



# Leave Home Town Dispatch Mountain Success Story

## Successful Revamping – Khazar Steel Company

With the aim to boost our hometown steel production and know-how achievement, ASE was involved in a project to cope with challenges in favor of better future. We hope that we have already taken a positive step for our country and a step near to excellence in steel industry. You can find a brief description as below.

### Introduction

Khazar Steel is operating an EAF furnace with 100 tons tapping weight and six strands billet caster. In order to increase furnace production, Khazar Steel decided to increase Transformer capacity from second hand 78 MVA to 120 MVA. ASE was assigned as project management, engineering and supervision of this revamp.

As the furnace accessories were not operational for increased transformer capacity, ASE did make a change in furnace accessories including high current system, water cooled cables, column supports and electrode arms.

In June of 2014 ASE successfully installed a new 120MVA transformer and related equipment in Khazar steel company.

### Projects and Challenges

The following are the main works done by ASE during this project:

- Purchase engineering of 120 MVA transformer
- Manufacturer audit and test for High current system, electrode arm and water cooled cables.
- All main equipment were tested under ASE supervision in china and then shipped to Iran.
- Since the building was built based on the 70 MVA transformer, studies were made and building strength was confirmed.

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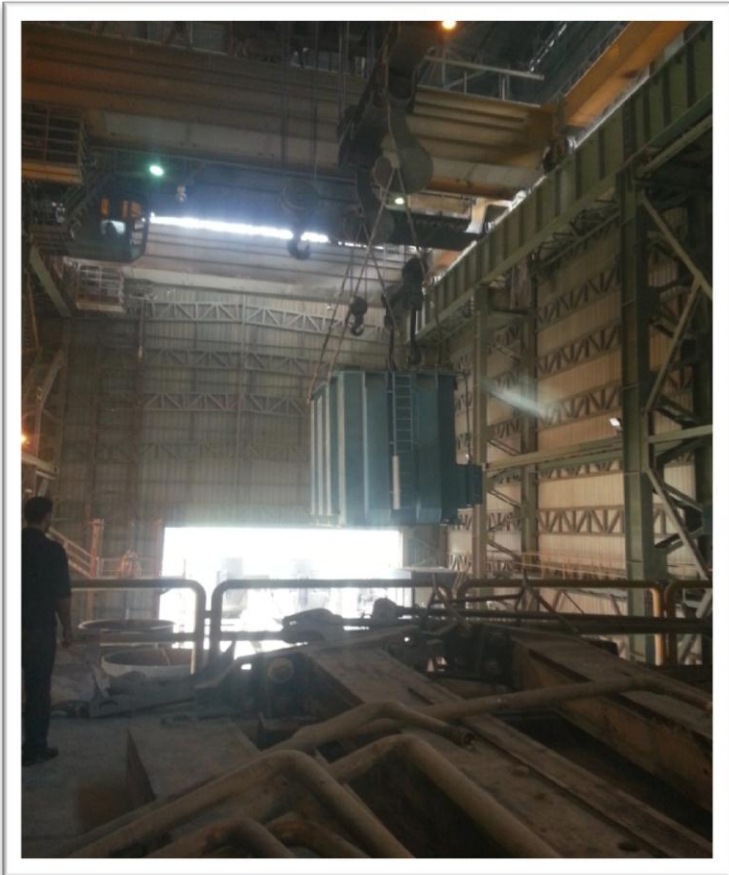
- Meltshop, transformer room and transformer were modeled in Solidworks software to check installation limitations.
- As project control scope all the steps required for installation priorities for actions were defined.
- All the equipment and parts required for transformer changing were ordered by before installation started.
- Piping design was done in a way which the least changes were made to the current pipe line.
- Transformer support was required since the building was designed for 70 MVA transformer.
- All the installation (Electrical and Mechanical), Electrical test of the transformers, Furnace refractory installation was done during this project.
- Furnace successfully started working again after 22 days from May 28th to June 19th 2014.

The following pictures were taken during transformer changing:





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## Achievement

Due to above mentioned efforts step by step improvement started which are described in below table:

EAF		March-April	April-May	May-June	June-July
Heats	Qty	148	173	191	219
Yield	%	86%	90%	96%	90%
Scrap	%	32%	33%	42%	16%
DRI	%	68%	67%	58%	84%
Electrical energy EAF & LF	kWh/t	786.1&33.9	704.7&37.7	695.4&31.8	756.9&36.1
Total Electrical energy	kWh/t	820	742.4	727	790
Electrode con. EAF	Kg/t	4.92	3.20	3.10	2.64
Electrode con. LF	Kg/t	0.29	0.17	0.38	0.74
Ferro Alloy	Kg/t	15.5	16.3	12.4	12.0
lime	Kg/t	109.3	102.7	83.9	85.0
Dololime	Kg/t	2.9	7.6	5.8	3.9
Carbon	Kg/t	14	21	18	7
Charging Carbon	Kg/t	9.7	17.2	15.9	4.9
Injected Carbon	Kg/t	3.9	3.6	1.7	1.7
O2	Nm3/t	4.7	4.6	3.6	3.9
N2	Nm3/t	0.1	0.1	0.1	0.1
Sampler	Qty/H	5.0	3.0	-	-
Thermocouple	Qty/H	9.3	4.0	-	-
Refractory	Kg/t	-	-	16.8	21.42



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As an achievement the number of heats and the tonnage of product and the progress which each of them have are shown in below graphs:

