CR flats (coils) in 2008-2010, \$/tonne (domestic prices including VAT)  
Figure 14: Dynamics of average monthly prices on Ukrainian HR flats in 2008-2010, \$/tonne (domestic prices including VAT)  
Figure 15: Dynamics of average monthly prices on Ukrainian rebar in 2008-2010, \$/tonne (domestic prices including VAT)  
Figure 16: Flow sheet of the Mining-Concentration Complex of AMKR  
Figure 17: Flowsheet of the Metallurgical Production of AMKR (Krivorozhstal)  
Figure 18: Domestic prices on AMKR's rebar and wire rod in 2007-2009, UAH/t including VAT  
Figure 19: The flow sheet of metallurgical manufacture of Mariupol Ilyich Integrated Iron-and-Steel Works  
Figure 20: Domestic prices on rolled steel of Mariupol Ilyich in 2007-2009 including VAT, \$/ton  
Figure 21: Geographic pattern of Mariupol Ilyich Works exports (by region) in 2008, %  
Figure 22: Geographic pattern of Mariupol Ilyich Works exports (by region) in 2009, %  
Figure 23: Pattern of Azovstal domestic sales in 2008 (by sector)  
Figure 24: Geographic pattern of Azovstal's exports by region in 2007 and 2008, %  
Figure 25: Flow sheet of JSC Zaporozhstal production  
Figure 26: Domestic prices on «Zaporozhstal» rolled steel in 2007-2009 including VAT, UAH/tonne  
Figure 27: DMK's domestic sales in 2002-2009, kt, %  
Figure 28: Domestic prices on DMK's rolled steel in 2007-2008 including VAT, \$/t  
Figure 29: Geographic pattern of DMK's exports by regions of the world in 2007 and 2008, %



## **Part I. Standing of Ferrous Metallurgy of the Ukraine**

### **Introduction: Current General Situation in Ferrous Metallurgy of Ukraine: Problems and Outlook**

In the Ukraine, rather large capacities on output of steel and rolled steel are available. The country the 2<sup>nd</sup> greatest producer of ferrous metals in the CIS. Share of Ukraine in ferrous metallurgy production of the CIS is very high: Ukraine yields 37% of total CIS iron, 34% of CIS steel and 27% of CIS rolled steel (in 2008).

The country exported in latest years up to 80% of production volume of its ferrous metallurgy, including the whole range of the sector products: iron ore, iron, ferroalloys, billet, slabs, skelp for pipes, rebar, wire rod, sections, HR and CR flat steel in coils and sheets, pipes, metalware products, coated steel, etc.

In 2009, the country the 8<sup>th</sup> greatest producer of steel and the 6<sup>th</sup> of iron in the world.

On results of 2010, Ukraine became the 9<sup>th</sup> greatest producer of steel and the 7<sup>th</sup> of iron in the world (in connection with significant restoration of ferrous metals production in European countries and USA).

Ferrous metallurgy is basic sector of Ukrainian economy. It includes around 200 enterprises, including 12 ore mining and concentrating enterprises, 19 metallurgical Integrated Works and plants, 12 pipe plants, 13 metalware plants, 12 by-product coke plants, 10 refractory plants, ferroalloys plants, above 100 secondary ferrous metals enterprises (on processing scrap and wastes), as well as machine building, repair and engineering enterprises.

Notice that, in the Ukraine, a share of ferrous metallurgy in industrial output of the country is one of the greatest among countries of the former USSR, above 20%.

The sector gained above 32% of the country export receipts in hard currency in January-August 2008. But in Q4 2008 and 2009, prices on ferrous metals sharply dropped at world market. As a result, the share of ferrous metals in the country export receipts in hard currency decreased to 25.4%.

Current standing of Ukrainian ferrous metallurgy, in spite of large investments in upgrading the industry in recent years, is characterised by imperfect structure and lag in technology from developed countries and even Russia. For instance, in Ukraine, too large share of steel is produced by open-hearth rout (above 36% in 2008 and 26.3% in 2009), and only around 40% in 2008 and 49% in 2009 are continuously cast. Range and shares of products of Ukrainian ferrous metallurgy are inconsistent with world market demand. Namely, the share of semis and rebar, i. e. products will low added value, is too high.

Thus, Ukrainian sector requires radical modernisation and reconstruction, as well as optimising structure of range of finished products. But this requires large investments, which already were invested in several latest years, first of all, in initial production stages (sintering, blast furnace productions), but the financial-economic crisis in 2008 force to freeze or postpone most of the upgrading projects.

Productive assets of Ukrainian metallurgical enterprises are worn and obsolete: by the end of 2009, depreciation of facilities operating was around 70%

(including 54% depreciation of coke-oven batteries, 80% of available blast furnaces, 80% of open hearth furnaces and rolling mills; 26% depreciation of converters), and the completely depreciated facilities yield above a half of the country steel products.

The situation is aggravated by the fact that most of the sector enterprises are so-called city-forming (i.e. are the sole job sources in a district). Thus, closing obsolete capacities results in arising serious social tension owing to growth of unemployment. These problems were especially sharpened since September 2008 in the period of the global and local financial-economic crisis (in 2009 too).

Ukrainian government attempted to improve the situation in the sector by giving various preferences, tax credits to metallurgical companies, decreasing duties and tariffs for them. For instance, from mid-1999 to the end of 2001, a large-scale experiment was conducted in Ukrainian metallurgy: giving considerable tax and other privileges to the sector enterprises to overcome crisis in the sector. The experiment allowed to restore partially working capital of the enterprises and to begin their modernization.

Nevertheless, improving standing of Ukrainian steelmakers, which appeared, first of all, in increasing production volume, was connected with privatisation of most of companies that resulted in arising more effective owners and growth of investments in production reconstruction. This refers, first of all, to Arcelor Mittal Krivyi Rih (AMKR, former Krivorozhstal (until 2006)), which expanded its production and presence at domestic and world market (until 2008), as well as Metinvest Holding (managing metallurgical assets of SCM) and Industrial Union of Donbas (ISD).

Currently processes of re-distribution of assets are in progress in mining-metallurgical industry of Ukraine: Metinvest Holding strengthens its positions; Russian holdings also penetrate into the market, for instance, Evraz Group and other.

However, positive changes in the sector were interrupted by the global crisis, which produced very negative impact on enterprises of mining-metallurgical complex of the country. Sharp drop of demand at both domestic and world market resulted in deep production setback in the country's ferrous metallurgy.

The Ukrainian metal sector is experiencing hard times because of the world crisis. Monthly production of raw steel in Ukraine dropped by 60%, from the average level of 3.7m tonnes to 1.6m tonnes in November 2008. A sharp drop in the prices for steel happened at the same time. As an example, prices for slabs (FOB, Black Sea) decreased from USD 1,055 per tonne in June 2008 to USD 425 per tonne in November 2008.

This was the result of credit crunch and liquidity crisis, which caused reduction in steel consumption by the key clients – construction, heavy engineering and infrastructure areas all over the world. Steel export markets were the first to suffer as supply in Ukraine doubled following the launch of new, export orientated facilities, which became idle as the result of a drop from export market countries. Domestic demand in Ukraine was also very much affected. More than 60% of construction projects are frozen and pipe production reduced by more than 50%. These two areas consume about 80% of steel inside Ukraine. However, as Ukraine exports more than 80% of the metal produced it is highly dependant on external

markets. As the result Ukrainian producers have been very much affected by the crisis.

Although in December 2008 the situation improved and the monthly production of steel grew by 24% compared to November and the prices got stabilized, most market players did not expect rapid recovery.

On the one hand, products of vertically integrated Ukrainian producers are competitive on their key export markets. The production cost before Ukrainian hryvnia (UAH) devaluation was comparable to the production cost of Russian steel and was 25% cheaper compared to Chinese steel. Devaluation of Ukrainian hryvnia from UAH 5.05 to UAH 7.70 significantly improved the competitive positions of Ukrainian producers in comparison to Chinese competitors.

It should be noted that Ukrainian metal sector has significant structural problems. The industry is rather fragmented – the market is divided between several groups. There is a wide spread between different production costs of Ukrainian producers. First of all this is because of differences in the extent of vertical integration between Ukrainian producers, primarily in iron ore production, and in the extent of production modernization.

There are producers, who use obsolete technologies such as open hearth furnaces and blooming and there are producers who are not vertically integrated businesses from the point of view of raw materials. They are in worse condition as their production cost is much higher compared to the vertically integrated players'. In addition, producers with a big debt burden have become very much exposed to crisis as they might have significant problems with liquidity because of a sharp drop in production at the end of 2008 – beginning of 2009.

Ukraine lags much behind USA in the level of labor efficiency. It also lags behind Russia and China, Ukraine's main competitors in export market, in the level of labor efficiency in the blast furnace and steel production. Ukrainian producers with low levels of labor efficiency will be much more affected by the crisis as labor cost is a fixed cost, which does not reduce in line with the decline in production. Low level of labor efficiency also suggests that during crisis industry restructuring, closure of inefficient facilities and upgrading of production, significant redundancy may follow in the metal sector.

Along with structural problems Ukrainian metallurgists face problems on the main export markets. First of all, there is a surge of protectionist actions in the countries – importers of Ukrainian steel. For instance, in January 2009 Russia imposed a 15% duty on imported steel. Secondly, export to Turkey, one of the biggest consumers of Ukrainian steel, is at risk as the country creates own capacities to become a self-supporting player both in rolled and sheet production within the next two or three years.

To settle structural problems of the industry and the problems caused by a sharp drop in demand and prices for metal products, the Ukrainian ferrous metallurgy industry needed in implementing short-term and long-term anti-crisis actions aimed at improvement of the Ukrainian metal sector's competitiveness.

The government of Ukraine has made several steps to overcome the crisis.

In November 2008 the Ukrainian government and the country's mining and metallurgical companies signed a Memorandum of Understanding (MoU) aimed at the minimization of the consequences of the economic crisis in the industry, in particular at the stabilization of prices for ore, coal and steel products, the maintenance of jobs, salary levels and other social securities for employees, and also at the development of the Ukrainian domestic market.

The memorandum has fixed that the Cabinet of Ministers and the mining-metallurgical business (complex) (MMC) of Ukraine have agreed the basic principles of partnership of the business and government, being in force from 10 November until the end of 2008.

Mining Companies have committed themselves to:

- Organize the work in the enterprises at a level not less than the minimum volume that maintains production facilities in working conditions in accordance with the balance of iron production and coke consumption;
- Maintain a professional structure and number of jobs, the level of wages and other social guarantees for workers;
- Implement measures aimed at reducing the cost of steel products;
- Accelerate the completion of the negotiation process with the owners of raw materials, ferroalloys and fuel resources concerning the domestic sales of the products at prices no higher than the world ones;
- Ensure growth in the use of coke to reduce the use of natural gas;
- Expedite handling of freight in railway vehicles on-site of the enterprises;
- Extend the implementation of investment projects related to the introduction of energy-saving technologies.

Later an item was included into the MoU, according to which the supply of steel products to the domestic market should be conducted at prices no higher than export ones.

Within the framework of the MoU, the Ukrainian government granted benefits for domestic mining and metallurgical companies, as well as chemical ones, i.e., imposed a moratorium on the increase of gas, railway transportation and electricity supply tariffs. Among the conditions for granting of benefits is the decreasing of companies' prices for the domestic market to levels not higher than their export prices, the absence of debts to the budget (tax liabilities), to Ukraine's pension fund and to Ukraine's state gas company Naftogaz, and also the payment of wages.

The Cabinet of Ministers has obliged to:

- Negotiate with international institutions to raise funding for reviving the economy of Ukraine;
- Keep the level of fees for use of natural resources at current levels, without applying raising factors to the activities of anti-crisis character;
- Amend the Law of Ukraine "On State Budget of Ukraine for 2008 and Amendments to Some Legislative Acts of Ukraine" in terms of increasing state support for coal mining enterprises in accordance with the decrease in prices for coking coal;
- Amend the Law of Ukraine "On Taxation of Profits of Enterprises";



- Support measures to protect the domestic market from unfair imports, which the measures) will be initiated by the enterprises of MMC;
- Add listings and volumes of energy-saving materials, equipment, hardware and accessories, which are exempt from import duties;
- Expedite the preparation of legal acts under the Kyoto Protocol on climate change, aimed at financing projects and programs concerning the reduction of greenhouse gas emissions, increasing energy-efficiency of materials and reducing the industrial impact on natural environment;
- Apply to the State Property Fund with a view to amend changes to conditions of purchase-sale contracts of objects of metallurgical industry, in part of postponement of implementation of a portion of investment obligations on production modernization ;
- Ensure repayment of debts of state monopolies to companies of the MMC for metal products.

Under the memorandum the government (decree № 925 of 14.10.2008) imposed a moratorium on increasing tariff on rail freight transportation for enterprises of mining and metallurgical and chemical industries, as well as has proposed National Commission for Electricity Regulation to suspend from 1 November 2008, for the enterprise, raising prices on electricity.

According to the Memorandum it was envisaged to increase the period for return of currency gains up to 360 days for energy-saving investment projects and implement a 5-day VAT refund period. It envisaged implementation of a number of benefits for metal companies, in particular lower tariffs for energy and railway road transportation, reduction of income tax down to 20% in case of reinvestment and extension of the list of materials and equipment free of import duties. In addition, the Memorandum extended the period of the existing stable tariff for natural gas till March 2009 and introduced a 25% amortization rate of fixed assets. Some actions had come into force by January 2009 according to the Decrees of the Cabinet of Ministers of Ukraine and Law of Ukraine No. 694.

Then force of the MoU was repeatedly prolonged, the latest time in early March 2010, when the Ukrainian cabinet of ministers has prolonged the MoU for the Q2 of 2010, and finally the MoU ceased to be in force since July 1, 2010.

So, since Q3 2010, freights of mining and metallurgical enterprises of Ukraine are transported by railways without discounts to tariffs, but at stable rate of the tariffs. Actually, in July railage tariffs for metallurgical companies increased by almost 17%.

At the same time, the support actions can help businesses in the short term perspective only and are aimed primarily at overcoming the peak crisis by businesses. In addition, subsidizing the metal sector with the help of tariffs is not the best solution, and the clause of the memorandum requiring from metal plants to keep the staff hinders improvement of the long-term efficiency of the industry.

To solve short term objectives the state can focus its additional actions on the following three areas.

First of all, this includes stimulation and recovery of both domestic and export markets. To keep and recover export it is necessary to hold negotiations with

the key trade partners of Ukraine to prevent deterioration of conditions for entry to the Ukrainian steel products market. Such a step will also help stimulate internal demand as piping and heavy engineering, the key steel consumers in Ukraine after construction area, are export-oriented.

In addition, to keep the internal market it is important to expand the volumes of infrastructure construction and to take actions aimed at completion of the objects under construction.

Another important short term action is to ensure quick export VAT refund. Unfortunately, this problem is not solved by the state as yet (as of the end of 2010) that produces negative impact on liquidity of the enterprises and, thus, on their operational activity and competitiveness.

And finally, it is important that the state does not interfere in regulating the level of employment and industry prices because such measures can undermine financial standing of the industry and will not help solve long term social problems.

Along with short term actions aimed at mitigation of immediate consequences of the crisis it is important to help the Ukrainian metal sector to strengthen their competitive positions in the long term perspective. To this end, it is important to remove the barriers for modernization and consolidation of the industry and develop a sustainable internal market as well as to contribute to efficient redistribution of workforce, which is released as the result of restructuring.

To support the restructuring of the steel sector it will be necessary, first of all, to stop helping the least efficient businesses in order to encourage industry consolidation. Secondly, it will be required to stimulate modernization of obsolete facilities and launch of cutting edge and more efficient facilities. To this end, the state could create favorable conditions by liberalizing the import terms and amortization of capital equipment. Such changes were outlined by Law No. 694 of December 18, 2008. It is necessary to apply them to all categories of equipment to modernize the main segments of the industry. It is also important to create favorable environment for the use of the export credit facilities from the countries supplying equipment to Ukrainian steel mills. Thirdly, it is necessary to adjust Ukrainian technical standards to the international ones, for example by acknowledging EU technical standards.

Development of the internal market for metal sector will require actions in the areas of construction, piping and heavy engineering – the key consumers of steel in the internal market. Each of them requires special approach from the point of view of creation of favorable conditions for further development.

For example, for further development of the construction area it is required to have well developed tax and mortgage policies to stimulate natural demand for housing, systematic monitoring of cities and allocation of land plots for site development as well as mid-term program on infrastructure development. In addition, a critical issue shall be liberalization of the permit system and improvement of procedure transparency. Construction area shall be focused on improvement of labor efficiency and quality of construction rather than on obtaining a huge number of required permits. It can be good to provide export financing to heavy engineering and encourage its consolidation and modernization. Actions to support the piping area

shall be aimed at advancing the products in the export markets and improvement of labor efficiency.

Given low labor efficiency the industry will have to reduce employment and the state can provide help in retraining, relocation and employment of the redundant people on the basis of the long term program similar to EU example in 1986-96 when employment in steel industry was reduced by half as the result of a well developed state program. For this reason it is required to have a special law in place, which shall be developed together with the key industry players and which will regulate the employment reduction rate in the industry as well as mutual obligations of the state and major companies regarding retraining and reemployment of redundant employees. The state will be required to create a flexible system of retraining and efficient system of employment as well as to remove the barriers for the workforce mobility.

Unfortunately, the mentioned measures have not found marked application as yet.



## 1. Production, Capacity Utilisation

On the whole, for the period from 1998 to 2007 production of crude steel in Ukraine demonstrated uptrend (except for 2005). Finished rolled steel and total rolled steel output in the country (the total includes the finished rolled steel plus billet and slabs for exports) also steadily grew until 2008. But the global crisis in 2008 owed considerable drop of crude and rolled steel production in the country.

Volume of crude steel production in Ukraine grew steadily since 1998 up to 2005. In 2004, the output grew 5% year-on-year up to 39.4 mt, but in 2005 the production slightly decreased, by 0.7% to 39.1mt. Ukrainian rolled steel production decreased from around 32mt in 2004 to around 31.3mt in 2005 (-2.2% year-on-year).

But in 2006, Ukraine increased production of iron, crude steel and rolled steel compared with 2005. Crude steel production grew almost 5% to 40.8 mln t. Overall output of rolled steel grew above 3% y-o-y to 35.3 mt (34.1 mt in 2005) in connection with growing export demand for and production of semis, but finished rolled steel output decreased 1.5% y-o-y to 22.4 mt (versus 22.7 mt in 2005). Thus, the total rolled steel output growth was owed by expanding production of semis, well-saleable at world market.

In 2007, Ukraine reached peak figures in crude and rolled steel output owing to favorable world and domestic market conjuncture. Crude steel manufacture increased 5% (or above 2 mln t) y-o-y to 42.8 mln t, total rolled steel output increased to almost 36.2 mln t.

But the crisis in 2008 depressed considerably production activity of Ukrainian steelmakers. Same to Russia, Ukraine experienced dramatic drop of iron, crude and rolled steel output in September-December 2008 after overall growth during Q1-Q3 2008. Finally, the 2008 full-year production figures for iron, crude and rolled steel output dropped to a level of 2003. The crude steel output decreased by 13.% y-o-y to 37.1 mln t, that of total rolled steel dropped by almost 4.7 mln t to around 31.5 mln t, finished rolled steel manufacture dropped by 4 mln t to 20.5 mln t.

For the first 9 months of 2009 production of crude steel in Ukraine decreased 29% y-o-y to 21.7 mln t. Notice that the production decreased month-on-month for almost the whole first half-year, but then some recovery began: since June the production began to increase month-on-month in connection with some reviving world market of steel that allowed Ukrainian steelmakers to increase slightly the production volume month-on-month. By quarters, the Ukrainian crude steel production decreased year-on-year in 2009: in Q1 by 37.7% (to 6.82 mln t), in Q1-2 by 34.4% and in Q1-3 by 29%.

On the whole, in 2009, Ukraine produced below 30 mln t steel, the bottom figure in 2000s.

In 2009, survival of Ukrainian ferrous metallurgy sector was based on active exports of its products both to CIS and East-European markets (traditionally) and also to Asian market.

In 2010, restoration of the industry, started since mid-2009, continued.

In January-August 2010 production of iron in the country increased as compared with the same period of previous year by 8.3% to 18.05 mln t (16.67 mln t in the same period of 2009), steel output – by 10.8% to 21.29 mln t (19.22 mln t), finished rolled steel production – by 10.5% to 18.88 mln t (17.08 mln t).

Nevertheless, on the background of the growth, a number of companies faced problems with short supply of resources and weak sales of products that forced some companies to decrease production volumes (up to being on the verge of stoppage).

Contradictions between suppliers and consumers of iron ore resources concerning prices of the supplies result in breaks of the supplies for some customers, for instance, Zaporozhstal and Mariupol Ilyich. However, after recent merger of the Mariupol Ilyich Works by Metinvest Group, which has large iron ore-producing assets, the Works will not face this problem.

Key driver of Ukrainian steel/rolled steel production was/is/will be export demand on the background of relatively weak domestic demand. Historically Ukrainian steelmaking industry was created for providing demand of the whole USSR, and, after the USSR rupture the industry capacities on crude and rolled steel output proved much in excess of the domestic demand that forces to export the bulk of the production volumes and owes crucial dependence of the industry on the world market conjuncture.

Notice that by now, compared with 1990, Ukraine cut a large share of the surplus steel capacities, but nevertheless the capacities remain surplus to a large extent and the situation will not markedly change even in far prospects.

Steelmaking capacities in the country decreased, compared with 1990, by above 9 mln tpy (by 16%) to around 48 mln tpy (as of early 2008). However by the beginning of 2009 the capacities grew up to above 51 mln tpy in connection with launching a converter at the Alchevsky Works, as well as construction of several electro-steelmaking plants in the country.

The capacities slightly decreased, to around 49 mln tpy in connection with shutdown of several open hearth furnaces. In future one can expect expanding capacities on output of steel and rolled steel in the country in connection with planned realization of construction of new steelmaking and rolling shops and new enterprises.

Total rolled steel capacities in Ukraine were, as of the beginning of 2009, around 40 mln tpy, including 26 mln tpy of finished rolled steel, and remained the same by now (Q4 2010).

Utilisation of the capacities on steel and rolled steel in the country in latest years until 2008 reached around 90%, but dropped in the end of 2008 to below 50%. For instance, by November 1, 2008, only 10 of 42 available open hearth furnaces (OHF) operated, 11 of 21 converters (BOC), 5 of 14 electric furnaces (EAF), 19 of 41 blast furnaces (BF), and 8 of 64 rolling mills. Fortunately, later, in December, the situation was slightly improved, and launching anew a part of the previously stopped facilities began.

In 2009, on the whole, 14 of 41 available blast furnaces stood idle, as well as 2 of 21 converters and 18 of 35 open hearth furnaces

At Fig. 1, data on Ukrainian output of steel and rolled steel in latest years are shown.

**Figure 1: Steel and rolled steel production in Ukraine in 2000-2009\*, kt**

\* ignoring production of semis (billet and slabs) for exports in 2005-2009

*Source: State Committee on Statistics of Ukraine (USCS)*

Capacities of Ukrainian steelmakers, broken by steelmaking routs (oxygen-converter (BOC steel), electric arc furnace (EAF steel), open-hearth furnace (OHF steel)) are presented in Table 1.

**Table 1: Production capacities of Ukrainian metallurgical enterprises, broken by rout of steelmaking, kt per year**

Metallurgical Enterprise	BOC	EAF	OHF	Total
<b>Total in Ukraine</b>				
Including:				
Arcelor Mittal Krivyi Rih (Krivorozhstal')				
Mariupol im. Ilyich				
Alchevsky				
Azovstal'				
Zaporozhstal'				
Dneprovsky im. Dzerzhinsky				
Enakievo (including Metalen)				
Makeevka metallurgical plant				
Donetsk metallurgical plant				
Dnepropetrovsk im Petrovsky				
Dneprospetstal'				
Donetsk electrometallurgical plant (former Istil-Ukraine)				
Nizhnedneprovsky pipe-rolling plant				
LLC Electric Steel				
TSA-Steel Group				
CJSC Azov Electric Steel				
Nikopol' pipe rolling plant				

*Source: reports of the companies, Metal-Expert*

A feature of Ukrainian steelmaking sector up to now is very low capacities on electric steel output, share of which decreased in 2001 to 3.7% of total steelmaking capacities and slightly grew in 2002-2003, the in 2004-2006 it slightly decreased again, owing to growing power costs, with a new slight growth in 2007-2008 to 3.7% in 2008 (Table 2). Thus, the share practically did not change from 2001 to 2008, fluctuating in range 3.3-4.3%.

In 2009, the share increased to 4.2% on the background of overall steel production setback – at the expense of decreasing open hearth steel production and decreasing its share in the total.

The share of obsolete OHF capacities remained and remains very large as yet, around 43% in 2004-2006; but in latest years, a tendency arose of decreasing the OH steel share, to around 36% in 2008 – first of all, in connection with stopping a large number of OHF in September-December 2008 (see Table 2), and further to 26.3% in 2009 owing to continuing the process of removing from service OH furnaces - i.e. this is effect of the crisis (tactic response to the demand drop) but not a result of profound structural changes in the industry. Ukraine is the greatest producer of OH steel in the world, yielding around a half of the world OH steel.

The share of BOC steel was around 53% in 2004-2005 and slightly increased, to 53.8% in 2006, with following steady growth up to 60% in 2008 and further, to 69.5% in 2009.

In nearest years one can expect further considerable decreasing the OH steel share in case of realizing plans of a number of companies on construction of modern

steelmaking capacities (BOC and EAF) with further removing from service OH furnaces.

**Table 2: Ukrainian crude steel production in 1999-2009, broken by the rout, kt**

	1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009	
	t	%	t	%	t	%	t	%	t	%	t	%	t	%	t	%	t	%	t	%	t	%
BOC																						
OHF																						
EAF																						
Total																						
Concast																						

*Source: State Committee on Statistics of Ukraine*

Other feature of the Ukrainian steelmaking, demonstrating its low technological level, is low share of continuously cast steel (CC or concast steel) – Table 2, Figure 2. However, in latest years, this share gradually grew and reached around 34% in 2007 and 40% in 2008 (also to a large extent owing to the drop in OHF steel output in Q4 2008). In bulk, production of concast steel increased 3.4 times from 1998 (4.3 mln t) to 2008 (14.8 mln t – peak figure in the history of Ukrainian steelmaking sector). In 2009, the concast steel production slightly decreased, to 14.65 mln t, but its share in the total steel production increased to around 49% - at the expense of dropping output of obsolete OHF steel.

In nearest years the share is planned to increase further at the expense of planned commissioning of new continuous casters in the country (in operating productions and in structure of newly launched steelmaking complexes).

For instance, in 2010, Arcelor Mittal Kriviy Rih started construction of the first concaster.

**Figure 2: Continuously cast steel production in Ukraine in 1992-2009, mln t**

*Source: State Committee on Statistics of Ukraine*

As of early 2009, rolling production fleet of Ukraine included 9 blooming and slabbing mills, 2 billet mills and 1 billet-for-pipe mill, 3 rail&structural mills, 7 heavy section mills, 10 shape mills, 8 small section mills, 5 wire mills, 6 plate mills, 2 sheet mills, 1 universal mills, 2 wheel-rolling mills, 1 axle-rolling mill, 7 CR mills. Besides, in steelmaking works and pipe plants, above 40 pipe-rolling mills and pipe-electro-welding facilities are available.

In Table 3, data on a structure and volumes of production of rolled steel by products in Ukraine in 2000-2009 are given. This structure is imperfect: long-rolled

products dominate over flat-rolled ones: the ratio was 2:1 in 1992, and, in latest years, the situation practically did not change, and the long product share ranged around 65-68% of the total (65.2% in 2007, 66.4% in 2008 and 68.0% in 2009 – i.e. practically the same 2/3 of the total – same to 1992).

**Table 3: Production of the main types of rolled steel in Ukraine in 2000-2009 (mln t)**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>Long products*</b>										
<b>Including wirerod</b>										
<b>Flat products, including:</b>										
Cold-rolled sheet										
Hot-rolled steel										
Coated products										
<b>Rolled steel total</b>										

\* - including concast semis for export

Source: State Committee on Statistics of Ukraine

Notice that Mariupol im. Ilyich and Zaporozhstal produce practically flat-rolled products only, whereas, at most of Ukrainian steelmakers, capacities on manufacture of long-rolled products are available (Tables 4, 5). Only Azovstal, Alchevsky Works and the Donetsk plant have relatively well-balanced capacities on flat and long products manufacture (Table 5).

**Table 4: Availability of capacities on production of various steel products in Ukrainian enterprises**

<b>Metallurgical Works</b>	<b>Steel semis</b>	<b>Flat products</b>	<b>Long products</b>	<b>Pipes</b>	<b>Special steel</b>
Krivorozhstal'	X		X		
Donetsk MP*	X	X	X	X	
Alchevsky	X	X	X		
Azovstal'	X	X	X		
Makeevka	X		X		
Dneprovsky im. Dzerzhinsky	X		X		
Dnepropetrovsk im. Petrovsky	X		X		
Enakievo MP	X		X		
Mariupol im. Ilyich	X	X		X	
Zaporozhstal	X	X		X	X
Dneprospetsstal'	X		X		X

\*Together with CJSC DonetskSteel-Metallurgical Plant

Source: State Committee on Statistics of Ukraine



**Table 5: Production of flat and long steel\* in Ukraine in 2006-2009, kt**

Enterprise	2006		2007		2008		2009	
	Long steel*	Flat steel	Long steel*	Flat steel	Long steel*	Flat steel	Long steel*	Flat steel
<b>Total</b>								
Arcelor Mittal Krivyi Rih								
Dneprovsky im. Dzerzhinsky								
Azovstal								
Alchevsky								
Makeevka								
Dnepropetrovsk im. Petrovsky								
Donetsk metallurgical plant								
Enakievo Met. Plant								
Dneprospeztstal								
Mariupol im. Ilyich								
Zaporozhstal								
*- exclusive of semis								

Source: Metal-Expert

Notice that in 2009, under impact of the crisis, Ukrainian steelmakers survived at the expense, first of all, of exports of semis and long products, which also decreased compared with 2008, but to a lesser extent compared with those of flat steel.

Besides, in Ukraine, too small share in total rolled steel output belongs to cold-rolled (CR) sheet, coated sheet, alloyed sheet, thin sheet, tin-plate. For instance, in latest years, Ukrainian output of coated sheet was around 380,000t, 350,000t and slightly above 300,000 in 2004, 2005 and 2006, respectively, and slightly grew to 370-420,000 tpy in 2007-2008. In 2009, on the background of the global crisis, the production dropped to 240 kt.

Only two large steelmakers have capacities on coated sheet output: Mariupol Metallurgical Works im. Ilyich and Zaporozhstal; in addition, such capacities are available in two smaller enterprises: Dnepropetrovsk im. Komintern metallurgical plant and Modul (Khmel'nitsky region).

Notice that the current global crisis forced to revise considerably plans on development of Ukrainian metallurgical companies. Favorable world market conjuncture in latest years before the crisis encouraged plans on expanding available capacities and construction new ones on ferrous metallurgy industry of Ukraine. In latest years Ukrainian metallurgical companies invested large funds in production upgrading and expansion. It was expected that crude steel output in the country may reach around 60 mln t in 2012, including 6.8 mln t of electric steel; the share of concast steel was to reach 80%. In addition to expanding capacities of leading Ukrainian steelmaking Works, new projects on creation of new producers were being realized.

However, the global economic crisis retarded realization of many projects, which were postponed or even frozen. As yet, facility repair works were implemented. For instance, Arcelor Mittal Krivyi Rih in September 2010 completed