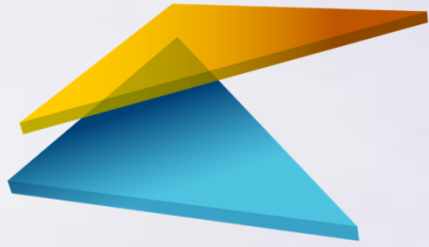


**KAZ**  
MINERALS



# Projects Update

11 December 2014



# IMPORTANT NOTICE

---



## **DISCLAIMER**

Certain statements included in this presentation contain forward-looking information concerning the strategy of KAZ Minerals PLC (“KAZ Minerals”) and its business, operations, financial performance or condition, outlook, growth opportunities and circumstances in the countries, sectors or markets in which it operates. By their nature, forward-looking statements involve uncertainty because they depend on future circumstances, and relate to events, not all of which are within KAZ Minerals’ control or can be predicted by KAZ Minerals.

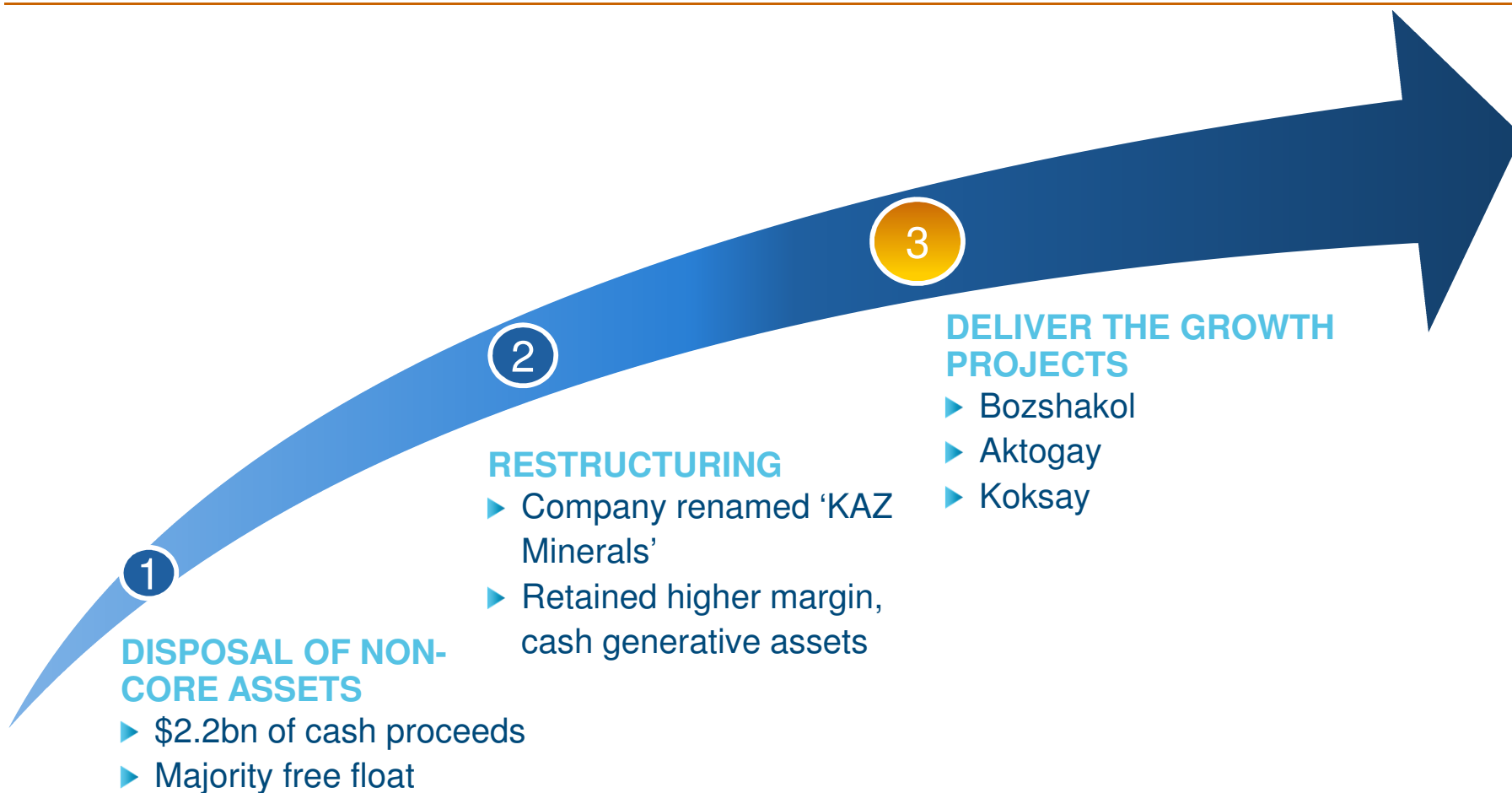
Although KAZ Minerals currently believes that the expectations reflected in such forward-looking statements are reasonable, no assurance can be given that such expectations will prove to have been correct. Actual results could differ materially from those set out in the forward-looking statements.

No part of this presentation constitutes, or shall be taken to constitute, an invitation or inducement to invest in KAZ Minerals, or any other entity, and shareholders are cautioned not to place undue reliance on the forward-looking statements. Except as required by the Rules of the UK Listing Authority and applicable law, KAZ Minerals undertakes no obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise.

Neither this presentation, which includes the question and answer session, nor any part thereof may be recorded, transcribed, distributed, published or reproduced in any form, except as permitted by KAZ Minerals. By attending this presentation, whether in person or by webcast or call, you agree with the foregoing and that, upon request, you will promptly return any records or transcript of the presentation without retaining any copies.

---

# STRATEGIC OBJECTIVES



# THE PROJECTS



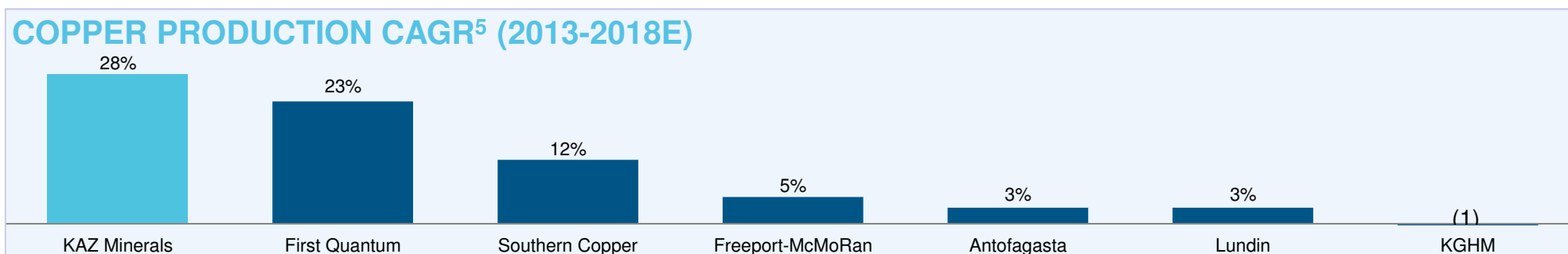
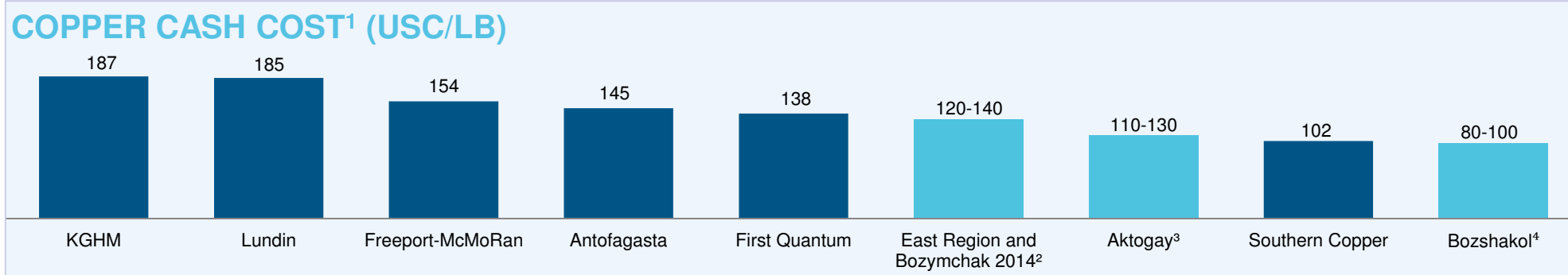
- ✓ **Transport**
- ✓ **Power**
- ✓ **Water**
- ✓ **Permitting**
- ✓ **Route to Market:**

- ▶ Projects will export concentrate to China via existing national rail link
- ▶ 600 kt of new smelting capacity under construction in western China
- ▶ We are building relationships with smelters and confident of securing capacity

# HIGH GROWTH, LARGE SCALE, LOW COST



Bozshakol	\$2.2bn	Aktogay	\$2.3bn	Koksay	TBC
<ul style="list-style-type: none"> <li>▶ Under construction</li> <li>▶ Commissioning H2 2015</li> <li>▶ 40+ year mine life</li> </ul>		<ul style="list-style-type: none"> <li>▶ Under construction</li> <li>▶ Oxide production Q4 2015</li> <li>▶ Sulphide commissioning 2017</li> <li>▶ 50+ year mine life</li> </ul>		<ul style="list-style-type: none"> <li>▶ Scoping phase, exploration drilling</li> <li>▶ Minimal capex until Bozshakol producing</li> </ul>	



5 Notes:  
 1. Lundin C1 2014 guidance for full year. KGHM net cash cost as reported in H1 2014 report. All other companies as reported net cash cost (C1) for Q1 2014  
 2. Company estimate for 2014  
 3. Estimated net cash cost for copper cathode equivalent sales of 110 to 130 U.S. cents per pound (in 2014 terms) in the first 10 years after the commencement of the sulphide concentrator's operation, calculated using a long-term molybdenum price of \$30,000 per tonne  
 4. Estimated net cash cost for copper cathode equivalent sales of 80 to 100 U.S. cents per pound (in 2014 terms) for the first 10 years after the concentrator has been commissioned, calculated using a long-term gold price of \$1,300 per ounce  
 5. Broker equity research estimates. KAZ Minerals' production growth estimate excludes the Koksay project

# THE TEAM



**Mian Khalil**  
**General Director of Projects -  
Construction**

- ▶ 40 years of mining industry experience
- ▶ Highly experienced capital projects manager
- ▶ Formerly VP BHP Billiton Projects Development Services team
  - Led centres of excellence in Project Management, Resource Management and Metallurgical Engineering
- ▶ BHP Billiton 1991-2006, Lonmin 2006-09, Kazakhmys / KAZ Minerals 2009 - present



**Jeremy Allen**  
**General Director of Projects -  
Operations**

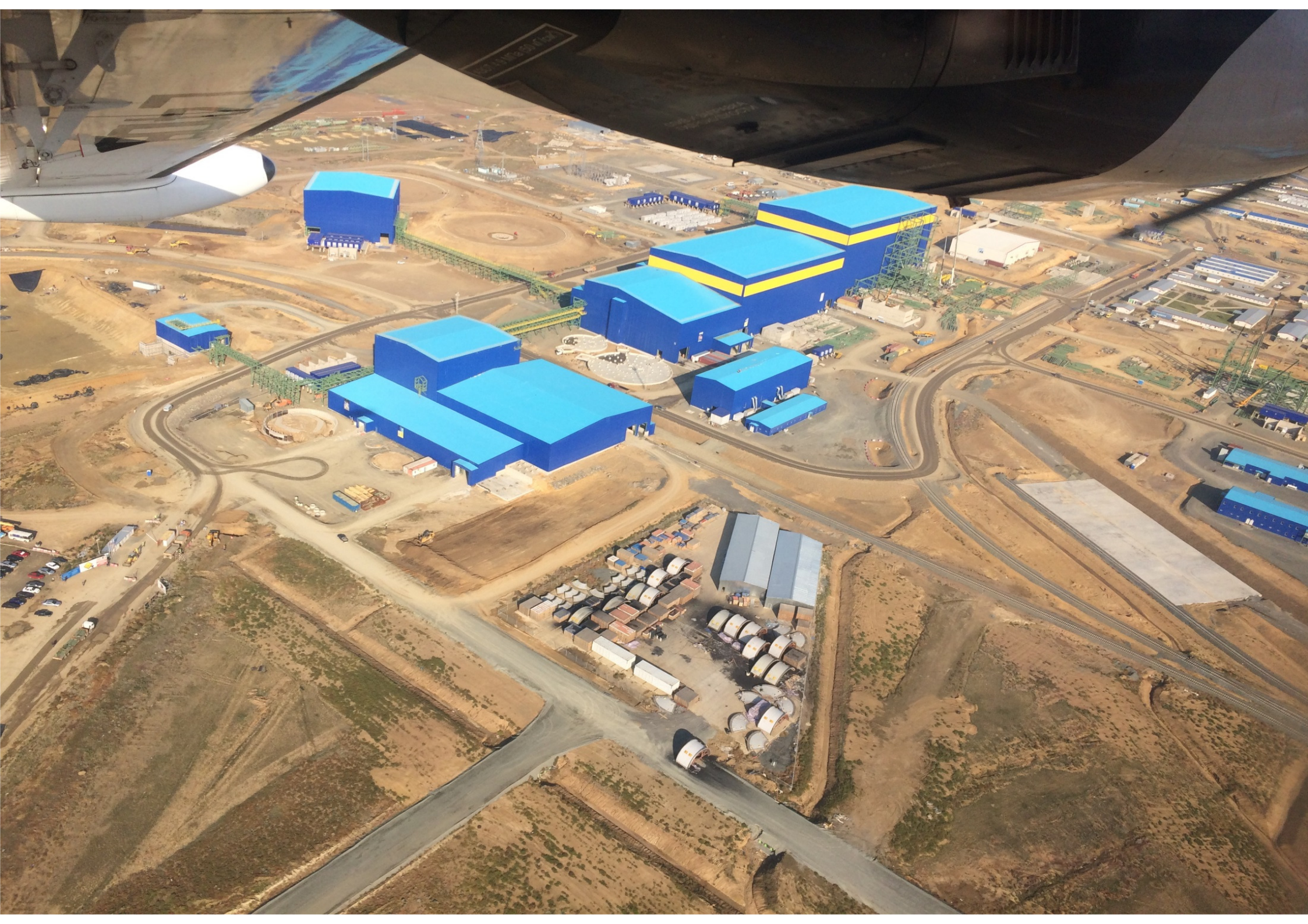
- ▶ 35 years of underground and open pit mine management experience (28 years senior management)
- ▶ Operated at all levels of mining management in Zambia, Namibia, South Africa, DRC, Indonesia, Zimbabwe, Wales and Kazakhstan
- ▶ First Quantum 1994-2005 & 2007-10, Leighton Contracting Indonesia 2005-07, Western Coal 2010-13, Kazakhmys / KAZ Minerals 2013 - present

**BOZSHAKOL**

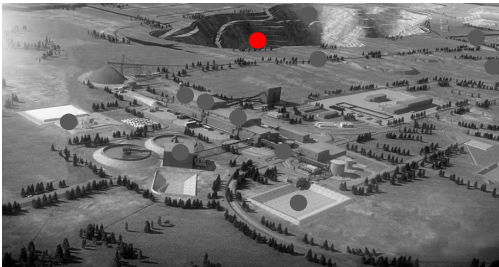


# PROJECT PLAN





# 1. ORE EXTRACTION

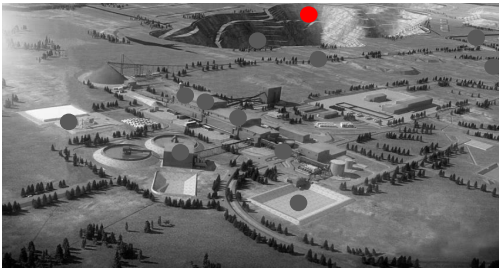


- ▶ Drilling with 4 Sandvik D55 rotary drills
- ▶ Charging and blasting with Anfo/Emulsion explosives
- ▶ 4x Hitachi 21m<sup>3</sup> electrically powered shovels
- ▶ Each shovel will extract 11 MT of material per year
- ▶ Equipment is all on site and fully assembled
- ▶ Will commence pre-production mining in H1 2015



*Hitachi EX203 shovel*

## 2. HAULAGE



- ▶ 18 Caterpillar 785C Haul Trucks will transport overburden to waste heap and ore to primary crusher
- ▶ Maximum load 140 tonnes
- ▶ Each truck will complete 18,000 journeys per year on average over the first ten years of the project
- ▶ Life of Mine Strip Ratio estimated 0.7:1
- ▶ All trucks on site and fully assembled
- ▶ Will commence pre-production mining in H1 2015



*Caterpillar 785C haul trucks*

### 3. PRIMARY CRUSHER

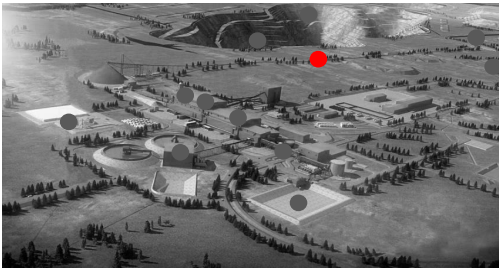


- ▶ Processing capacity 25 MT of mined ore per year
- ▶ Gyrotory Crusher TS, 60" x 113"
  - 4,186 tonnes/hr
  - Installed power 750kW
- ▶ Manufacturer - FLSmidth
- ▶ Gyrotory crusher is on site, concrete and structural steel works complete, mechanical and electrical works commenced
- ▶ Will commence ore processing in H2 2015



*Primary crusher and conveyor*

## 4. CONVEYOR



- ▶ Delivers crushed ore to concentrator complex
  - 3.8km length
  - 1.6m wide belt conveyor
  - 4,880 tonnes/hr with
  - 5m/s max speed
  - Installed power 3,640kW
- ▶ Design and supply – FLSmidth
- ▶ Concrete work is complete, structural steel and mechanical works in progress
- ▶ Structural steel, mechanical and electrical works to be completed prior to commencement of ore processing in H2 2015



*Conveyor - view towards concentrator facility*

## 5. CLAY PLANT



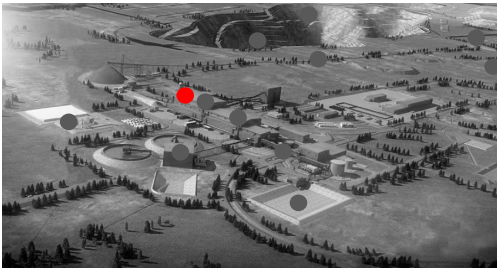
- ▶ Separate clay plant will process 5MT of additional sulphide material
- ▶ Produces additional concentrate separately from the main sulphide concentrator
- ▶ Increases total project ore processing capacity from 25 MT to 30 MT
- ▶ Clay plant will be converted to process main sulphide ore body once clay sections are processed after first 15 years of project
- ▶ Clay plant currently under construction
- ▶ Will be completed in time for commencement of ore processing in H2 2015



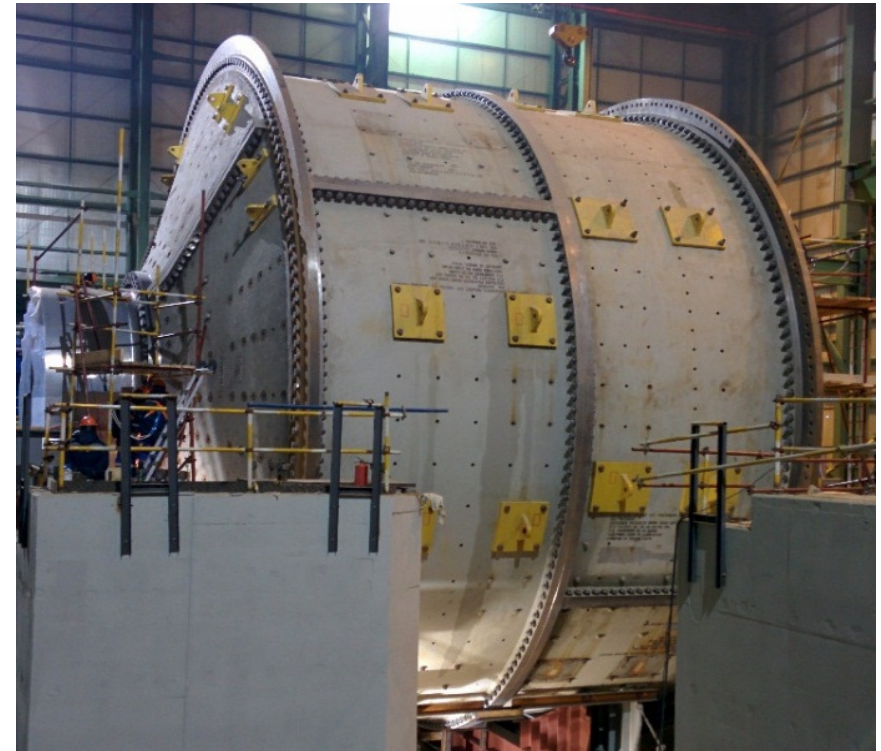
*Clay plant steel work*



## 6. SAG MILL

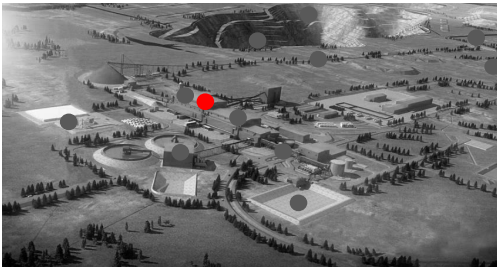


- ▶ Initial grinding of crushed ore
- ▶ Capacity 3,425 tonnes/hr
- ▶ Installed power 28,000kW @ 9.31RPM
- ▶ Diameter 40', length 26'
- ▶ Second largest SAG mill size in the world (Conga Project at Yanacocha, Peru has the largest at 42' diameter)
- ▶ Mill – FLSmidth; Drive - ABB/Alstom GMD
- ▶ Concrete work is complete
- ▶ Mechanical installation of mill shell, heads and trunnions are in progress



*SAG mill mechanical installation*

## 7. BALL MILLS

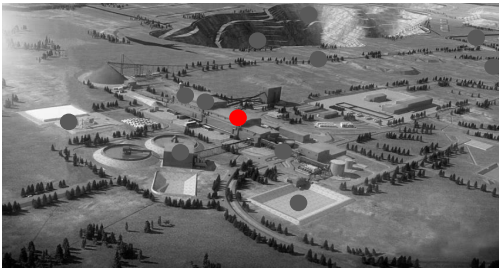


- ▶ Further grinding of crushed ore
- ▶ Capacity 1,706 tonnes/hr (x2)
- ▶ Installed power 22,000kW @ 10.99 RPM
- ▶ Diameter - 28', length - 44'
- ▶ 28' diameter is currently the largest ball mill size in use globally
- ▶ Mill – FLSmidth; Drive - ABB/Alstom GMD
- ▶ Concrete work is complete for both ball mills
- ▶ Ball Mill No.1 - mechanical installation of mill shell, heads and trunnions in progress
- ▶ Ball Mill No.2 - installation of mill shell



*Ball mill mechanical installation*

## 8. FLOTATION AND REGRIND

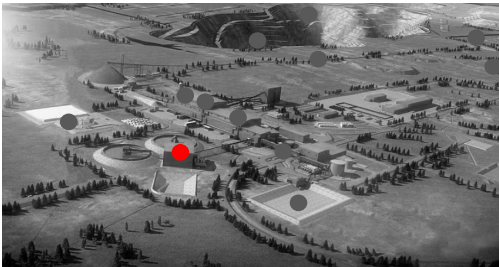


- ▶ Separation of copper concentrate from ore
- ▶ Flotation - Self Aspirated Cells, 1,576 tonnes/hr of solids
  - Manufacturer - FLSmidth/WEMCO
- ▶ Regrind - IsaMill M10,000
  - 21m length, 3000kW installed power
- ▶ Rougher Regrind Mill - 157 tonnes/hr Scavenger Regrind Mill - 84.5 tonnes/hr
  - Manufacturer - Xstrata
- ▶ Structural steel work complete
- ▶ Concrete work and mechanical pre-assembly of flotation cells in progress



*Flotation and regrind area*

# 9. TAILING THICKENING AND PUMPING

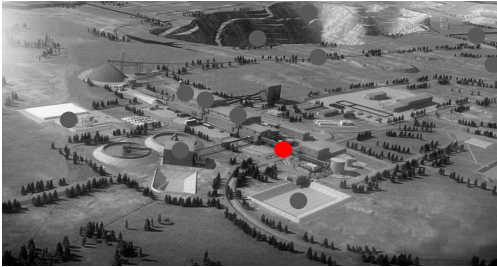


- ▶ Thickening of copper concentrate prior to placement in shipping bags, and disposal of tailings
- ▶ 2x High Rate Thickeners, 80m diameter 27,000m<sup>3</sup> capacity, feed of 4,313m<sup>3</sup>/h each
  - Manufacturer - Outotec
- ▶ 2x 4-Stage Pumping Trains, each 850kW centrifugal slurry pump. Capacity 3,195m<sup>3</sup>/hr @36 m slurry head
  - Manufacturer - Weir Minerals
- ▶ Concrete and structural steel work complete
- ▶ Erection of thickener tank and mechanical installation works in progress



*Pumping trains*

# 10. LOAD OUT AREA AND RAIL LINK



- ▶ Final product dried and bagged
- ▶ 18 km new spur directly connects project to main export rail line
- ▶ For exclusive use of Bozshakol
- ▶ Export route is via Kazakhstan national rail network - 1,700km to Chinese border
- ▶ Copper concentrate Delivered at Frontier (DAF) to buyers
- ▶ Spur line construction complete
- ▶ Ready for immediate use



*Spur line to main export rail line*



# 11. POWER

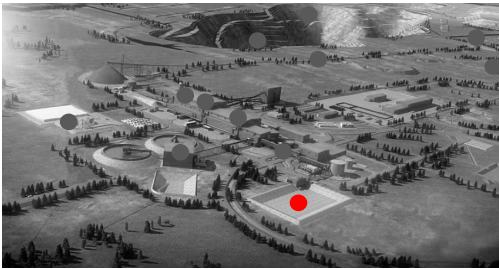


- ▶ Bozshakol has ready access to power from the Ekibastuz GRES-1 power station
- ▶ Largest power station in Kazakhstan, formerly owned by Kazakhmys PLC
- ▶ Ekibastuz design capacity 4,000 MW, Bozshakol project energy requirement 214 MW
- ▶ 35 kv power line for construction use has been in place since Q4 2011
- ▶ 220 kv power line for production phase in place but not connected, will be connected in time for pre-production mining in Q1 2015
- ▶ Expected 2015 energy tariff 4.9 USc / kW



*35 kv power lines*

# WATER



- ▶ Local water supply readily available and sustainable
- ▶ Kanysh Satpayev canal 27km away, state owned Shiderty reservoir capacity 89 million m<sup>3</sup>
- ▶ Modern plant and equipment will recycle up to 80% of water used in the production process
- ▶ Additional water will be gathered from ponds and basins fed by treated waste water and sewage, rain and snow melt
- ▶ Minimal withdrawal impact on local water sources and communities



*Water intake structure*

# PERMANENT CAMP



- ▶ Camp will house 1,200 workers and contractors when on site once project is in production phase
- ▶ Project will employ 1,500 in total
- ▶ Camp located 3km away from production facilities
- ▶ Includes kitchen, entertainment, gym and other leisure facilities
- ▶ Complete and fully commissioned
- ▶ Occupancy has commenced



*Permanent camp buildings*





A13

# CONSTRUCTION CONTRACTOR



- ▶ Non Ferrous China (“NFC”) is the primary construction contractor for Bozshakol
- ▶ Full-service, large-scale non-ferrous project manager, listed on the Shenzhen Stock Exchange since April 1997 with market cap of \$2.2bn and 80,000 employees
- ▶ Other projects/clients include EgyptAnode, Vedanta Aluminium and Konkola Copper Mines
- ▶ NFC mobilized at Bozshakol in February 2014, workforce now 1,700 (total workforce on site >2,000)
- ▶ 475,000 man-hours worked in November 2014<sup>1</sup>
- ▶ During winter months work focus will be on internal works



*NFC – primary construction contractor*

# COLD WEATHER OPERATIONS



- ▶ Construction phased to account for external temperature conditions
- ▶ Winter period from December to February can see temperatures of  $-40^{\circ}\text{C}$
- ▶ Buildings completed, enclosed and heated to allow internal construction work on mills, flotation and tailings equipment to proceed during winter
- ▶ Project designed to allow year round operation when in production phase



*External temperatures can reach  $-40^{\circ}$  in winter*

# HEALTH AND SAFETY



- ▶ Growth projects will set new standards in Health and Safety for KAZ Minerals
- ▶ Extensive 3 month on-boarding process for new recruits focusing on safe operations, commenced December 2014
- ▶ Growth projects will be safety ambassadors – new culture and procedures will be applied to existing producing assets
- ▶ However, construction phase is inherently a higher risk period
  - 2 fatalities at Bozshakol in 2014
  - 3 million man-hours LTI free between last two incidents



*Working at height*

# CAPEX AND COMMISSIONING MILESTONES



- ▶ Total capex \$2.2bn:
  - \$1.1bn spent as of 30 June 2014
  - Total spend as of 31 Dec 14 expected to be \$1.3bn<sup>1</sup>
  - Remaining \$0.9bn to be deployed in 2015

- ▶ Guidance for commencement of commissioning phase in H2 2015 unchanged
  - Further timing update can be given in February 2015 after winter period
  - On budget
- ▶ All major construction processes remain on track for achieving the timetable
- ▶ Key risks to timetable are:
  - Maintaining safety standards – continuous task by dedicated safety team
  - Severe weather during winter months
  - People, e.g. contractor performance

## COMPLETION MILESTONES

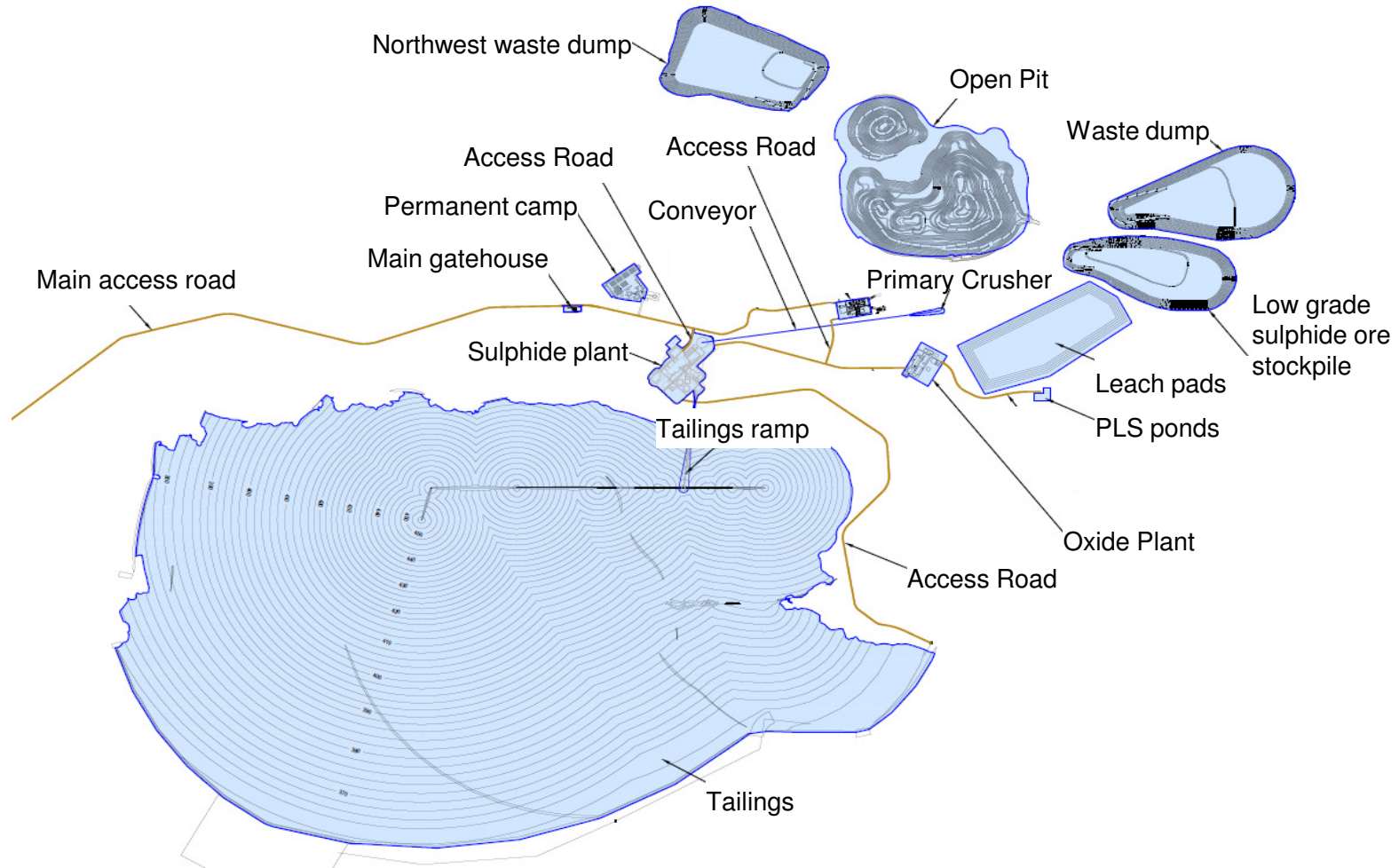
1. Assembly of internal equipment
2. Connection of 220kv power line
3. Complete training of production personnel
4. Commence pre-production mining
5. Ore feed to concentrator

<sup>1</sup> Spend as of 31 Dec 2013 was \$0.8bn, 2014 expenditure expected to be c.\$0.5bn

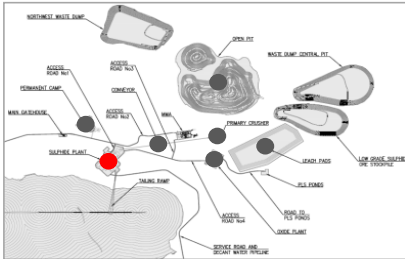
**AKTOGAY**



# PROJECT PLAN



# PROJECT STATUS



- ▶ Initial excavations and earthworks are proceeding as planned
- ▶ Long lead time equipment has been ordered and starting to be delivered
- ▶ The Aktogay sulphide project is timed to commence commissioning c.18 months after Bozshakol
- ▶ There is an oxide ore body over the main sulphide ore body which will begin to be processed in Q4 2015 via heap leaching

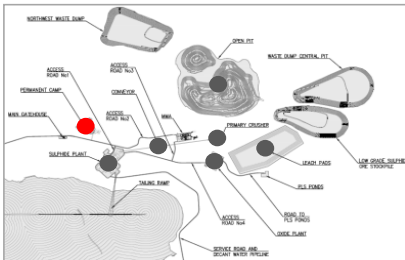


*Sulphide concentrator bulk earthworks*





# ENGINEERING & CONTRACTOR STRATEGY



- ▶ Other than the oxide process, the engineering for Aktogay is identical to the Bozshakol project
- ▶ Project execution risk is therefore reduced
- ▶ Part of the Bozshakol project team will transfer to Aktogay once Bozshakol enters the commissioning phase
- ▶ NFC has been appointed as the lead contractor for the sulphide processing plant
- ▶ >25 local contractors appointed for all works outside the main sulphide processing plant
- ▶ Capex \$400m-\$600m per year until 2017

**KOKSAY**



# KOKSAY – LONG TERM GROWTH



- ▶ Copper resource of 3.4 MT with upside potential, average grade of 0.48%
- ▶ Estimated average annual production of around 85 kt of copper cathode equivalent, 55 koz of gold, 360 koz of silver and 1 kt of molybdenum in concentrate in first 10 years
- ▶ Acquired June 2014 for \$260m; \$195m plus \$65m deferred consideration<sup>1</sup>
- ▶ Exploration commenced Q4 2014
  - To provide further enhanced geological, geotechnical and hydrogeological data on deposit
- ▶ Minimal investment until Bozshakol is producing



*Koksay licence area*

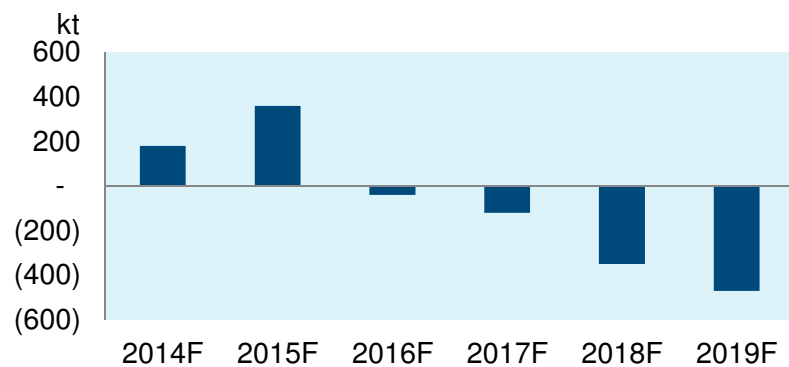
# SUMMARY



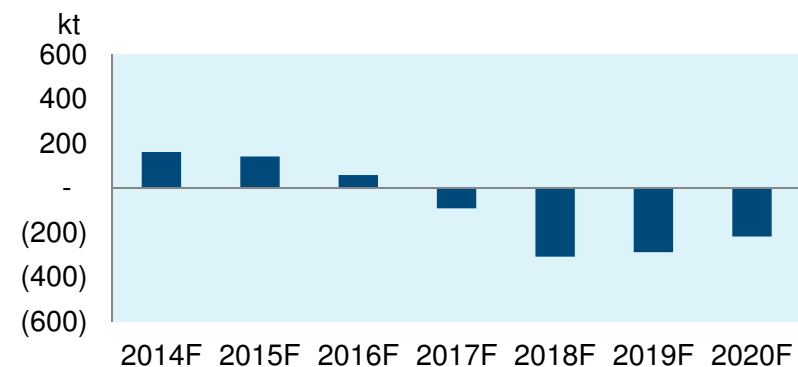
# DEFICIT EMERGING FROM 2016-2017



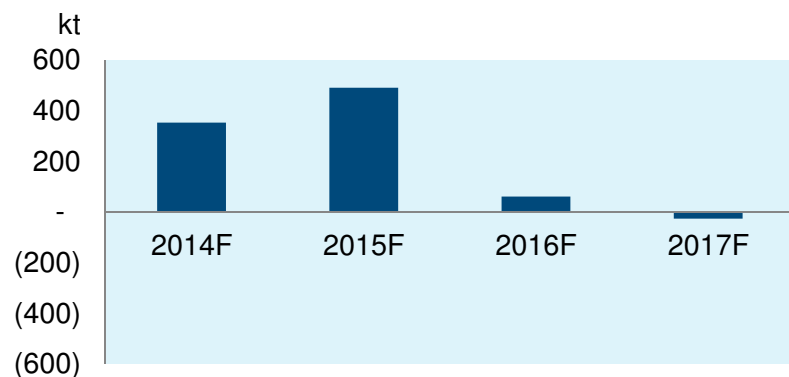
**BROKER 1 - refined market surplus/(deficit)**



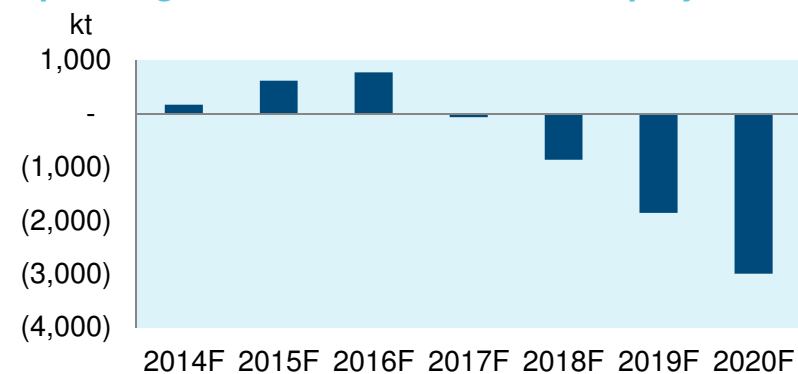
**BROKER 2 - refined market surplus/(deficit)**



**BROKER 3 - refined market surplus/(deficit)**



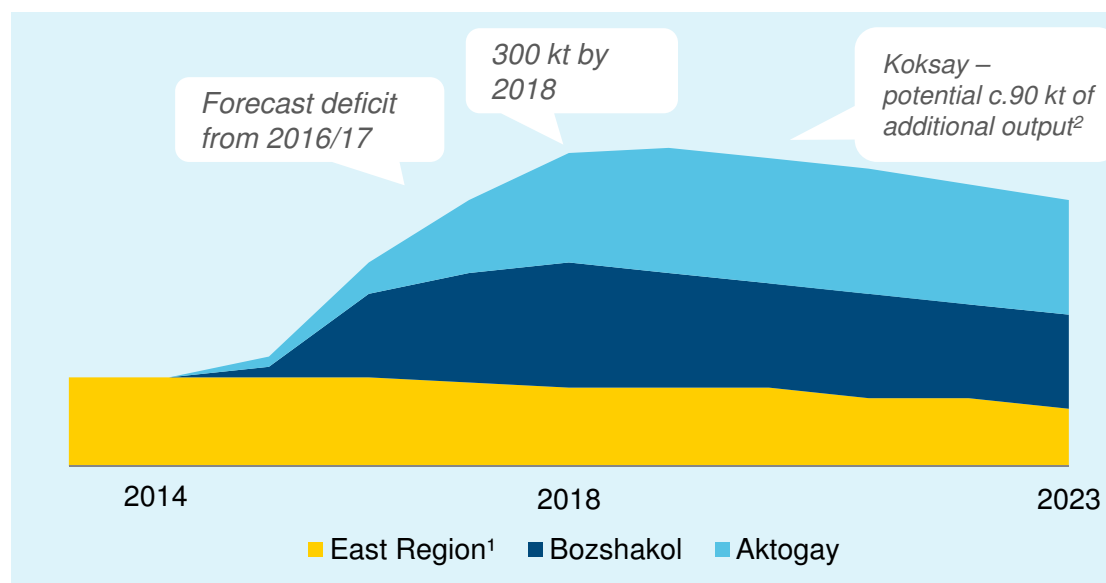
**PEER A - Market surplus/(deficit), based on current operating mines and committed new projects**



# DELIVERING INTO THE DEFICIT

- ▶ Fully funded projects delivering 300 kt of copper production by 2018
- ▶ 80% of 2018 production will be from new low-cost open-pit operations
- ▶ 28% CAGR in production 2013-2018

**COPPER IN CONCENTRATE OUTPUT (kt)**



<sup>1</sup> Includes Artemyevsky II and Bozymchak

<sup>2</sup> Estimated average annual output over first 10 years of the Koksay project based on scoping study

**KAZ**  
MINERALS



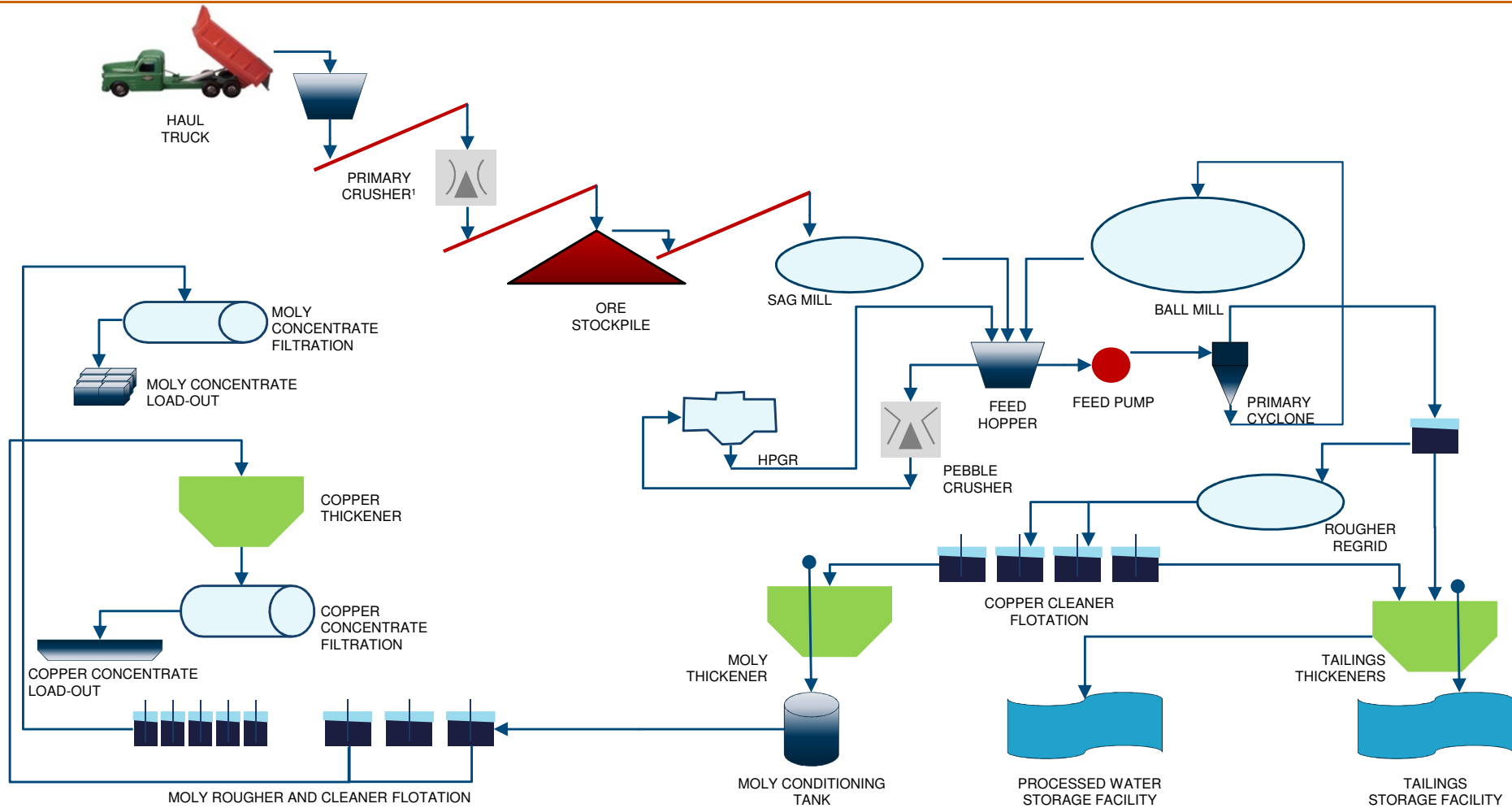
Q&A

**KAZ**  
MINERALS



**Appendix**

# BOZSHAKOL SULPHIDE FLOWSHEET



# BOZSHAKOL PROJECT SUMMARY



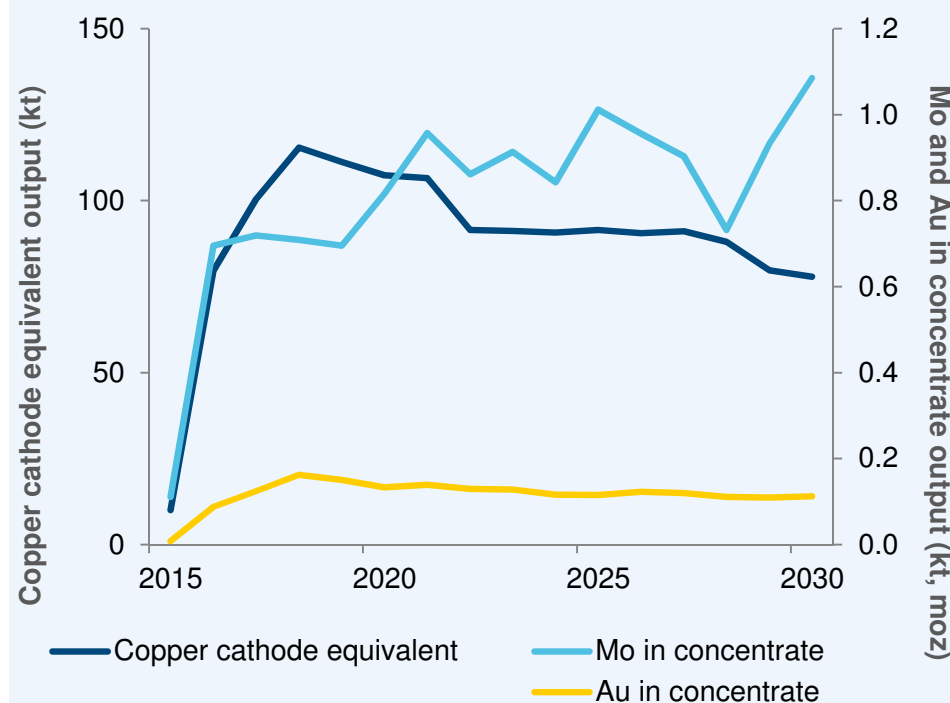
## KEY STATISTICS

- ▶ Large scale open-pit processing 30 MT ore annually
- ▶ 4.1 MT of contained copper at a grade of 0.35%
- ▶ By-products include 5,255 koz of contained gold and 57 kt of contained molybdenum
- ▶ Production life of over 40 years, with average production of 100 kt of copper cathode equivalent in first 10 years
- ▶ Employee numbers estimated 1,500 at full operation
- ▶ Close proximity to existing infrastructure
- ▶ Net cash cost – 80-100 USc/lb<sup>1</sup>
- ▶ Total anticipated project development cost \$2.2 bn

## MINERAL RESOURCE<sup>2</sup>

Tonnage (MT)	Cu grade (%)	Au grade (g/t)	Ag grade (g/t)	Mo grade (%)
1,173	0.35	0.14	0.88	0.004

## PRODUCTION SCHEDULE - KEY METALS

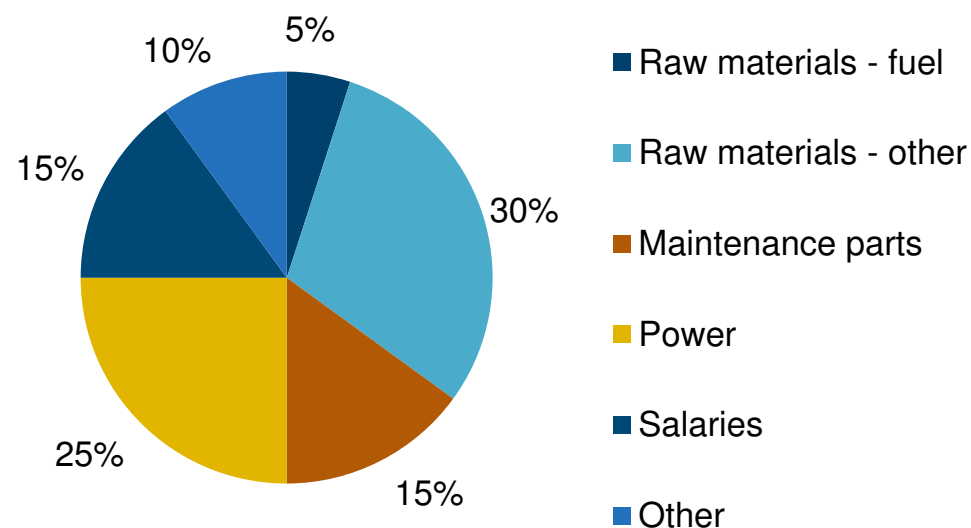


# BOZSHAKOL EXPECTED OPERATING COSTS



- ▶ Significantly lower labour component compared to East Region and disposal assets
- ▶ Raw materials account for greater proportion since labour is much lower
- ▶ Globally competitive energy input costs
- ▶ Net cash cost range 80-100 USc/lb<sup>2</sup>

## PROJECT GROSS CASH COST BREAKDOWN<sup>1</sup>



Notes:

1. Excludes smelting and refining deductions associated with the sale of copper in concentrate.
2. Estimated net cash cost for copper cathode equivalent sales in the first 10 years after the concentrator has been commissioned (in 2014 terms), calculated using a long-term gold price of \$1,300 per ounce.

# AKTOGAY PROJECT SUMMARY



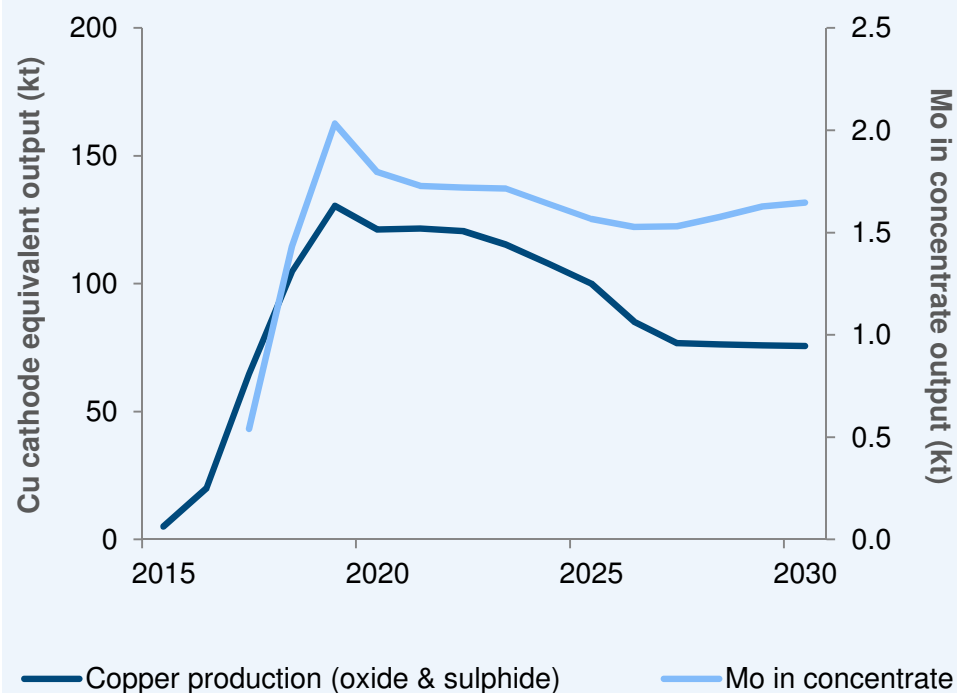
## KEY STATISTICS

- ▶ Large scale open-pit processing on average 25 MT ore annually (sulphide ore)
- ▶ 5.8 MT of contained copper and 115 kt of contained molybdenum
- ▶ Production life of over 50 years:
  - Average output of 15 kt of copper cathode equivalent per annum from oxide ore (11 years)
  - Average output of 90 kt of copper cathode equivalent per annum from supplied ore in first 10 years
- ▶ Employee numbers estimated 1,500 at full operation
- ▶ Net cash cost – 110-130 USc/lb<sup>1</sup>
- ▶ Total anticipated project development cost \$2.3 bn

## MINERAL RESOURCE<sup>2</sup>

	Tonnage (MT)	Cu grade (%)	Mo grade (%)
Oxide	121	0.37	-
Sulphide	1,597	0.33	0.008

## PRODUCTION SCHEDULE - KEY METALS



1. Estimated net cash cost for copper cathode equivalent sales is calculated for the first 10 years after the commencement of the sulphide concentrator's operation, using a long-term molybdenum price of \$30,000 per tonne.
2. Includes measured and indicated resources. Stated at 0.2% Cu cut-off grade. In accordance with JORC code.