



ERG Capital Projects

June 2019

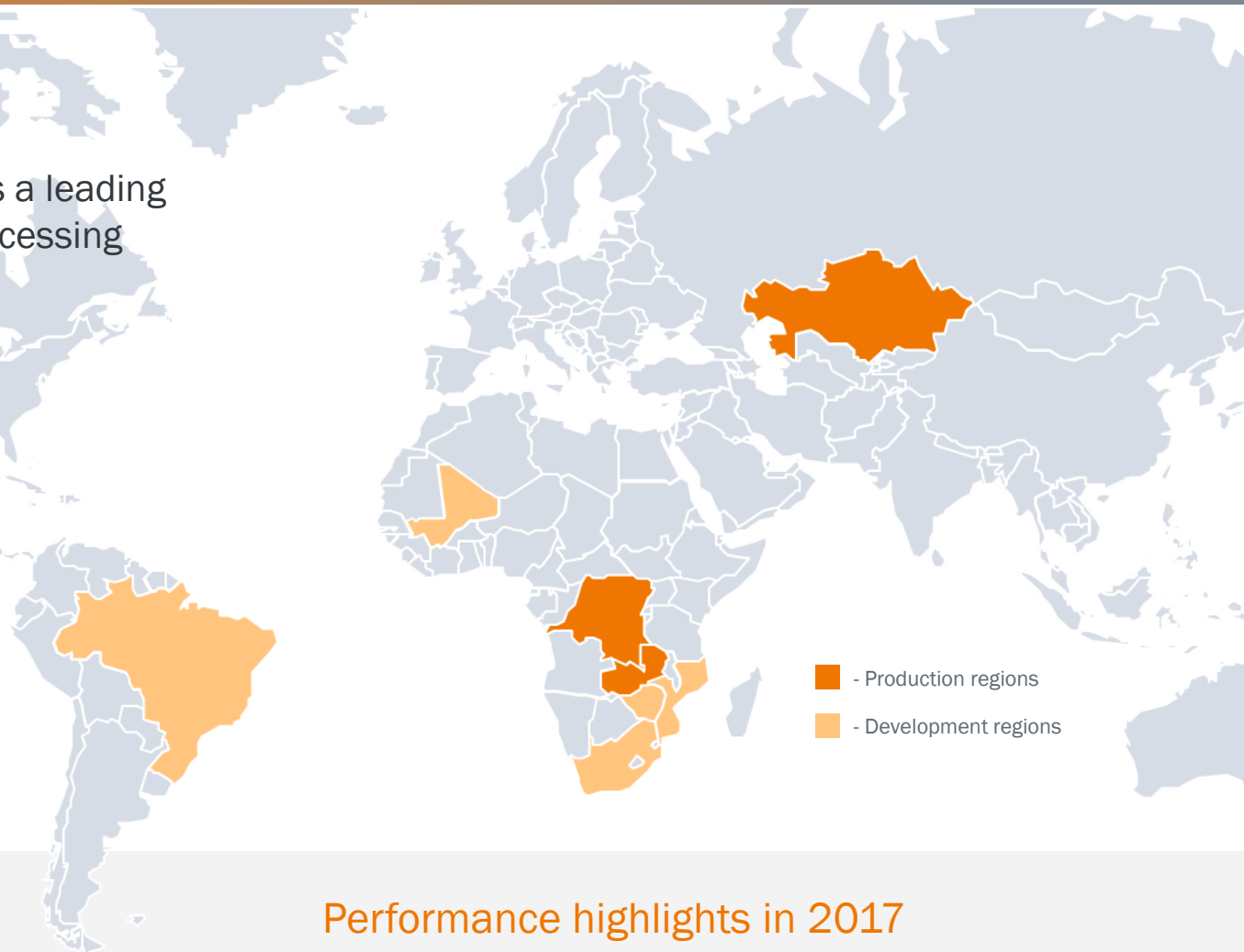
Our global footprint

Eurasian Resources Group (ERG) is a leading diversified group in mining and processing of natural resources

ERG has integrated mining, processing, energy, logistics and marketing operations and a global workforce of more than 69,000 people. We operate in 15 countries across four continents.

We operate in fifteen countries on four continents. ERG represents a third of mining and metallurgical industry in the Republic of Kazakhstan and is the world leader in high-carbon ferrochrome production.

The Group is also a key supplier of iron ore, aluminum and alumina, as well as a power supplier and a railway operator in Kazakhstan.



Performance highlights in 2017

About ERG:

 [10 facts about ERG](#)

 www.erg.kz

1 496 kt

FERROALLOYS PRODUCTION

1 509 kt

ALUMINA PRODUCTION

10 585 kt

IRON ORE PRODUCTION

Key facts

1/3 of mining and metals industry
of the Republic of Kazakhstan*

No1 in the world
by chrome grade
in high-carbon ferrochrome production

* by paid taxes

The largest

iron ore producer in CIS

more than **20%**
of produced electrical energy in Kazakhstan

more than **15%**
of the world's
high-carbon ferrochrome shipments

Performance highlights in 2017

\$ 850 M

TAXES PAID

\$ 5 048 M

REVENUE

\$ 2 090 M

UNDERLYING EBITDA

\$ 476 M

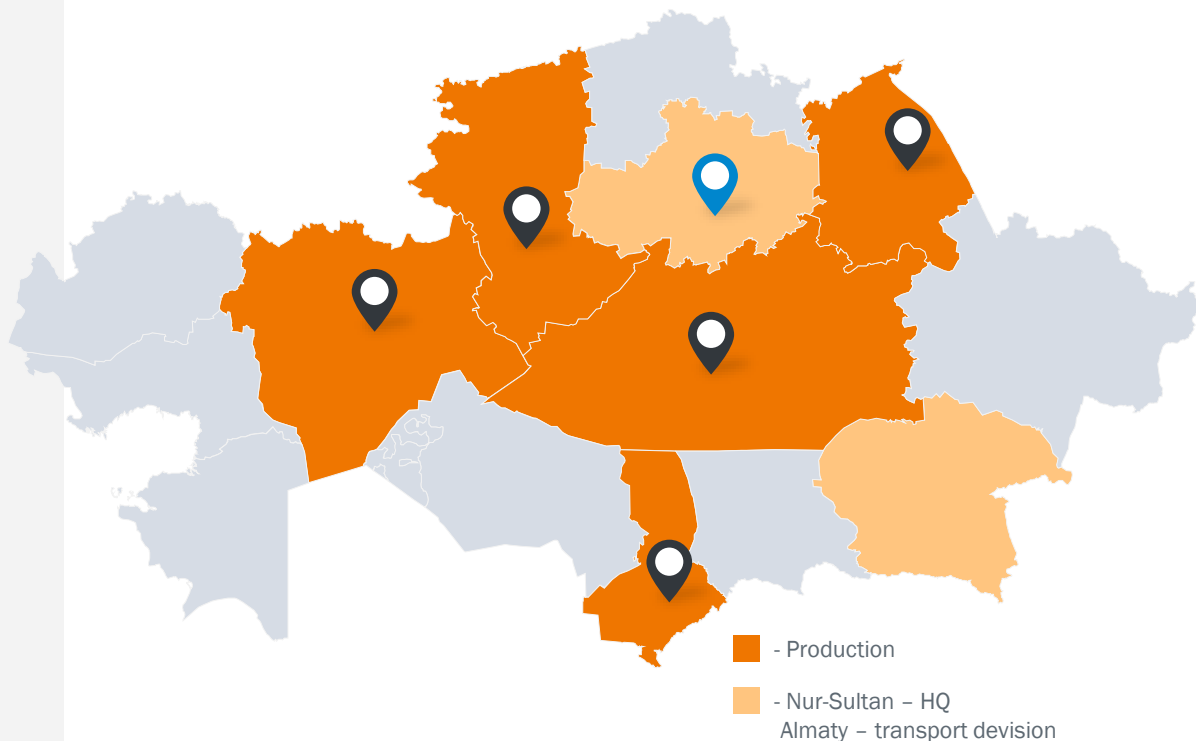
FREE CASH FLOW

ERG Capital Projects

ERG Capital Projects LLP is a specialized division of the Eurasian Group focused on the implementation of investment projects of such large mining companies in Kazakhstan as TNC Kazchrome JSC, Shubarkol Komir JSC, Eurasian Energy Corporation JSC, Aluminum of Kazakhstan JSC, Kazakhstan Aluminium Smelter JSC and Sokolov-Sarybai Mining Production Association (SSGPO) JSC.

We kindly ask you to study the attached review of planned investment projects and invite you to participate in our procurement programs.

ERG Capital Projects is ready to establish long-term and mutually beneficial cooperation with companies that possess experience in mining and metallurgical industry, power industry, construction of complex industrial facilities and engineering companies.



Prospects for cooperation

\$ 685 M

CAPITAL EXPENDITURE
IN 2017

Project implementation **ERG Capital Projects**

Mining and processing



Metallurgy



Power supply



Project information

Detailed information on each project can be provided upon request after signing a non-disclosure agreement (NDA).

ERG Capital Projects is willing to establish long-term and mutually beneficial cooperation with companies with experience in mining and metallurgical industry, power industry, construction of complex industrial facilities and engineering companies.

Presentation of your company and meeting requests should be sent to:

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Aktang.Bermakhan@erg.kz

ergcp.dcc@erg.kz

Projects as of May 2019

No.	Enterprise	Project	Phase	Industry	Project size	Schedule dates
1	SSGPO	Construction of the factory facility at Kachar quarry	Front-end loading (FEL)	metallurgy	major > \$100 mln	2018 – 2023 (4q)
2	Shubarkol Komir	Construction of a special coal coke production plant	FEL	metallurgy	strategic \$50-100 mln	2018 – 2021
3	Kazakhstan Aluminium Smelter	Construction of Kazakhstan Aluminium Smelter, Phase-2	FEL	metallurgy	major > \$100 mln	2018 – 2022
4	Eurasian Energy Corporation	Reconstruction of Power Unit No. 7	FEL	energy	major > \$100 mln	2018 – 2021
5	Eurasian Energy Corporation	Reconstruction of coal supply line of Eurasian Energy Corporation JSC (Aksu)	FEL	energy	standard 1-50 mln	2019 – 2020
6	SSGPO	Reconstruction of Heat and Power Plant (HPP) of SSGPO JSC - Rudny HPP	FEL/ implementation	energy	major > \$100 mln	2022 (LC-1,2,3) – 2027 (LC-4)
7	Shymkent HPP	Construction of combined cycle gas turbines unit in Shymkent	FEL	energy	major > \$100 mln	2019 – 2023
8	Kazchrome	Slimy tailings enrichment of Donskoy Ore Mining and Processing Plant (Slimes-2)	FEL	processing	strategic \$50-100 mln	2019 – 2021
9	Kazchrome	Major renovation of the furnace #43, Aktobe ferroalloys plant	FEL	metallurgy	standard \$1-50 mln	2019 – 2020
10	Kazchrome	Renovation of final product processing and shipment facilities #MV10 and #MV11 of smelting shop No. 4 of Aktobe Ferroalloys Plant	FEL	metallurgy	standard \$1-50 mln	2019 – 2020
11	Aluminum of Kazakhstan	Sintering furnace filter replacement	FEL/ implementation	metallurgy	strategic \$50-100 mln	2018 – 2027
12	Aluminum of Kazakhstan	Gas cleaning system reconstruction of the boilers No. 1-7 of the HPP of Aluminum of Kazakhstan JSC	FEL/ implementation	energy	strategic \$50-100 mln	2018 – 2027
13	Kazchrome	Productivity improvement of the smelting shop No. 4 of Aktobe Ferroalloys Plant	implementation	metallurgy	strategic \$50-100 mln	2018 – 2020
14	Kazchrome	“10 th Anniversary of Kazakhstan’s Independence” mine 2 nd phase (SHDNK -2)	implementation	mining and processing	major > \$100 mln	2017 – 2039
15	Kazchrome	Renovation of smelting shop No. 6 of Aksu Ferroalloys Plant (furnace #64)	implementation	metallurgy	strategic \$50-100 mln	2013 – 2019

ERG Capital Projects

At the moment ERG Capital Projects is interested in collaboration on projects at Front-end loading (FEL) stage

12 PROJECTS

AT FEL STAGE



Greenfield projects

Projects aimed at the sustainable development of ERG



Brownfield projects

Projects aimed at increasing productivity, reducing unit costs and replacing outdated technologies

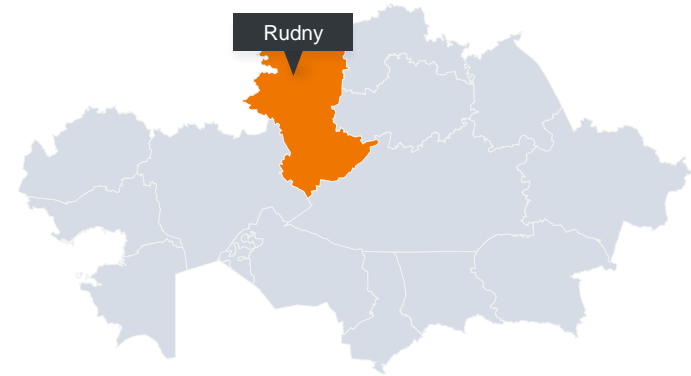
Projects specificity: many ERG projects imply replacement or improvement of technology and equipment produced in the USSR, which creates additional challenges at the project implementation



1. Construction of the factory facility at Kachar open pit



SSGPO – Kachar open pit



Enterprise: SSGPO JSC

Project scale: major > \$100 mln

Schedule dates: 2018 – 2023 (4q)

Industry: metallurgy

End-use products: iron ore concentrate and pellets

Stage: FEL

Business case: cost reduction and product quality increase through the use of the latest developments in the field of granulation, grinding and enrichment of ore

Scope of works:

- Construction of the new factory facility near Kachar site and/or reconstruction of existing factory complex for the subsequent operations in the long-term are under consideration.

2. Construction of a special coal coke production plant



Shubarkol Komir



Enterprise: Shubarkol komir JSC

Project scale: strategic \$50-100 mln

Schedule dates: 2018 – 2021

Industry: metallurgy

End-use products: special coal coke

Stage: FEL

Business case: savings made by shifting away from expensive reducing medium (anthracite), additional sales of tar and coke

Scope of works :

- Conduction of laboratory tests and other researches
- Search for technology licensors
- Selection of EPC Contractors
- Development of working documentation
- Project cost optimization
- Receiving state expertise statements
- Construction and installation works
- Connecting the facility to all the necessary infrastructure lines
- Commissioning of equipment

3. Construction of Kazakhstan Aluminium Smelter, Phase-2



Kazakhstan Aluminium Smelter



Enterprise: Kazakhstan Aluminium Smelter JSC

Project scale: major > \$100 mln

Schedule dates: 2018 – 2022

Industry: metallurgy

End-use products: primary aluminium

Stage: FEL

Business case: increasing the volume of primary aluminium production through the application of intragroup alumina and electricity

Scope of works :

- To be determined upon completion of the technology selection process

4. Reconstruction of Power Unit No. 7 of Eurasian Energy Corporation JSC (Aksu)



Aksu Power Plant



Enterprise: Eurasian Energy Corporation JSC

Project scale: major > \$100 mln

Schedule dates: 2018 – 2021

Industry: energy

End-use products: electricity

Stage: FEL

Business case: application of electricity from Unit No. 7 instead of purchasing electric power on the open market

Scope of works :

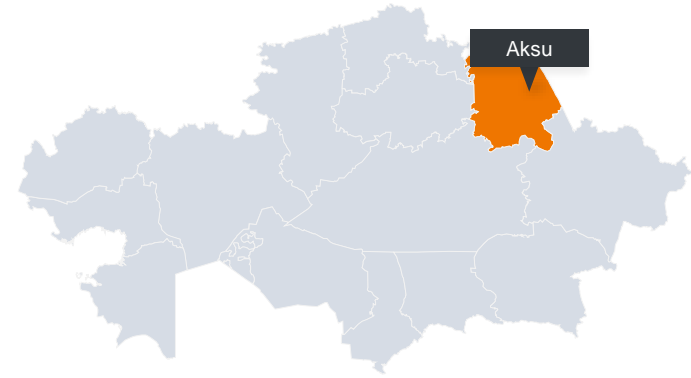
Reconstruction of power unit on turn-key basis, including:

- Replacing main and auxiliary turbine equipment reaching the capacity of over 354 MW;
- Replacement of main and auxiliary boiler equipment;
- Replacement of electrostatic precipitator (ESP) by bag filters with achievement of dust concentration in emissions not more than 20 mg/m³;
- Replacement of generator and electrical equipment;
- Replacement of Electrical Control & Instrumentation (EC&I) and device of modern instrumentation and control systems;
- Replacement of the general equipment of the power unit

5. Reconstruction of the coal supply line of Eurasian Energy Corporation JSC (Aksu)



Aksu Power Plant



Enterprise: Eurasian Energy Corporation JSC

Project scale: standard \$1-50 mln.

Schedule dates: 2018 – 2021

Industry: energy

End-use products: electricity

Stage: FEL

Business case: improving the reliability of the coal supply line to reduce the emergency shutdown risk

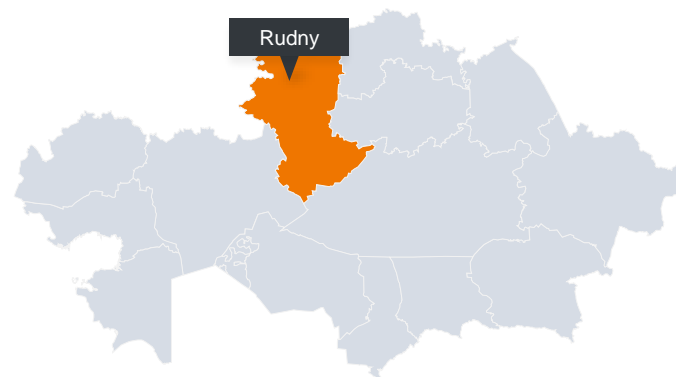
Scope of works:

- Replacement of conveyor equipment to restore nominal performance of the 1st commissioning of the coal supply line
- Reconstruction of buildings and structures of the 1st commissioning of the coal supply line

6. Reconstruction of Heat and Power Plant (HPP) of SSGPO JSC - Rudny HPP



SSGPO



Enterprise: SSGPO JSC

Project scale: major > \$100 mln

Schedule dates: 2022 (launch complexes LC 1), 2023 (LC 2 and 3), 2027 (LC-4)

Industry: energy

End-use products: heat and electricity

Stage: FEL

Business case: heat production and power generation

Scope of works:

- LC-1: Conversion of existing water boiler from peak to main operating mode;
- LC-1: Installation of reduction and cooling plants No. 4,5
- LC-2: Installation of the new turbo generator at station No. 1 / or No. 2 with backpressure;
- LC-2: Installation of auxiliary equipment including two boilers;
- LC-3: Renovation of boiler unit st. No. 1 with installation of new gas cleaning equipment;
- LC-3: Installation of reduction and cooling plants No. 6,7 and plant wide compressed air station;
- LC-4: Renovation of boiler unit st. No. 2 with installation of new gas cleaning equipment;
- LC-4: Installation of reduction and cooling plants No. 8,9;
- LC-4: Construction of the liquefied hydrocarbon gas facility

7. Construction of combined cycle gas turbines unit in Shymkent



HPP-3



Enterprise: 3-Energoortalyk JSC

Project scale: major > \$100 mln

Schedule dates: 2019 (feasibility studies) – 2023 (commissioning)

Industry: energy

End-use products: electricity

Stage: FEL

Business case: heat production and own power generation

Scope of works:

- Development of basic technical solutions and selection of HPP technology with a capacity of up to 550 MW and a heating load of up to 250 Gcal/hr
- Development of pre-project and project documentation
- Material and technical support and HPP construction

8. Slimy tailings enrichment of Donskoy Ore Mining and Processing Plant (Slimes-2)



Donskoy Ore Mining and Processing Plant



Enterprise: TNC Kazchrome JSC - Donskoy Ore Mining and Processing Plant

Project scale: strategic \$50-100 mln

Schedule dates: 2019 – 2021

Industry: processing

End-use products: 50% Cr₂O₃ concentrate

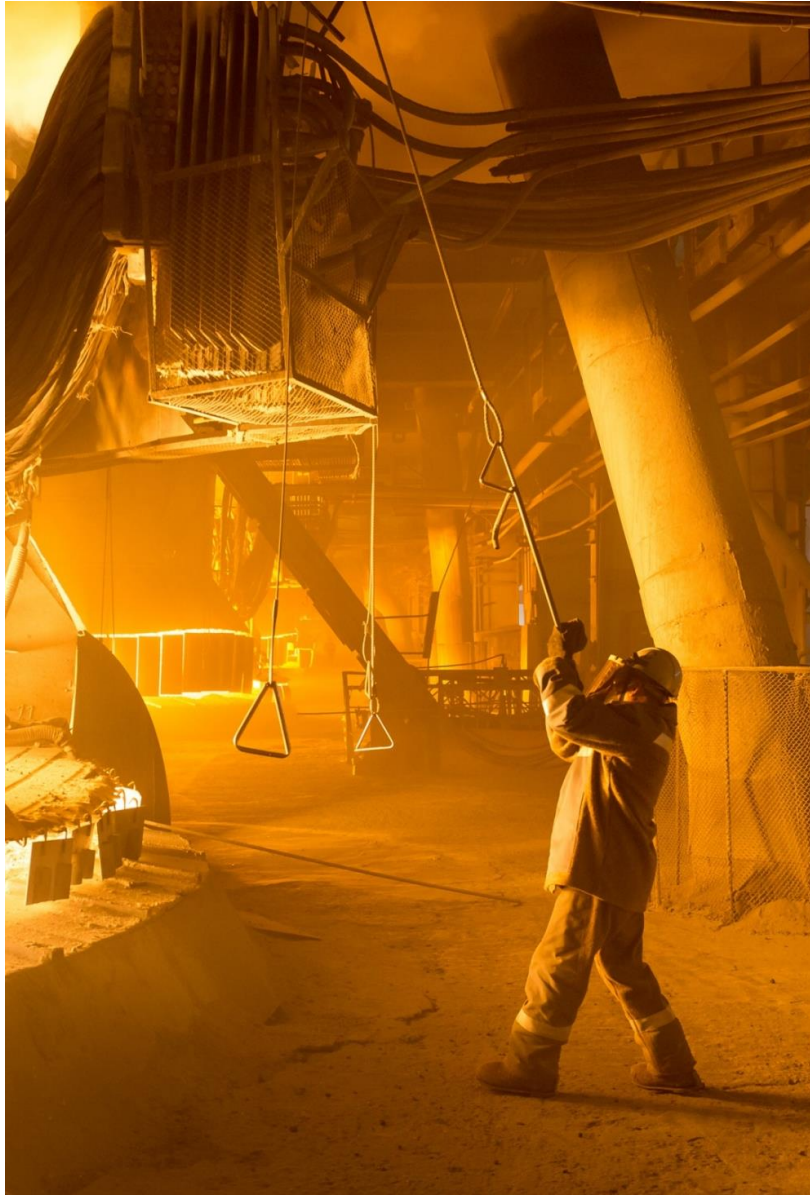
Stage: FEED

Business case: enrichment of accumulated and newly formed tailings of the enriching factory for the production of marketable products through the use of advanced technologies

Scope of works:

- Design and construction of the enriching factory with installation and commissioning of technological equipment;
- Construction of external infrastructure (electricity, heat, water supply, water disposal and railway services)

9. Major renovation of the furnace #43, Aktobe ferroalloys plant



Aktobe ferroalloys plant, Kazchrome TNC



Plant: Aktobe ferroalloys plant, Kazchrome TNC

Project scale: standard \$1-50M

Schedule dates: 2019 – 2020

Industry: metallurgy

End product: chrome ore

Stage: FEL

Business case: higher profitability from increasing productivity to planned project figures

Scope of works:

- Comprehensive analysis of the furnace #43, design of water cooled roof and furnace supporting system
- Manufacturing and delivery of the materials and equipment
- Potlining disassembling and assembling works, installation of water cooled roof and supporting system
- Project management at all implementation phases
- Chief installation works, dehumidification and initial heating of fire-proof potlining of the furnace

10. Renovation of final product processing and shipment facilities #MV10 and #MV11 of smelting shop No. 4 of Aktobe Ferroalloys Plant



Aktobe ferroalloys plant, Kazchrome TNC



Plant: Aktobe ferroalloys plant, Kazchrome TNC

Project scale: standard \$1-50M

Schedule dates: 2019 – 2020

Industry: metallurgy

End product: chrome ore

Stage: FEL

Business case: higher profitability from increasing productivity of facilities #MV10 and #MV11 to planned project figures

Scope of works:

- Comprehensive analysis on liquidating major omissions of the initial project
- Final product processing and shipment facilities renovation design
- Manufacturing and delivery of the materials and equipment
- Disassembling and assembling works, construction works and chief installation works in frame of the project

11. Sintering furnace filter replacement at Aluminum of Kazakhstan JSC



Aluminum of Kazakhstan



Enterprise: Aluminum of Kazakhstan JSC

Project scale: strategic \$50-100 mln

Schedule dates: 2018 – 2027

Industry: metallurgy

End-use products: alumina

Stage: FEED

Business case: decreasing the level of residual dust content in air emissions after gas cleaning until 50 mg/sm³

Scope of works:

- Geological and geodetic surveys
- Development of basic and detailed engineering
- Development of design and estimate documentation (DED) and obtaining a positive project expertise
- Manufacture and supply of equipment and materials
- Disassembly and assembly work within the project boundaries
- Pre-commissioning and commissioning, staff training
- Project management at all implementation phases

12. Gas cleaning system reconstruction of the boilers No. 1-7 of the HPP of Aluminum of Kazakhstan JSC



Aluminum of Kazakhstan



Enterprise: Aluminum of Kazakhstan – HPP-1

Project scale: strategic \$50-100 mln

Schedule dates: 2018 – 2027

Industry: energy

End-use products: heat and electricity

Stage: FEL

Business case: residual solids content in gas after gas cleaning is not more than 20 mg/sm³

Scope of works:

- Geological and geodetic surveys
- Development of basic and detailed engineering
- Development of design and estimate documentation (DED) and obtaining a positive project expertise
- Manufacture and supply of equipment and materials
- Disassembly and assembly work within the project boundaries
- Pre-commissioning and commissioning, staff training
- Project management at all implementation phases

ERG Capital Projects

At the moment ERG Capital Projects is interested in cooperation on projects at the implementation stage in such areas as consulting services, independent expertise, construction and installation works



Greenfield projects

Projects aimed at the sustainable development of ERG



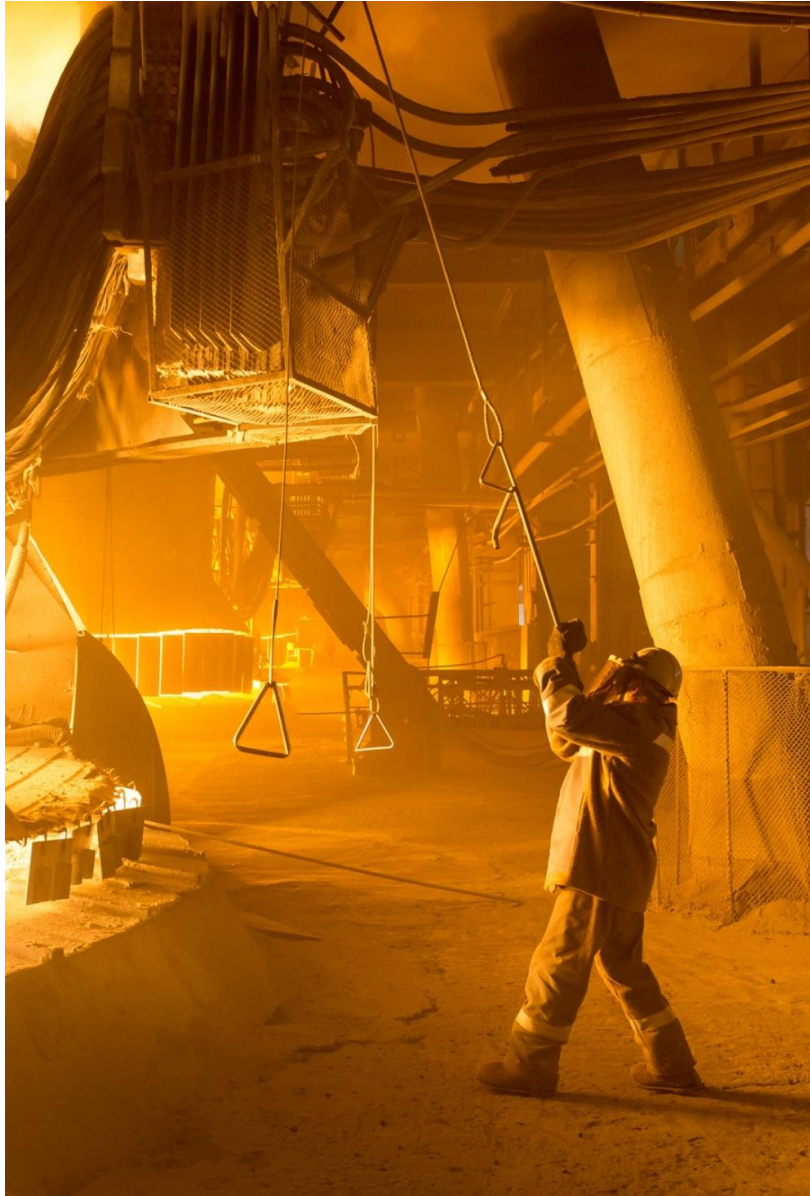
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13. Productivity improvement of the smelting shop No. 4 of Aktobe Ferroalloys Plant



Aktobe Ferroalloys Plant



Enterprise: TNC Kazchrome JSC – Aktobe Ferroalloys Plant

Project scale: strategic \$50-100 mln

Schedule dates: 2018 – 2020

Industry: metallurgy

End-use products: high-carbon ferrochrome

Stage: implementation

Business case: additional profit resulting from the increase in workshop productivity

Work scope:

- Reconstruction of power grids
- Construction of wagon defrosters
- Replacement of conveyor systems
- Reconstruction of aspiration and contour dusting systems
- Reconstruction of the water cleaning system
- Construction of the 3rd line of drying reducing agent



Donskoy Ore Mining and Processing Plant



Enterprise: TNC Kazchrome JSC – Donskoy Ore Mining and Processing Plant

Project scale: major > \$100 mln

Schedule dates: 2017 – 2039

Industry: mining and processing

End-use products: chrome ore

Stage: implementation

Business Case: added value from replenishing depleting volumes and providing additional volumes of chrome ore for further processing

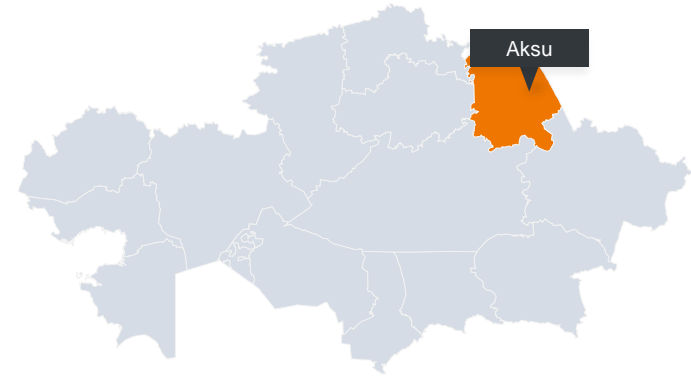
Work scope:

- Determination of optimal mining technology in development of reserves
- Construction of a power transformer (substation) 110/35/6
- Testing system parameters of mechanized block caves
- Development of pumping station project
- Chief installation works and commissioning

15. Renovation of smelting shop No. 6 of Aksu Ferroalloys Plant (furnace #64)



Aksu Ferroalloys Plant



Enterprise: TNC Kazchrome JSC – Aksu Ferroalloys Plant

Project scale: strategic \$50-100 mln

Schedule dates: 2013 – 2019

Industry: metallurgy

End-use products: high-carbon ferrochrome

Stage: implementation

Business case: increase in workshop productivity and reducing unit costs

Work scope:

- Laying the foundation of furnace;
- Assembly and disassembly of steel structures;
- Installation of furnace;
- Installation of additional equipment;
- Installation of electrics and automation;
- Chief installation works
- Furnace commissioning