

# Mining and metallurgical complex

## Development of South Zhaur tungsten ore deposit

### Project description:

Mining and processing of rare-metal ores from South Zhaur deposit in Karaganda Oblast.

### Products:

- 57% concentrate of tungsten trioxide
- 50% concentrate of molybdenum

### Production process:

- Open-pit
- Sulphide-scheelite flotation, including grinding in one stage, sulphide flotation and scheelite flotation.

### Maximum processing capacity:

4,000 thousand tonnes of commodity ore per annum.

**Initiator:** JV Saryarka Tungsten LLP.

**Location:** Karaganda Oblast, Shetsky district

**Project implementation period:** 35 years

### Market conditions:

**Raw material base** – Kazakhstan holds the 6th place in the world for its tungsten reserves of 2 million tonnes, which accounts for 63% of global reserves. Availability of significant molybdenum reserves (160 thousand tonnes) in Kazakhstan opens up a potential for reviving the molybdenum mining industry in the future.

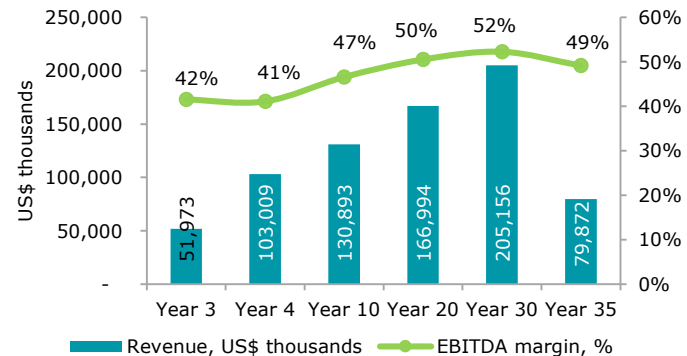
**Metal price growth** – The lack of readily available financing and low metal content in the ore deposits are the main reasons for the limited supply of metal in the market, which in the future, may serve as an incentive for further price increases for tungsten and molybdenum.

**Growing demand** – According to the forecasts, over the next 10 years, global demand for tungsten will increase from 72,552 to 121,679 tonnes (5.3% CAGR). The development of the steel industry affects the growing demand for molybdenum. In the long term it is expected that the growth rate of demand for this metal will be equal to 3.6% per annum until 2024.

### Key investment indicators of the Project

Indicator	Results
Project implementation period, years	35
<i>Incl. Investment stage, years</i>	2
<i>Operational stage, years</i>	33
Investment, US\$ thousands	70,942
Project NPV, US\$ thousands	173,323
IRR, %	32.7%
EBITDA returns, %	49%
Payback period, years	5.4
Discounted payback period, years	6.7

### Project profitability



### Project location: Karaganda Oblast



### South Zhaur deposit reserves (JORC)

Indicator	Balance reserves by C2 category	
	Quantity, tonnes	Composition, %
Ore	122,189,700	
Tungsten trioxide	198,953	0.163
Molybdenum	13,062	0.010
Bismuth	6,408	0.005