

# COMMODITY INSIGHTS BULLETIN

## Iron Ore (2Q, 2013 and 3Q, 2013)

### Introduction

#### 2013 ...was a good year.

The capital markets view of resource companies would disagree but for iron ore exporters 2013 was a good year. The world largest exporter, Australia, iron ore exports will likely rise by 17 percent in volume and 7 percent in price on 2012, that is an extra US\$15 billion of revenue for the iron ore producers, little wonder FMG has paid off over US\$1 billion of debt early.

The demand has not dropped, and additional supply has come on slower than planned, a trend expected to continue

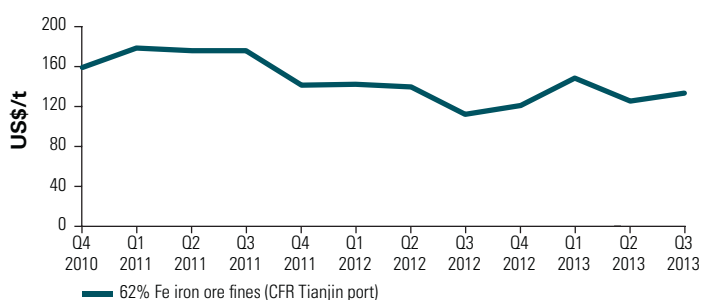
into 2014. Longer-term, although most analysts are predicting a sub \$100 a ton price point, it is difficult to factor the effects of this price on the high cost Chinese producers who pump 300Mt into the market at cost around US\$110-\$120 per ton.

For the moment, iron ore producers have their confidence back, with both BHPB and Rio recently announcing renewed expansion plans for their Pilbara operations. It may take longer for the capital markets to regain their interest in resource companies but 2014 is looking to improve on this year...from good to great.

### Commodity outlook

Spot iron ore prices (62 percent Fe content) declined by 15 percent q-o-q to US\$125/ton during 2Q, 2013. The prices subsequently increased by 6 percent to US\$133/ton in 3Q13. This increase can be attributed to the smaller amount of iron ore port inventory held in China.<sup>1,2</sup>

**Figure 1: Spot prices of China's iron ore imports (4Q, 2010 – 3Q, 2013)**

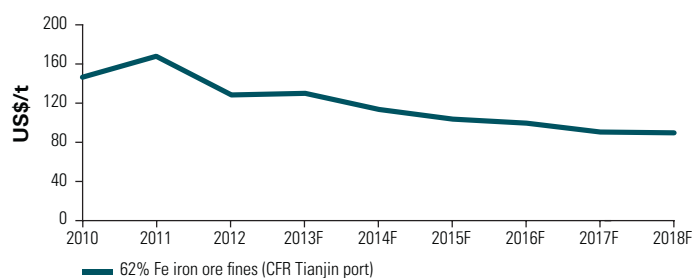


Source: IMF Primary Commodity Prices, International Monetary Fund, <http://www.imf.org/external/np/res/commmod/index.aspx>, accessed 13 November 2013

As per consensus price estimates, the spot prices are projected to decline to average about US\$90/ton in 2018. The global iron ore market is experiencing two major expectations that are leading to this decline in price forecasts. The first is that the supply growth may increase significantly and offset demand growth in the coming years. This growth is expected from the projects that are either under construction or planned, and are expected

to begin production during the medium-term. Secondly, there are expectations that China's ability to consume this increased supply could reduce.<sup>2,3</sup>

**Figure 2: Prices of iron ore (2010–18F)**



Source: BMO Capital Markets – Global Commodities Research: Base Metals And Bulks: A Recovery In Europe Is Not Enough - H8 To Boost Commodity, November 3, 2013; Jefferies & Company, Inc. – Iron Ore Outlook Improves, October 24, 2013; B&B Capital Markets, Diversified Mining Weekly: Are Copper Oversupply Concerns Overblown?, October 28, 2013; J.P. Morgan – Australian Resources: Downgrading Sector Earnings On Lower Co, October 8, 2013; Credit Suisse – Australia Iron Ore Sector Stronger Price Forecasts, October 8, 2013; Numis Securities – Metals and Mining Sector Update, July 10, 2013, via Thomson Research/Investext, accessed 14 November 2013; KPMG analysis

An important case to note is that of the marginal steel mills in China. These mills are the marginal buyers of iron ore in the spot market and their demand affects the iron ore spot prices. A recovery in steel production at these marginal mills, due to increase in domestic seasonal and cyclical steel demand, could increase iron ore spot prices, as higher steel production at these mills could lead to higher demand for iron ore.<sup>4</sup>

<sup>1</sup> IMF Primary Commodity Prices, International Monetary Fund, <http://www.imf.org/external/np/res/commmod/index.aspx>, accessed 13 November 2013

<sup>2</sup> "Resources and Energy Quarterly," Bureau of Resources & Energy Economics (BREE), Australian Government, September quarter 2013

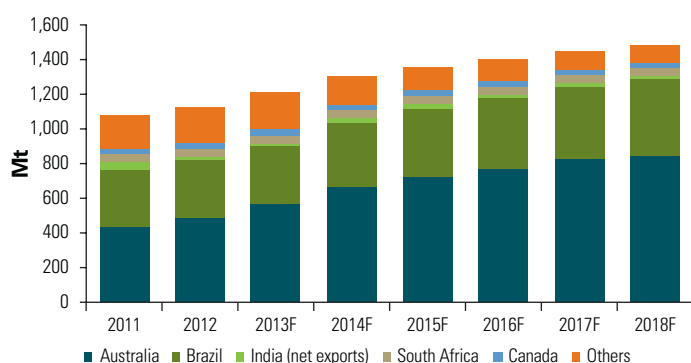
<sup>3</sup> Morgan Stanley – Metals Sparks Asia Insight – Iron Ore: Hold on into 2014, September 25, 2013, via Thomson Research/Investext, accessed 15 November 2013

<sup>4</sup> Jefferies & Company, Inc. – Iron Ore Outlook Improves, October 24, 2013, via Thomson Research/Investext, accessed 18 November 2013

# Supply and demand<sup>5</sup>

## Supply

**Figure 3: Global exports of iron ore (2011–18F)**



Source: "Resources and Energy Quarterly", Bureau of Resources & Energy Economics (BREE), Australian Government, September quarter 2013

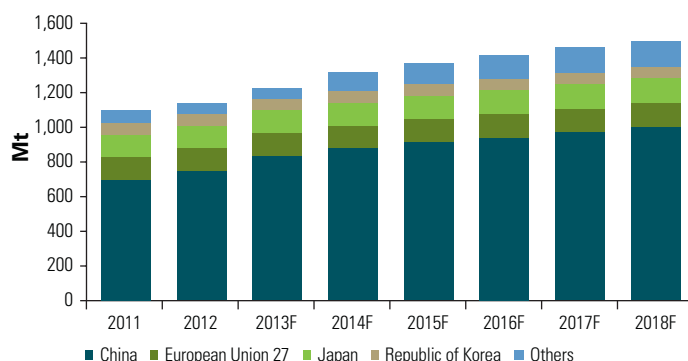
- Australia's iron ore exports are expected to increase by about 16 percent year-over-year (y-o-y) to 570 MT in 2013. This will be supported by higher production at a number of mines of Rio Tinto and BHP Billiton, and the production ramp up at Fortescue's Chichester Hub and Solomon Hub expansion projects. The country's iron ore exports are estimated to further increase at a CAGR of 8 percent from 570 MT in 2013 to 847 MT in 2018. This strong growth will be supported by increased production mainly from the Pilbara region of Western Australia. Also, these mines are expected to adopt automated and/or driverless trucks and trains, which could improve their competitiveness.
- Brazil's iron ore exports are estimated to increase by about 3 percent y-o-y to 336 MT in 2013. If the safety and commercial issues for the landing of Valemax ships in China are resolved, this could provide a significant boost to Brazil's export. Further, the country's exports are expected to increase at a CAGR of 6 percent from 336 MT in 2013 to 447 MT in 2018. The Carajas and South-East iron ore systems, which are scheduled to start up in the medium term, are expected to contribute a major share in this growth rate. Vale is also replacing the in-mine trucks with conveyor belts at its Carajas mining complex in northern Brazil. This is the industry's most-expensive project ever and is valued at nearly US\$20 billion.<sup>6</sup>
- India's net exports are expected to decline by about 52 percent y-o-y to 12 MT in 2013. This drop in exports is mainly attributable to the imposed mining restrictions in the states of Goa and Karnataka, and the 30 percent tax on exports of iron ore.<sup>7</sup> In the medium term, net exports are forecast to increase at a CAGR of 2 percent to 13 MT in 2018 from 12 MT in 2012. This is because bans on mining in India's key iron ore producing states are expected to continue to impact production. The Indian Government could act to reduce bans while also ensuring supply for domestic

steel makers. The government cancelled 51 mining leases of the worst offending illegal miners in Karnataka in September 2013 to this effect.<sup>8</sup> These mines are now expected to be allotted to steel mills for captive consumption.

- Increased exports from established producing countries, including Australia and Brazil, are expected to cater to the growing demand from Asia Pacific, namely China and South Korea, over the medium-term.<sup>9</sup>

## Demand

**Figure 4: Global imports of iron ore (2011–18F)**



Source: "Resources and Energy Quarterly", Bureau of Resources & Energy Economics (BREE), Australian Government, September quarter 2013

- Chinese iron ore imports are expected to increase by about 12 percent y-o-y to 831 MT in 2013. This can be primarily attributed to the new Chinese leadership opening up the industry to market forces and the low quality of domestic ore being mined at higher costs.<sup>10</sup> China imported a record 74 MT of iron ore in September 2013.<sup>11</sup> In the medium-term, the country's imports are estimated to grow at a CAGR of about 4 percent to reach 998 MT in 2018 from 831 MT in 2013. This is expected as a result of declining ore grades and lower production levels of domestic ore. Chinese steel players are expected to increase their reliance on imported ore and an increasing number of steel mills are expected to come up on the eastern seaboard region of the country that has access to ports. Also, it aims to have about 40 percent of its iron ore imports supplied by Chinese-owned foreign projects, by 2015.<sup>12</sup>
- Iron ore imports by the European Union 27 and Japan are expected to increase by 1 percent and 2 percent y-o-y, respectively, in 2013. The countries are expected to register moderate growth projected for steel production leading to imports growing at a CAGR of about 1 percent for Europe and 0.4 percent for Japan starting 2013 till 2018. The latest broad-based improvements in industrial indicators from these markets are expected to translate into moderately higher crude steel-production levels.<sup>13</sup>

<sup>5</sup> "Resources and Energy Quarterly", Bureau of Resources & Energy Economics (BREE), Australian Government, September quarter 2013

<sup>6</sup> Juan Pablo Spinetto "Truckless \$20 Billion Venture Seen Key to Vale Revival: Freight", Bloomberg, 3 April 2013

<sup>7</sup> Abhishek Shanker "Iron Ore Exports From India Seen Plunging on Taxes, Mining Ban", Bloomberg, 30 September, 2013

<sup>8</sup> Anil Kumar "Karnataka cancels permits of 51 iron ore mining companies", The Times of India, 15 September 2013

<sup>9</sup> Mahesh Kulkarni "Iron ore exports in FY13 set for 37% decline to 45 mt", Business Standard, 14 November 2013

<sup>10</sup> Erik Els "Slowdown. What slowdown? China's copper, iron ore imports set records", Mining.com, 13 October 2013

<sup>11</sup> Fayen Wong and Polly Yam "UPDATE 1-China's oil, iron ore imports set records in Sept, copper at 18-mth high", Reuters, 12 October 2013

<sup>12</sup> Ayesha de Kretser "China seeks control over iron ore", Financial Review, 2 May 2011

<sup>13</sup> Morgan Stanley – Asia Insight – Iron Ore: Hold on into 2014, September 25, 2013, via Thomson Research/Investext accessed 15 November 2013

- Imports by South Korea are expected to decline by 3 percent y-o-y in 2013. Going ahead, the country's iron ore imports are projected to grow at a CAGR of 2 percent from 2013 to 2018. This projected growth rate will be driven by moderating demand for steel in car and ship manufacturing. South Korea is expected to finalize a free-trade agreement (FTA) with Australia, the world's largest iron ore producer, probably before the G20 meeting in 2014.<sup>14</sup> The country has also invested significantly in the Roy Hill Iron ore project in Australia.<sup>15</sup>
- China will invest in improving its rail infrastructure, involving significant demand for steel. Also, inventory de-stocking in the country and a recent increase in seaborne supply growth signal toward a positive demand outlook in the near term. An increase in steel production in China and other regions is expected to thus lead to relatively strong demand growth for iron ore in the short-term. Macro improvements in the markets in the US, Europe and Japan should also be positive for global iron and steel demand.<sup>16</sup>

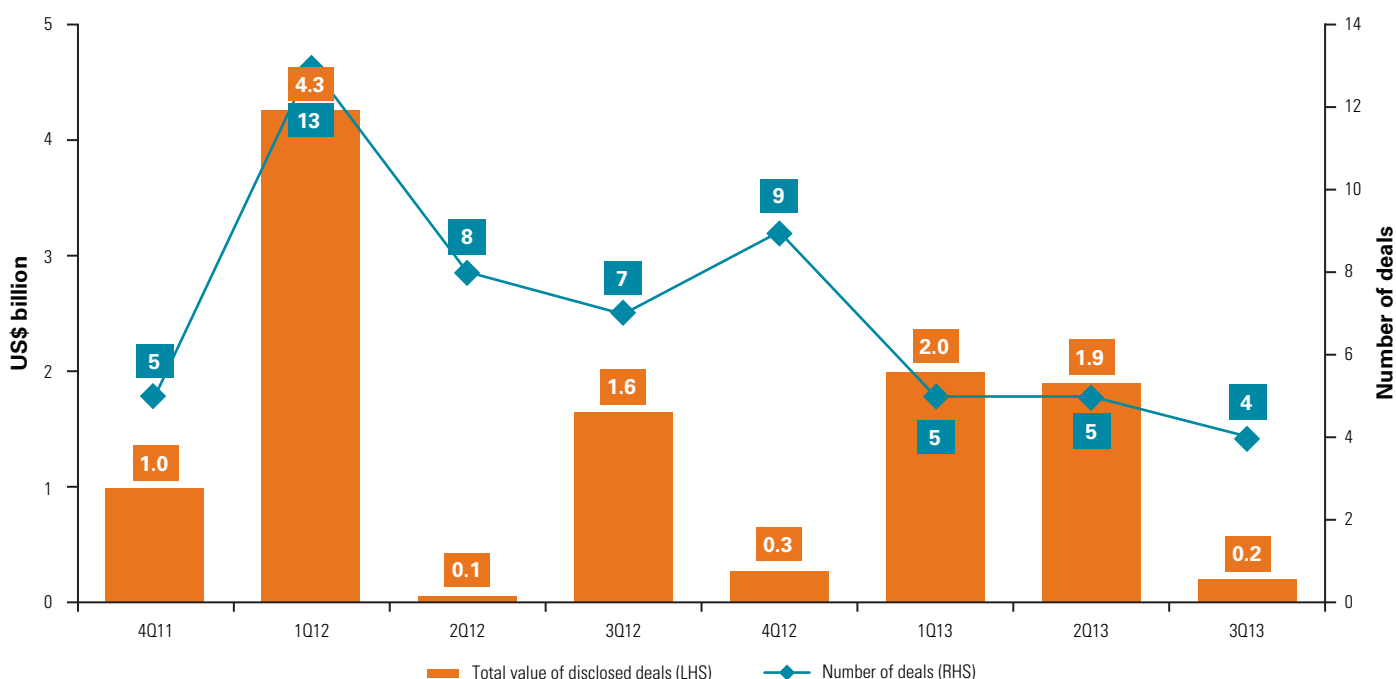
## Key developments

### Ownership changes<sup>17</sup>

The total value of major deals announced in the iron ore industry declined by 5 percent q-o-q to US\$1.9 billion during 2Q, 2013 before further declining by 89 percent q-o-q to

US\$0.2 billion in 3Q, 2013. (refer to Figure 5). The number of deals announced in 2Q, 2013 remained at five, declining to four in 3Q, 2013.

**Figure 5: Value of major deals announced in iron ore industry**



Source: Deals: Search, Mergermarket; KPMG analysis

<sup>14</sup> Jason Whittaker "‘Comfort level’ rises: Korean trade deal almost done", Crikey, 25 October 2013

<sup>15</sup> "Marubeni buys out STX stake in AUD 10 billion Rinehart Mine", Steel Guru, 21 July 2013

<sup>16</sup> Jefferies Equity Research Europe – Metals & Mining Iron Ore Outlook Improves, October 24, 2013, via Thomson Research/Investext accessed 15 November 2013

<sup>17</sup> Mergermarket database, accessed 14 November 2013

**Table 1: Top iron ore deals in 2Q and 3Q 2013**

Date announced	Target	Target nation	Acquirer	Acquirer nation	Status	Value of transaction (US\$ million)	Stake (%)
19-Sep-13	Vysokogorsky Ore Mining and Processing Plant (VGOK)	Russia	NPRO Ural	Russia	Announced	20	100%
30-Aug-13	Minera MMX de Chile S.A.	Chile	Inversiones Cooper Mining S.A.	Chile	Announced	40	100%
23-Jul-13	Black Iron (Cyprus) Ltd.	Cyprus	Metinvest Holding, LLC	Ukraine	Announced	20	49%
22-Jul-13	Prosperity Minerals Holdings Limited	Hong Kong	Prosperity International Holdings (H.K.) Ltd	Hong Kong	Announced	108	36%
24-Jun-13	Afferro Mining Inc.	Canada	International Mining & Infrastructure Corporation Plc	United Kingdom	Announced	200	100%
20-Jun-13	BHP Iron Ore (Jimblebar) Pty Ltd.	Australia	Mitsui & Co Ltd; Itochu Corporation	Japan	Announced	1,500	15%
10-Apr-13	Legacy Iron Ore Limited (Gold and base metals assets)	Australia	Synergy Plus Limited	Australia	Announced	6	100%
08-Apr-13	Rio Blanco gold and silver property	Ecuador	Junefield Mineral Resources Holdings Limited	China	Closed	28	100%
02-Apr-13	GMK Timir OAO	Russia	Evraz Group S.A.	Luxembourg	Announced	160	51%

Source: Deals: Search, Mergermarket; KPMG analysis

## Regulatory updates

The regulations during 2Q and 3Q, 2013 aimed at creating a more transparent iron ore trade scenario. China endeavored to promote

trading of spot iron ore and India attempted to grow the country's mining industry in a clear but regulated manner.

**Table 2: Recent regulations in iron ore industry**

Country/Region	Regulation/Topic	Description
China <sup>18</sup>	China Starts Spot Iron Ore Platform	<ul style="list-style-type: none"> <li>China opened the Rizhao International Iron Ore Exchange in the port city of Rizhao to facilitate the trading of iron ore.</li> <li>Rizhao is China's biggest port for iron ore and receives more than 100 MT of iron ore each year.</li> </ul>
India <sup>19</sup>	Mining ban lifted in Karnataka	<ul style="list-style-type: none"> <li>The Supreme Court has allowed reopening of 63 Category B mines in Karnataka in April 2013. The mines can start operations after they successfully implement the assigned Reclamation and Rehabilitation (R&amp;R) plans.</li> <li>In addition, the Supreme Court has cancelled all the leases of Category C mines where rampant illegal mining was observed. It has asked the Monitoring Committee to auction the inventory.</li> </ul>
India <sup>20</sup>	Permits of iron ore mining companies cancelled in Karnataka	<ul style="list-style-type: none"> <li>In September 2013, the department of commerce and industries (mines) has issued a notification for cancelling 51 iron ore mining leases under category C in Karnataka.</li> </ul>
India <sup>21</sup>	Reduction of export duty on iron ore ruled out	<ul style="list-style-type: none"> <li>In October 2013, the Finance Ministry ruled out reduction in export duty on iron ore from the existing 30 percent to 20 percent.</li> </ul>

<sup>18</sup> "China Starts Spot Iron Ore Platform in Rizhao to Boost Trade," Bloomberg, 9 July 2013

<sup>19</sup> Promit Mukherjee "Supreme Court lifts ban on 63 Karnataka mines," DNA, 19 April 2013

<sup>20</sup> Anil Kumar "Karnataka cancels permits of 51 iron ore mining companies," The Times of India, 15 September 2013

<sup>21</sup> Sujay Mehdudia "Finance Ministry rules out reduction in export duty on iron ore," The Hindu, 9 October 2013

## Project updates

**Table 3: Cross-section of global Iron Ore projects<sup>1</sup>**

Project	Country	Owner/ Operator	Capex (US\$ million)	Potential start year	Full capacity (Mtpa)	Type	Progress and updates
WAIO Jimblebar Mine Expansion	Australia	BHP Billiton (85%)	3,400*	4Q13	55	Brown	The project was 89 percent complete on 30 June 2013.
Samarco Fourth pellet Plant	Brazil	BHP Billiton (50%) Vale (50%)	3,500	1H14	30.5	Brown	The electromechanical assembly of equipment is in progress. Commissioning activities are at an early stage and 95 percent of physical progress of the pellet plant has been achieved with the budget being fully sourced by Samarco.
WAIO Orebody 24	Australia	BHP Billiton (85%)	822	4Q12	17	Brown	Work on the overall project was 88 percent complete on 30 June 2013. First production achieved in 4Q12.
WAIO Port Hedland Inner Harbour Expansion	Australia	BHP Billiton (85%)	2,300*	4Q12	220	Brown	Work on this project was 92 percent complete on 30 June 2013.
WAIO Port Blending and Rail Yard Facilities	Australia	BHP Billiton (85%)	1,700*	2H14	NA	Brown	Work on this project is on schedule and budget. The overall project was 86 percent complete on 30 June 2013.
Guinea Iron Ore	Guinea	BHP Billiton (41.3%)	NA	NA	NA	NA	The joint venture is undertaking a pre-feasibility study for the development of the concession and associated transport infrastructure.
Liberia Iron Ore	Liberia	BHP Billiton (100%)	NA	NA	NA	NA	BHP Billiton, currently, has a 100 percent interest in a Mineral Development Agreement with the Government of Liberia. Exploration and development of these leases is continuing with drilling conducted on select targets.
Two phased expansion of Iron Ore Company of Canada (IOC)	Canada	Rio Tinto (58.7%), Mitsubishi Corporation (26.2%), and the Labrador Iron Ore Royalty Income Corporation (15.1%)	800	Phase I completed. Phase II expected in 1H14	23.3	Brown	Completion of the second phase of the Concentrate Expansion Project to bring the total concentrate production capacity to 23.3 Mtpa is expected during the first half of 2014.
Expansion of the Pilbara mines, ports and railways	Australia	Rio Tinto (100%)	9,800	Phase I by 3Q13	290	Brown	Expansion projects are on track, with the 290 Mtpa project being delivered ahead of the original schedule and US\$400 million under budget. The first shipment was made in August 2013, four months ahead of schedule. Ramp up to nameplate capacity is expected to continue through to the end of the first half of 2014.
Expansion of the Pilbara port and rail capacity	Australia	Rio Tinto (100%)	5,900	Phase II by 1H15	360	Brown	A number of options for mine capacity growth, including incremental tons from low-cost productivity improvements, expansion of existing mines and the potential development of new mines, are under evaluation.

Project	Country	Owner/ Operator	Capex (US\$ million)	Potential start year	Full capacity (Mtpa)	Type	Progress and updates
Development of Hope Downs 4 mine	Australia	Rio Tinto (50%)	2,100	2013	15	Green	Approved in August 2010, first production on this project occurred in 2013. The new mine is anticipated to have a capacity of 15 mtpa. Rio Tinto is funding the US\$0.5 billion for the rail spur, rolling stock and power infrastructure.
Phase two of the Marandoo mine expansion	Australia	Rio Tinto (100%)	1,100	NA	15	Brown	Approved in February 2011, the mine will extend Marandoo at 15 mtpa by 16 years to 2030. It will help in sustaining production at 237 mtpa.
Investment to extend the life of the Yandicoogina mine	Australia	Rio Tinto (100%)	1,700	NA	56	Brown	Approved in June 2012, the investment includes a wet processing plant to maintain product specification levels and provide a platform for future potential expansion. It will extend the life of the mine to 2021 and expand its nameplate capacity from 52 mtpa to 56 mtpa.
Carajás Additional 40Mtpy	Brazil	Vale (100%)	3,475	2H13	40	Brown	Plant commissioning has been concluded and production is being conducted on a test basis. Required civil work for operation license has been finalized. Issuance of operation license is expected for 2H13. The project has 97 percent physical progress.
Serra Leste	Brazil	Vale (100%)	478	2H14	6	Green	Construction of the transmission lines, rail loop and assembly of the main substation has been finalized. Commissioning of the iron ore treatment facility has been started and Installation licenses have been issued. Project has achieved 70 percent of physical progress.
Vargem Grande – Itabiritos	Brazil	Vale (100%)	1,910	2H14	10	Brown	Civil works, assembly of steel structures and equipment for the screening building in progress. Operating license expected for 1H14. 72 percent of physical progress has been made.
Conceição Itabiritos	Brazil	Vale (100%)	1,174	2H13	12	Brown	Start-up of the dry phase of processing, crushing and screening achieved in July 2013. Commissioning of the plant in final stage, with two of the three wet processing lines started up in October 2013. Operating license for the plant expected for 2H13. 99 percent of physical progress has been made.
Carajás Serra Sul (mine S11D)	Brazil	Vale (100%)	8,039	2H16	90	Green	Test of substation energizing concluded. Electromechanical assembly of modules has been achieved. Project achieved 20 percent completion and the remainder has been initiated off-site.
CLN S11D	Brazil	Vale (100%)	11,582	1H15 to 2H18	230	Brown	Civil works of the rail spur initiated. Earthworks for railway duplication in progress and Installation license have been issued. 10 percent of physical progress has been achieved.
Conceição Itabiritos II	Brazil	Vale (100%)	1,189	2H14	19	Brown	Ongoing civil engineering, steel structure and electromechanical equipment assembly. Installation licenses issued. 73 percent of physical progress has been achieved.



Project	Country	Owner/ Operator	Capex (US\$ million)	Potential start year	Full capacity (Mtpa)	Type	Progress and updates
Cauê Itabiritos	Brazil	Vale (100%)	1,504	2H15	28	Brown	Building foundations concluded. Civil works are ongoing and steel structure and equipment being received. Preliminary and installation licenses for new primary crusher expected for 1H14. 36 percent of physical progress has been achieved.
Teluk Rubiah	Malaysia	Vale**	1,371	2H14	30	Green	Assembly of the yard machines, earthworks and civil works of the unloading terminal has been achieved. Assembly of the steel structure for import berth is in final stage. 89 percent of physical progress has been made.
Tubarão VIII	Brazil	Vale**	1,321	1H14	7.5	NA	Commissioning of the equipment in progress. Issuance of operating license expected for 1H14. 92 percent of physical progress has been made.
Chichester Project	Australia	Fortescue Metals Group (100%)	NA	Dec-13	95 <sup>#</sup>	Green	The Chichester projects including Christmas Creek 2, Christmas Creek jigs plant and the Cloudbreak wet processing plant continue to ramp up to full production. Some delays have been experienced due to early reliability issues with the plants. Full ramp up is expected during the 4Q, 2013.
Solomon Hub	Australia	Fortescue Metals Group (100%)	3,500	2012	60	Green	Progress on completion of construction of the Kings OPF is essentially complete with some work remaining on the desands building. Sustainable production at 155mtpa remains on track for March 2014.
Iron Bridge Project	Australia	Fortescue Metals Group (88%)	NA	2015	10.5	NA	Stage 1 of the project has commenced construction. Stage 1 is estimated to take approximately 12 months to complete with first production of 1.5mtpa of a 66 percent Fe Hematite product expected during 2015. The 9.5mtpa Stage 2 development of 68 percent Fe magnetite concentrate remains subject to the Joint Venture's approval with construction expected to commence in 2015.
El Aouj Stage 1	Mauritania	Glencore Xstrata (44%)	NA	NA	15	Green	Under pre-feasibility study
Askaf	Mauritania	Glencore Xstrata (88%)	NA	NA	NA	Green	Under feasibility study
Lebthenia	Mauritania		NA	NA	NA	NA	NA
Zanaga Project	Republic of Congo	Glencore Xstrata (50% plus one share)	NA	NA	30	Green	Feasibility Study will be completed in 2Q, 2014

Source: Intierra; Company reports

<sup>1</sup> The list is not exhaustive and contains only a limited number of projects.

\*Excludes announced pre-commitment funding

\*\*Equity share of Vale in the project is not available

<sup>#</sup> Total Chichester Hub produces 90 mtpa of iron ore plus an additional five mtpa from a joint venture with BC Iron

The above analyses include projects of BHP Billiton, Rio Tinto, Vale, Fortescue Metals Group and Glencore Xstrata.

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Publication number: 130759h Publication date: December 2013