# INFORMATIVE MEMORANDUM

STEEL WORKS NIKSIC - NIKSIC

**SUMMARY** 

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### I LOCATION

### MONTENEGRO - a brief review:

Geographical location: Montenegro is located in the south-east Europe and borders with Croatia in the west, Bosnia and Herzegovina in the north, Serbia in the east and Albania in the south.

Political establishment: Montenegro is independent state from May 2006. Before this date, it was one of Yugoslavian republics.

Population: 625,000

Major towns and cities: Podgorica (administrative centre) population: 187,000

Nikšić: population: 72,000 Bijelo Polje: population: 46,000 Bar: population: 42,000

Large Novice population: 2

Herceg Novi: population: 30,000

Cetinje (Old royal Capitol): population 16,000.

Geographical and

Infrastructural Data: Total surface: 13.812 km<sup>2</sup>

International airports: Podgorica, Tivat

Sea port: Bar (ferry-boats: Bar-Bari, Bar-Ancona, Bar-Koper.

Railroad: Bar-Beograd – Budapest

Road: Adriatic Highway.

Official language: Montenegrin

Currency: EURO

## THE TOWN OF NIKŠIĆ – a brief description:

The town of Nikšić is located in the central part of Montenegro at 630 m from sea level.

The settlement itself, dates as far back as The Roman age. Today's Niksic is the second-sized town in Montenegro with the population of 75.000. It is considered to be the main industrial centre of Montenegro. Besides The Steelworks, which is the biggest enterprise in the town there is "TREBJESA" Brewery, Bauxite Mine, Montenegro Electric Enterprise, Wood-processing Industry, "Montevar-Metalac" – the steel fabricating industry and a number of small and medium privately-owned firms.

Nikšić is the town of youth with 30.000 students (elementary-and high-school and college and university students).

Ever since The Second World War Niksic has rapidly been rising, so the onetime small town with population of 5.000 has risen into a powerful industrial and significant cultural centre.

### II GENERAL INFORMATION AND MAIN ACTIVITY

Construction of The Steelworks Niksic (ZN) dates as far back as 1951. The first production capacity was put in operation in 1956. and the construction fully completed in 1959. when annual capacity of ZN was 93.500 tons of finished products.

The first extensive reconstruction was carried out in the period 1975-1982.

ZN is an electric arc furnace-based steel plant designed to make long products. The plant differentiates itself from most regional steel mills by its significant downstream processing capabilities, which are particularly suited to the production of quality steels. ZN's plant also has all the machinery needed to produce rebar, and has successfully done so for a number of years.

### The plant comprises:

- a scrap yard;
- · melting shop with continuous caster and ingot casting
- blooming mill;
- combined bar & wire rod rolling mill;
- an open die forge; and
- a cold drawing department.

Ancillary plant areas include roll and guide workshops, a boiler house, an oxygen/nitrogen plant (operated under an agreement with Messer), electrical distribution facilities, propane and butane gas storage, acetylene production, water treatment and air compressors.

ZN is a producer of high grade and special steels in a wide quality and size assortment. Crude steel is made in electric arc furnaces with subsequent ladle treatment and vacuum degassing. The produced steel is then processed into billets, bars, wire rods at the Blooming rolling mill, Combined rolling mill, Open die forging and Cold drawing mill facilities. The Open Die Forging and Ring Rolling Plant perform also free upsetting of ingots at the 25MN hydraulic press and rolling of rings at the radial - axial type rolling mill.

### **III PRODUCTION RANGE**

### 1. Steel grades - range of products

- carbon steels (re-bars)
- high grade carbon steels
- high grade low alloy steels
- special carbon steels
- special low alloy steels
- special high alloy steels

### Application of high grade steels:

- structural steels -
- steels for general applications
- case hardening steel

- quenching and tempering steels
- free cutting steel
- spring steel
- steel for screws, bolts, nuts and rivets.

## - structural steels for particular application -

- bearing steel
- valve steel (for engines)
- steels for work at higher temperatures
- wear-resistant steel
- martensitic stainless steel
- high temperature resistant steel
- chain steel
- steel for welding electrodes

### - tool steels -

- carbon steels
- · alloyed steels

## -other steel grades-

Total number of steel grades more than 200.

### IV CAPACITIES AND SCOPE OF PRODUCTION

## **MELTING LINES**

### **EAF (LECTROMELT 1977)**

	\	
Producer	Lectromelt, USA	
Type of Furnace:	three-phase alternate current (AC)	
Rated capacity:	60 ton (100 000 ton/year)	
Transformer:	30 MVA +10%	
Furnace dia :	5.2 m	
Tapping system:	spout	

## **EAF (CVS 2010)**

Producer	CVS Makina, Turkey	
Type of Furnace:	three-phase alternate current (AC) with new de-dusting system and water treatment plant	
Rated capacity:	65 ton (350 000 ton/year)	
Transformer:	52 MVA +20%	
Furnace dia :	5.3 m	
Tapping system:	EBT	

**LF (ASEA SKF 1979)** 

Producer	SKF, ASEA
Transformer:	8 MVA
Heating capacity:	3° C/min
Ladle dia :	2.8 m
Electrodes dia :	300 mm
Bubbling system:	Induction stirrer, Argon

## **VACUUM DEGASING**

Producer	SKF, ASEA
Туре	In the ladle
Steam ejectors	5 in series

## **CASTING LINES**

## **INGOT CASTING**

Casting method:	syphon
Ingot weights, tons	2.6; 3.3; 5.6; 7.7

## **CONTINOUS CASTING MACHINE (CONCAST 1981)**

Type of machine:	Curved - 4 strands
Machine radius:	5 m
Casting speed:	square sections 1.5 ÷ 2.0 m/min
Billets size:	square sections 120; 140 mm x 10000 mm
Billets cuttings:	Hydraulic shears
Rated capacity:	100 000 ton

## **ROLLING LINES**

## **BLOOMING ROLLING MILL (1978)**

Producer	ŽDAS, Czech
LOFTUS Soaking pits with heavy fuel	10
oil	
Blooming rolling stand	Ø 850 x 2100 mm - 3750 kW
Rev-duo rolling stand	Ø 630 x 1600 mm - 2000 kW

Rated capacity	250 000 ton
Production mix	Sq 80-145 mm rounded edges Sq 150-250 mm – free rolled length: 3000 – 10000 mm  Round: 80 – 160 mm length: 3000 – 8000 mm  flats: 50 – 250 x 250 – 400 mm length: 3000 – 5000 mm
Heat treatment	Annealing

## **COMBINED BAR & WIRE ROD ROLLING MILL (SKET 1981)**

Producer	SKET & General Electric , Germany
LOFTUS Walking Beam Furnace	1
Rolling stands: 8 + 6 + 6	20
Rolling stands	Stand N. 1: Ø 530 x 800 mm
Horizontal -Vertical	Stand N. 20: Ø 320 x 500 mm
Rated capacity:	150 000 ton
	reinforcing steel:
	plain
	$\emptyset$ 10 – $\emptyset$ 38 mm coils, max. weight 750 kg
Production Mix	Ø 14 – Ø 50 mm bars
	length: 3000 – 12000 mm
	Ø 10 – Ø 32 mm coils, max. weight 750 kg
	$\emptyset$ 14 – $\emptyset$ 32 mm bars
	length: 3000 – 12000 mm
	quality steel grades:
	Ø 10 – 32 mm coils, max weight 750 kg
	Ø 14 – 50 mm bars
	Annealing for Coils and Bars
Heat Treatment	

## **OPEN DIE FORGING PLANT (DEMAG & THYSSEN-WAGNER 1992)**

Producer	MANNESMAN-DEMAG, Germany
LOI Reheating Furnaces	4
Hydraulic press	18/25 MN
Ring Rolling Mill	THYSSEN-WAGNER RAW 125/100
Rated capacity:	13 000 ton

Production Mix	Sq 200 – 470 mm without machining Length: max 6000 mm Ø 200 – 500 mm without machining Ø 240 – 470 mm bars with machining Length: max 6000 mm Flats: 140 – 400 x 400 – 800 mm Length: max 6000 mm Open-die forgings: weight: max 5500 kg, Length: max 6000 mm Hot rolled rings (flat and shaped):  • diameter: 300 – 3000 mm • height: 40 – 550 mm • thickness: min. 15 mm. railway tyres (UIC-810) nominal dia.: Ø 1086 mm, Ø 936 mm, etc Annealing and Quenching & Tempering
Heat Treatment	

# **COLD DRAWING MILL (1978)**

WEAN UNITED and SCHUMAG Drawing Machines	4
Rated capacity:	15 000 ton
KISSERLING, HETRAN Peeling Machines	4
Rated capacity:	5 000 ton/year
SUSTRAND, MALCUS Grinding Machines	3
Rated capacity:	2500 ton

Production Mix		
	• cold – drav	wn: Ø 8 – 48 mm bars with tolerance field H11 Ø 8 – 16 mm coils with tolerance field H11
	• peeled:	length: 3000 – 6000 mm  Ø 28 – 48 mm, with tolerance field H11 length: 3000 – 6000 mm
	• ground:	Ø 8 – 48 mm length: 2000 – 5000 mm
Heat treatment	Annealing and	d Quenching & Tempering

According to the design, annual production could reach 450.000 tons of crude steel. However, to achieve this annual production investor has to invest into good maintenance and upgrading of date existing facilities. The highest annual production of 291.039 tons of crude steel was achieved in the year 1987.

### V CAPITAL VALUE AND NUMBER OF SHARES ON THE DAY OF MAY 05, 2011.

Total number of shares: 3.466.319

Value of a share: € 22,3588

### **VI MANPOWER**

On the day of May 5, 2011. ZN employed 1407 full-time employees, but this number will be reduced dawn to < 900 employees through social program which is in progress.

### VII CERTIFICATION OF QUALITY SYSTEM

- On Sept. 29, 2000. ZN was awarded by JUQS certification firm the Certificate for quality system introduced according to the standard JUS-ISO 9001, which represents a model for assuring quality in designing, production, installation and service activities.
- On Oct. 9, 2002. ZN was awarded by RW TÜV, Nord, Germany The International Certificate for quality system introduced according to the standard ISO 9001. This certificate expires on 12.05.2013.
- ZN was awarded by DNV certificate for Steel forgings and Steel making. This certificate expires on 31.12.2013.

### **VIII MARKET AND SALES**

As reflected in the table below, ZN's steel production in this moment do not constitutes a large proportion of both the

European and world steel markets. Based on crude steel produced in 2008, ZN constitutes cca. 0.059% of the European steel market and 0.015% of the world steel market.

Year	ZN Crude	European Crude	ZN`s	Share	of	World	Crude	ZN`s	Share	of
	Steel	Steel	European Crude			Steel		World Crude		
	Production, t	Production <sup>1</sup> , t	Steel Production,t		Production, t		Steel Production,t		n,t	
2008	201.713	343.423.000	0,059%		,059% 1.329.719.000		0,015%			

<sup>1</sup> Includes CIS

#### Rebar

ZN has historically sold its rebar production almost entirely to Montenegro and Serbia, and these countries will continue to constitute ZN's primary market for rebar. The Company is historically the only local supplier of rebar in Montenegro. The ability to export rebar to other countries has been limited due both to transportation costs and the fact that ZN's rebar was historically manufactured to Yugoslav construction standards, however, the recent commissioning of Tempcore equipment allows ZN to produce EU-quality rebar.

### **Quality steels**

With the break-up of Yugoslavia in the early 1990's, ZN lost its primary customer for quality steels (also called specialty steels), namely the Yugoslav militar industry. As a result, for the 15-year period up to early 2007, ZN sold very little quality steels. In 2007, ZN started to develop relationships with new customers in Western Europe, including in Italy and Germany (the primary Western European markets for quality steels, as a result of those countries' dominance in automotive production and engineering industries), as well as in Switzerland, the UK and Austria. There is limited demand for quality steels in the Balkans. Since the third quoter of 2008, the market for quality steels in Western Europe has dried up as a consequence of the global economic climate.

### **ZN's Scrap Suppliers**

Historically, the majority of ZN's scrap has been obtained from local suppliers, who transport the scrap to ZN's plant using Montenegrin or Serbian railway and Montenegrin truck operators. ZN has also set up the infrastructure to receive scrap through the Montenegrin port of Bar, where ZN owns two cranes and has use of a storage facility of 60,000 square meters where scrap can be held after unloading and before being moved to the plant. ZN has recently invested in scrap preparation equipment which will enable ZN to benefit from utilising locally sourced scrap.

The Steelworks Nikšić intends to shift to up to production of high-grade steels which would have higher market value and be more profitable; however, they need rather high investments.

The designed production in the Steelworks Nikšić after the modernization and restructuring:

	in tons
Heavy square rounded edges bars	30.000
Heavy round bars - carbon	55.000
Heavy round bars - alloyed	40.000
Drawn, peeled and ground steels	20.000
Ribbed concrete (reinforcing) steel	70.000
Hot- rolled wire rod	60.000
Forged steel	25.000
TOTAL:	300.000

#### IX MAIN RAW MATERIALS AND ENERGY SUPPLY

For smooth operation and production, the following main raw materials are needed:

- steel scrap
- graphite electrodes
- ferro alloys
- fuel and energy (electric energy, oxygen, fuels, coal and other utilities).

Steel scrap and most of refractories and utilities (electric energy, oxygen, fuel oil and coal) are supplied from domestic sources; the price of electric energy is attractive and, to add, there is a possibility a great deal of production to be run at that low-tariffe of electric energy.

The graphite electrodes and ferro-alloys are supplied from the foreign market, but other materials such as intermediaries, consumables and a certain amount of spare parts are mostly provided locally.

Oxygen plant was sold to the Messer Group. There is long term contract for supply of oxygen and other technical gas between ZNK and Messer.

A sutable location of the Steelworks Nikšić in respect to closeness of the Port of Bar (110 km from Nikšić) as well as a good connection by road and railroad networks can significatly cut down the costs of deliveries of the materials from both markets to the works site.

### X INVESTMENTS

Modernization of The Steelworks Niksic production facilities is presently the first priority which is fully supported by The Government of Montenegro.

In developing the concept of modernization, The Steelworks Niksic is taking care to match the concept with market demands for its products and also to maintain its position as a high grade steel producer.

The aim of modernization is:

 To replace old, out-of-date non-productive technological facilities in the Melt Shop which produce high-cost crude steel with new, high-productive facilities which will produce and cast low cost crude steels.

 To extend size and quality range of products of The combined Bar & Wire Rolling mill by updating the existing facilities and installing new technological lines.

To achieve the above, it is necessary to purchase and install in Melt Shop, Blooming Rolling Mill, Combined Bar & Wire Rod Rolling Mill and Open Die Forging Plant the following:

- Melt Shop
  - Finishing phase-I of modernization (SVC, Sec. Dedusting)
  - New CCM (Combined type Bloom & Billet Caster)
  - New Ladle Furnace (LF)
  - New VOD
- Blooming Rolling Mill:
  - 1 (one) Walking beam reheating furnace for blooms
  - 2 (two) Peeling machines
  - 1 (one) Inspection line
- Combined Bar & Wire Rod Rolling Mill:
  - Replacing of reheating furnace with new walking beam furnace for billets
  - 1 (one) Wire rod block with "Stelmore" line
  - 1 (one) Inspection line
- Open Die Forging aiming annual output 25.000 tons
  - 2 (two) Reheating furnaces
  - 1 (one) Heat treatment furnace
  - 1 (one) Hydraulic press for straightening of forging bars

Having the above modernization accomplished, The Steelworks Niksic will have technological and technical capabilities to achieve production of:

- crude steel ......350.000 tons/year
- finished products .......... 300.000 tons/year

The carry out this modernization, the investments are necessary and it will lead to ZN returning to profitability.

The Investments with < 900 full-time employees will secure the long term viability of ZN's business. The improved competitiveness of ZN will increase competition in the regional long steel products market and prevent ArcelorMittal Zenica domination. A modernised and more

efficient ZN will provide stiffer competition to Zenica, providing regional customers with more competitive prices for rebar and quality steel.

The survival of the Company will have a significant social and economic impact on the city of Niksic, its surrounding areas and the whole of Montenegro. ZN is Niksic's largest employer as well as one of the largest employers in Montenegro. A number of supporting industries are affected by the Company, including the Montenegrin Railway, the Port of Bar, local trucking companies, Montenegrin scrap suppliers as well as a number of smaller industrial and service enterprises. All of these industries are likely to benefit from a revitalized ZN, impacting an estimated 6,000 people.

In addition, the industrial base of Montenegro is still rather limited. ZN is one of the largest manufacturing companies in Montenegro, and its success or failure poses systemic risk to the entire Montenegrin economy. The turnaround of the Company under the proposed Restructuring Plan also has the potential to have a strong demonstration effect on other potential foreign investors showing the possibility to invest and grow in a difficult but improving investment climate.

### XI TOTAL ESTIMATED REVENUE

Total revenue after the modernization and restructuring of the capacities is estimated to be Euro 255 million for the production of 300.000 t/y. This estimation depends on total share of high grade steels on the market.

As already mentioned herein, The Steelworks Nikšić is determined to develop and increase production of high grade steel bars.

Alter the modernization and restructuring of the capacities are accomplished, it is estimated the production costs in the average to be Euro 770/t what is quite reasonable comparing to the selling price of Euro 850/t.

The costs can considerably be reduced to the following items:

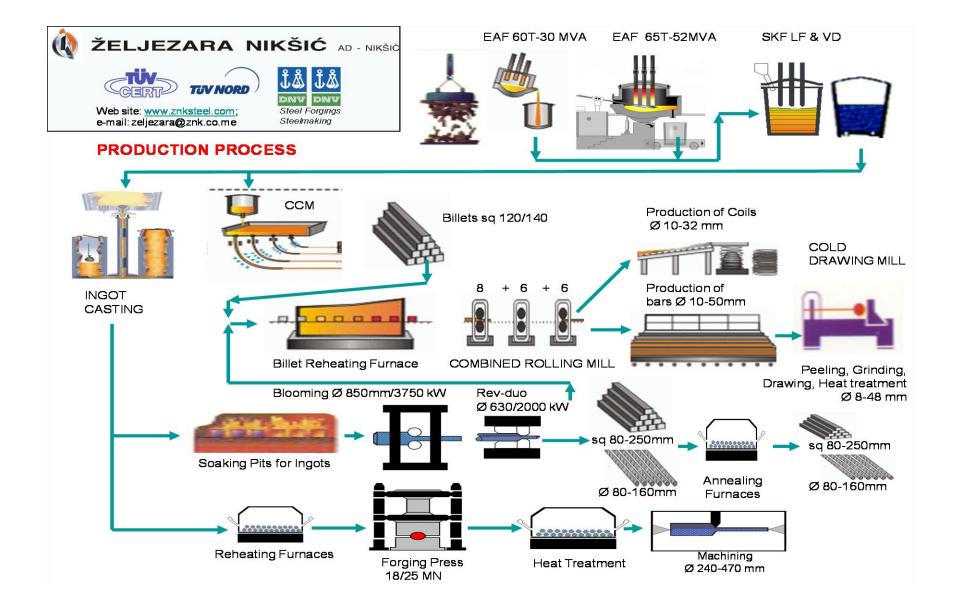
- increase of steel yield at each stage of production
- decrease of electric energy, graphite electrodes, refractory, ferro-alloys, etc.., mainly in the Melt Shop.

That is to say that general (overhead) costs at all production levels are to be significantly reduced or even cut to half.

Finally, the objective is that after privatization, modernization and introduction of all improvements, the production costs be brought down to a level of costs in West European Mini Mills.

### XII CONTACTS:

Veselin Perišić, the Receiver Phone: +382 69 013 035 www.znksteel.com/



ZELJEZARA NIKSIC A.D. - UNDER BANKRUPTCY-No: 76/11 Niksic, 27 April 2011

THE GOVERNMENT OF MONTENEGRO MINISTRY OF ECONOMY
- Attn. Minister Vladimir Kavaric-PODGORICA

Dear Minister,

As you are already aware, the bankruptcy proceedings for Zeljezara Niksic A.D. Niksic have been initiated on 15 April 2011 before the Commercial Court in Podgorica.

Having regard to the determined debts, technological capabilities and possible market price, it is estimated that the best solution for solving the status of Zeljezara Niksic, being the bankruptcy debtor, is sale in bankruptcy as of the "legal entity".

We kindly ask you to undertake activities that are within your competencies in order to find strategic partner that could participate at the public tender.

Sincerely,

Bankruptcy Receiver Veselin Perisic