



TROITSKY METALLURGICAL PLANT

Project presentation



Troitsk, Chelyabinsk region
Russia 2022

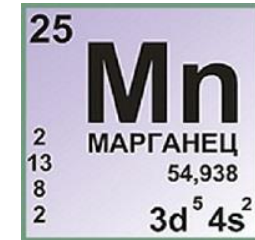


Manganese is a hard, brittle, refractory metal (T melt = 1245 °C), of silver-white color.

Manganese metal of grades Mn95/Mn965 (GOST 6008-90) - manganese alloy with Mn content of 90% min.

Manganese is principally used as an alloying element in steel production bringing in additional properties.

Manganese metal is used in production of constructional steel. This steel is utilized in manufacturing highly wear-resistant machinery, pipes or mechanisms as well as armor for military hardware.



Construction site is in the town of Troitsk, located in Chelyabinsk region, which is considered the core region of Russian metallurgy, with major steelmakers and large workforce capacity.

Troitsky plant lies next to the largest power generating company in South Ural – Troick GRES by OGK-2.

Thus the plant gains huge advantages due to its geographical location:

- proximity to consumers
- proximity to power sources
- skilled labour workforce is at hand in the region

Producers from South Africa are considered as potential suppliers of the main raw material for manganese production - manganese ore. It's required medium grade ore, with a manganese content of 38%, which widely representative on the international market.





The construction site of the plant already provides nearly full infrastructure for new production:

- 200'000 sq.m of land;
- laid railway tracks;
- 10'000 sq.m of production shops;
- 4-floor administration building;
- Its own sub power station of **50 MVA capacity**

The construction project goals are:

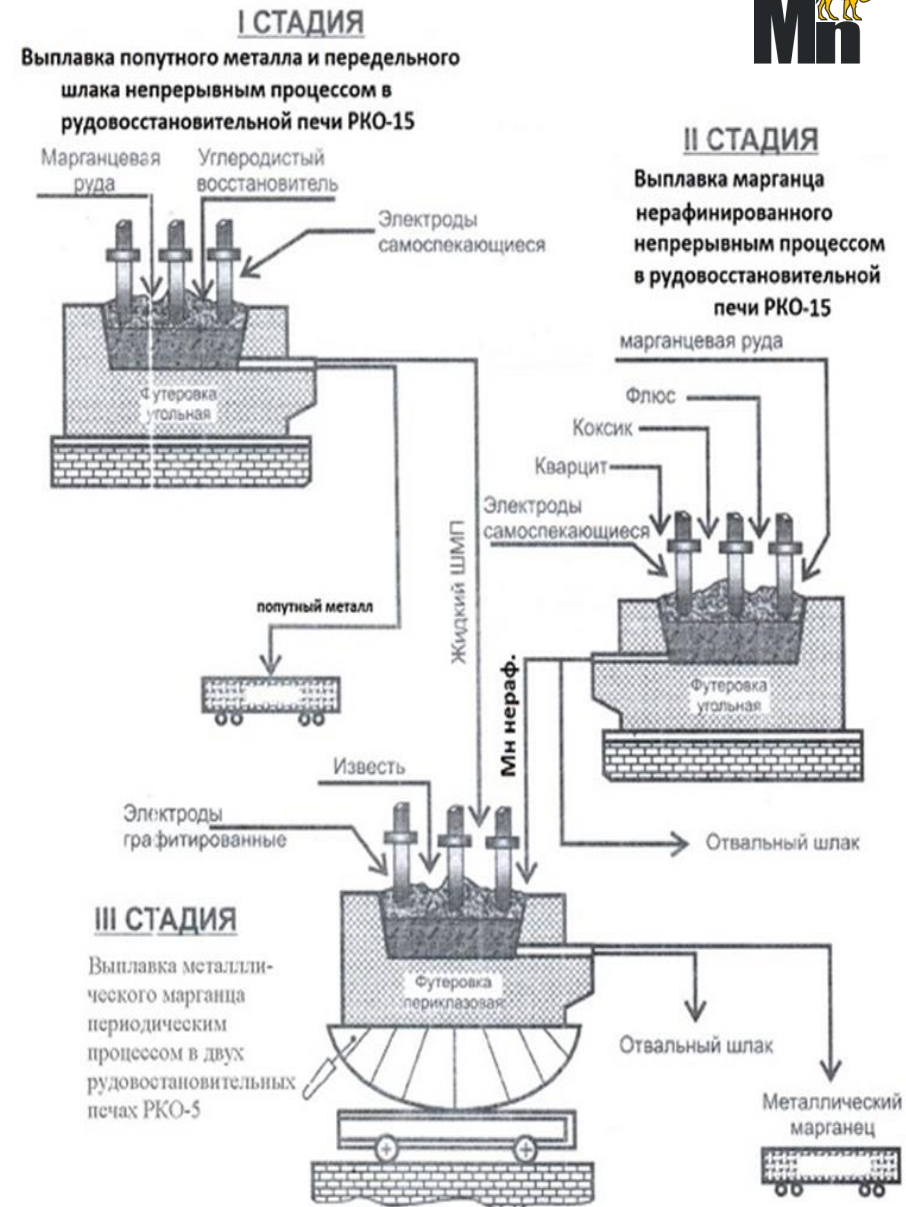
- reconstruction and refurbishing of current production shops;
- construction of new main and auxiliary shops of 10'000 sq.m.;
- renovation of the sub power station;
- construction and renovation of 1'900 m of railway lines;
- installation of gas cleaning facilities
- purchase of modern production equipment.



The project involves the purchase and installation of modern equipment:

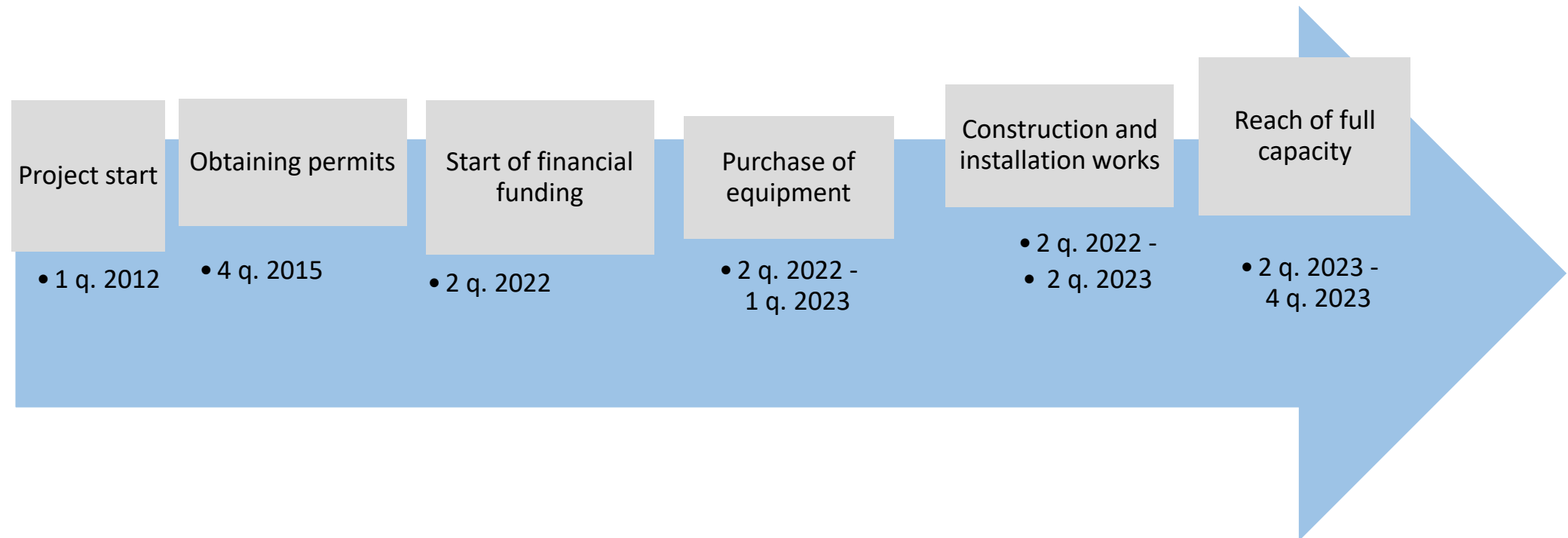
- two ore-smelting electro furnaces with power converters at 15 MVA;
- two refining electro furnaces with power converters at 5 MVA;
- auxiliary casting, crushing and sorting equipment;
- slag-processing equipment.

Construction and installation works are to be performed by regional (Chelyabinsk) companies. An EPC-contract with a Chinese engineering company is also an option.

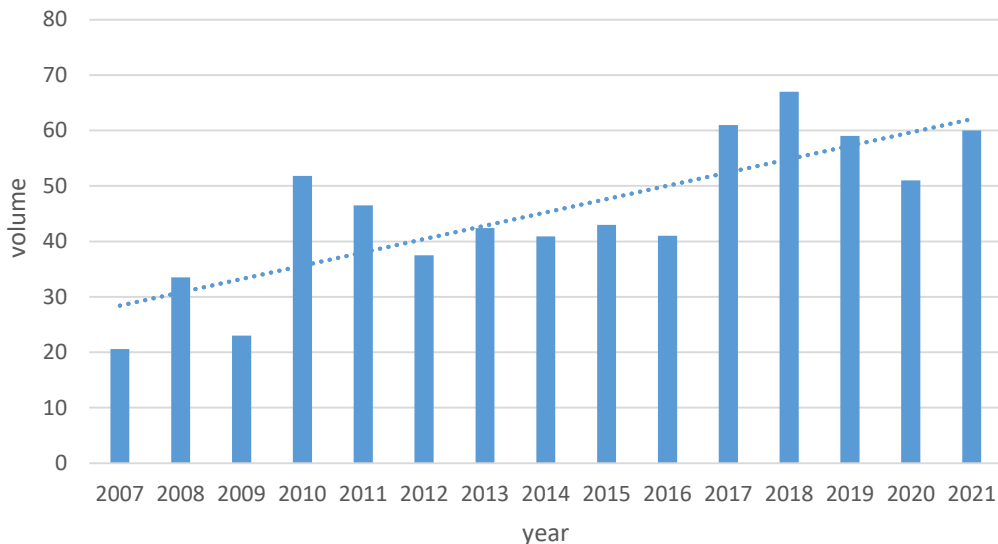


Manganese production scheme (in Russian)

The return of the credit is scheduled to begin immediately after the launch of the plant that is seven quarters after the start of funding:



Import of manganese metal, Russia,
2007-2021 thousands of tns

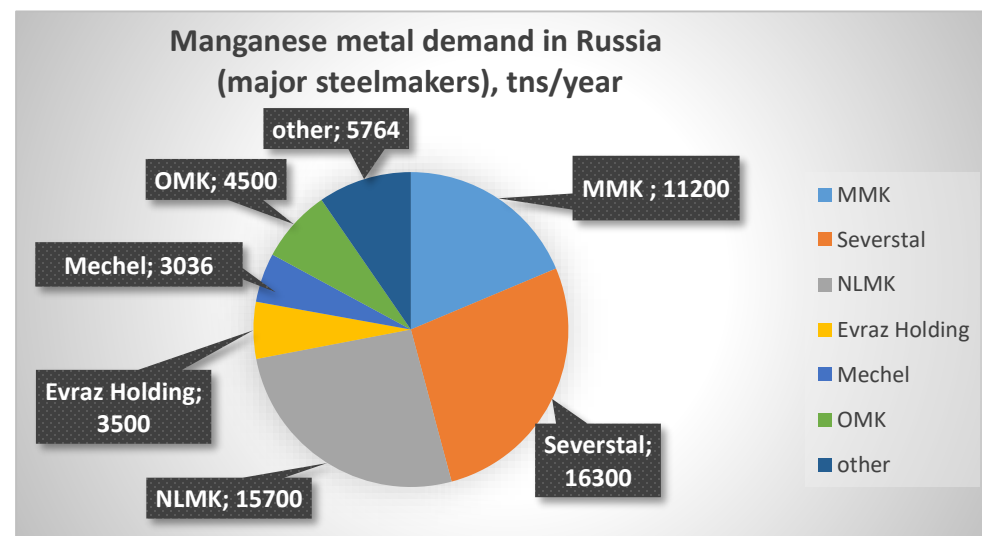


All manganese utilized in steel production is currently imported from China and Ukraine. The size of deliveries to Russia from abroad exceeded 60000 tons in 2021.

Independent market researches show a upward trend in steel making and growing demand for manganese metal.

Major Russian steelmakers, which have already confirmed their demand for manganese produced by Troitsky metallurgical plant (tonnes per month):

- Magnitogorsk Iron and Steel Works (MMK) – up to 1'250;
- Severstal - up to 750;
- NLMK – up to 1'500;
- OMK – up to 200;
- Evraz – up to 200;
- Mechel – up to 100.



World production of manganese metal is concentrated in China.

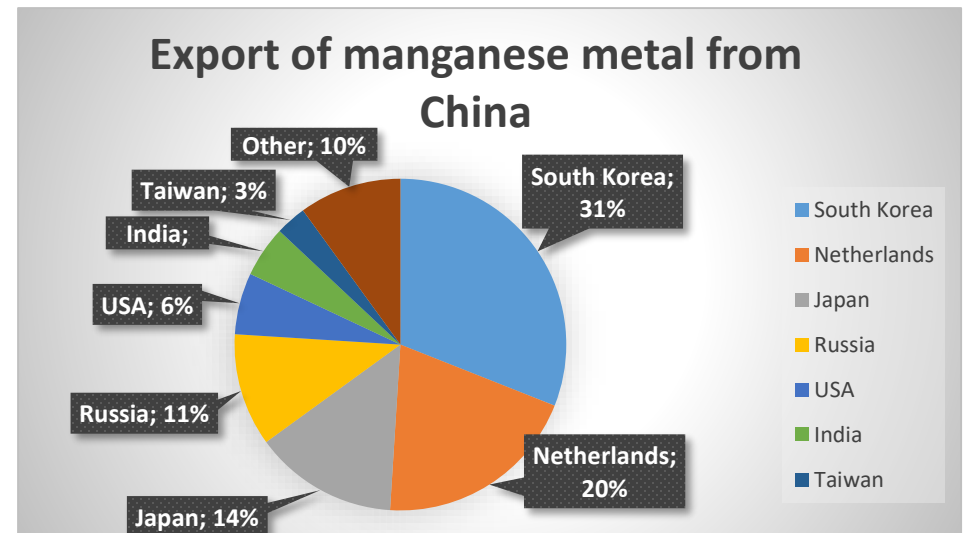
According to the International Manganese Institute, in 2021, the volume of manganese production in China amounted to 1.0 million tons.

Metal manganese is also produced in South Africa and Ukraine, but their share in the world production of this metal is no more than 3%.

World consumption of manganese metal is dependent on China - the main supplier of manganese metal to the world market.

As a leading producer of manganese, China actively exports this metal around the world.

The share of Russia in the total volume of exports of manganese metal from China is estimated at 11%.



At the beginning of 2021, a group of Chinese manganese producers formed a Manganese Innovation Alliance - to support prices in the market and prevent price competition.

Currently, 40 major Chinese manganese producers are already investors in this alliance.

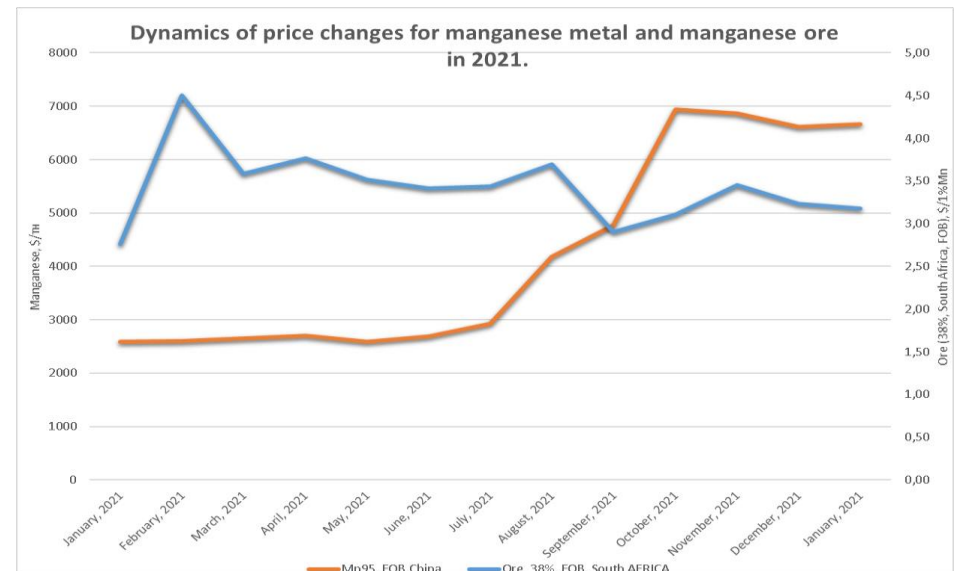
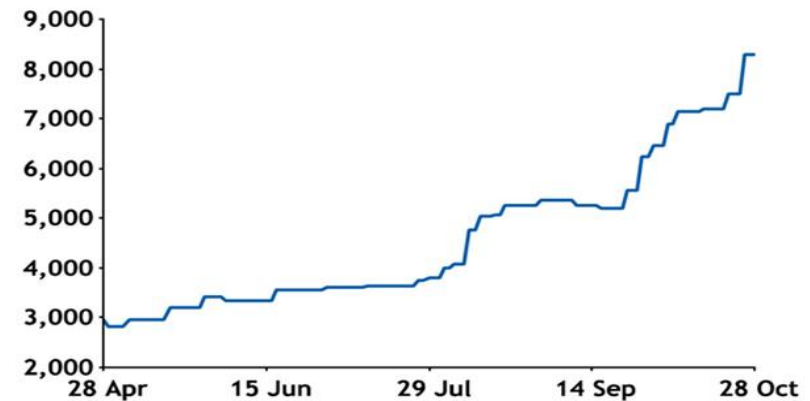
The Alliance is engaged in the purchase and sale of manganese products of various processing levels. State storage facilities have also been created to accumulate metal during a period of low prices.

Thus, a cartel of large producers of manganese metal was created in China to regulate its production and sale.

The merger of large producers contributed to a significant increase in prices in the world market for manganese metal.

Manganese flake 99.7pc du Rotterdam

\$/t





PROJECT COST-EFFECTIVENESS

CONSERVATIVE SCENARIO (AVERAGE PRICES FOR 10 YEARS)

\$120 mln investments till 2023

Payback period 6 years

\$95 mln sales per year starting from
2023

\$30 mln net income starting from 2023

NPV - \$67 mln

IRR 22%

MARKET SCENARIO (AVERAGE PRICES FOR 2021)

\$120 mln investments till 2023

Payback period 2,75 years

\$200 mln sales per year starting from
2023

\$160 mln net income starting from
2023

NPV - \$730 mln

IRR 74%



RISKS and ADVANTAGES

The project is risk-free

- in respect to changes in raw material market because the plant is able to change its major suppliers without substantial income hit;
- in respect to changes in power sources because taking into account the impending liberalization of power market the plant is going to get the cheapest possible power from the nearby Troitsky thermal power station;
- in respect to changes in labour market because of the abundance of skilled workforce in the region

The project is protected

- against RUB/USD currency rate volatility since final products are sold at world market price fixed in US dollars.
- against the emergence of rival producers (there are no manganese metal producers and there are no competitive projects being delivered at the moment in Russia)

The project is completely ready for realization

- all the necessary permits and documentation have been acquired



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