





**CAPITAL MARKETS DAY March 2015** 

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This presentation contains 'forward-looking statements' – that is, statements related to future, not past, events. In this context, forward-looking statements often address our expected future business and financial performance, and often contain words such as 'expects,' 'anticipates,' 'intends,' 'plans,' 'believes,' 'seeks,' or 'will.' Forward-looking statements by their nature address matters that are, to different degrees, uncertain. For us, uncertainties arise from the behaviour of financial and metals markets including the London Metal Exchange, fluctuations in interest and or exchange rates and metal prices; from

future integration of acquired businesses; and from numerous other matters of national, regional and global scale, including those of a environmental, climatic, natural, political, economic, business, competitive or regulatory nature. These uncertainties may cause our actual future results to be materially different that those expressed in our forward-looking statements. We do not undertake to update our forward-looking statements. We caution you that reliance on any forward-looking statement involves risk and uncertainties, and that, although we believe that the assumption on which our forward-looking statements are based are reasonable, any of those assumptions could prove to be inaccurate and, as a result, the forward-looking statement based on those assumptions could be materially incorrect.

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# **Agenda**



TIME	EVENT	TIME	EVENT
11:00 AM	Arrival and Registration	1:00 PM	Lunch Break
11:30 AM	<b>Welcome</b> Ashwin Bajaj, Head - Investor Relations	1:45 PM	<b>Zinc Business</b> Akhilesh Joshi, CEO - Zinc Business Sunil Duggal, Deputy CEO - Hindustan Zinc Ltd
	Strategic Overview		Deshnee Naidoo, CEO - Zinc International & CMT*
	Tom Albanese, CEO	2 4E DM	Turn Our and Common India Businesses
12 00 01	·	2:15 PM	Iron Ore and Copper India Businesses
12:00 PM			Tom Albanese, CEO
	DD Jalan, CFO	2:30 PM	Q&A
12:15 PM	Oil & Gas Business		
	Mayank Ashar, CEO - Cairn India Ltd	3:00 PM	Close
	Sudhir Mathur, CFO - Cairn India Ltd		
12:30 PM	Aluminium and Power Business		
	SK Roongta, CEO - Aluminium and Power Abhijit Pati, COO – Jharsuguda Operations		
		_	





Tom Albanese
Chief Executive Officer

# Focus on Safety: Key to Operational Excellence



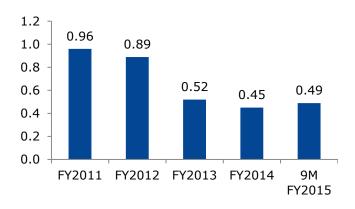
### **Safety**

- Fatal accidents and injury rates have declined
- Implementing programs to eliminate fatalities and control injuries:
  - Leadership focused on a Zero-Harm culture across the organization
  - Consistent application of 'Life-Saving' performance standards
  - Quantitative risk assessments for all the critical areas
  - Formal identification of process safety risks and focusing on the management of controls
  - Improved safety investigations and follow-up
  - Building internal capacity to deliver and drive our programs
  - o Review of safety incident at Board, Business and Operational level

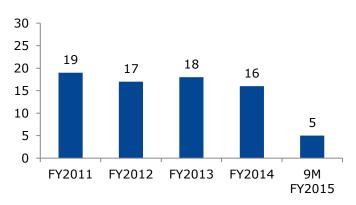
### Employees at Aluminium Potline



# **LTIFR** (per million man-hours worked)



### **Fatal Incidents**



## **Preserve and Protect Our License to Operate**



### **Sustainable Development**

- Implementing sustainability controls through Vedanta Sustainability Framework aligned to IFC, ICMM & OECD standards
- Working and partnering with think tanks & institutional bodies – WBCSD, CII, IUCN etc.
- Structured programmes on reducing Water, Energy and Carbon consumption
- Focussed drive on non-hazardous waste utilisation –
   c.50% of non-hazardous waste recycled for industrial use

### **HZL- Wind Farms (Renewable Energy)**

HZL operates 273 MW capacity wind farms



### **Community Development**

- Benefitting over 3.4mn people through community development programmes
- Industry leading CSR efforts
- Focus on Swachh Bharat (Clean India) Campaign and Rural livelihoods
- Focus on local consent prior to accessing resources

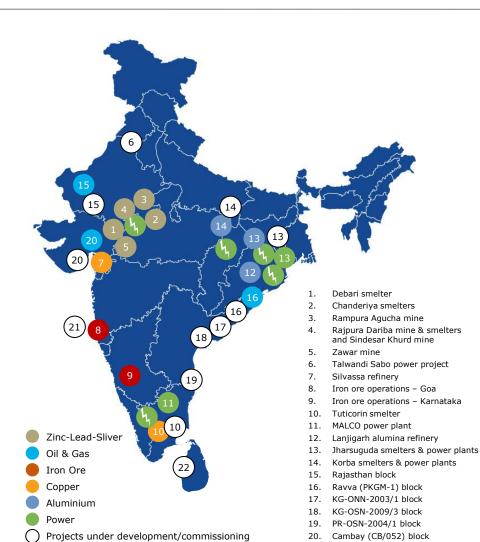
### Training at BALCO

Vocational training school at BALCO



### **Sesa Sterlite Overview**



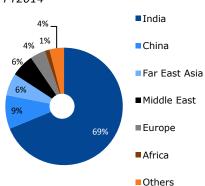






- 25. Iron Ore project, Liberia
- 26. Skorpion mine, Namibia
- 27. Black Mountain mine, South Africa
- 8. South Africa Block 1

## Revenues by Geography *FY2014\**



### Sesa Sterlite's contribution to India¹



1.4% of revenue receipts of Centre and States

8% of GoI's non-tax revenue

20% of GoI's royalty from major minerals

1. For FY2013, based on available latest GoI data

Captive thermal power plant

MB-DWN-2009/1 block

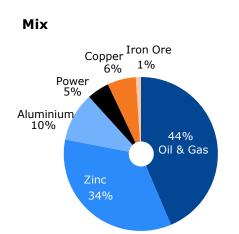
22. SL 2007-01-001 block

<sup>\*</sup> Proforma Revenue for FY2014

## **Key Investment Highlights**



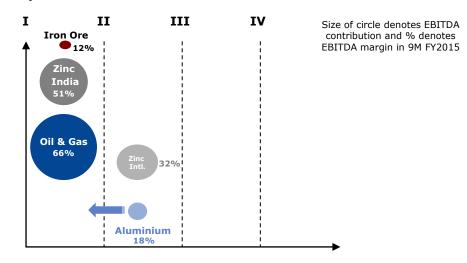
#### **Diversified Business Model - 9M FY2015 EBITDA**



### Margins

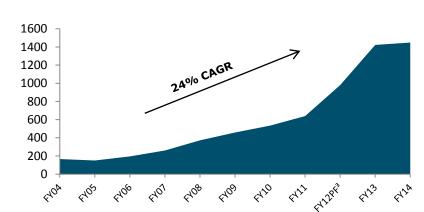
Group (Adjusted) <sup>1</sup>	45%
Iron Ore/Pig Iron	12%
Power	33%
Aluminium	18%
Zinc Intl	32%
Zinc India	51%
Oil & Gas	66%

### **Competitive Position on Global Cost Curve**



### **Consistent Production Growth<sup>2</sup>**

**Copper Equivalent Production** 

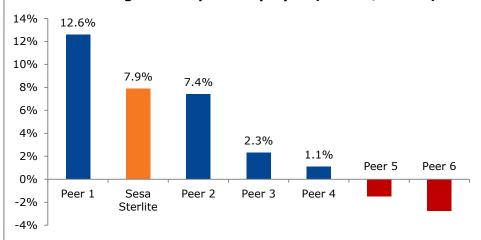


ote: 1. Excludes custom smelting at Copper and Zinc-India operations.

2. Represents growth of assets that are now part of Sesa Sterlite

3. PF refers to proforma for Cairn India acquisition

### Return on Long-term Capital Employed (CY2014/FY2014)



Source: Reuters for peers; company calculation for SSLT

Peers considered are Anglo American, BHP Billiton, Freeport-McMoRan, Glencore Xstrata, Rio Tinto & Teck

## **Strategic Framework**



### **Strategic Advantages**

- Diversified, low-cost portfolio delivering cash flows through the cycle
- Well-invested asset base
- Well-positioned to capitalise on India's growth and natural resource opportunity

### **Strategic Priorities**

- Production Growth and Operational Excellence
- Reduce gearing
- Add Reserves & Resources
- Simplify Group Structure
- Preserve and Protect our License to Operate

**Disciplined Capital Allocation** 



Deliver superior long-term returns to shareholders Committed to Growing Dividends





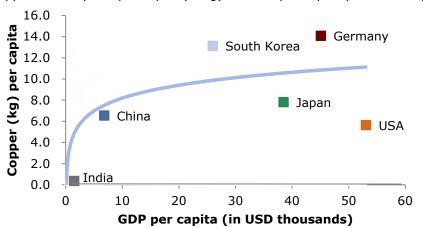
Strategic Priority	What we Achieved	Focus Areas		
<b>Production growth</b> across portfolio with a focus on returns	<ul> <li>Approvals and start-up of Aluminium and Power capacities</li> <li>Gamsberg zinc project approved – low risk, phased approach</li> </ul>	<ul> <li>Oil &amp; Gas: RJ ramp up</li> <li>Zinc India: Zinc and Silver ramp up</li> <li>Iron Ore: Resuming operations</li> <li>Aluminium &amp; Power: Ramp up, feed security</li> </ul>		
<b>Reduce gearing</b> from increasing free cash flow	<ul> <li>Operating cash flow of \$2.6bn in 9M FY2015</li> </ul>	<ul> <li>Volume ramp-up to drive free cash flows</li> <li>Optimising capex and opex across businesses</li> <li>Reduce net gearing in the medium term</li> </ul>		
Continue to add R&R in our existing portfolio of assets to drive long-term value	Achieved 100% reserve replacement at Oil & Gas and Zinc India in FY2014	Optimising exploration spend across operations		
Consolidation and Simplification of the <b>Group structure</b>	Achieved <b>synergies</b> from Sesa Sterlite merger	<ul> <li>Simplify group structure; completion of minority buyouts</li> </ul>		
Protect and preserve our License to Operate	<ul> <li>Decline in fatal accidents and LTIFR</li> <li>Signed WBCSD pledge</li> <li>3.4mn beneficiaries of our community initiatives</li> </ul>	<ul> <li>Focus on eliminating fatalities</li> <li>Focus on local consent prior to accessing resources</li> <li>Structured community development programs to continue</li> </ul>		

# **India: Non-Linear Commodity Demand Growth**



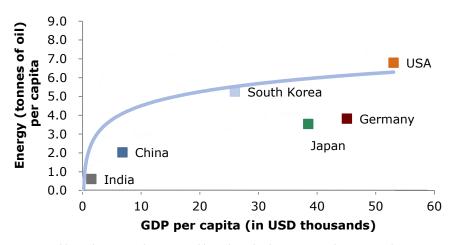
### **Copper Consumption Intensity**

Copper consumption per capita (in kg) vs. GDP per capita (in '000 USD)



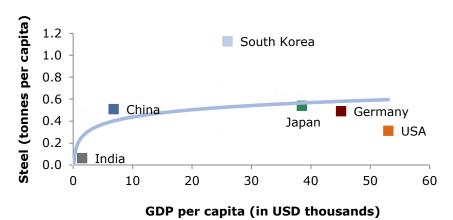
### **Oil Consumption Intensity**

Oil consumption per capita (in tonnes) vs. GDP per capita (in '000 USD)



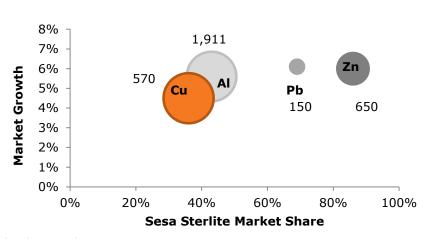
### **Steel Consumption Intensity**

Steel consumption per capita (in tonnes) vs. GDP per capita (in '000 USD)



Size of bubble represents India market size (in \$mn)

**Our India Market Share and Growth** 



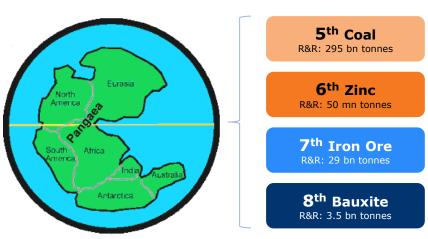
Source: World Development Indicators, World Steel Yearbook, International Copper Study Group, Wood Mackenzie, Vedanta

### **India: Resource Potential**

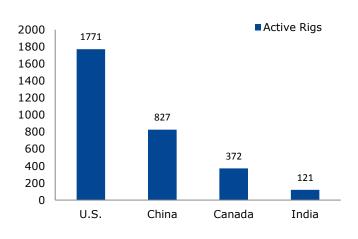


# India: Shared geology and mineral potential with Africa & Australia

### India: Reserves ranking Global ranking<sup>1</sup>



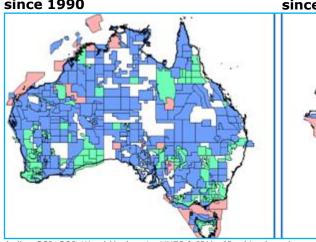
### Low E&P Activity in India in Oil & Gas



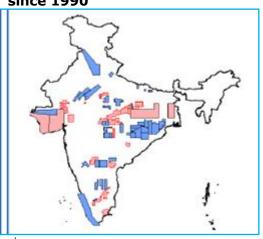
# Aeromagnetic Studies done since 1990 India vs. Australia

	Australia	India
Area (mn km²)	7.7	3.3
Surveys (mn km²)	6.9	0.6
Coverage (%)	90	18
Data-Availability	Digital – Available	Hardcopy - Restricted

Australia Aeromagnetic Survey since 1990



# India Aeromagnetic Survey since 1990



Sources: Total estimated Reserves and Resources based upon public sources including GSI, GOI, Wood Mackenzie, UNFC & IBM; <sup>1</sup>Ranking based on reserves.

MoPNG presentation to Consultative Committee, December 2014, Putting India on the growth path: Unlocking the mining potential report by Mckinsey and Company, December 2014

Shaded areas in the Australia & India maps represent areas where aeromagnetic surveys where conducted

## **India: Regulatory Update**



### Oil & Gas

- Government prioritizing energy security
  - Received FDP approval from Management Committee for Raag Deep Gas Project
  - New incentive regime evaluating revenue sharing models
  - Uniform licensing policy for hydrocarbon reserves
- Working with government on RJ PSC extension

### **Aluminium-Power**

- Engaged with Odisha state for Refinery feed
- Approval to start BALCO 1,200 MW power plant received

### **Coal Block Allocation**

- Government looking at policy framework to address country-wide coal issue
- Coal block auctions underway
- 18 blocks auctioned in Phase 1: BALCO, the highest bidder in 2 blocks

### **Iron Ore**

 Iron Ore mining leases renewed at Goa; operations resumed at Karnataka

### **Mining Regulation**

- Mines and Mineral Development Regulation ordinance issued in Jan 2015
  - Provides for auction of natural resources

### **Minority Buyouts**

- Government approved divestment in HZL and BALCO
  - Government-appointed valuers have visited plants



"It is no secret that the major slippage in the last decade has been on the infrastructure front. Our infrastructure does not match our growth ambitions... Two-thirds of our population is below 35. To ensure that our young get proper jobs, we have to aim to make India the manufacturing hub of the world...It is quite obvious that incremental change is not going to take us anywhere. We have to think in terms of a quantum jump..."

Arun Jaitley, Union Budget Speech 2015-16



"[The Prime Minister] has already asked us to delete the word delay... We are here to facilitate. The government's role is not to create roadblocks for the industry. I believe our job is to give impetus to entrepreneurship"

Prakash Javadekar, Minister of Environment, Forests & Climate Change (Jul 2014)



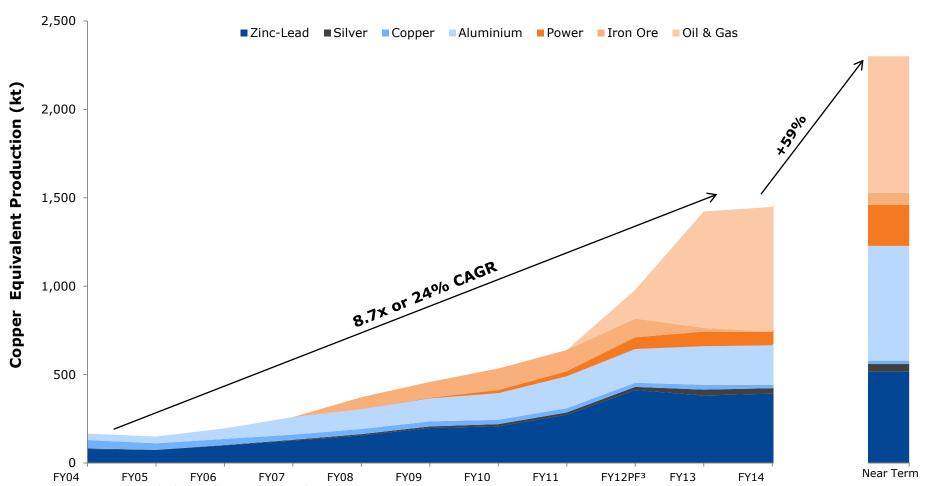
We want to increase ease of doing business in India. Bottlenecks have to be removed, red-tapism cut and investors given confidence so that they can come and invest in oil and gas exploration and production

Dharmendra Pradhan, Minister of State for Petroleum and Natural Gas (Oct 2014)

# **Production Growth From Well-Invested Assets**







Notes: 1. Represents growth of assets that are now part of Sesa Sterlite

<sup>2.</sup> All commodity and power capacities rebased to copper equivalent capacity (defined as production x commodity price / copper price) using average commodity prices for 9M FY2015.

Power rebased using 9M FY2015 realisations, copper custom smelting capacities rebased at TC/RC for 9M FY2015, iron ore volumes refers to sales with prices rebased at average 56/58% FOB prices for 9M FY2015

<sup>3.</sup> PF refers to proforma for Cairn India acquisition

# **Technology and Innovation: Philosophy and Approach**





- Encouragement for innovation culture
- Embedding entrepreneurship and leadership skills
- Collaboration with external networks in spurring innovation

**APPROACH** 

- R&D laboratory and pilot scale studies
- Test works under different process simulation conditions
- Feasibility studies for commercial viability

### **Achievements**

- Lanjigarh
  - World's first Red Mud Powder Technology: For use in cement industries, driving savings of \$15/t of Alumina
  - World's first Cold-Setting Geopolymer Green Concrete
     Technology: Reducing CO<sub>2</sub> emissions, and reducing construction cost by around 15%
  - V<sub>2</sub>O<sub>5</sub> production from Process Liquor of Alumina Refinery: Annual saving of approx \$4-5mn

#### Tuticorin

- Clean Gypsum production and use in down stream industry: Avoiding generation of hazardous waste at Copper plant
- Copper Recovery from Copper-Bismuth Slag

### **Zinc Smelters**

- Precious Metal Recovery: Antimony, Bismuth and MnO<sub>2</sub> (electrolytic grade) in Lead–Zinc Circuit
- Development of Alternate
  Reagents: Improved recovery of Lead,
  Zinc and Carbon depressant

#### **Control Room**



**Red mud Powder** 



### Green Concrete Road



# **Procurement: Savings and Synergies**





Identified over \$800 mn efficiencies in procurement over 4 years

\$300mn in FY2016

### **Key initiatives:**

# Improve procurement unit prices

- Optimizing supplier portfolio & combining purchases at Group level (e.g. Fuel, Coal)
- Combine logistics activities and better leverage of our assets e.g. Vizag port
- Working with Government for easier access to raw materials

# Improve quality, processing & technology

- Optimize products to best fit our assets (e.g. Alumina, Copper Concentrates, Coal)
- Improve asset flexibility to process wider range of commodities (e.g. Complex Copper Concentrates )
- Strengthen quality assurance & full life cycle value (e.g. reduced consumption)

# Improve performance of our operations

- Reduction in aftertreatments & waste
- Develop closer relationships with key vendors to get benchmark performance

# **Marketing: Savings and Synergy**





Identified over \$500 mn additional margins in marketing over 4 years

\$250mn in FY2016

### **Key initiatives:**

# Improve unit pricing of our supply

- Parity pricing with international references (e.g. Aluminium, Zinc, Iron Ore)
- Improve pricing to reflect the true 'value in use' of our products
- Work with Government to increase market access

# Extend our product range & market coverage

- Expand product range & specs suited to customer needs (e.g. Aluminium, Copper, Zinc)
- Enhance technical & commercial cooperation with key customers to optimize their 'value in use' with our products and services

# Expand in or enter new markets

 Widen our access to the international markets by better leveraging our asset ( e.g. Bhogat Terminal)

## **People and Development**



# Healthy Demographics with a ratio of 1:2 of permanent and temporary employees

- Total Employee Strength of ~69,000
- Professional Employee Strength: 6500+
- STAR of Business: 700+ High Potential Employees
- Strong commercial and project management skills

### **Focused approach towards Diversity**

- 1700+ Full Time Women Employees in the Group
- Gen Y Workforce strength: 57% of total workforce

### **Talent Development platforms**

- Capability Building
  - Established Mining Academy in Rajasthan to develop an employee pool with enhanced underground mining skills
  - Technical Act Up: Structured programme to develop technically proficient employee pool
- Chairman's Workshop: In the last five years more than 2,000 employees have attended Chairman's workshops









Financial Overview
D.D. Jalan
Chief Financial Officer

# **Capital Allocation and Returns**



World class assets and operational excellence to deliver strong and sustainable cash flows

Improve Capacity Utilisation
(Aluminium, Power and Iron Ore)

### Focused on Improving Shareholder Returns

- Optimising capex and opex across businesses
- Committed to growing dividends

### **Strengthen Balance Sheet**

 Reduce debt and enhance cash fungibility

### **Enhance Asset Portfolio**

- Robust approach to investment decisions to achieve hurdle rate of return
- Improve capacity utilization on invested assets

# Optimising Capex to drive Cash Flow Generation

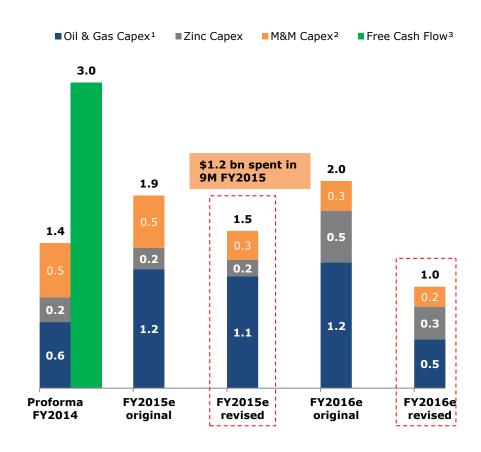


- Continued growth in Free Cash Flow with production ramp-up
  - \$2.6bn operating cash flow in 9M FY2015
- Prioritised capital to high-return, low-risk projects
- Optimising capex to maximise cash flows
  - o Oil & Gas
    - FY2016 capex revised from \$1.2bn to \$0.5bn
    - Retain optionality for growth for capex of \$1.4bn
  - Gamsberg-Skorpion Project Rephased
    - FY2016 capex revised from \$250mn to \$80mn

Notes: 1. Capex net to Cairn India; subject to Government of India approval; O&G refers to Oil & Gas

- 2. M&M refers to Metals and Mining and Power, excludes Zinc;
- 3. Free cash flow after sustaining capex but before growth capex

### **Cash Flow and Growth Capex Profile - \$bn**



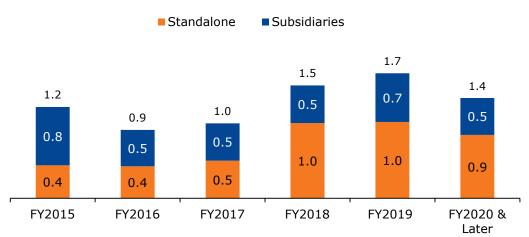
FY2016 capex reduced from \$2bn to \$1bn

# **Strong Financial Profile**



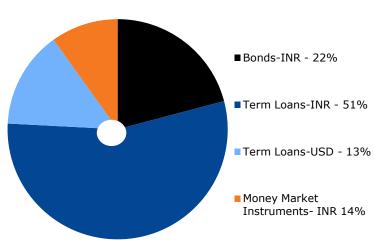
### Balanced Term Debt Maturity Profile<sup>1</sup> (in \$bn)

(as of 31 Dec 2014)



- Investment Grade Credit Rating of AA+/Negative by CRISIL
- Gross Debt reduced by c.\$230mn in 9 months
- FY2015 maturities: \$360mn refinanced till end February; remaining are money market instruments to be rolled over
- Debt of \$4.3bn at Standalone and \$3.5bn at Subsidiaries, total consolidated \$7.8bn
- Raised \$9bn of long term debt since 2009, demonstrating good access to diverse funding sources

# **Diversified Funding Sources for Term Debt** (as of 31 Dec 2014)



Debt breakdown	(in \$bn)
External term debt	7.8
Working capital	2.1
Inter company loan from VED	2.6
Total consolidated debt	12.5

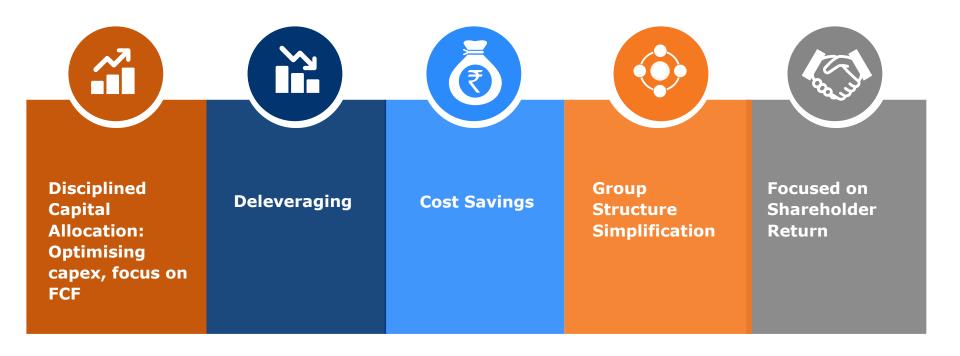
Cash and Liquid Investments	7.4
Net Debt	5.1

Note: USD-INR: Rs.63.3 at 31 Dec 2014

1. Maturity profile shows external debt at book value. It excludes working capital debt of \$2.1bn and inter-company loan from Vedanta Plc of \$2.6bn

# **Summary: Financial Review**







# **Appendix**



## **Entity Wise Cash and Debt**



(in Rs. Crore)

	31 March 2014		30 September2014			31 December 2014			
Company	Debt	Cash & LI	Net Debt	Debt	Cash & LI	Net Debt	Debt	Cash & LI	Net Debt
Sesa Sterlite Standalone	38,943	2,459	36,484	40,187	3,143	37,044	38,480	693	37,787
Zinc India	-	23,943	(23,943)	-	25,412	(25,412)	-	26,355	(26,355)
Zinc International	-	1,204	(1,204)	-	1,169	(1,169)	-	1,398	(1,398)
Cairn India	-	23,017	(23,017)	-	16,164	(16,164)	158	18,079	(17,921)
BALCO	4,786	1	4,785	5,309	28	5,281	5,508	2	5,506
Talwandi Sabo	5,028	22	5,006	5,840	9	5,831	6,343	20	6,323
Cairn acquisition SPV <sup>1</sup>	30,614	50	30,564	26,979	1,021	25,958	27,145	116	27,029
Others <sup>2</sup>	1,195	101	1,094	1,211	161	1,050	1,462	143	1,319
Sesa Sterlite Consolidated	80,566	50,797	29,769	79,526	47,107	32,419	79,096	46,806	32,290

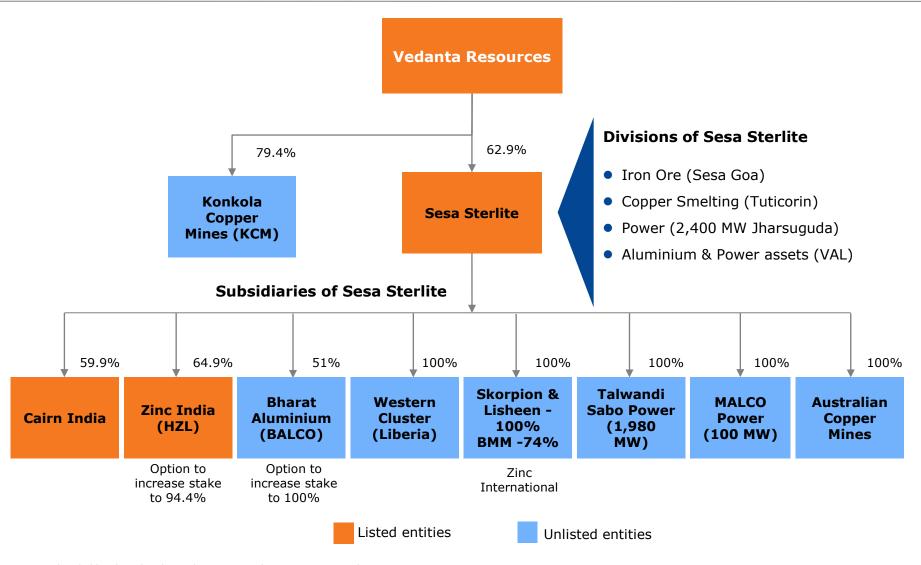
Notes: Debt numbers at Book Value.

- 1. As on 31 December 2014, debt at Cairn acquisition SPV comprises Rs.10,766 crore of bank debt and Rs.16,378 crore of inter-company debt from Vedanta Resources Plc. There was accrued interest of Rs.120 crore on the inter-company debt as on 31 December 2014.
- 2. Others includes MALCO Energy, CMT, VGCB, Sesa Resources, Fujairah Gold, and Sesa Sterlite investment companies.

The above table excludes US\$1.25bn two-year intercompany loan from Cairn India Limited to a wholly owned overseas subsidiary of SSLT at arm's length terms and conditions with an annual interest rate of LIBOR+300bps. The wholly owned overseas subsidiary has used the proceeds of \$1.25bn to pay accrued interest and \$800mn of the principal of the separate intercompany debt extended from VED plc to SSLT.

## **Group Structure**





Note: Shareholding based on basic shares outstanding as on 31 December 2014



















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# **Safety and Sustainability**



### Safety

- Top decile performance globally\* LTI FR 0.16
- Continued emphasis on process and controls

### Sustainability

- Partnered with Government of Rajasthan for improving sanitation
- 'Any time water' kiosks provide safe and clean drinking water to 50,000 people
- Mobile health vans bring basic healthcare to over 250,000
- Dairy development program benefits over 1800 farmers
- Cairn Centre of Excellence to provide vocational training to 500+ members every year
- Top decile performance in GHG emissions globally
- Partnering with IUCN\*\*

### **Vocational training for women**



### Clean drinking water initiative



# Rich set of growth options at all crude price scenarios



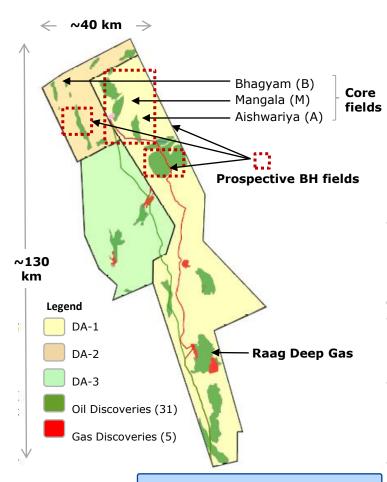
### **Five Key Strategic Themes**

Positive Free Cash Flows Post capex and dividend payout Core fields continue to • MBA, Ravva, Cambay - Low cost, high margin, resilient to price volatility generate cash Areas of Growth Gas, Barmer Hill, Exploration Robust balance sheet, low cost onshore operations, world class resource Resilience base Geology, technology, people, strong partnerships and Unique Leverage financial discipline

# Rajasthan: Prolific block with significant growth upside

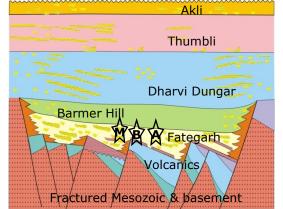


### ~3,111 km<sup>2</sup> block with rich set of options



36 oil and gas discoveries till date

### Multiple RJ formations & play types Barme



### Barmer Hill better than Shale plays

Field	Porosi ty (%)	Permeabil ity (md)	Visco sity (cP)
МВА	21-26	0.2-20	5
M&A BH	15-30	0.1-5	5
Bakken	4-10	0.001-0.1	0.3
Eagle Ford	4-15	<0.002	0.1- 0.3
Permian Midland	6-16	0.01-0.3	0.3

### · Core MBA Fields: Resilient

- Target recovery rate: 50%; Invested dev capex of US\$4.8 bn in 10 years
- Unprecedented activity this year- focus on brownfield expansion
- Mangala EOR production to kick in 2HFY16; key trigger for production

### **Growth Drivers**

- Raag Deep Gas
  - Production potential of 10- 20,000 boepd; >1 Tcf in-place
  - MC approval received; development activities will be in full swing in FY16

### Barmer Hill

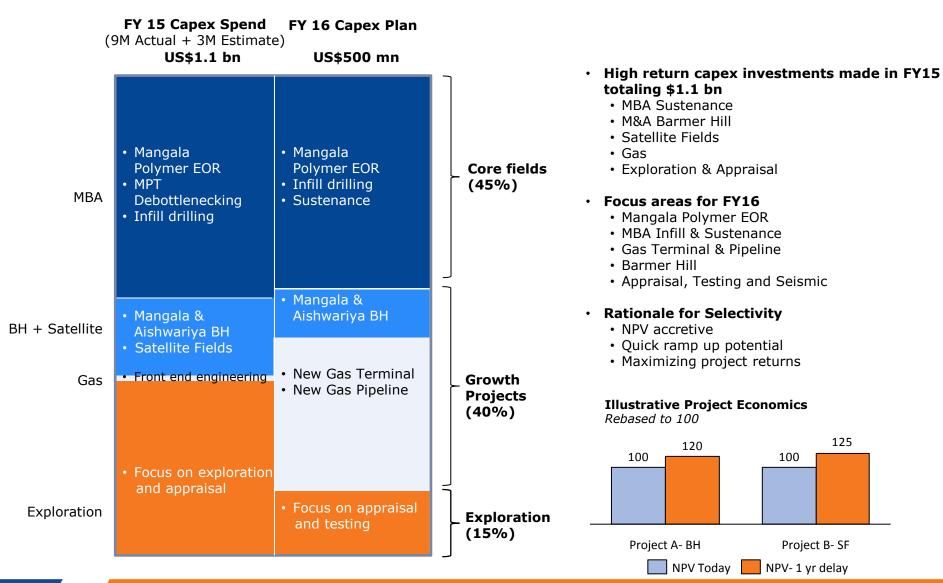
- In-place potential of >2 bnboe; better than shale plays
- · Experiential learnings in Barmer Hill provide options to scale up
- Optimizing costs: Re-engineering and re-negotiating with strategic partners

### Exploration

- Resource enhanced from 4.2 to 5.7 bn boe of HIIP; additional 0.6 bn to test
- Focus on appraisal and testing

# FY16 Capex reduced from US\$1.2 bn to US\$500 mn







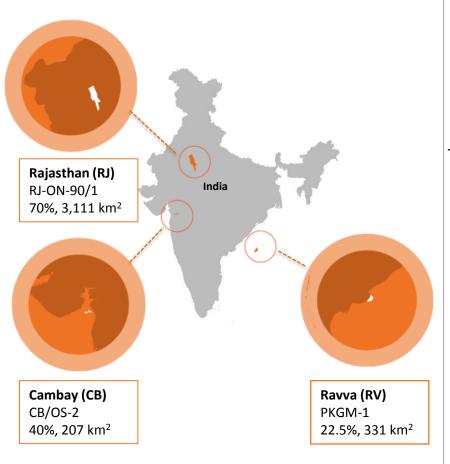
# **Appendix**

# Cairn India – well positioned for the opportunity



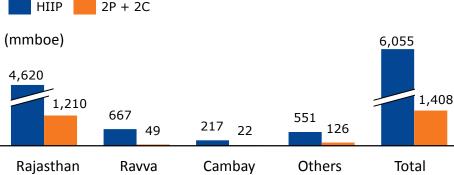
### Assets: Diverse geological basins and environments

- Nine blocks with net acreage of ~41,000 km<sup>2</sup>
- Three core producing blocks 1 onshore: Rajasthan, 2 offshore: Ravva and Cambay



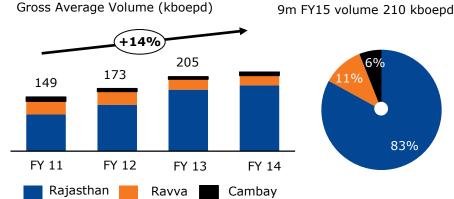
#### **World Class Resource Base**

- Hydrocarbon Initially in Place of 6.1 bn boe
- 2P\* Reserves and 2C Resources of 1.4 bn boe



### Robust production: 96% Oil mix by volume

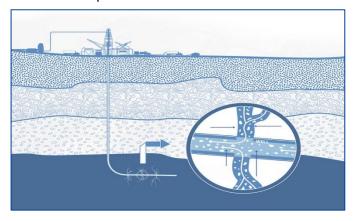
- Over 90% volumes resilient in current crude environment
- Low cost of production at ~US\$ 6/bbl



# Leveraging strengths: Low cost, Technology, sesa sterlite Operational excellence

### Pioneering technology adoption

 Hydro-fracturing technology – In partnership with world class service providers

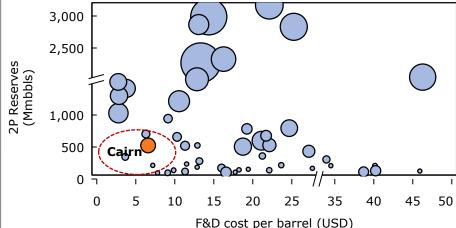


- Mangala Polymer flood EOR One of the largest in the world
- Skin effect heating system world's longest continuously heated pipeline
- Modular well pad concept Rapid moving rigs

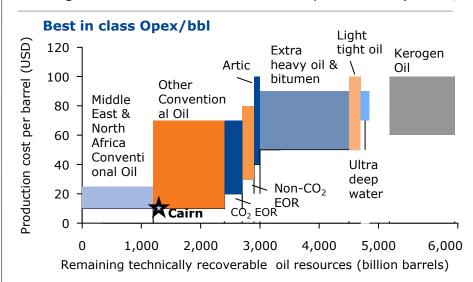
### Excellence in execution

- Top quartile drilling\* efficiencies 17.6 days per 10,000 feet
- RJ Onshore oil production With-in 5 years of discovery
- Offshore natural gas production In 28 months in Cambay

### **Competitive F&D costs**



Size of the bubble indicates Market Cap as of Jan'15 (USD Bn)



<sup>\*</sup> Development drilling; Source for peer company F&D costs: Bloomberg, as of latest financial year; Source for Opex: IEA, 2013

# RJ: Core MBA onshore fields resilient with low cost, high margin



HIIP: ~2.2 bn boe, Target recovery rate: 50% Invested development capex of US\$4.8 bn in 10 years

### **Sustaining production**

### Brownfield expansions, Facility upgrade

- Upgraded fluid handling capacity to ~800,000 barrels per day
- Grid and captive power available to increase reliability and facility uptime
- Infrastructure debottlenecking at Bhagyam field initiated to create more ullage
- Aishwariya production ramped up to 30,000 bopd; plans underway for further ramp up

### EOR: Incremental potential of 220-330 mn barrels

### Mangala Polymer flood EOR

- First polymer injection achieved on 31<sup>st</sup> October, 2014
- Commissioning of critical packages nears completion; Drilling ongoing

### Mangala ASP Pilot

- Pilot successful, initial results better than expectations
- Plans to extend EOR to Bhagyam and Aishwariya fields

### **Enhanced brownfield development**

### **MPT** modifications



### **Well pad modifications for Polymer EOR project**



# RV and CB: Maximizing value at core offshore fields



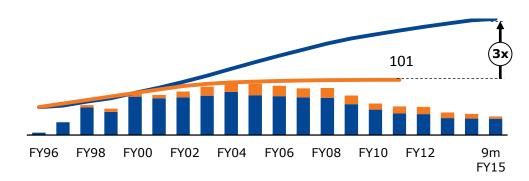
#### Offshore assets continue to see success...

- HIIP: 884 mmboe as on 31st March, 2014
- Maintaining production at low costs
  - Ravva in production for >20 years
  - Cambay for >10 years
- Production mix: 85% Oil by volume
- Cumulative production till Q3 FY15
  - Ravva: 322 mmboe, Achieved 48% recovery
  - · Cambay: 58 mmboe
- Successful RE-6 Discovery at Ravva in FY15
  - HIIP of 10-15 mmbbls
  - Production potential of 4,000 bopd

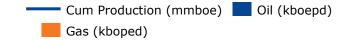
### **Performing better than expectations**

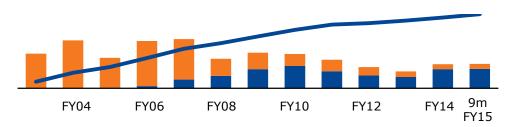
#### Ravva: Example of world-class recovery





### Cambay: Gas producing to oil producing

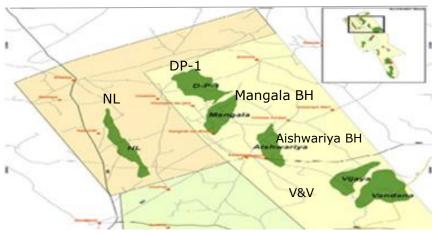




# RJ: Experiential learnings in Barmer Hill provide options to scale up



### **Prospective Barmer Hill Fields in initial phase**



### **Barmer Hill better than Shale plays**

Field	Porosity (%)	Permeabilit y (md)	Viscosity (cP)
МВА	21-26	0.2-20	5
M&A BH	15-30	0.1-5	5
Bakken	4-10	0.001-0.1	0.3
Eagle Ford	4-15	<0.002	0.1-0.3
Permian Midland	6-16	0.01-0.3	0.3

### Leveraging technology and existing infrastructure

- Strategic partnerships to provide commercially feasible solution
  - Pioneering North American technology adoption
  - Efficient use of frac technologies ~20 frac jobs/month
- Drilled and fracked vertical and horizontal wells
  - Cumulative horizontal 8, vertical 4
  - Lateral lengths of 800 1200m
  - Initial production rates encouraging
- Optimizing costs through re-engineering and renegotiation
- Focus on leveraging infrastructure by prioritizing fields
   near Mangala and Aishwariya

# RJ: Focus on building Gas business to boost growth



### Production potential (Incl NGLs): 10-20,000 boepd

### Raag Deep Gas field - Project status

- Holds significant potential of 1-3 Tcf of GIIP
- Estimated recovery of 50%

- Commissioning of compressors underway to double production from 12 mmscfd by end of March 2015
- Received FDP approval from Management Committee for 100 mmscfd
- Expect to commence production by 2017, execution planning and contracting ongoing for terminal, pipeline and related services

#### **Commissioning of Compressors and Equipment**





RDG - Raageshwari Deep Gas field; FDP - field development plan











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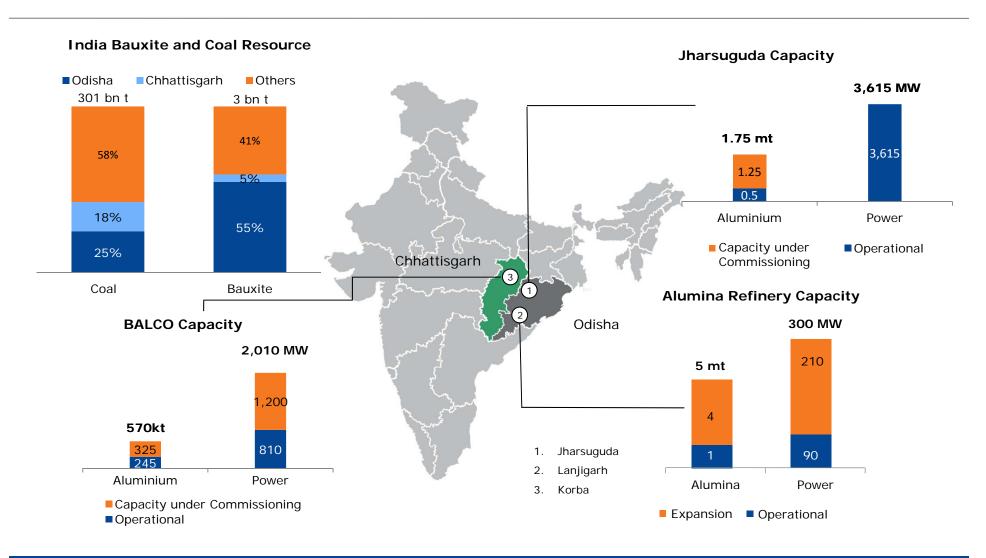
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# **Strategically Located Assets**





60% + of India's bauxite and 43% of India's coal resources are in the states where we operate

### Safety and Sustainability

9

6

3

0

FY2013



### **Safety**

- Improvement in LTIFR
- Structural stability studies
- Fostering behaviour based safety culture
- Contract workmen safety through skill enhancement and competency mapping

### **Sustainability Initiatives**

- Strong focus on alternate usage and treatment of waste
- Improvement in energy and water consumption across all assets
- Enhanced focus on training of security staff
- Development of Occupational Health and Industrial Hygiene Centre

### **LTIFR Fatalities** (per million man-hours worked) 0.5 0.4 0.3 0.28 0.22 0.20

0.2

0.1

0.0

FY2013

FY2014

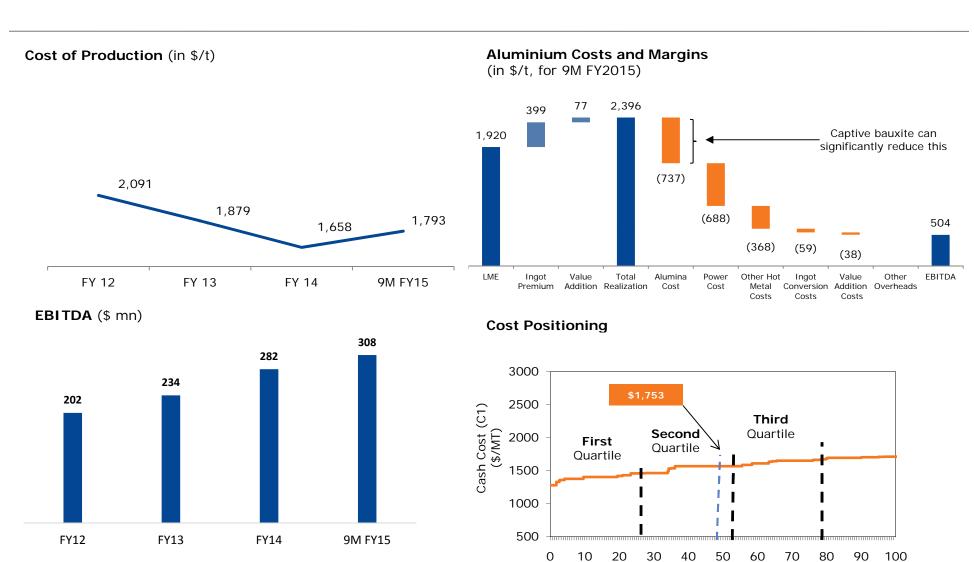
9M FY2015

9M FY2015

FY2014



# Low Cost Position Leading to Strong EBITDA sesa sterlite



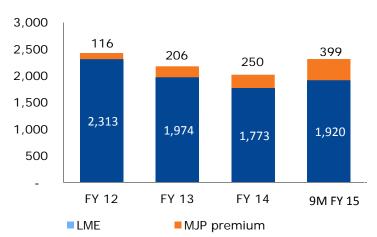
Source: Wood Mackenzie 2014 and SSLT reported Q3 FY2015 cost

Percentile

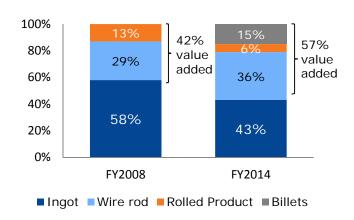
# Aluminium Market Scenario and our positioning



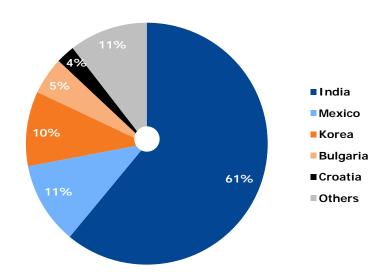
#### LME + Premium (\$/t)



### Proportion of value added products increasing



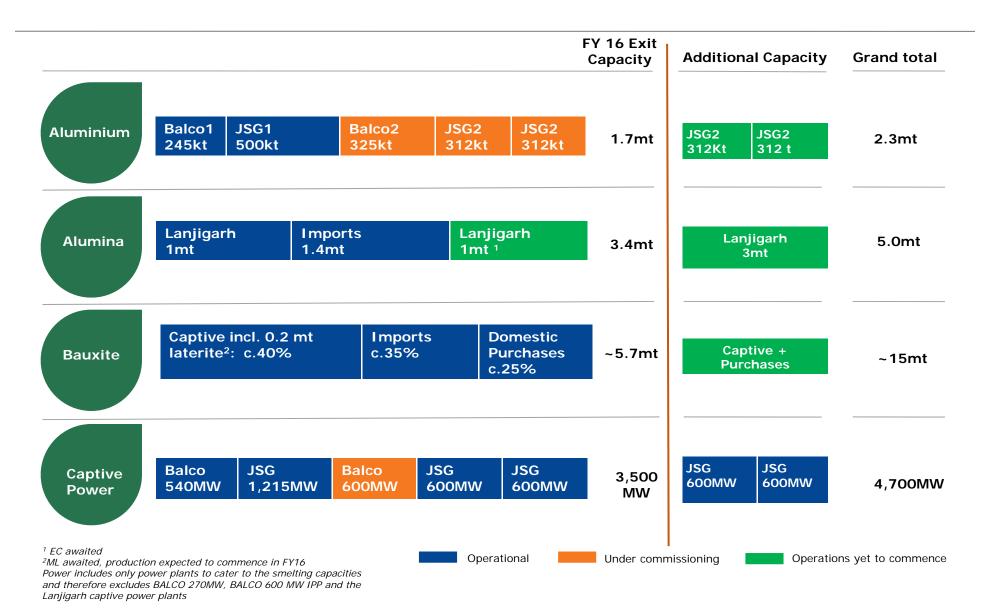
#### **Diversified Markets**



- Strong demand growth expected in India:
   9% CAGR in last 6 years. Well positioned to capitalize on India's growth
- More than 50% sales in form of value added products
- Aluminium Park proposed near BALCO to provide hot metal to downstream industry

# Roadmap to 2.3 mt Aluminium production





## **Korba and Jharsuguda Smelters**



#### Korba

- 245kt smelter commissioned in 2005
- 325kt smelter: 80kt commissioned, balance capacity to be operational in FY 2016
- Capacities integrated with captive power

### **Jharsuguda**

- 500kt smelter commissioned in 2008
- 1.25mt smelter:
  - o 40kt commissioned
  - 50% of 1.25mt capacity to be operational by FY2016, using power from 2,400MW power plant

### **Alumina Sourcing and Handling**

- Combination of captive Alumina and imports
- Imported Alumina through Kakinada port in Andhra Pradesh; current captive handling equipment capacity of 1mtpa and well connected to smelters through rail
- Inland transportation: Fully mechanized system of 13 BTAP wagons





# Lanjigarh Refinery and Bauxite Sourcing



### Refinery

- Strategically located: >50% of India's Bauxite R&R in Odisha
- 1mt operational since 2007
- Production to be ramped up to 2mt in FY2016, EC expected shortly
- Capacity to be taken up to 5mt in phases
- 100% captive power

### **Bauxite Sourcing**

- Captive Bauxite from mines at BALCO, domestic third party purchases and imports
- Other sources
  - Laterite Deposits allocated: Production to commence in FY2016
  - New MMDR ordinance to expedite the grant of mineral concessions through auction route





### **Power Plants**



#### Jharsuguda Power Plants

- Strategically located: >40% of India's 300bn tonnes coal R&R in Odisha and Chhattisgarh
- Infrastructure: Rail connection with eastern ports for handling imported coal
- 2,400MW: PLF to be ramped up in FY16 as 1.25mtpa smelter ramps up
- 9M FY2015 Coal mix: 56% linkage, 35% e-auctions and balance imports

#### **BALCO Power Plants**

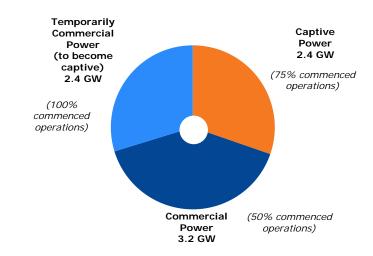
- 540MW CPP and 270MW IPP
  - 9M FY2015 Coal mix: 15% linkage, 47% e-auctions and balance local purchases and imports
- 2x 300MW CPP to supply power to 325kt smelter, to be commissioned in H1 FY2016
- Coal from coal blocks for captive power
- 2x 300MW IPP fist unit under commissioning, to supply commercial power

#### **TSPL**

- 660 X 3 (1,980MW) IPP: One unit operational and remaining units to be operational by H1 FY2016
- Coal sourcing: >70% expected through linkage and balance through imports – coal cost is pass through
- 100% material transportation by rail, c.1,700km from mines



### Power Generation Capacity - c. 8.7 GW



Pie does not include 474MW HZL CPP and 160MW Tuticorin CPP

### **Coal Block Auctions**

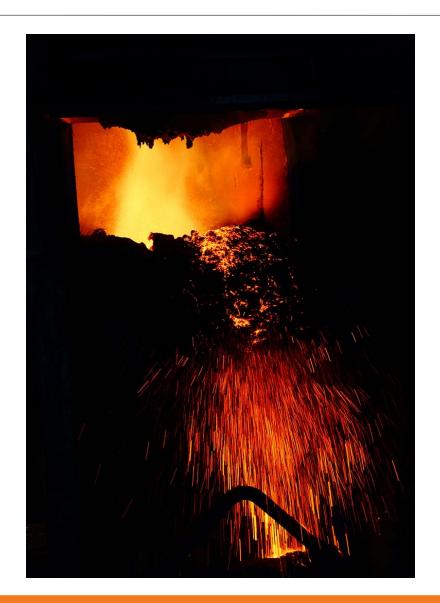


- Government issued ordinance on auctions of coal blocks
- Phase 1 of auctions of operating mines completed in February
  - 12 mines auctioned to CPP's
  - 6 mines to IPP's
- BALCO won Chotia Coal Block in Chhattisgarh
  - R&R of 15.53mt and extractable capacity of 1mtpa
  - Open cast + Underground mine
  - 70km from BALCO smelter
  - GCV of ~ 5,000Kcal/kg
  - Premium paid INR 3,025 per tonne and expected landed cost of c. Rs 5,000 per tonne
  - Upfront cash investment required is c. INR 90crores
- BALCO highest bidder for Gare Palma IV/1 mine in Chhattisgarh
  - R&R of 44mt and extractable capacity of 6mtpa
  - Open cast
  - 160km from BALCO smelter
  - GCV of  $\sim 3,800$  Kcal/kg
  - Premium paid INR 1,585 per tonne and expected landed cost of c. INR 3,000 per tonne
  - Upfront cash investment required is c. INR 160crores
- These mines will provide secured coal supply to the BALCO power plants which had no linkage coal. Participating in Phase 2 of auction of coal blocks this month

# **Summary**



- Well-invested, strategically located assets close to raw material resources
- Smelters with integrated captive power
- Starting up 1mt Aluminium capacity in FY2016 to exit the year at 1.7mt
- Regulatory developments facilitating raw material security
- Focus on maintaining strong EBITDA margins





# **Appendix**

### Awards & Accolades – 2014



CII National HR Excellence Award to Sesa Sterlite Limited, Jharsuguda



- 2 Frost & Sullivan's Green Manufacturing Excellence Award-2014 in Challengers Category to Sesa Sterlite Limited, Jharsuguda
  - Gold Award in Indian Manufacturing Excellence Awards by Frost to BALCO in the Manufacturing Sector
  - 4 "Most Energy Efficiency Unit" award in the Aluminium Sector by the Ministry of Energy to Sesa Sterlite Limited, Jharsuguda
- "Best Energy Efficiency Projects Realized Abroad" in the 3<sup>rd</sup> International Forum of "Energy Efficiency and Energy Saving ENES" conducted by the Russian Government awarded to Sesa Sterlite Limited, Jharsuguda
- 6 "Excellent Energy Efficient Unit" National Award for "Excellence in Energy Management" organized by CII for last 2 consecutive years to Sesa Sterlite Limited, Jharsuguda

















CAPITAL MARKETS DAY
Hindustan Zinc Ltd
March 2015

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# **Hindustan Zinc - A Sustainable Enterprise**





Rampura Agucha: **Largest** zinc mine globally

**2**<sup>nd</sup> Largest zinc-lead miner globally with **10mt+**of ore production capacity

**4**<sup>th</sup> Largest zinc-lead smelter globally: **1mt** of production capacity

R&R base of 365 mt: mine life of 25+ years

A **Journey** towards **Excellence** - **15mt** Ore Production Capacity & **1.2mt** MIC production capacity from **Underground Mines** 

# **Safety & Sustainability**



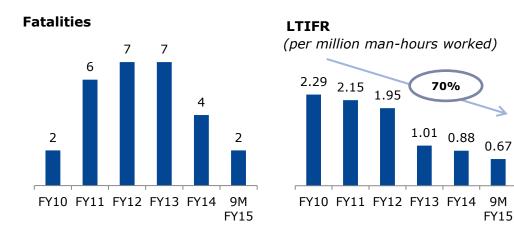
### **Safety**

# Zero harm to people, host communities and environment

- Safety cultural transformation journey from reactive to interdependent; engagement with Dupont
- Integrated safety organisation structure
- Promoting behaviour based safety
- Focus on hazard identification & near misses

### **Sustainability Initiatives**

- Zero water discharge
- Adiabatic cooling towers
- Sewage treatment plant as sustainable water source
- Green energy of 309MW
- Bio-diversity conservation

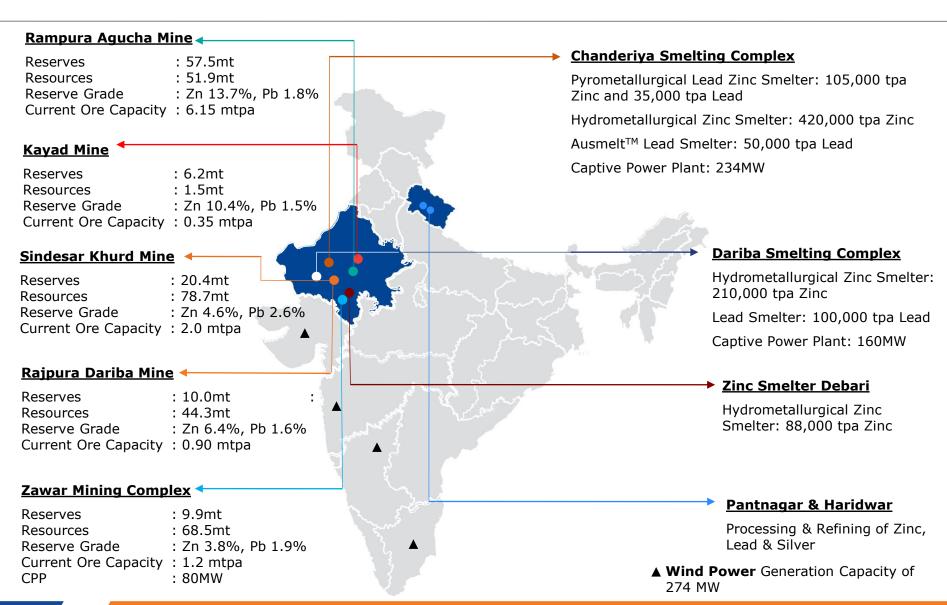


### Safety Pledge during mine safety week



# **World Class Mining & Smelting Assets**

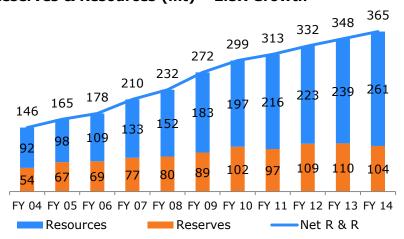




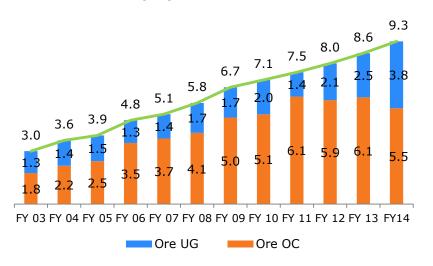
## **Strong Track Record of Growth**

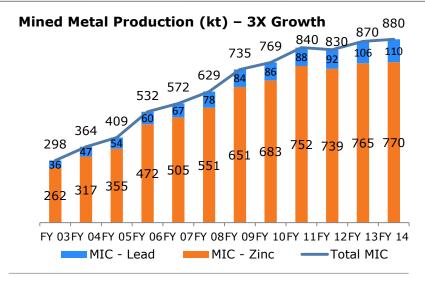


Reserves & Resources (mt) - 2.5X Growth

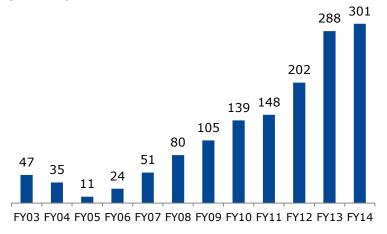


Ore Production(mt) - 3X Growth





Silver Metal Production – Integrated Saleable (tonnes) – 6X Growth

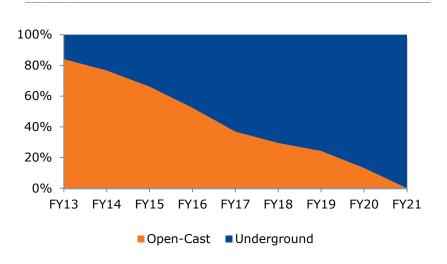


### **Expansion Projects**

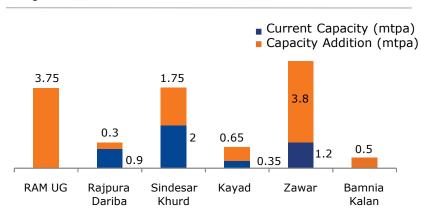


- Resource driven growth
- Six major projects to increase mined metal capacity by 20% to 1.2 mtpa, including replacement of RAM OC
- Total capex of \$1.5 billion, out of which ~\$0.5 bn is spent
- Expansion of mines in sync with increasing R&R
- Extension of RAM OC mine life to FY20 to smoothen transition to UG

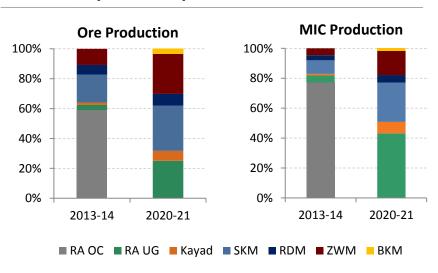
#### Transition to underground mining (% share in MIC)



### **Projects**



### **Future mine production profile**



### Rampura Agucha Mine



**Open Pit** 

Ultimate Pit Depth: 420 meters from surface

Mine Life: FY 2019-20

**UG Mine** 

Production Capacity: 3.75 mtpa

Mine Life: +20 years

R&R: 44.7 mn tonnes & 51.9 mn tonnes

Mining Method: LHS with paste fill

Major Activities:

Decline and ancillary development

Production shaft & crusher system

Raise boring

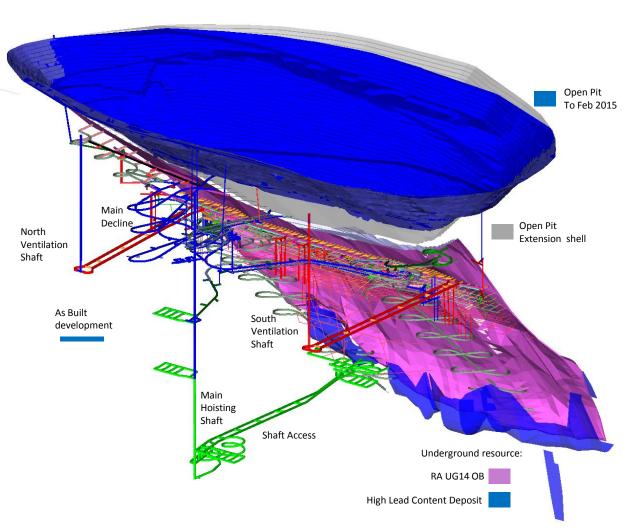
Paste fill plant

Surface infrastructures

### **Shaft**

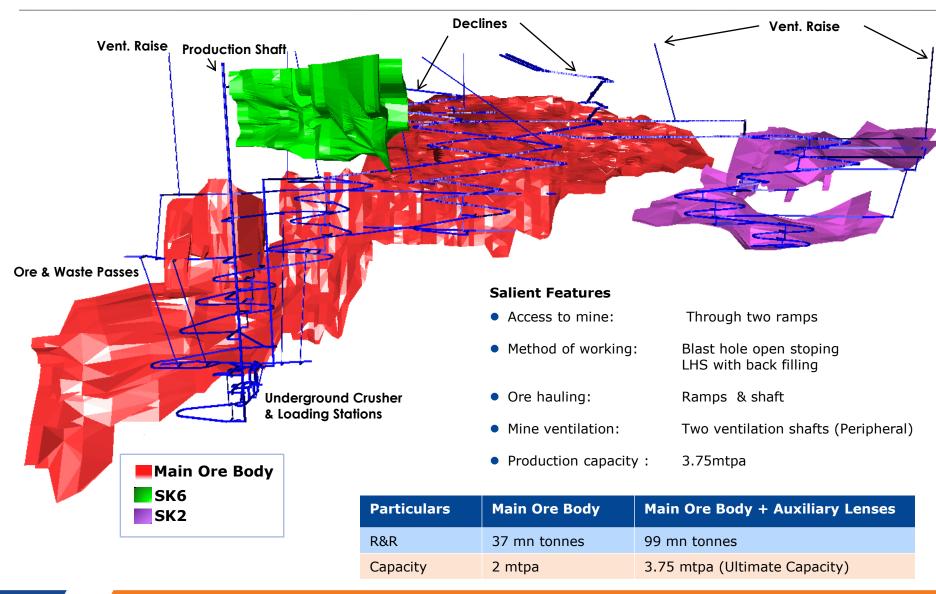
Hoisting Capacity: 3.75 mtpa

• Shaft Dimension: 7.5 m Dia., 950m deep



### **Sindesar Khurd Mine**

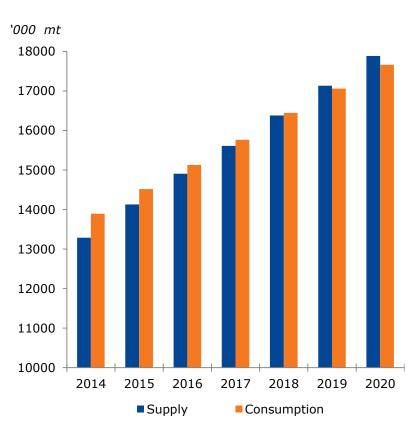




### **Global Refined Zinc Market Overview**



#### **Refined Market Balance**



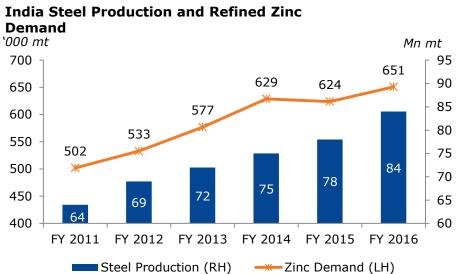
Source: Wood Mackenzie LTO Q4 2014

World - Steady demand growth at 4-5%

**China -** CAGR (2013-2020) 6.2%

India - CAGR (2013-2020) 5.7%

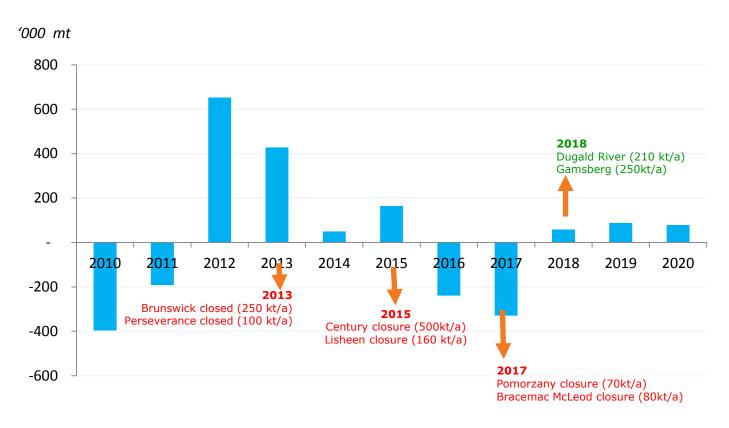




### **Mine Production Outlook**



### **Concentrate Deficit to Support Price**



■ Concentrate Surplus (+) Deficit (-) (LHS)

Source: Wood Mackenzie LTO Q4 2014

### **Summary**

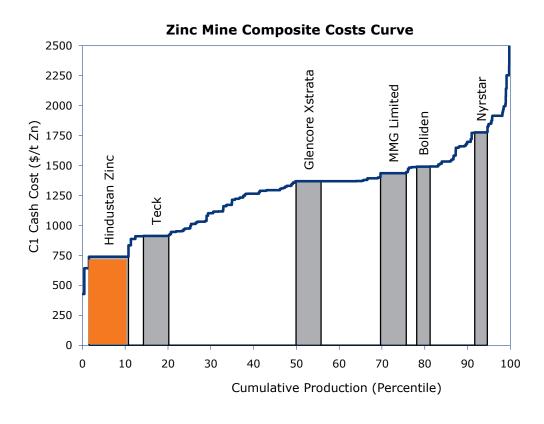


### Leading the way with fully integrated operations

### **Core Strengths**



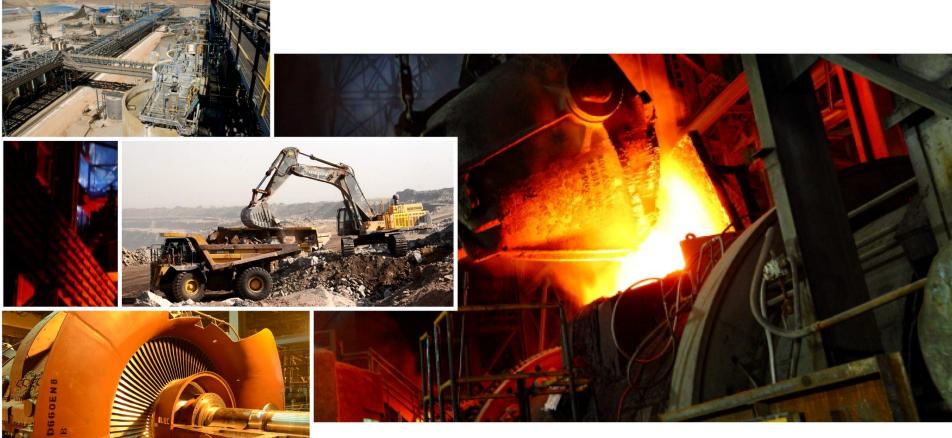
#### Among the lowest cost producers of zinc



Source: Wood Mackenzie Research







**CAPITAL MARKETS DAY Zinc International March 2015** 

## **Safety and Sustainability**



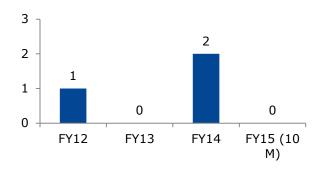
### **Safety**

- 'Zero Harm' is a core value
- Robust ground control management plan
- 'Zero Incident Process' implementationbehavioural safety intervention
- Visible felt leadership and management of change
- Risk assessments and upgrading through a software based on artificial intelligence-SILO
- Personnel detective system-trackless mobile machine and fatigue management system

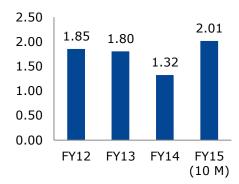
### **Sustainability Initiatives**

 Partnership with IUCN on biodiversity management and livelihood enhancement

#### **Fatalities**



LTIFR (per million man-hours worked)





### **Zinc International – Proven Assets**



#### **Black Mountain Mine, South Africa**

- Reserve 11.7mt @ 2.6% Zn, 2.8% Pb (74% att.)
- Underground polymetallic (Zn, Pb, Cu, Ag) mine and concentrator with production capacity of:
  - 1.7Mt ore hoisted per annum
  - o 90ktpa metal in concentrate
- Total 1,300 employees including contractors
- Gamsberg Project development approved
  - Resource 182mt @ 6.1% Zn and Reserves - 50mt @ 6.5% Zn (74% att.)

#### **Skorpion Zinc Mine and Refinery**

 Largest integrated zinc operation in Africa, Located in Namibia

#### Mine

- Reserves 3.5mt at 9.1% Zn
  - o Resources 3.6mt
- Open pit zinc oxide mine
- Mine life up to 2017-18, expansion potential being evaluated

#### Refinery

- SX-EW refinery
- Refinery capacity of 150 ktpa SHG zinc
   LME brand "SZ SHG"

#### Lisheen Mine, Ireland

- Mine coming to end of its life in mid FY16
- Second-largest zinc mine in Europe, production capacity of:
  - 1.6 Mtpa capacity concentrator
  - 165ktpa Zinc MIC & 22ktpa Lead MIC
- Closure & rehabilitation fully funded

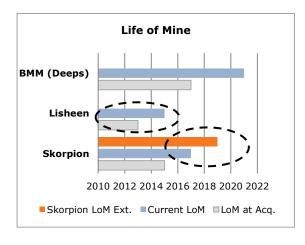


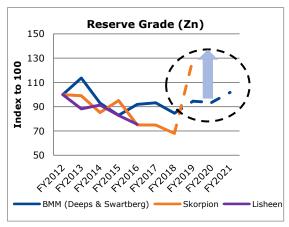


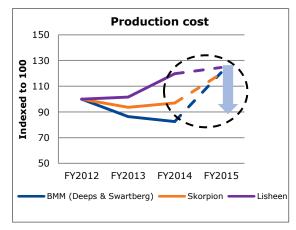


# Age of mines provides challenges & opportunities









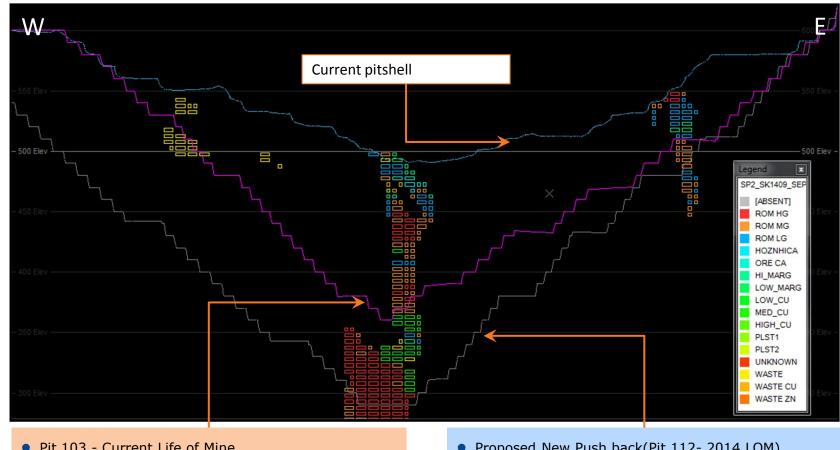
- Strong focus on underground and near pit exploration at all operations
- Extended life of mine beyond plan
  - Lisheen to close in October 2015
- Further extensions defined at Skorpion; currently envisaged closure in FY2017
  - Reserves defined that will take mine to closure in FY2020

- Reserve grades have been declining as operations near end of life
- Higher grade reserves remain
  - Opportunity at Skorpion is to access high grade ore beneath current pit
- At BMM near mine resource potential is high
  - Focussed approach to improve confidence to firm up next 5 year plans

- Cost of production increasing as
  - Centre of gravity of mining at BMM and Skorpion moves deeper
  - Lower volumes
- Initiatives underway to mitigate against increasing 'geological inflation'

# **Skorpion LoM Extension**





- Pit 103 Current Life of Mine
- Pit bottom 350RL
- Remaining reserves of 3.75mt @ 9.32% and 67.1 mt waste
- Life Of Mine 1 year 7months

- Proposed New Push back(Pit 112- 2014 LOM)
- Pit bottom 290RL
- Reserve increases to 5.3mt @ 8.63% Zn and 115 mt waste
- Additional LoM of 2 years, i.e. 3.7 years LoM

### **Gamsberg – Large, Scalable Resource**

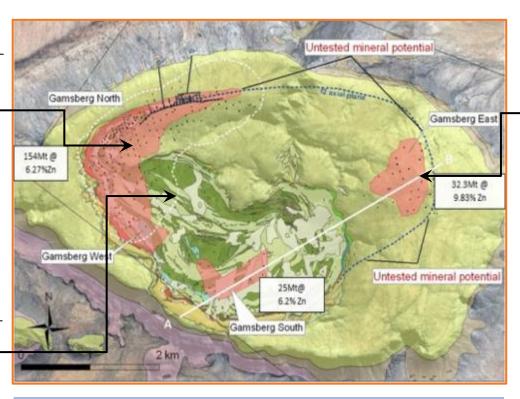


### 1 Gamsberg Project

- 13 year mine life with further 150mt of resources available
- Current project 4.4 Mtpa ROM; 250 ktpa Zn MIC
- Current focus on delivering this project
- Being reviewed for lower FY16 Capex
- Total capex of \$630 mn

### 2 Gamsberg Mega Pit

- Expand pit to 10 Mtpa ROM
- Modular expansion to concentrator
- Refinery and 300MW captive power plant required



- Current focus is on putting together a world class project team to drive delivery
- The project execution will be carried out in a phased manner with a view to lowering the upfront capex

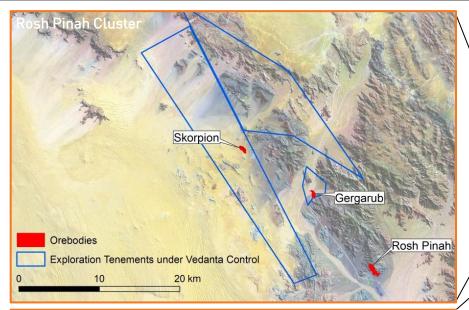
# **Gamsberg East**Underground

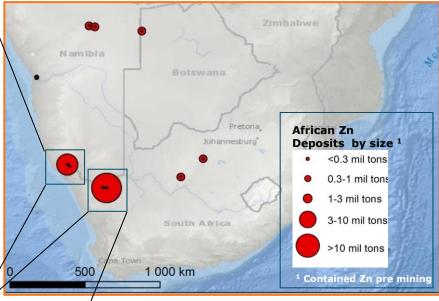
- Underground option for Gamsberg East 2.5 Mtpa
- Possible expansion of underground by using sub-level caving to 4 Mtpa

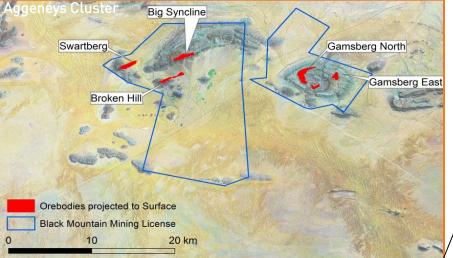
Vision is to build Gamsberg production of 250 ktpa and then grow to 450 ktpa and beyond, in three phases

### A world class zinc district









- Opportunity to develop our integrated zinc/lead business in southern Namibia and the Northern Cape of South Africa
  - Centred around a zinc smelter/refinery complex sourcing feed from the nearby mines/deposits
  - Initially based on Gamsberg and the world class Skorpion Refinery
- Region has the highest concentration of Zn on the African continent
  - Large-scale, mostly sediment-hosted ore deposits, classified as Broken-Hill, Sedex, and VMS types
  - >40 million tons of contained zinc
  - Significant potential for discoveries and resource extensions

### **Summary**



### **Strategic Priorities**

- Creating a regional Zinc Complex around BMM and Skorpion
  - Southern African region to become one of the most important suppliers of refined zinc globally

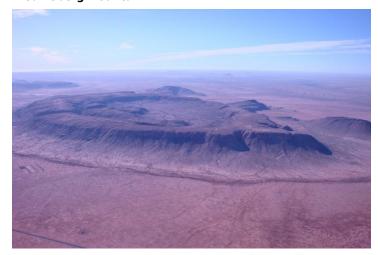
### **Near Term Focus**

- Gamsberg Project execution to partially offset the loss of production from the Lisheen Mine
  - Gamsberg project key first steps; gets production back to close to 400 ktpa
  - Further expansion possible given the significant resource at Gamsberg
- Conclude evaluation of LoM extension at Skorpion
- Manage costs in lights of increasing depth of mining and declining grades
- Orderly closure, site rehabilitation and monitoring at Lisheen

#### Underground operations at BMM



**Gamsberg Mountain** 











**Chief Executive Officer** 



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### **Iron Ore**



#### **Goa Operations**

- Average Fe Grade: 56%
- Integrated infrastructure with proximity to port & competitive COP
- Aggressive cost reduction initiatives underway
- Mining leases renewed & expect to start mining post monsoons
- In discussion with Govt on withdrawal of export duty

#### **Value added Business**

- Expanded pig iron & met coke capacity to 625 kt & 560 kt respectively
- 9M FY2015 EBITDA of c.\$40mn from Pig Iron

#### **Karnataka Operations**

- Average Fe Grade: 58%
- Proximity to large domestic steel industries
- Operations resumed with a production cap of 2.29 mtpa

#### **Further opportunities**

- Consolidation in Indian Iron Ore industry under the new MMDR provisions
- Opening up of new areas for exploration under auction route

### **Goa Iron Ore Mines – Proximity to Coast**



### **Copper India**



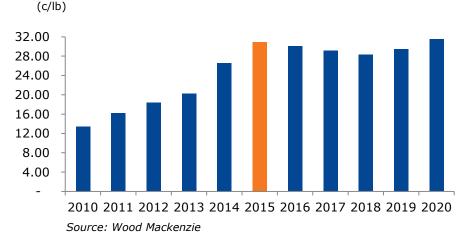
### One of the most efficient custom smelters globally, located in Tuticorin, India

- 400kt Cathode, with a capacity to make 250 kt of value added rods
- 1.3 mtpa Sulphuric Acid; c.50% used to make 0.23 mtpa Phosphoric Acid
- 9M FY2015 EBITDA of \$180mn

#### TCRC

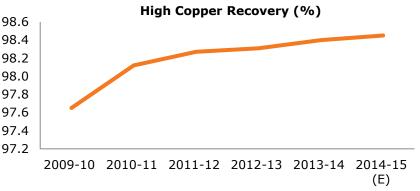
- Concentrate supply has risen sharply on account of new mine supplies.
- o CY 15 annual TCRC settlements higher at +Usc 25/lb

### TCRC outlook

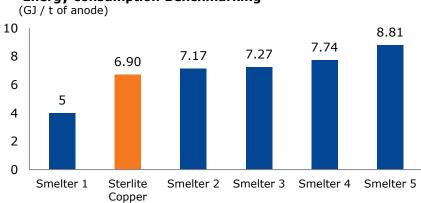


#### Smelter operating at benchmark parameters

 Achieved world benchmark of ISA Campaign life of 1380 days



### **Energy consumption Benchmarking**



Source: Wood Mackenzie, Comparison based on peer group of custom smelters – Saganoseki, LS Nikko, Atlantic Copper, Aurubis & Tamano

## **Summary**





**Production Growth** 

across portfolio with a focus on returns



**Reduce Gearing** 

from increasing free cash flow



Continue to add R&R

in our existing portfolio of assets to drive long-term value



Consolidation and simplification of the

**Group structure** 



Protect and preserve our

**License to Operate** 

Focused on maximizing free cash flows in light of current market volatility