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洛陽欒川鉬業集團股份有限公司

China Molybdenum Co., Ltd.*

(a joint stock company incorporated in the People's Republic of China with limited liability)

(Stock Code: 03993)

PRESENTATION

To facilitate investors to gain a better understanding of the operations and industry position of China Molybdenum Co., Ltd.* (the “**Company**”), analysis and prospects of the industry and market in which the Company operates, acquisition of an interest in Northparkes joint venture and the outlook of the copper industry, etc., the Company has prepared a presentation (appended to this announcement and is available for download at www.chinamoly.com).

The presentation contains certain information which has been derived from official, market and other sources including Wood Mackenzie and public company filings. The directors of the Company (the “**Directors**”) believe that the sources of such information are appropriate sources for the information. The Directors have exercised reasonable care in selecting and identifying the relevant information sources and in compiling, extracting and reproducing such information, and have no reason to believe that such information is false or misleading or that any fact has been omitted that would render such information false or misleading. This information has not been independently verified by the Directors or any of the Directors’ affiliates or advisers or any of their affiliates or advisers and no representation is given by the above parties as to its accuracy.

By Order of the Board
China Molybdenum Co., Ltd.*
Wu Wenjun
Chairman

Luoyang City, Henan Province, People's Republic of China, 11 November 2013

As at the date of this announcement, the Company's executive Directors are Mr. Wu Wenjun, Mr. Li Chaochun, Mr. Li Faben, Mr. Wang Qinxin and Ms. Gu Meifeng; the non-executive Director is Mr. Zhang Yufeng; and the independent non-executive Directors are Messrs. Bai Yanchun, Xu Shan, Cheng Gordon and Xu Xu.

* *for identification purposes only*



Investor Presentation

November 2013



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These materials should be read in conjunction with CMOC's unaudited consolidated financial statements for the nine months ended 31 September 2013 and other public disclosures.

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Part 1

Investment Highlights

China Molybdenum investment highlights

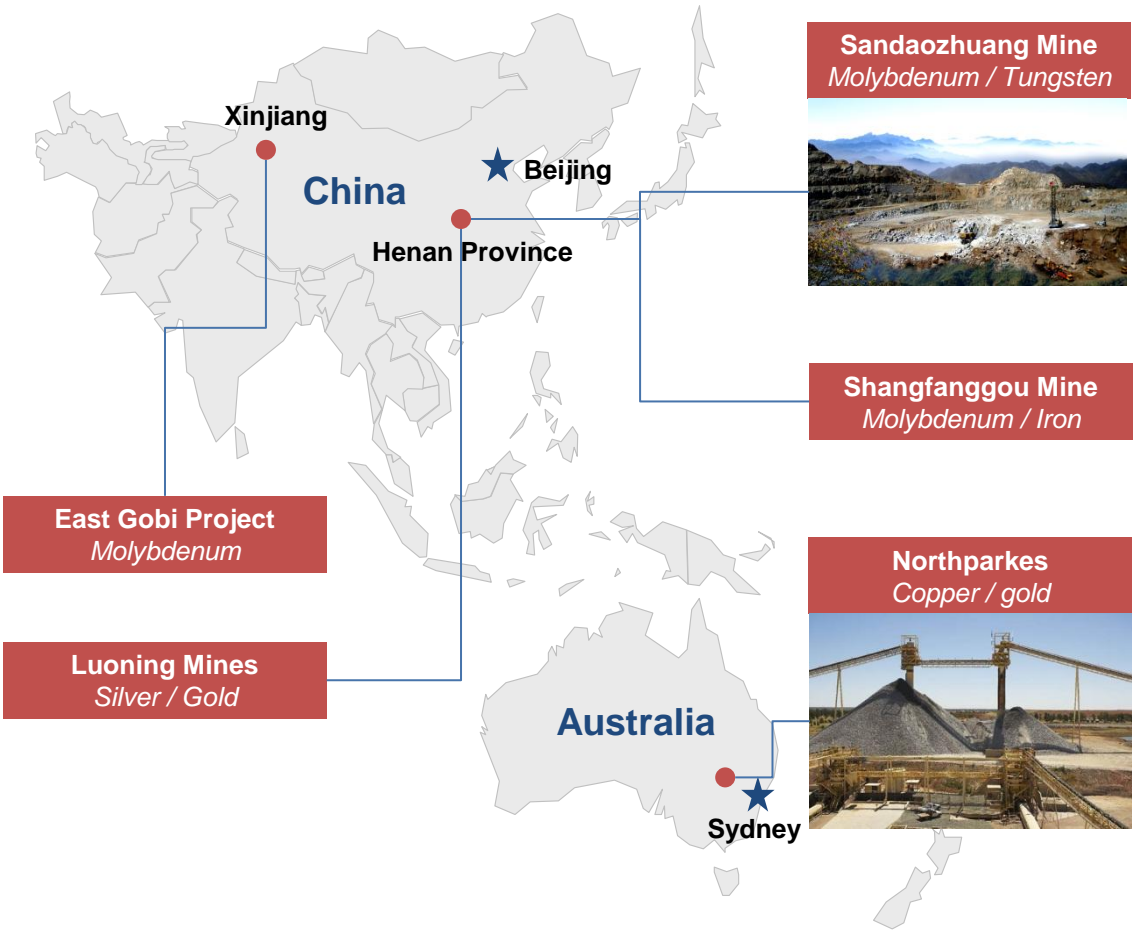
- ✓ **A leading moly producer and the second largest tungsten concentrate producer in the world, now with substantial exposure to copper and gold**
- ✓ **High quality, long-life and low-cost portfolio**
- ✓ **Strong cash flow generation with flexible funding structure**
- ✓ **Two world-class moly projects, and significant upside at Northparkes that support future expansion and sustainable growth**
- ✓ **Northparkes and its experienced management team provide a strong platform for international growth**
- ✓ **Commitment to disciplined acquisitions and prudent capital allocation to drive shareholder returns**
- ✓ **Commitment to industry-leading HSE practices**

Part 2

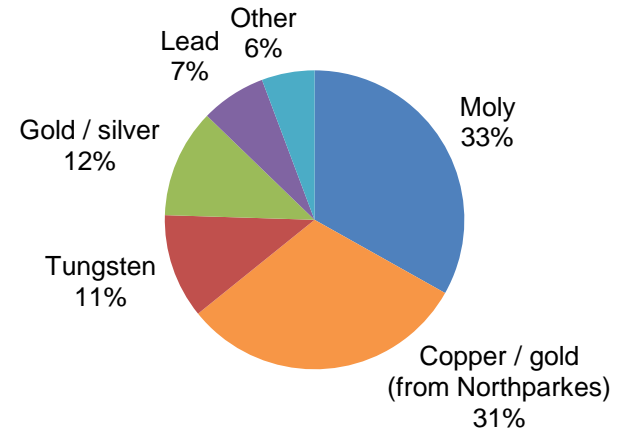
Update on CMOC

High quality and diversified portfolio

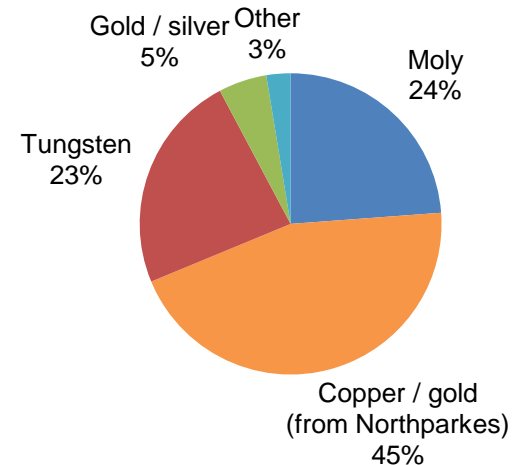
High quality and diversified asset portfolio across four commodities, all with strong leverage to China and emerging economies



2012 pro forma revenue by commodity⁽¹⁾



2012 pro forma gross profit by commodity⁽¹⁾



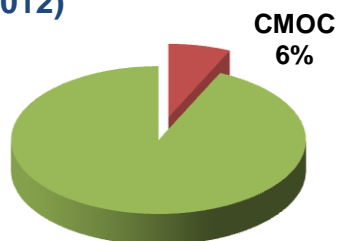
(1) Pro forma for Northparkes acquisition.

Leading molybdenum and tungsten producer

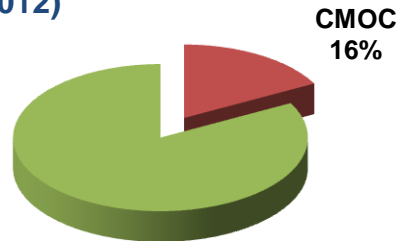
CMOC is a leading molybdenum and tungsten producer in China and globally

Molybdenum

Share of world production (2012)



Share of China production (2012)

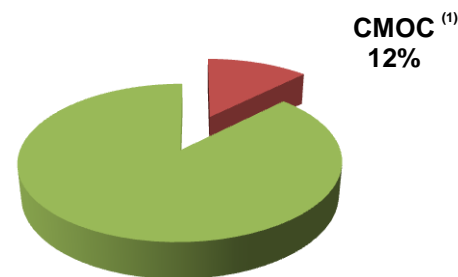


Global molybdenum producers

Rank	Company	2012 Production (Moly, kt)
1	Freeport	38.6
2	Codelco	19.6
3	Group Mexico	18.2
4	JDC	17.0
5	CMOC	15.3

Tungsten

Share of China production (2012)



Domestic tungsten producers

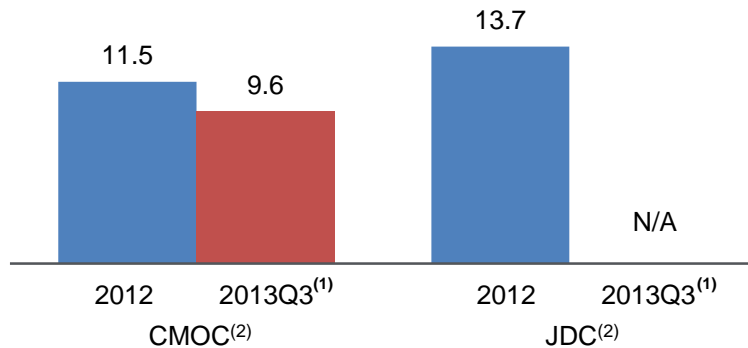
Rank	Company	2012 Production (65% WO ₃ , kt)
1	Jiangxi Tungsten Industry Group Co.,Ltd	~13.0
2	CMOC ⁽¹⁾	11.1
3	Hunan Shizhuyuan	5.3
4	Xiamen Tungsten ⁽¹⁾	4.7
5	Zhangyuan Tungsten	3.7



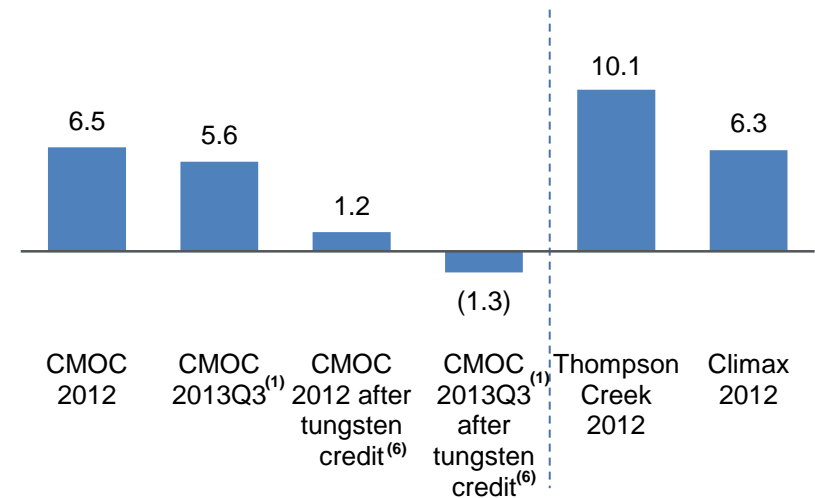
Lowest-cost primary moly producer with large reserves

CMOC has the world's largest indicated moly resource base with significantly lower cash cost than its peers

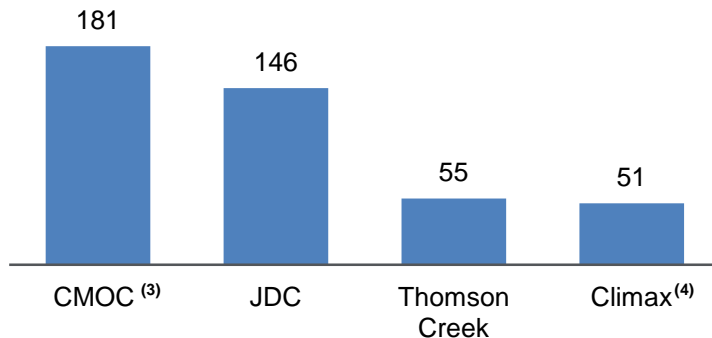
Unit cost of moly in 2012 (RMB '0,000 / ton)



Cash cost of moly oxide (US\$/lb)⁽⁵⁾



Total resources compared to peers (0'000 tons)



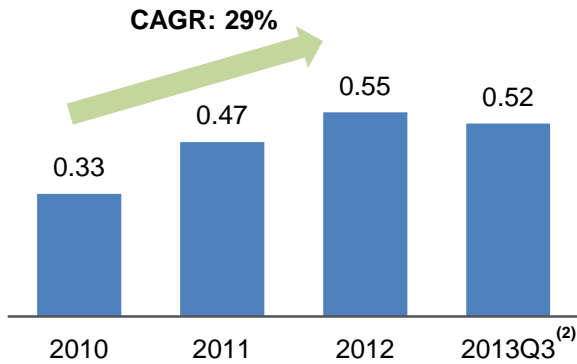
- Unit COGS materially lower than primary competitors'
- Cash cost of moly oxide one of the lowest in the world
- Cost of moly significantly reduced by tungsten credits
- The world's largest indicated moly resource

High-growth, low-cost tungsten producer

In the last three years, CMOC has realised improvements in production, ore grade and recoveries, resulting in declining unit costs and improved margins⁽¹⁾

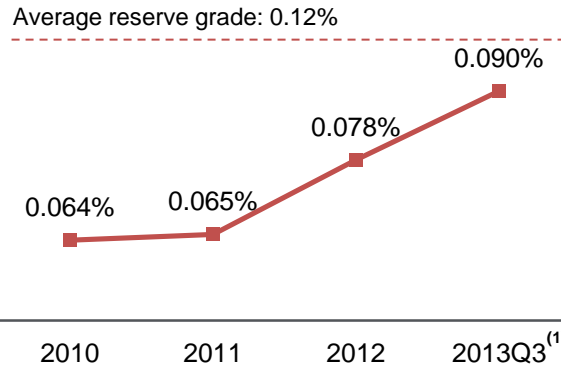
Strong production growth

Tungsten production (0,000 tons metals)



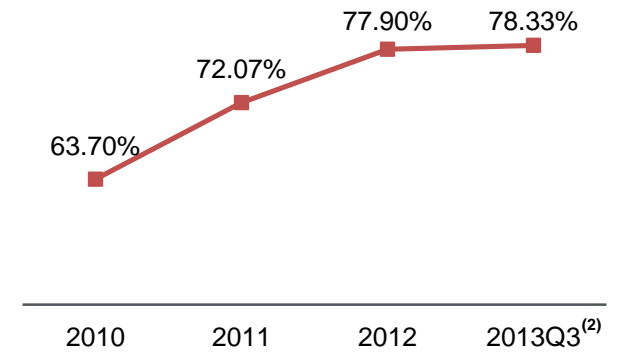
Increasing average grade

Average feed grade (%)



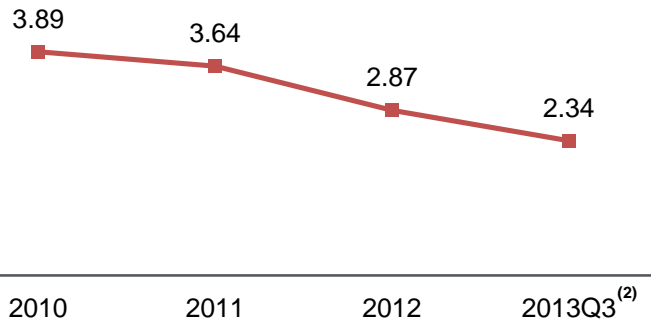
Improving recovery rates

Recovery rate of tungsten concentrate (%)



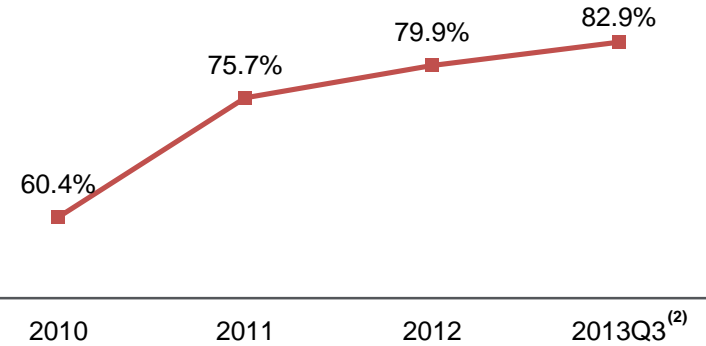
Declining unit costs

Unit cost of tungsten concentrate (RMB '0,000 / ton of concentrate)



Industry leading gross margins

Gross margin (%)



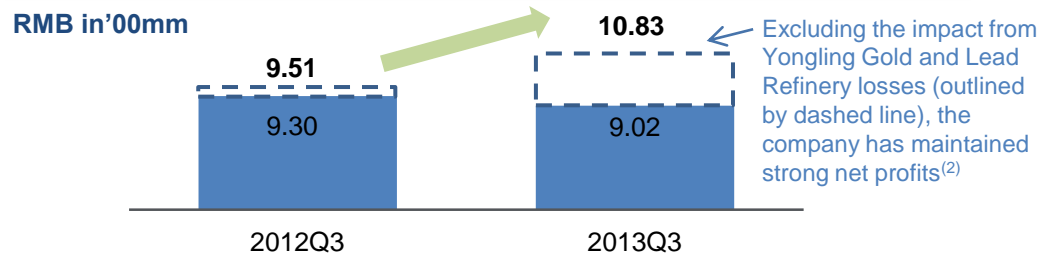
(1) Data according to CMOC's consolidated financials, excludes Yulu joint venture figures.

(2) Figures are YTD.

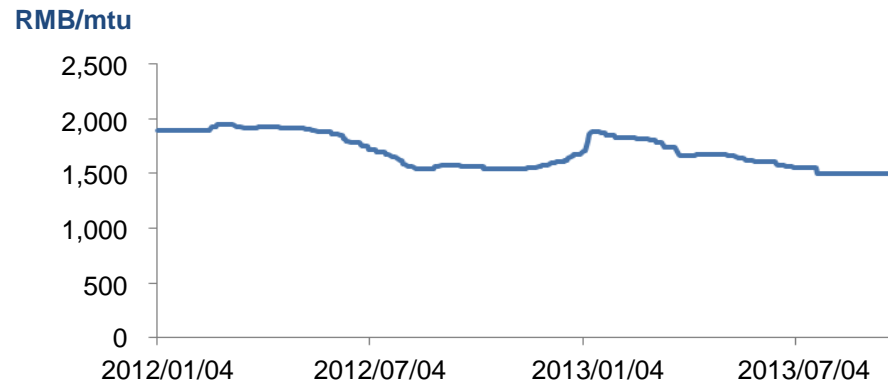
Strong financial performance in 2013 YTD

In spite of a ~6% decline in the molybdenum price during the year, financial performance during the first 3 quarters of 2013 has improved from the same period last year due to significant cost improvements

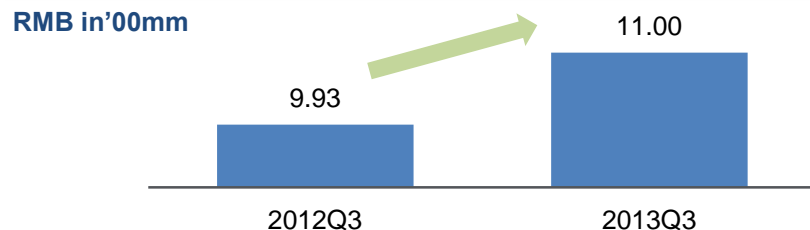
Significantly improved net profit⁽¹⁾



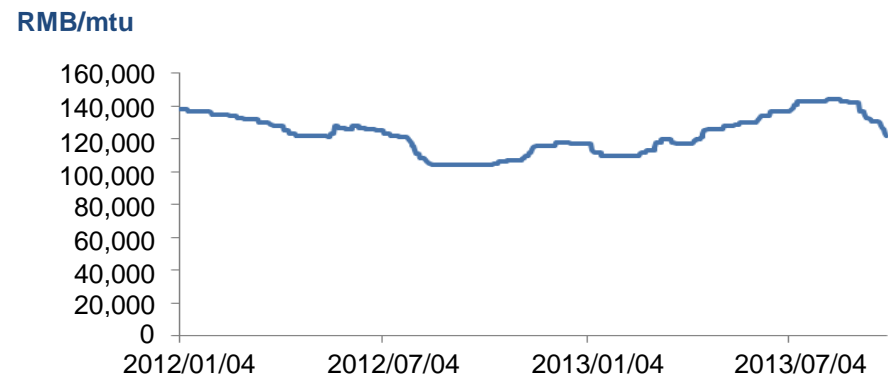
Price of moly oxide (>51%)



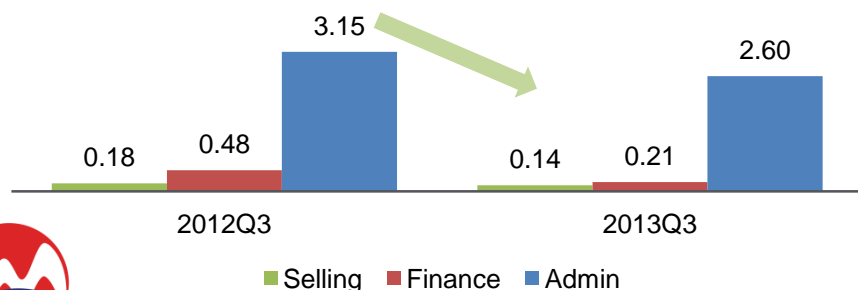
Strong operating cash flows⁽¹⁾



Price of tungsten concentrate (65%)



Expenses have significantly declined⁽¹⁾



(1) Figures are YTD.

(2) CMOC is divesting Yongling Gold and Lead Refinery assets in order to improve asset structure, enhance operational performance and increase profitability. Currently using all efforts to progress workflows.

Part 3

Northparkes Acquisition



Northparkes: Key terms of acquisition

Transaction	<ul style="list-style-type: none">• CMOC Mining Pty Ltd acquiring Rio Tinto's 80% interest in Northparkes, related rights and assets• CMOC Mining Pty Ltd will be appointed as manager to manage the day to day operations of Northparkes in accordance with the Northparkes Management Agreement
Purchase price	<ul style="list-style-type: none">• US\$820 million (RMB5,032m⁽¹⁾) in cash, subject to customary adjustments
Conditions	<ul style="list-style-type: none">• Shareholder approval required• Two major shareholders (69% of total register) committed to vote in favor of the transaction
Transition	<ul style="list-style-type: none">• Majority of Northparkes employees to become CMOC employees• Rio Tinto to provide transitional services for up to 12 months post close
Timetable	<ul style="list-style-type: none">• Transaction expected to close before the end of 2013

Northparkes: Transaction rationale

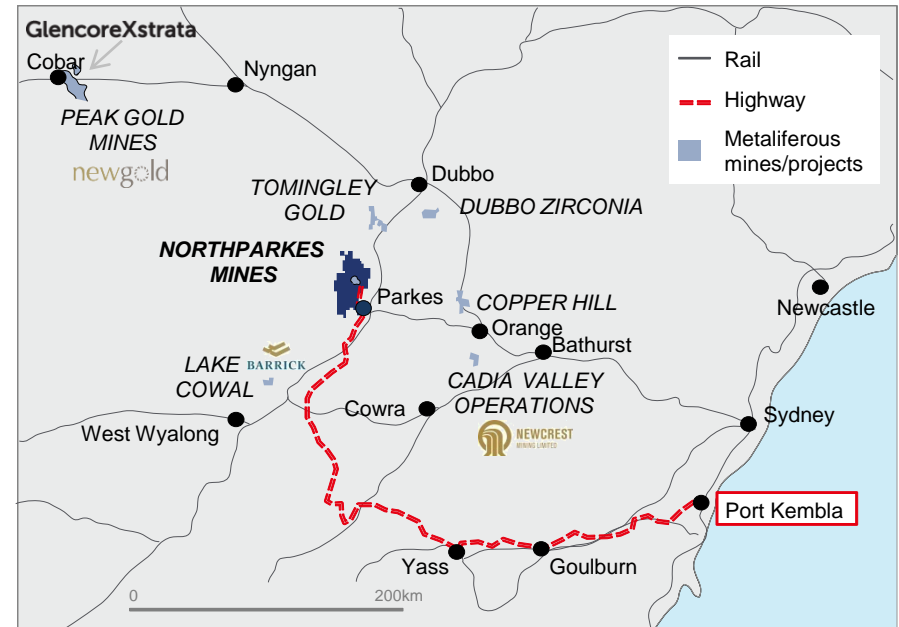
Northparkes is a strong fit for CMOC

- ✓ **High-quality, long-life asset with a low-cash cost position**
- ✓ **Meaningful exposure to highly attractive long-term copper fundamentals**
- ✓ **Australia is a low-risk and mining-friendly jurisdiction**
- ✓ **Potential to further improve operational efficiency**
- ✓ **Potential for expanded capacity or mine life, based on large defined resources and further exploration upside**
- ✓ **Provides additional technical expertise (e.g. block caving)**
- ✓ **Provides strong platform for future international growth**
- ✓ **Immediately value-accretive to CMOC shareholders**

Northparkes: Asset overview

High quality, copper-gold block caving operation in Central New South Wales, Australia

- 27km northwest of the town of Parkes in Central New South Wales and 350km north west of Sydney
- Incoming joint venture between CMOC (80%)⁽¹⁾, Sumitomo Metal Mining Oceania Pty Ltd. (13.3%) and SC Mineral Resources Pty Ltd. (6.7%)
- 19 years of successful operations including two open pit mines and three block cave mines
- Top four copper producing mine in Australia in 2012
 - Copper concentrate production of 54kt
 - Low net C1 cash cost less than US\$1/lb Cu
- Industry-leading block caving technology, experienced management team and best practice in HSE
- Highly efficient operations with 40% of mining operations automated
- Well-established mining infrastructure and excellent relationships with the local government and communities



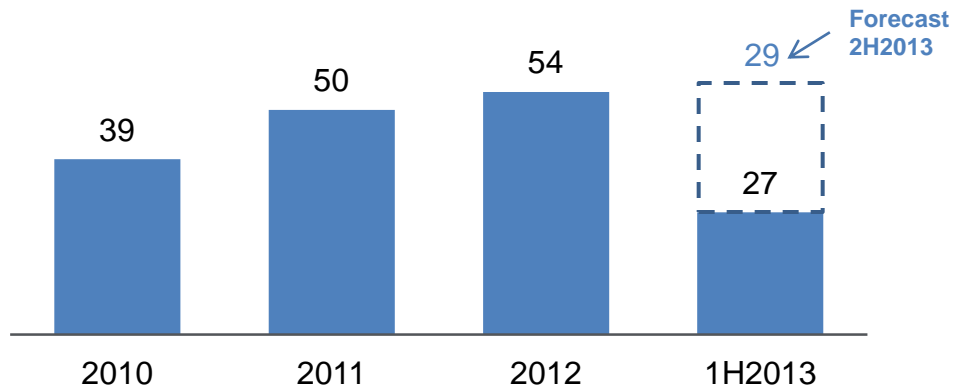
Total JORC resources⁽²⁾⁽³⁾	471.7Mt @ 0.70% Cu-Eq ⁽⁴⁾ ; 2,668kt Cu and 2,554koz Au
Total JORC reserves⁽²⁾	107.5Mt @ 0.81% Cu-Eq ⁽⁴⁾ ; 667kt Cu and 1,002koz Au
First production	1993
Existing mine life, based on reserves	17 years
Potential extended mine life, based on resources	+30 years

(1) CMOC to acquire its interest in Northparkes from Rio Tinto upon completion which is expected in 2013. (2) 100% basis. (3) Resources are exclusive of reserves; (4) Copper equivalent grade. Assumes long term copper price of US\$3.15/lb and long term gold price of US\$1,400/oz.

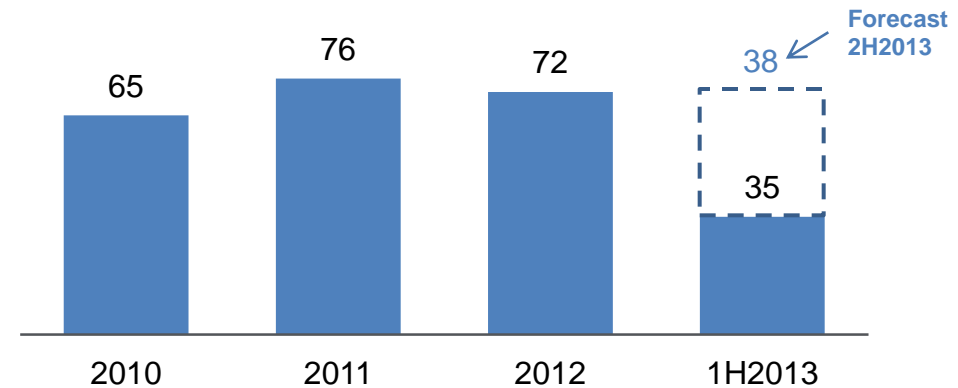
Northparkes: Large-scale high-quality asset

Northparkes produced 54kt of copper in concentrate in 2012, and represents the fourth largest copper mine in Australia

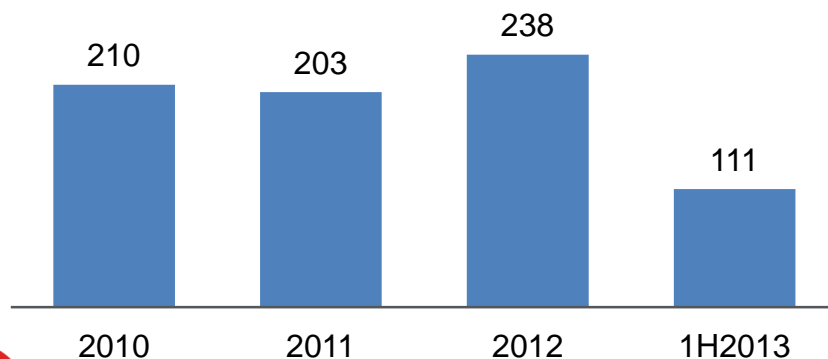
Historical copper production (kt)



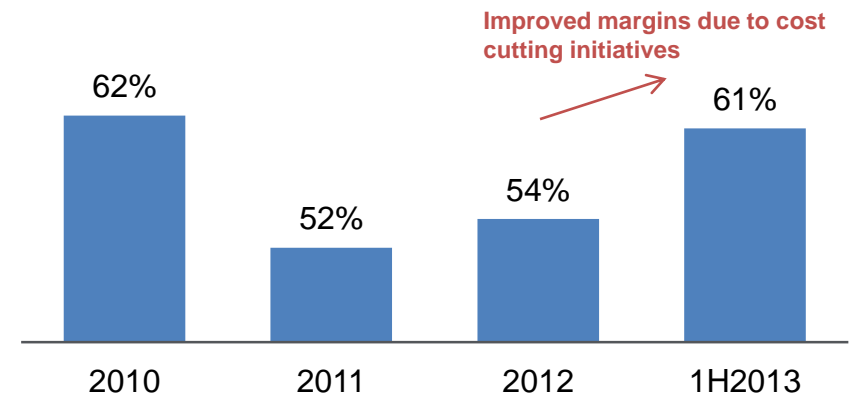
Historical gold production (koz)



EBITDA (A\$m)



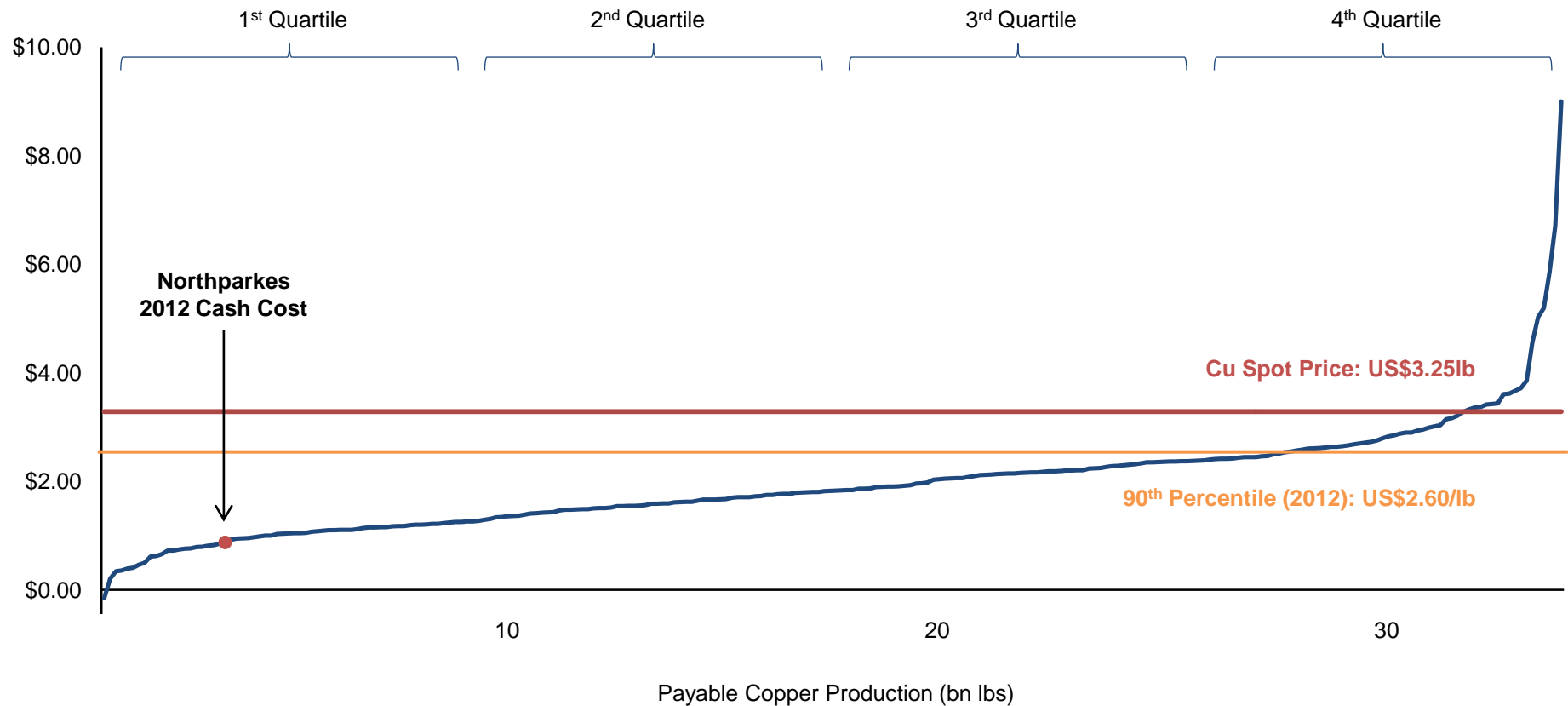
EBITDA margin



Northparkes: Low cost asset

Northparkes is a low cost operation, benefiting from the highly efficient block cave mining method and valuable gold and silver by-products, with a C1 cash cost in the lowest quartile of the cost curve

2012 copper C1 cash cost curve⁽¹⁾
(US\$/lb payable Cu)



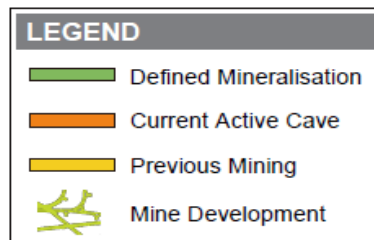
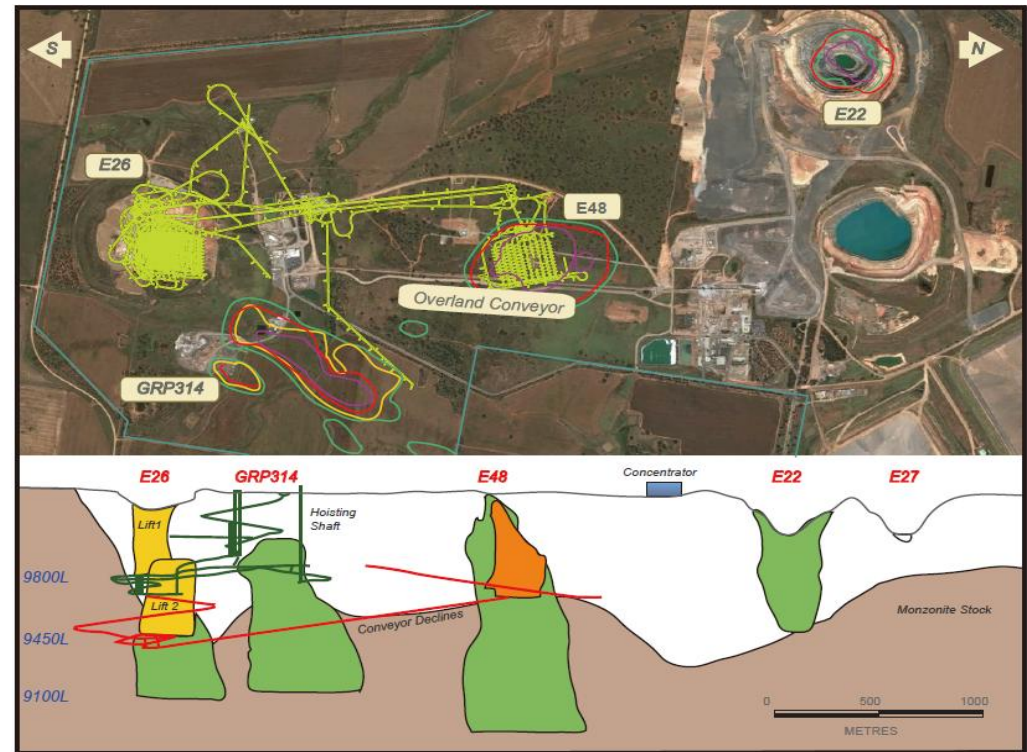
Source: Wood Mackenzie. Copper spot price as at 24 October 2013.

(1) C1 cash cost represents the cost incurred at each processing stage from mining to recoverable metal delivered to market, less net by-products (if any).

Northparkes: Successful operating history

Northparkes has a successful history of operating from a number of mines / deposits

- Northparkes operates from approximately 2,480 hectares of Mining Leases
 - 1,630 hectares used for mining operations
 - Operations surrounded by 6,144 hectares of Northparkes owned land used for farming
- Past mines:
 - E22 & E27 open pits
 - E26 deposit – Lift 1 / Lift 2 / Lift 2N
- Current and future mines:
 - Currently mining: E48 block cave Lift 1
 - Planned future mines: E22 block cave Lift 1
 - Potential mines: E48 block cave Lift 2; E26 block cave Lift 3; GRP314 block cave

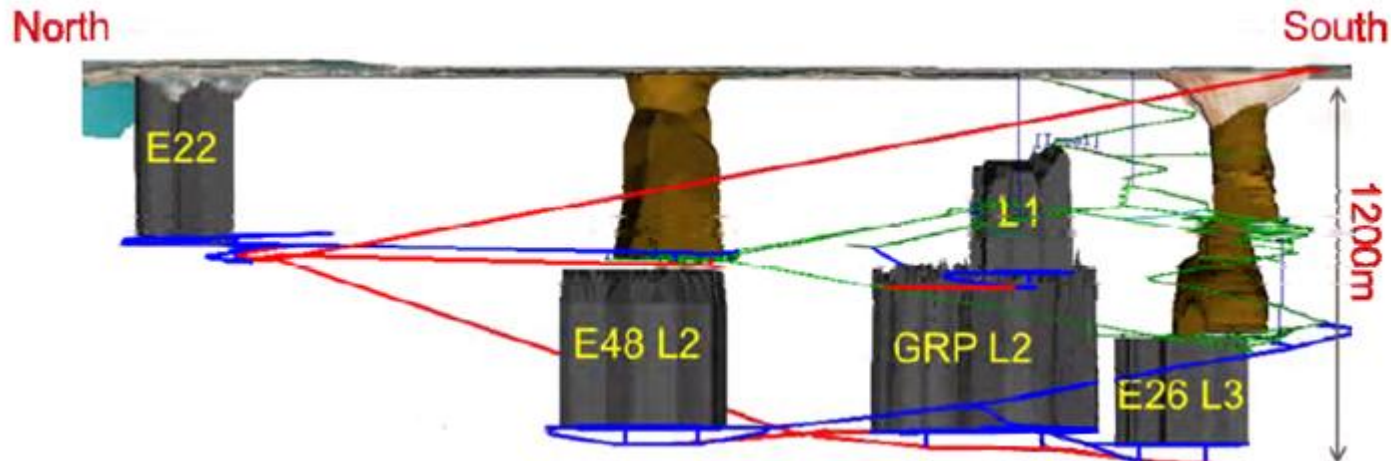


Northparkes: Exploration upside

Despite the long history of exploration, there is significant potential to define further mineralised bodies within the Northparkes project area

- Ore Reserves of approximately 108Mt that support a forecast mine life of 17 years
- 472Mt Measured & Indicated Resources are directly beneath the Ore Reserves
 - Significant upside potential to support expanded capacity or expanded mine life
 - Based on current mining capacity, resources could support a mine life in excess of 30 years
- Drilling below currently defined resources has intersected extensions of the host porphyry bodies

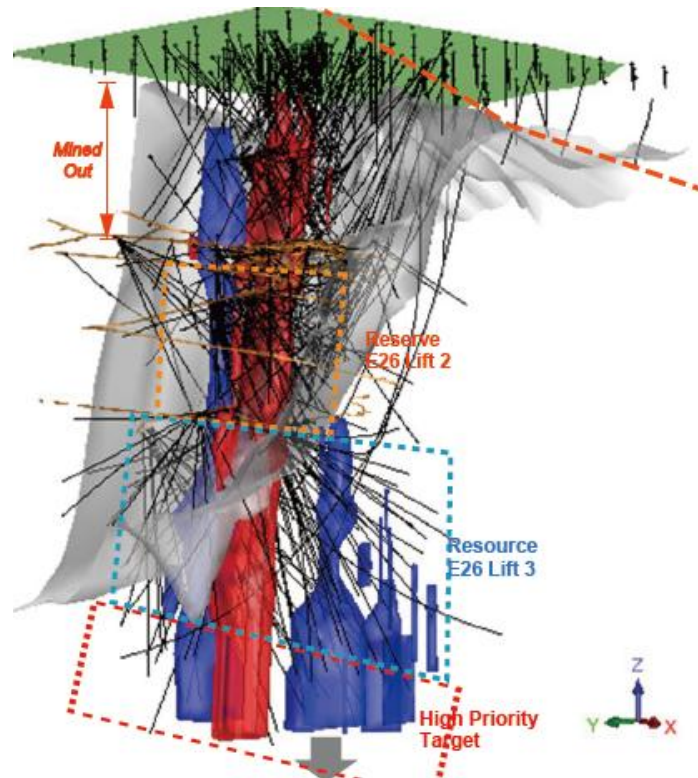
Cross section illustrating the identified resource potential



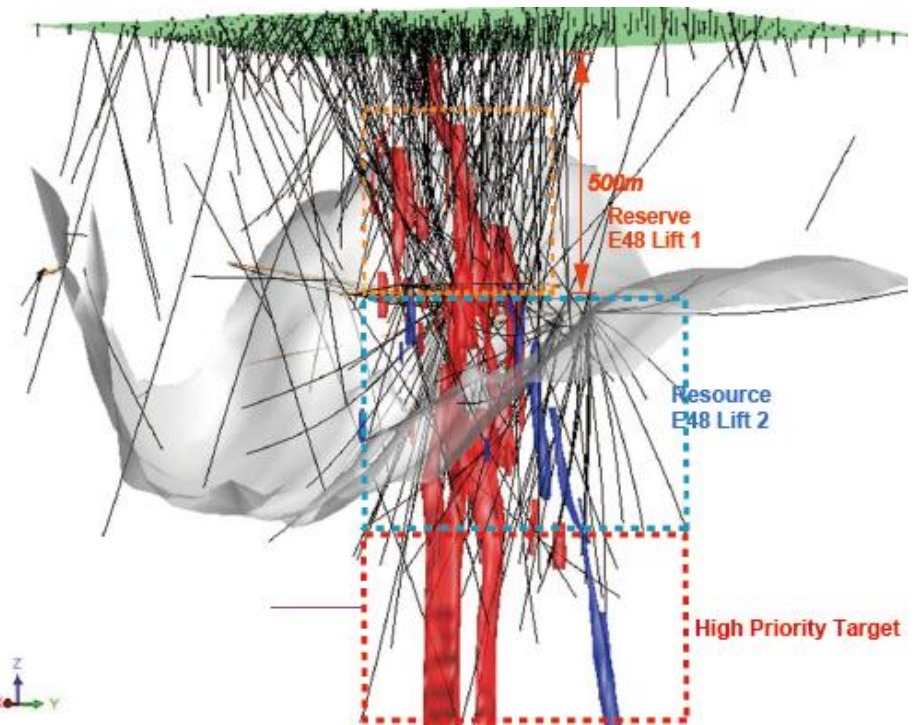
Northparkes: Exploration upside (cont'd)

Potential exists to mine additional defined resources using existing mining infrastructure to extend mine life or increase production rates

E26 looking west



E48 looking east



LEGEND

Full Porphyry
Drill holes

Half Porphyry
Current Surface

Quartz Monzonite
Upper Surface

Reserve Area
Resource Area

Northparkes: Valuation

The implied enterprise value to resources multiple of the Northparkes acquisition is below the average of relevant precedent transactions

Acquirer	Target	Transaction date	Size (USD million)	Cu-eq. Resources (billion lbs)	EV / Cu-eq. Resources (USD/ lb)
Minmetals	OZ Minerals (mining assets)	Apr 2009	\$1,354	34.2	\$0.04
Jinchuan	Metorex	Jul 2011	\$1,414	11.3	\$0.13
Barrick	Equinox	Apr 2011	\$7,824	17.7	\$0.44
Minmetals	Anvil	Sep 2011	\$1,260	3.7	\$0.34
KGHM	QuadraFNX	Dec 2011	\$2,316	30.0	\$0.08
First Quantum	Inmet	Dec 2012	\$3,492	54.7	\$0.06
Capstone	Pinto Valley	Apr 2013	\$650	8.8	\$0.07
Chinese & South African Consortium	Palabora (57.7%)	Dec 2012	\$373	4.4 (57.7% basis)	\$0.04
Average					\$0.15
CMOC	Northparkes	July 2013⁽¹⁾	\$820	5.8 (80.0% basis)	\$0.14

Part 4

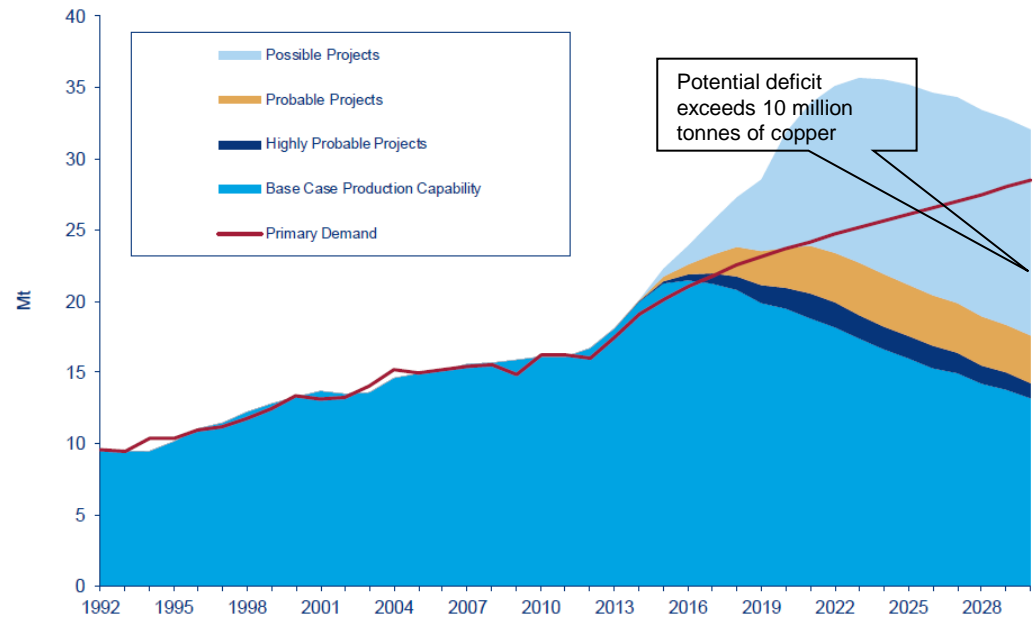
Copper Outlook

Highly attractive long-term fundamentals

Northparkes provides substantial portfolio exposure to highly attractive long-term copper fundamentals

- Undersupply of copper expected from 2017 due to a lack of projects in pipeline from the following:
 - Capital cost escalation of new projects
 - Declining copper grades
 - Projects in higher risk jurisdictions
 - Permitting issues
 - Availability of power and water
 - Mining companies deferring spending

New mine supply from probable and possible projects versus primary demand

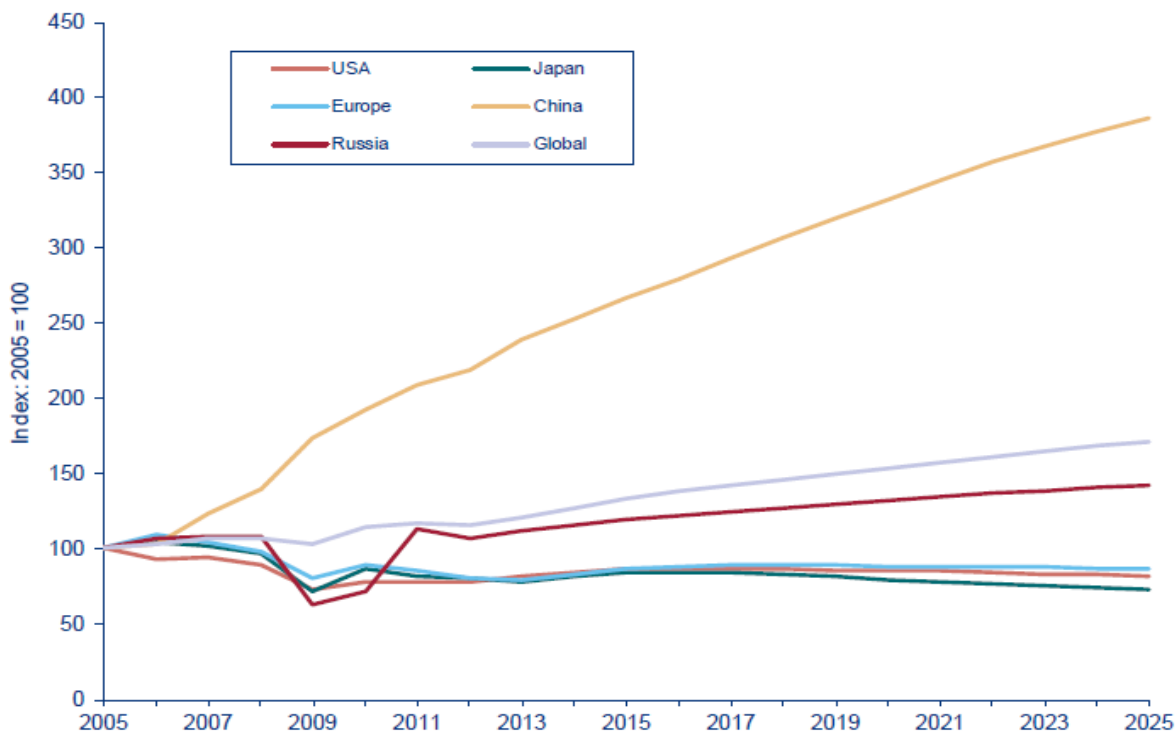


Source: Wood Mackenzie.

Copper demand

Copper demand is underpinned by strong demand from BRIC nations
Global demand growth is expected to average 2.6% from 2012 to 2030

Indexed Copper Consumption Growth (2005=100)



BRICs nations Copper Consumption Growth

Country	2012 – 2030 refined copper consumption CAGR
India	6.4%
China	4.0%
Brazil	3.4%
Russia	1.9%
Global	2.6%

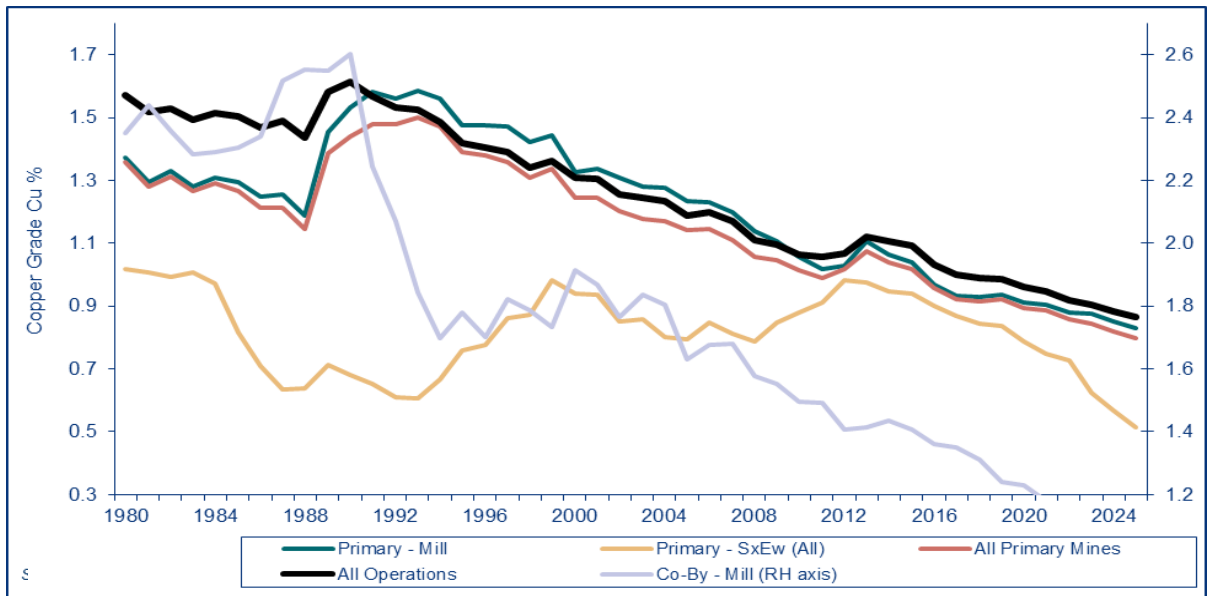
Source: Wood Mackenzie.

Copper supply: Declining head grades

Head grades will continue to decline, forcing cash costs to increase and supporting prices

- Average head grade in 2012 was 1.07%
 - Average grade in 1980 was 1.57% Cu in 1980 (32% decline)
 - Average head grade predicted for 2025 is 0.86%
- Lower head grades increases mining and processing costs
- As the marginal cost of production increases, the copper price required to incentivize project development in the future will be higher than it is today

Head grade trends
(weighted by paid copper)



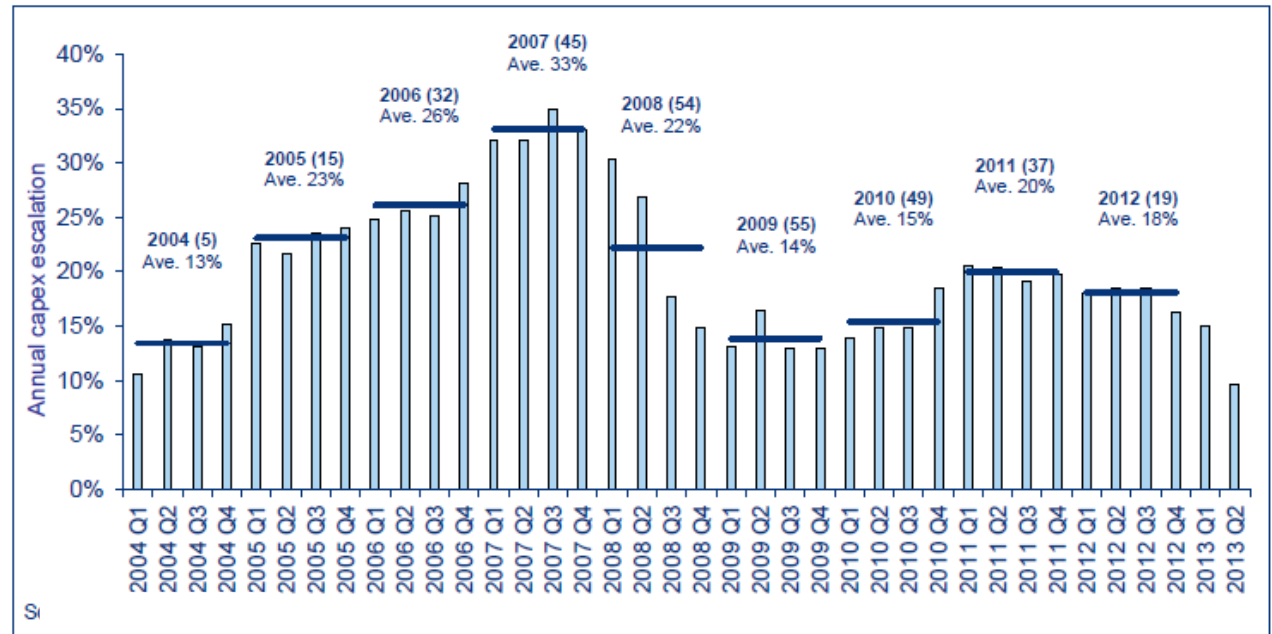
Source: Wood Mackenzie.

Copper supply: Capital escalation

Escalating capital costs and subsequent declining returns have resulted in project delays and cancellations

- Annual capex escalation has been above 10% since 2004
- As a result, expected returns from new projects has declined and projects have been cancelled or delayed
- The project pipeline is becoming squeezed, resulting in a projected decline in copper production from 2017 onwards

Capex escalation 2004 – 2013



Source: Wood Mackenzie.

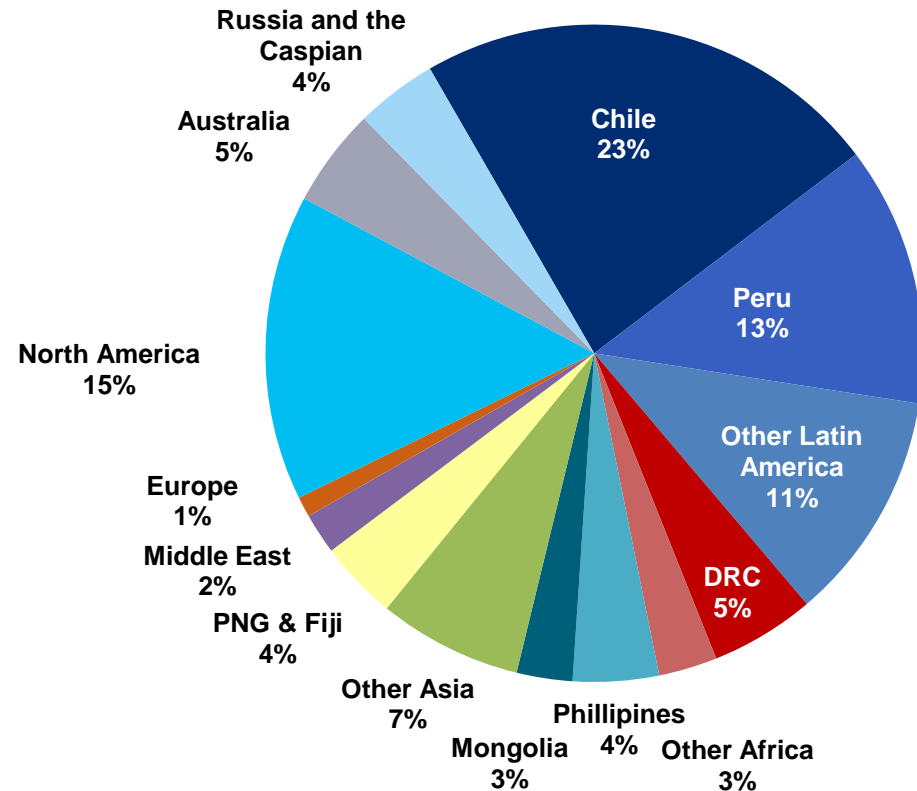
Copper supply: Supply from high risk countries

While there are a number of large scale copper mine projects, the majority of these are in high risk jurisdictions with key issues impacting their development

Key issues

- Availability of power and water
- Permitting
- Social issues
- Export infrastructure (e.g. ports, roads, rail)
- Royalty regimes
- Capital cost

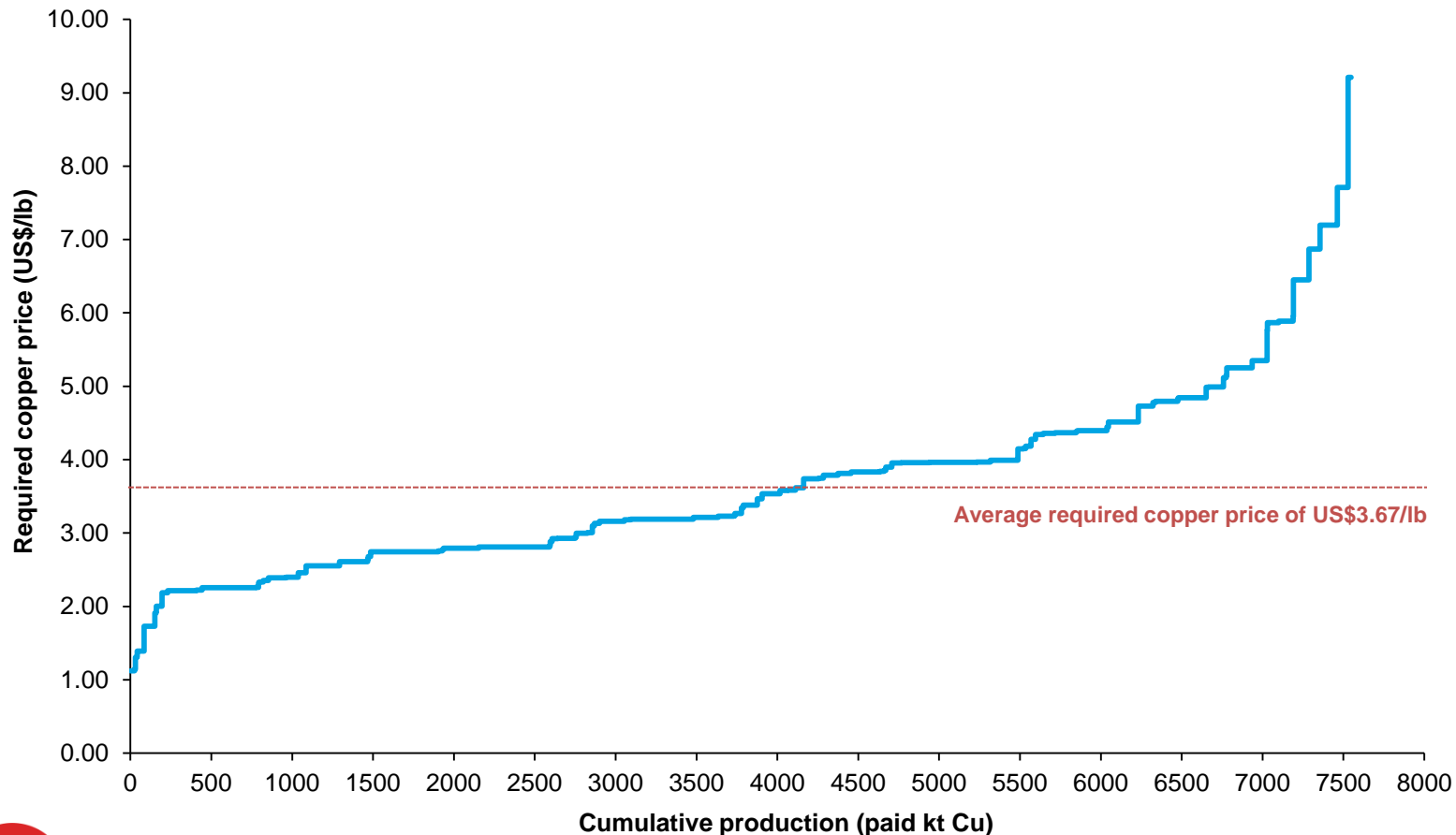
Potential contribution from highly probable, probable and possible projects by 2023



Source: Wood Mackenzie.

Copper supply: Incentive pricing

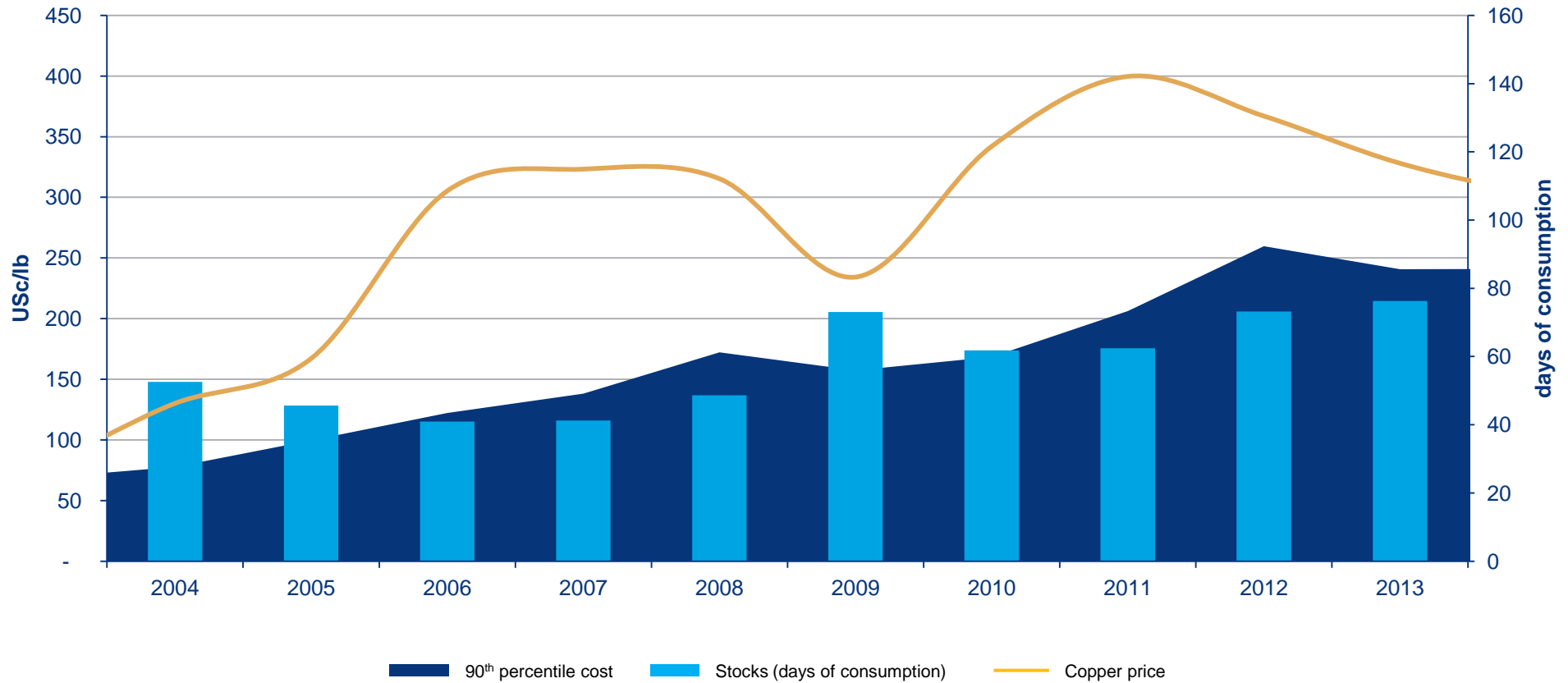
Unapproved projects⁽¹⁾ require an average copper price of US\$3.67/lb to generate an IRR of 12%
There are many projects which require a higher copper price to achieve a 12% IRR



- Wood Mackenzie forecasts a requirement of greater than 6.0Mt of new mine production by 2023
- At the Wood Mackenzie forecast long term price of US\$3.50/lb, only an additional 3.9Mt from these projects will achieve a 12% IRR
- At a long term copper price of US\$4.50/lb, 6.0Mt will achieve a 12% IRR

Copper price outlook

The copper price has remained well above the 90th percentile of the cost curve in the last 10 years



Copper price outlook

\$3.75-\$4.00/lb

Short and medium-term corrections to demand especially if deficit is expected to be prolonged

\$3.50/lb

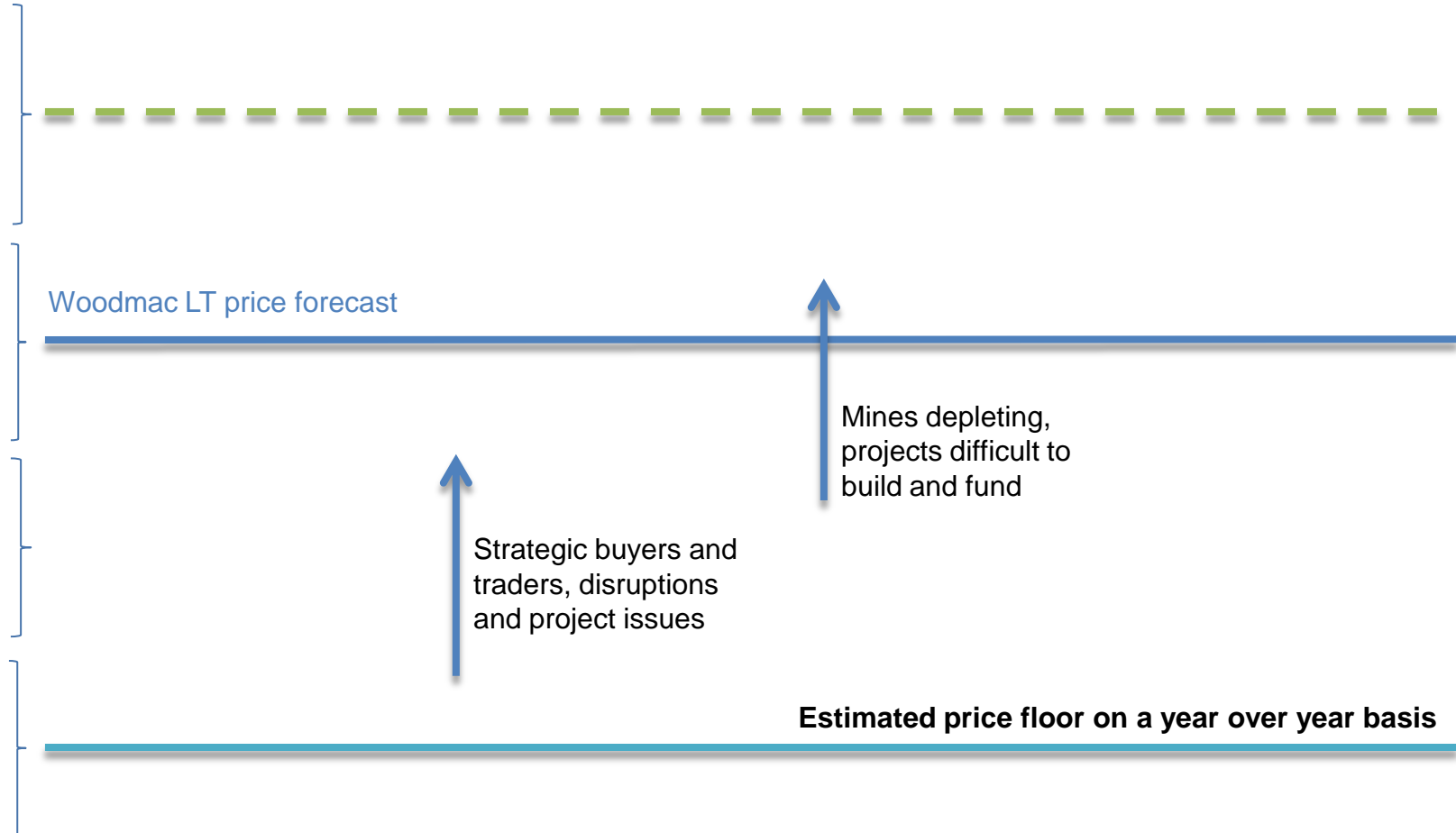
Incentive price required to prevent market falling into structural deficit

~\$3.00/lb

Strategic buyers see value versus all-in cash costs and future greenfield needs

\$2.80-\$3.00/lb

90th percentile total cash costs + sustaining capex



Part 5

Convertible Bond

Financing options considered

The Board carefully considered all the financing alternatives available in determining to proceed with the issuance of the convertible bond

The company has multiple financing options, and it has complied with all A-share and H-share guidelines with respect to shareholder rights, debt-holder rights, and refinancing conditions. In determining the appropriate financing option for the acquisition, the Board considered the following factors:

- Funding costs
- Capital structure
- Availability of financing methods
- Correlation between approval cycles and the relevant business development and acquisition arrangements
- Timing of the transaction
- Funding risk
- Flexibility of potential future funding requirements

Key terms of proposed convertible bond

Offering size	<ul style="list-style-type: none">• Not more than RMB4.9bn
Offer price	<ul style="list-style-type: none">• Nominal value of RMB100
Tenor	<ul style="list-style-type: none">• 6 years
Interest rate	<ul style="list-style-type: none">• Not more than 3.0%• Interest rate for each year to be determined by the Board, with reference to the PRC government policies, market conditions and actual conditions of the Company
Conversion timeline	<ul style="list-style-type: none">• 6 months after date of issuance to CB maturity
Conversion price	<ul style="list-style-type: none">• Initial conversion price shall not be lower than:<ul style="list-style-type: none">– The average A-share price for the 20 trading days preceding the date of publication of the offering document; and– Average trading price of A Shares on the trading day preceding the date of the offering document
Redemption at maturity	<ul style="list-style-type: none">• Within 5 trading days of CB maturity, the Company will redeem all outstanding CBs at a premium to the par value (including interest accrued in the last interest accrual year)
Conditional sale back	<ul style="list-style-type: none">• From the third interest accrual year, if the closing price of A shares is lower than 70% of the conversion price for 30 consecutive trading days, CB holders have the right to sell back part or all of the CBs to the Company at 103% of par (including interest accrued)

Convertible bond: Key benefits

The issue of a convertible bond is the most suitable financing alternative for the Northparkes acquisition

- ✓ Low funding cost
- ✓ Increases CMOC's net asset value and improves shareholder value
- ✓ Low offering risk
- ✓ Improves CMOC's capital structure
- ✓ No immediate dilution
- ✓ Actionable in current market
- ✓ In line with regulators' guidance

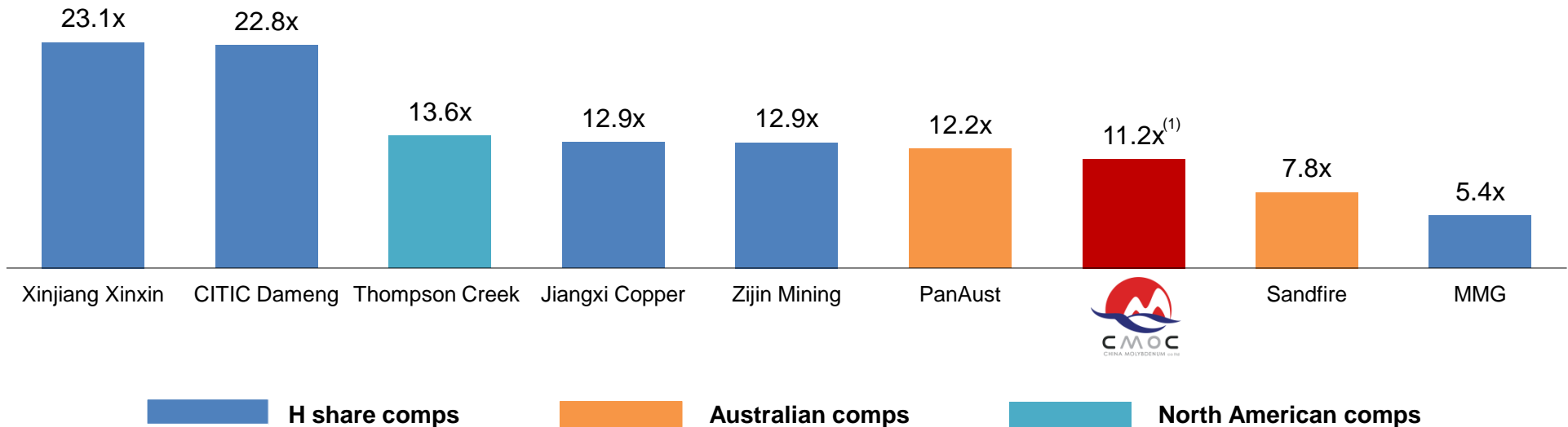
Part 6

Valuation

Significant upside to CMOC valuation

CMOC's H share is significantly undervalued relative to its peer group

Price / Forward EPS

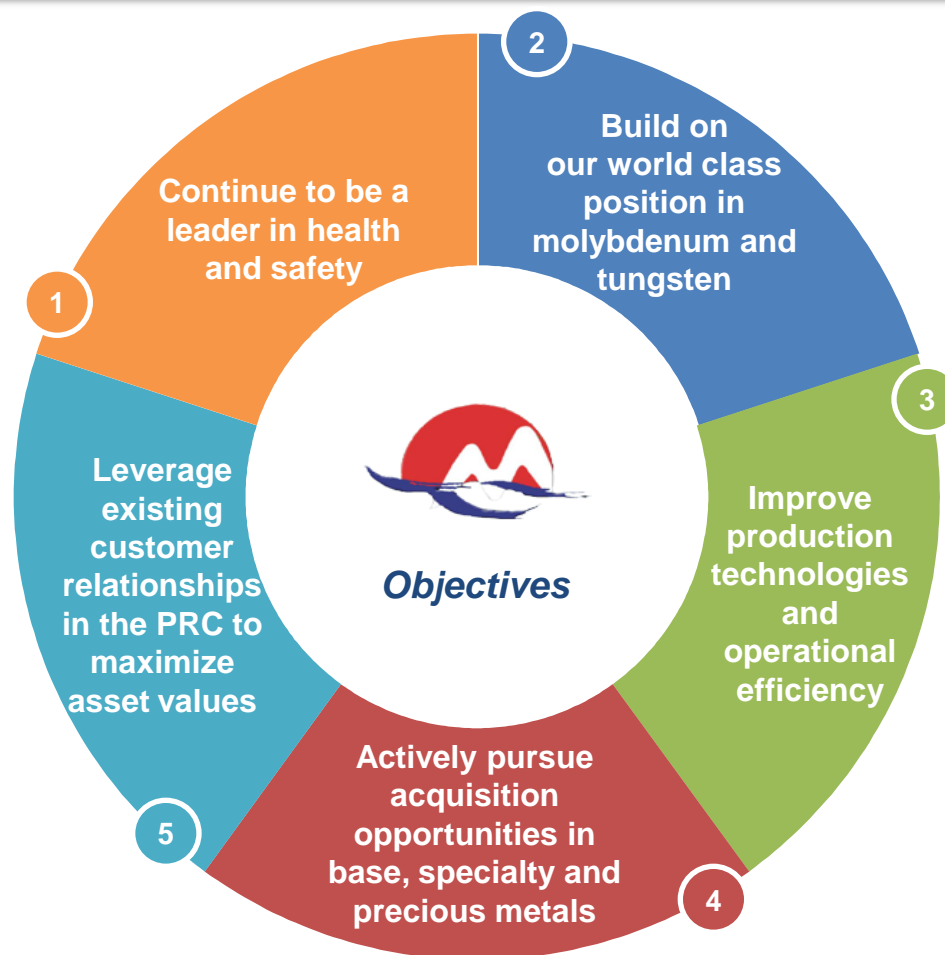


Part 7

Corporate Strategy

CMOC's vision and strategy

Our objective is to become a leading global base, specialty and precious metals producer



China Molybdenum - Summary

- ✓ **A leading moly producer and second largest tungsten concentrate producer in the world, now with substantial exposure to copper and gold**
- ✓ **The acquisition of Northparkes provides a high quality, large scale producing copper-gold mine, and a platform for international growth**
- ✓ **Strong cash flow generation with flexible funding structure**
- ✓ **Long-term fundamentals of copper are attractive, with new project developments facing a number of challenges**
- ✓ **Outlook for molybdenum and tungsten is strong, with a concentrated supply base and broad industrial applications**

Appendix

Molybdenum and Tungsten Outlook

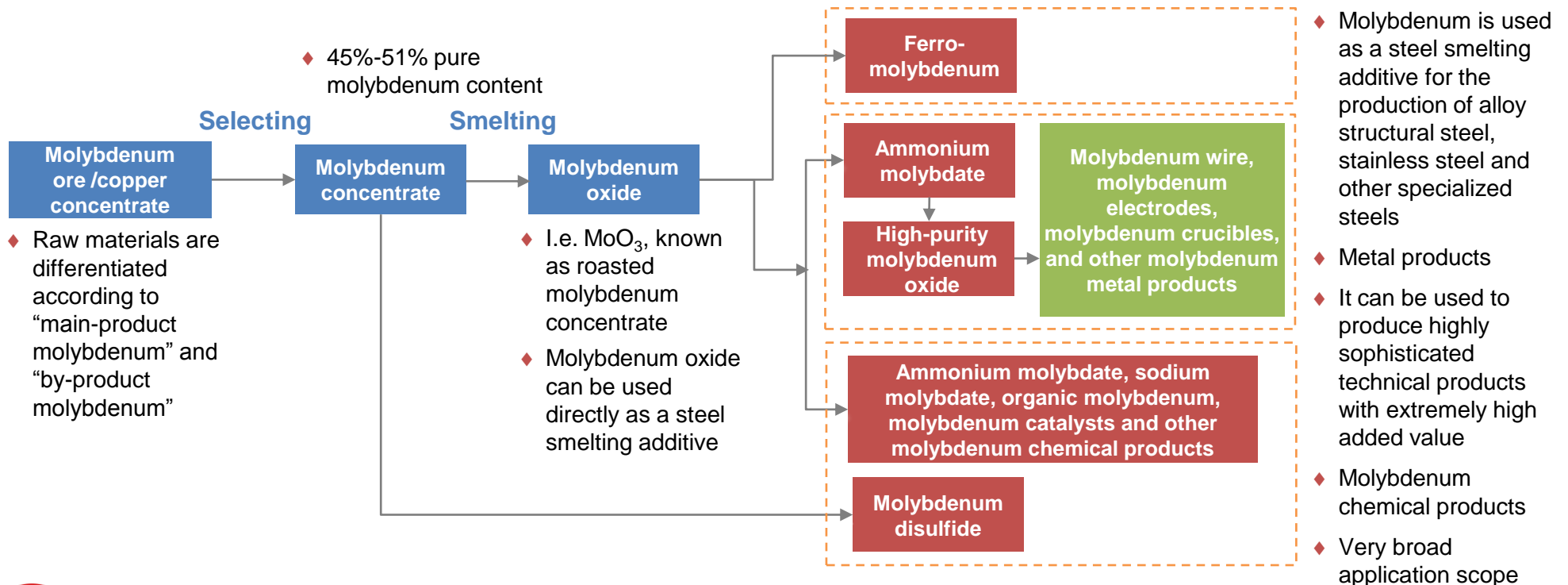
1. Market Analysis and Outlook of the Molybdenum Industry – Industry Profile

Molybdenum is a rare metal, sometimes known as an “energy metal”

Mo

Its features include a high melting point, high strength, high elasticity coefficient, corrosion resistance, etc.

Analysis of the Industrial Chain of Molybdenum

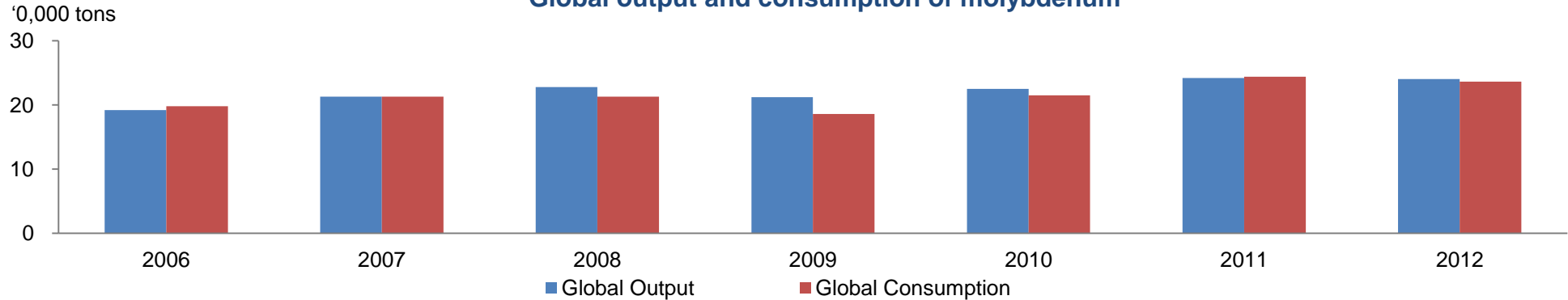




1. Market Analysis and Outlook of the Molybdenum Industry – Supply

Characteristics of molybdenum supply: High degree of concentration and relative separation between domestic and foreign markets

Global output and consumption of molybdenum



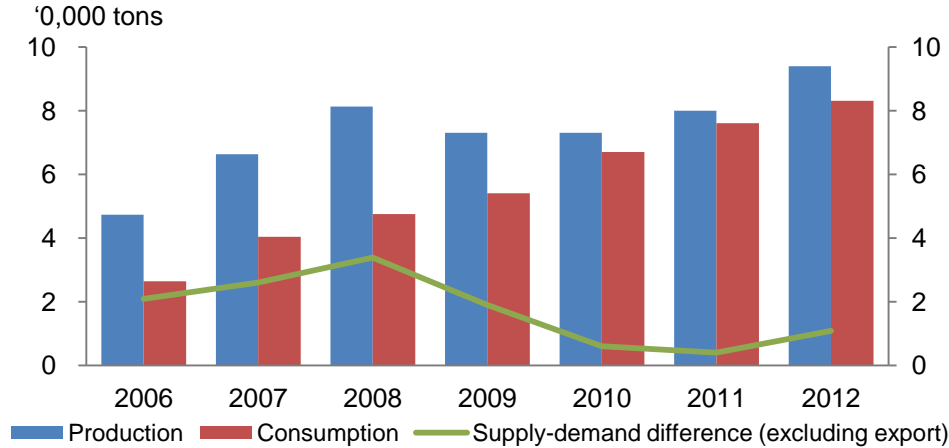
Output of main global producers ('0,000 tons)

No.	Company	Mineral Type	2010	2011	2012
1	US-based Freeport	Primary + associated copper molybdenum	3.27	3.78	3.86
2	Chile-based Codelco	Associated copper molybdenum	2.12	2.35	1.96
3	Group Mexico	Associated copper molybdenum	2.05	1.86	1.82
4	Jinduicheng Molybdenum	Primary	1.40	1.29	1.70
5	China Molybdenum	Primary	1.50	1.55	1.53
6	Chile-based Antofagasta	Associated copper molybdenum	0.91	0.99	1.22
7	Canada-based Thompson Creek	Primary	1.41	1.33	1.02
8	Rio Tinto Kennecott	Associated copper molybdenum	1.17	1.39	0.94
9	Peru-based Antamina under BHP	Associated copper molybdenum	0.28	0.62	0.55
10	Chile-based Collahuasi under Xstrata	Associated copper molybdenum	0.82	0.67	0.20
Total			14.93	15.83	14.80
Total global output			22.5	24.2	24.0
Ratio of leading manufacturers			66.36%	65.41%	61.67%

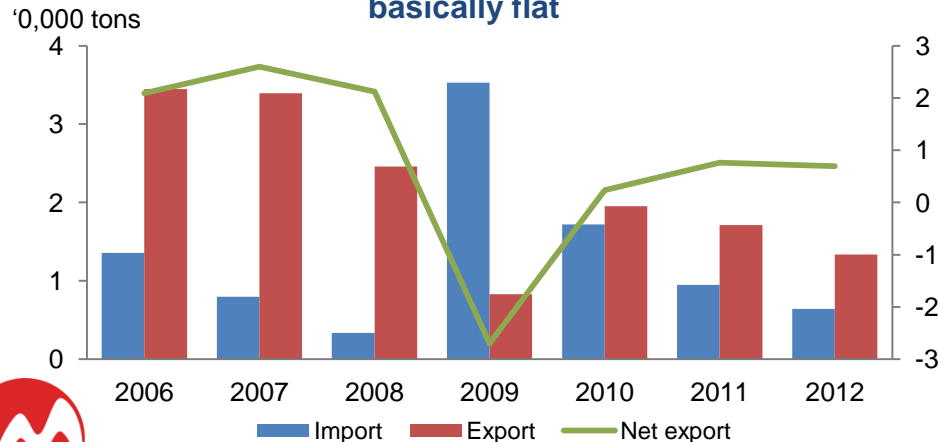
1. Market Analysis and Outlook of the Molybdenum Industry – Supply (Cont'd)

There has been a slight oversupply in the Chinese market over the past few years, and the inversion of costs has constrained supply growth

Molybdenum production and consumption in China⁽¹⁾



Molybdenum import and export volume in China: basically flat



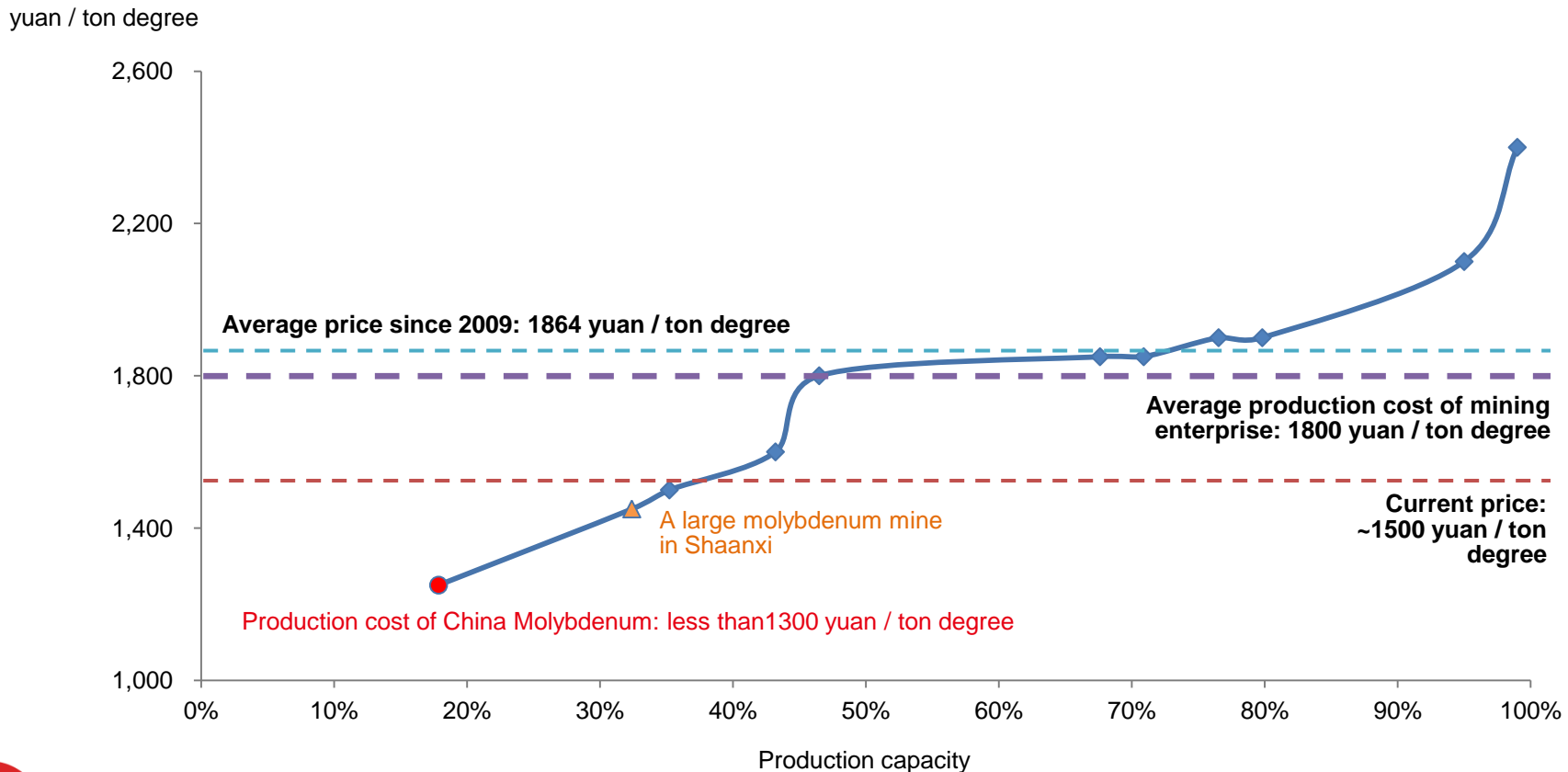
Where are the excess inventories?

- Observations of peers indicate low inventory levels across major molybdenum concentrate producers
- Cold weather from late 2012 to early 2013 affected supplies of molybdenum concentrate, causing a strong rally of molybdenum concentrate price
 - Reflects low inventories of downstream iron and steel plants
- Recent weak moly prices suggest metal traders also are unlikely to hold large volumes of inventory
- Current market supply and demand data may not reflect the real market condition
 - Based on observations of the last few years, market supply and demand are largely balanced

1. Market Analysis and Outlook of the Molybdenum Industry – Supply (Cont'd)

China Moly is at the bottom of the molybdenum cost curve, as a result of its high quality, low cost assets

Distribution costs and molybdenum concentrate production capacity



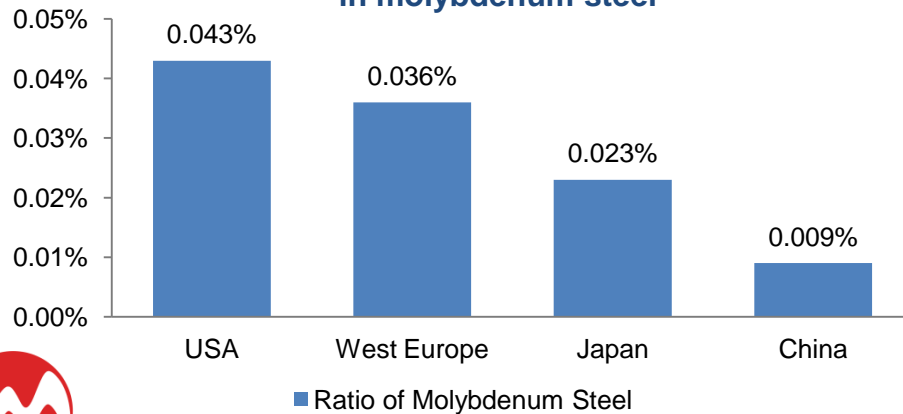
1. Market Analysis and Outlook of the Molybdenum Industry – Demand

Specialized steel industry: Exploring new areas for molybdenum demand with “increased proportion of special steel + high-end special steel varieties”

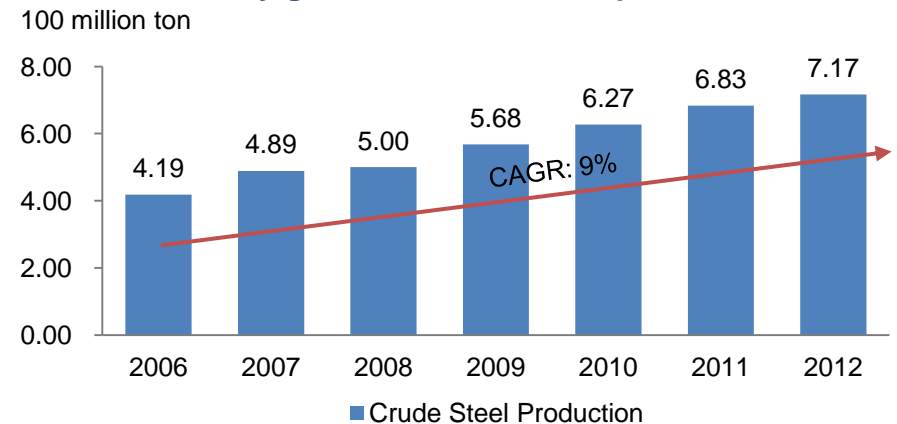
- ◆ High-quality specialized steel, specialized alloy materials, military-support materials will be strategic, emerging industries aggressively developed by the special steel industry
- ◆ According to preliminary estimates, if China’s ratio of molybdenum steel reaches half the level of Japan, the annual increase in molybdenum demand will reach about 22,000 tons, accounting for 20% of annual output

Steel type	Molybdenum content	Usage
High-speed steel	4%~9.5%	Manufacturing of high-speed cutting tools and military appliances
Stainless steel	4%~5%	Sophisticated chemical appliances and equipment used in marine environment
Alloy steel	3%~4%	Transport equipment, locomotives and construction machinery
Molybdenum, nickel, and chromium alloy	0.6%~2%	Metal components and corrosion-resistant parts in aircraft
High-strength steel containing molybdenum	0.015%-0.6%	Oil pipelines and aircraft carrier runways
High-quality carbon steel	0.2%-0.4%	Sheets, wires, pipes and bars

Large gap between China developed economies in molybdenum steel



Steady growth in crude steel production



1. Market Analysis and Outlook of the Molybdenum Industry – Demand (Cont'd)

Nuclear power industry: upgrading and adding new capacity stimulates demand for molybdenum

Impact of long- and medium-term development plans for nuclear power (2005 to 2020) and impact on the Molybdenum Industry

	Scale of New Construction within 5 Years ('0,000 kilowatts)	Production Scale within 5 Years ('0,000 kilowatts)	Scale carried Over to the Next 5 Years ('0,000 kilowatts)	Scale of Total Nuclear Power Operations at the End of the 5 Years ('0,000 kilowatts)	Increase in Installed Capacity ('0,000 kilowatts)	Consumption of Molybdenum (tons)
Scale before 2000				226.8		
“Tenth Five-year Plan”	346	468	558	694.8	468	1,076
“Eleventh Five-year Plan”	1,244	558	1,244	1,252.8	558	1,283
“Twelfth Five-year Plan”	2,000	1,244	2,000	2,496.8	1,244	2,861
“Thirteenth Five-year Plan”	1,800	2,000	1,800	4,496.8	2,000	4,600

1. Market Analysis and Outlook of the Molybdenum Industry – Demand (Cont'd)

Molybdenum chemicals and molybdenum metal products create new opportunities for development

Molybdenum chemicals

Ammonium molybdate products	Physical properties	Usage
Ammonium dimolybdate	Dissolves in water and alkali	Suitable for the production of pure molybdenum trioxide, molybdenum powder, molybdenum plate manufacturing, molybdenum wires and molybdenum components, and also widely used in the production of petroleum refining and chemical fertilizer catalysts with hydrogenation, desulfurization, etc.
Ammonium molybdate	Dissolves slightly in water, and dissolves in alkali and ammonia	Used for the production of petroleum refining and chemical fertilizer catalysts for hydrogenation, desulfurization, etc. Used as a catalyst in the petrochemical industry; used for the manufacturing of molybdenum powder, strips, wires, bases, and pieces in the metallurgical industry; used as a pigment, color lake and fabric fire retardant agent; and also used as an important agricultural fertilizer
Hexaammonium molybdate	Also known as ammonium paramolybdate, with extremely high water-dissolving capacity	As an important reagent to test for phosphorus, it is widely used in petrochemical catalysts, especially the acrylonitrile catalyst, and it is also used in pigment chemicals and trace chemical fertilizers. Few powder metallurgy companies use hexaammonium molybdate as a raw material

Molybdenum metal products

Rare metal functional materials	Category of molybdenum	Main application fields
High-purity metals and target materials	High-purity molybdenum and target materials thereof	Microelectronics and the new generation of the information industry
Deep processing materials with high-tech contents	High-quality molybdenum powder and molybdenum billet	Deep processing materials for high-performance molybdenum
	Molybdenum wire for spraying	Surface spraying of auto parts
	Large-size molybdenum plates	High-temperature furnaces and nuclear power
	Large-size molybdenum electrodes	Glass and rare earth processing
	Rare earth molybdenum alloys	Electronics
	Molybdenum copper alloys	Electric and new energy vehicles
	TZM alloys	Electronic and high-temperature structural materials

1. Market Analysis and Outlook of the Molybdenum Industry – Demand (Cont'd)

Public data: Tight balance between supply and demand and emerging pattern of slight shortage

- ◆ Looking at 2013-14, demand growth will exceed supply growth and a pattern of slight shortage will emerge in the molybdenum industry

Actual short supply of Molybdenum is more serious than the publicly disclosed statistics

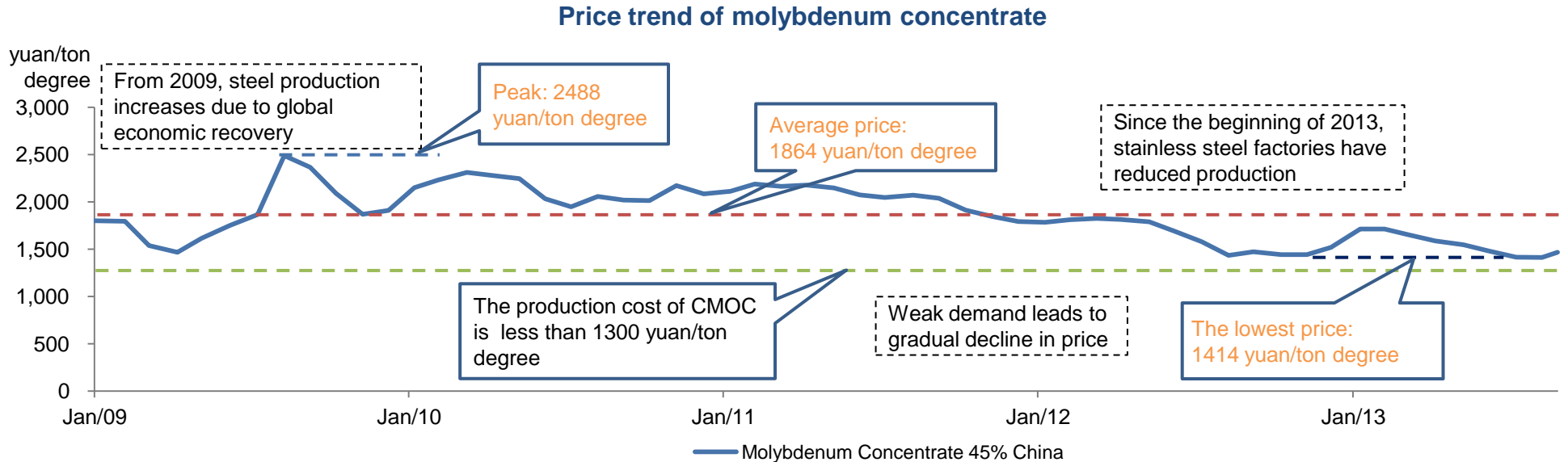
- ◆ No public disclosure of data on demand in the military industry
- ◆ Molybdenum ores directly purchased by engineering machinery enterprises are excluded in the statistics

Comparison and forecasts of molybdenum concentrate supply and demand⁽¹⁾

'0,000 tons	2006	2007	2008	2009	2010	2011	2012	2013E
Output ⁽²⁾	19.2	21.3	22.8	21.2	22.5	24.2	24.0	25.8
Consumption ⁽²⁾	19.8	21.3	21.3	18.6	21.5	24.4	23.6	26.2
Supply and demand balance	(0.6)	0.0	1.5	2.6	1.0	(0.2)	0.4	0.1
China's molybdenum output ⁽²⁾	4.7	6.6	8.1	7.3	7.3	8.0	9.4	9.6
China's molybdenum import ⁽³⁾	1.4	0.8	0.3	3.5	1.7	0.9	0.6	1.3
China's molybdenum export ⁽³⁾	3.4	3.4	2.5	0.8	2.0	1.7	1.3	2.0
China's molybdenum consumption ⁽²⁾	2.6	4.0	4.7	5.4	6.7	7.6	8.3	9.0
Supply and demand balance of molybdenum In China	0.0	0.0	1.3	4.6	0.4	(0.4)	0.4	(0.1)
Price of molybdenum concentrate (yuan/ton degree) ⁽⁴⁾	4,077	4,130	3,528	1,750	2,000	2,044	1,632	2,000

1. Market Analysis and Outlook of the Molybdenum Industry – Price

Price trend of molybdenum concentrate in China



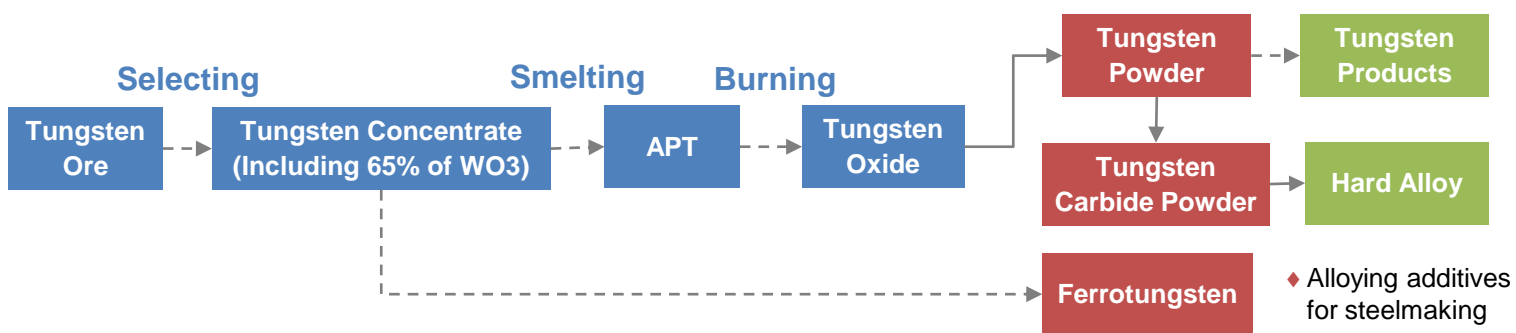
- ◆ Molybdenum price has been lower than the cost of domestic molybdenum production
- ◆ Supply growth is limited and the market price is at a 5-year low
- ◆ Outlook: With the gradual recovery of the global economy, molybdenum price will recover

2. Market Analysis and Outlook of the Tungsten Industry – Industry Profile

Unique strategic metal in important for national economy and modern national defense, with a wide range of applications



Known as “industrial teeth”, it has a high melting point, high density and high hardness



- ◆ Widely used in high-proportion alloy, spraying materials, electrical materials and military products
- ◆ Mainly for the manufacturing of various cutting tools, knives, drilling tools, mining machines and military products

◆ Alloying additives for steelmaking

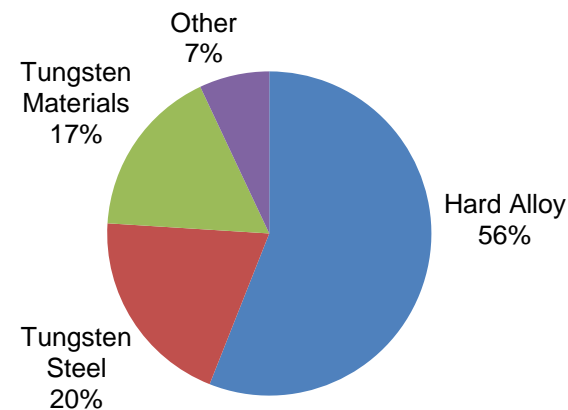
Application fields

Main industries

Specific usage

Modern national defense	Aerospace	Gyroscope rotor material
		Original inertial rotator parts of aircraft
		Counterweight parts of Instrumentation and engine
Military field		A variety of ammunition production materials
		Radiation shielding materials used in nuclear reactors
National economy	Electric industry	Electric processing materials
	Petrochemical	Tungsten catalysts and carbide drill
	Mine drilling	Carbide drill
	Medical appliance	Radiation shielding material and γ-ray knife

Downstream consumption structure of tungsten



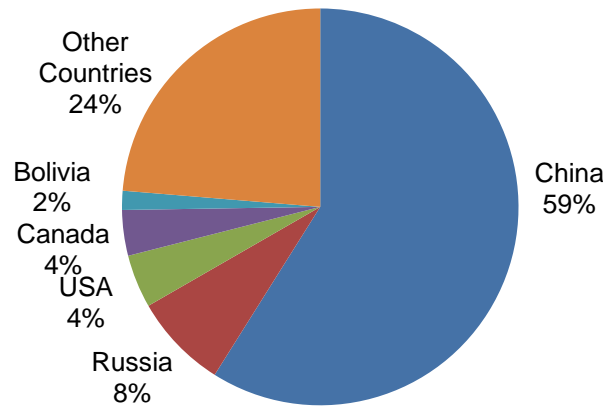
2. Market Analysis and Outlook of the Tungsten Industry – Supply

Large reserves and centralized distribution of tungsten resources in China

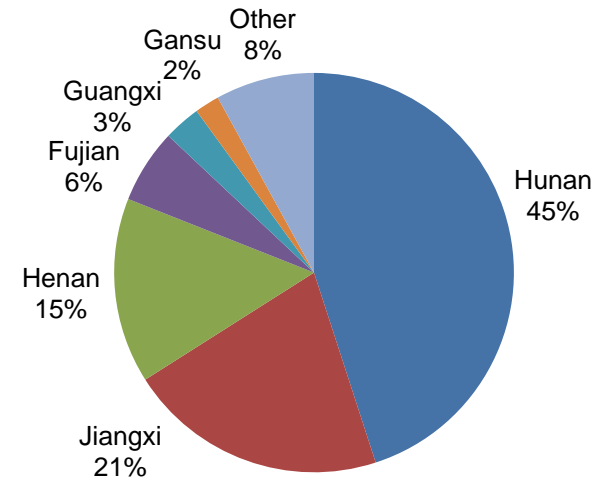
- ◆ One of the main resource advantages of China
 - As of 2012, global tungsten reserves amounted to about 3.2 million tons, of which China's tungsten metal reserves amounted to 1.9 million tons, accounting for approximately 60% of global tungsten reserves

- ◆ High concentration of domestic distribution
 - Tungsten resource reserves in China are rich and the reserves distributed in national 23 provinces, municipalities, Hunan, Jiangxi, Henan and Fujian account for 87% of that of the nation

Distribution of global tungsten reserves



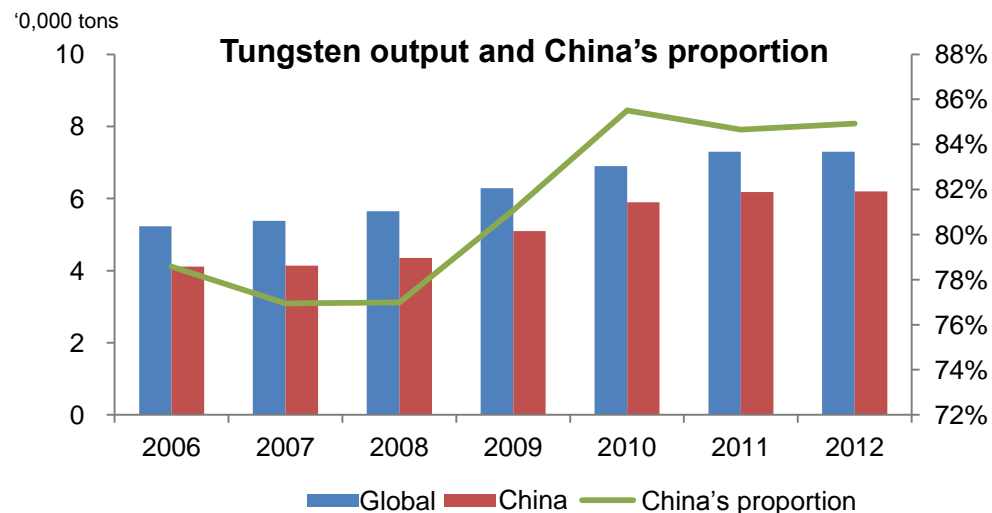
Distribution of Chinese tungsten reserves



2. Market Analysis and Outlook of the Tungsten Industry – Supply (Cont'd)

Tungsten output and production planning

- ◆ China is the largest producer of tungsten, with annual production accounting for about 80% of the world's output
- ◆ USA is the third largest owner of tungsten reserves but has primarily acquired reserves strategically, without mining
- ◆ Due to limited projects in the pipeline, a slowdown in tungsten concentrate production is expected



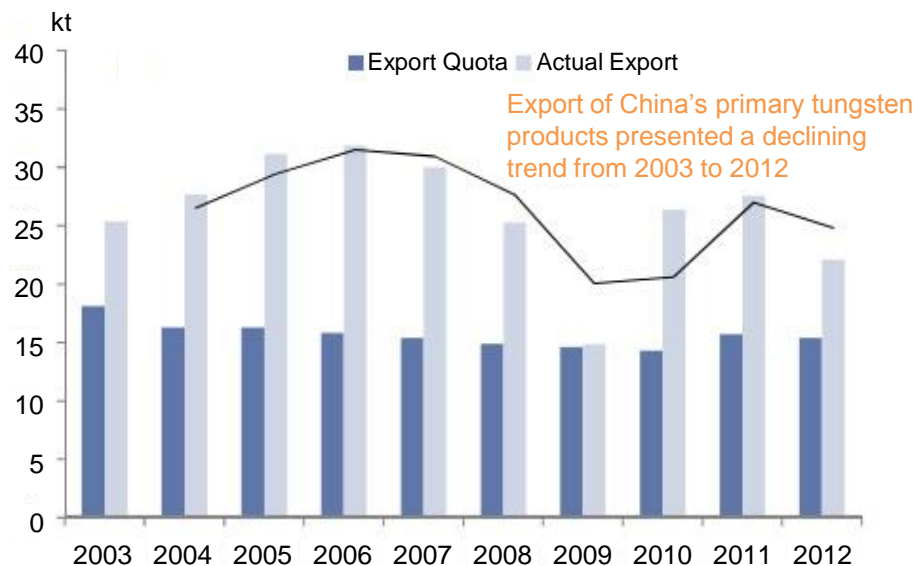
Main Mines in Progress	Company	Tungsten Reserve (1,000 tons)	Designed Capacity (ton)	(Expected) Production tim	Estimated Output (ton)		
					2013E	2014E	2015E
Yang Chu Shan Tungsten & Molybdenum Mine	Xiamen Tungsten	96	2,650	2Q2013	1,500	2,000	3,000
Huanggang Mine	Inner Mongolia Huanggang Mining Industry		700	2Q2013	300	500	700
Jianlong Mining	Heilongjiang Jianlong Mining		1,000	2013	600	1,000	1,000
Dahutang Tungsten Mine	Minmetals	216	10,000	2015			1,000
Proportion of new output (Compared to national volume in 2012)					3.9%	5.6%	9.2%

2. Market Analysis and Outlook of the Tungsten Industry – Supply (Cont'd)

Mandatory production plans and export policy will continue to effectively control the supply

- ◆ Mandatory production plan to effectively control tungsten concentrate supply growth
 - China, from 2002, began to implement allocation of total mining amount of tungsten mines
 - Over the previous 10 years, the average annual compound growth rate of China's tungsten is 6%, significantly lower than the average growth rate of GDP

- ◆ Export quotas and taxes have led to a declining tungsten export market
 - In 1998, the state introduced an export quota to control the export of tungsten products; in addition, the nation also guided industry to extend towards high value-added processing products through export tax administration

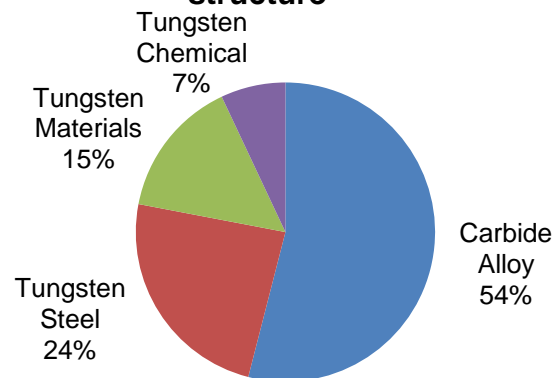


2. Market Analysis and Outlook of the Tungsten Industry – Demand

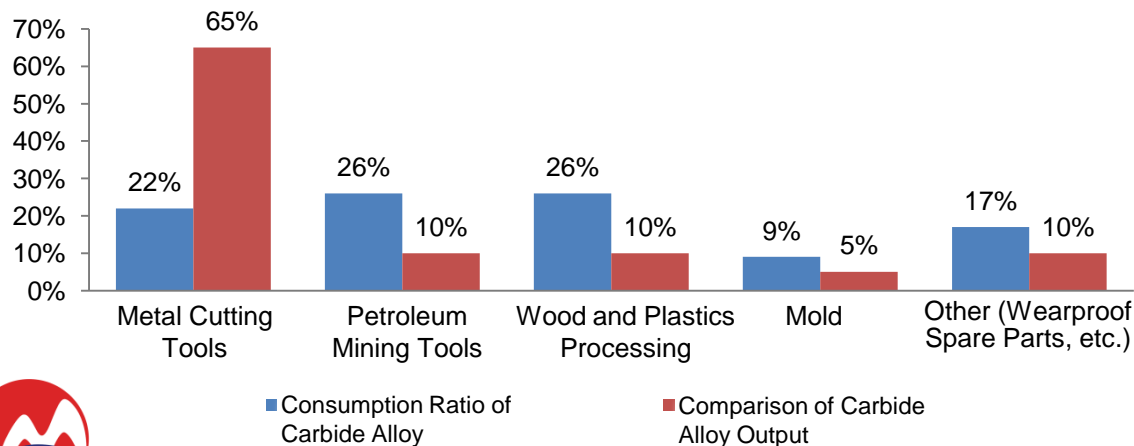
High-end equipment manufacturing and petroleum mining tools will continue to boost growth in demand for tungsten

- ◆ The industry will continue to develop towards downstream deep processing
- ◆ The development of China's high-end equipment manufacturing will increase the share of overall tungsten consumption from carbide alloy products
- ◆ Metal cutting tools and petroleum mining tools is emerging as the major new end-use for tungsten
- ◆ Petroleum mining tools is the most widely applied industry of carbide alloys
 - Shale gas exploration and production is expected to further increase the demand for carbide alloys

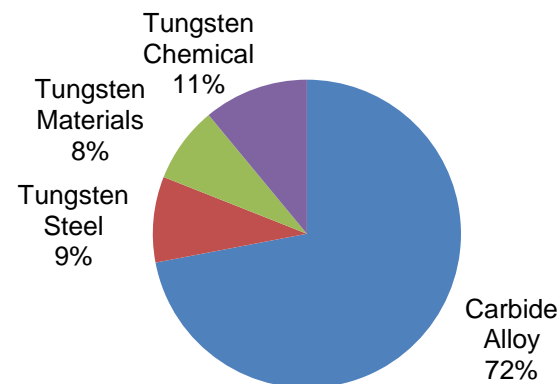
China's tungsten consumption structure



Comparison between consumption ratio and production value of carbide alloy



European countries' tungsten consumption structure

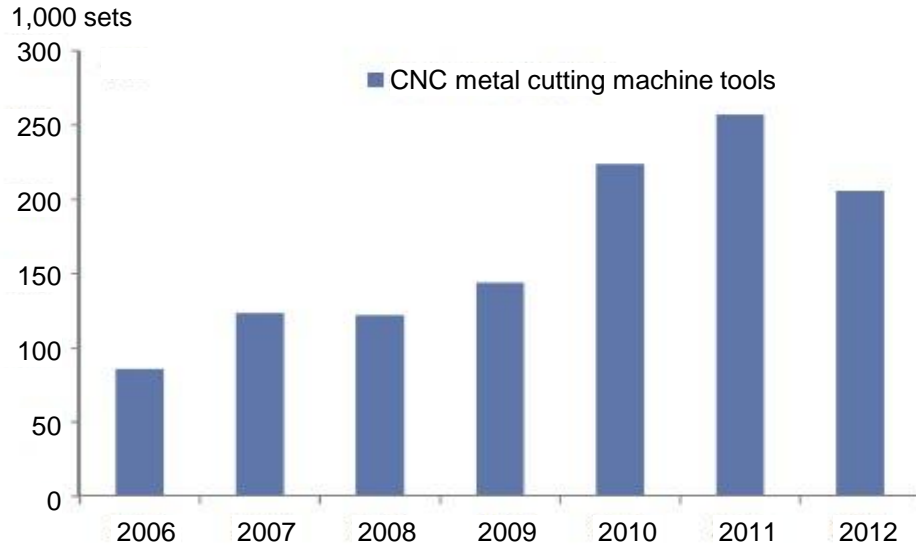


2. Market Analysis and Outlook of the Tungsten Industry – Demand (Cont'd)

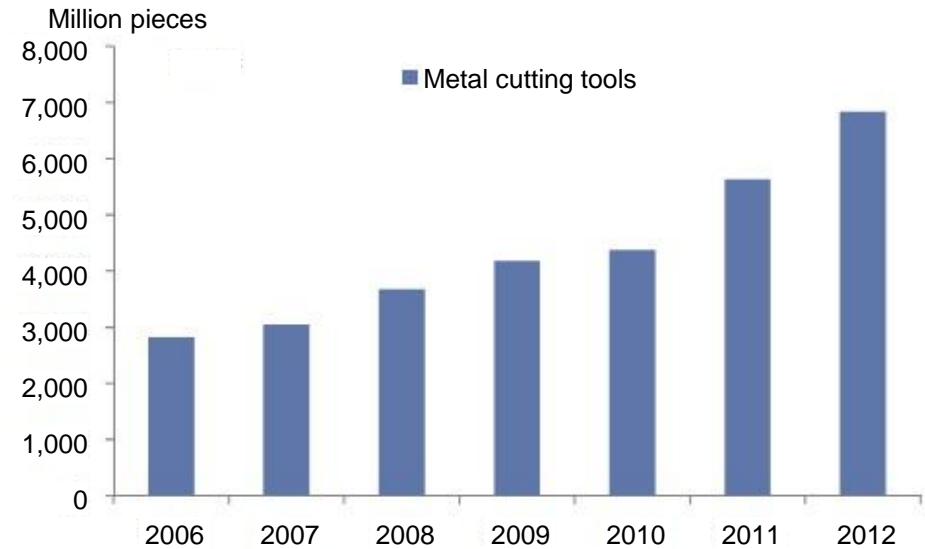
Metal cutting tools: The development of China's high-end equipment manufacturing industry is expected to promote the wide application of metal cutting tools

- ◆ High-end equipment manufacturing is one of China's seven strategic emerging industries which will be the priority for the state's policy support in the next 5–10 years
- ◆ CNC machines and modern efficient cutting tools are an important area of development for the machine tool industry

China's CNC machine output



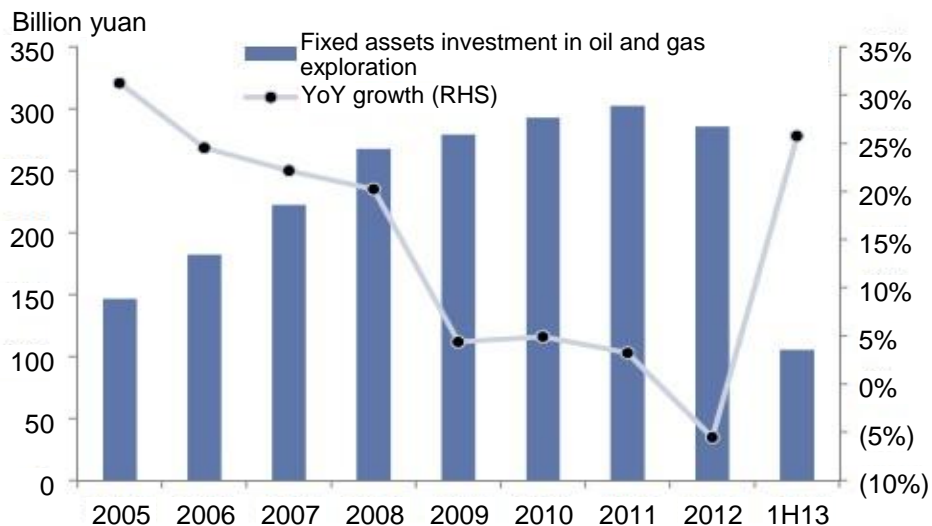
China's metal cutting tools output



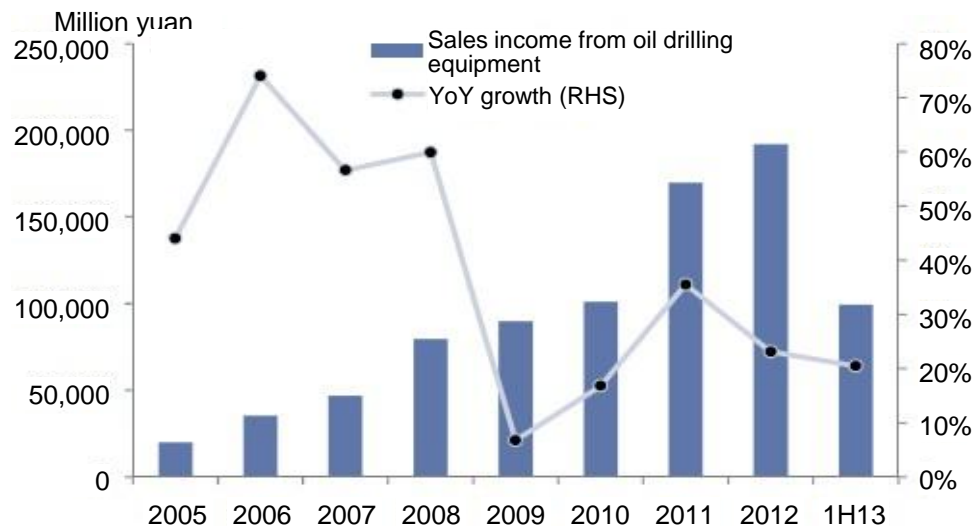
2. Market Analysis and Outlook of the Tungsten Industry – Demand (Cont'd)

Petroleum mining tools: Petroleum mining and shale gas exploration is expected to maintain carbide alloy's continuous consumption growth

Significant rebound in China's fixed assets investment in oil and gas exploration



Sales income from special oil drilling equipment maintaining growth



2. Market Analysis and Outlook of the Tungsten Industry – Price

Forecast of tungsten supply and demand

'0,000 tons unless otherwise stated	2009	2010	2011	2012	2013E	2014E	2015E
Output of Tungsten Concentrate	10.48	12.97	13.57	13.11	13.38	13.78	14.19
Output growth rate of tungsten concentrate	1%	24%	5%	(3%)	2%	3%	3%
Output of Tungsten Metal	5.10	5.90	6.18	6.20	6.26	6.39	6.52
Year-on-year growth		16%	5%	0%	1%	2%	2%
Net Export of Tungsten	0.98	2.24	2.22	1.71	1.65	1.86	1.96
Import	0.50	0.40	0.54	0.50	0.49	0.50	0.51
Export	1.48	2.64	2.76	2.21	2.14	2.36	2.47
Consumption of Tungsten Metal	3.33	3.94	3.80	3.42	3.54	3.74	3.99
Demand growth rate (%)	(4%)	18%	(3%)	(10%)	4%	6%	7%
Including: consumption of carbide alloy	1.77	2.10	2.05	1.86	2.00	2.19	2.42
Proportion of carbide alloy consumption (%)	53%	53%	54%	54%	56%	59%	61%
Inventory	0.79	(0.28)	0.16	1.07	1.07	0.79	0.56
Price of Tungsten Concentrate (yuan/ton degree)	63,652	85,136	139,796	120,760	132,836	139,478	146,452
Price of APT (yuan/ton)	98,880	131,815	215,265	183,520	201,872	211,966	222,564

2. Market Analysis and Outlook of the Tungsten Industry – Price (Cont'd)

In the short term, the price of tungsten is relatively stable. In the medium and long term, under the conditions of centralized supply, demand is promising and the price of tungsten is expected to increase

Price trend and outlook of China's tungsten concentrate

