

Copper North Mining Corp – Copper News – April 10, 2017

We are sourcing additional information as to supply and demand that may interest our investors. The information is taken from newsletter and other industry databases. Investors should not rely on the information provided in this Copper News; rather, they should seek advice from investment advisors.

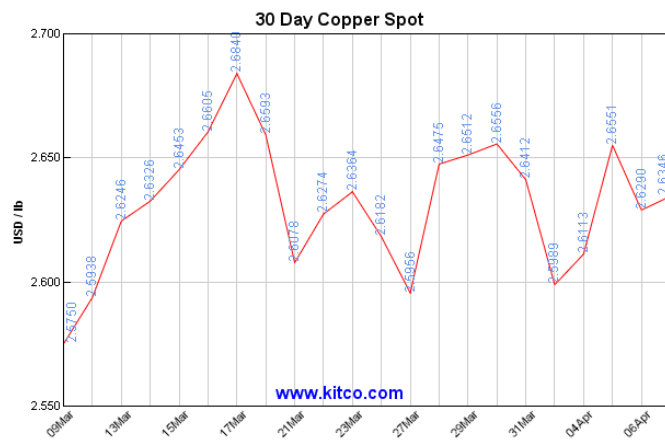
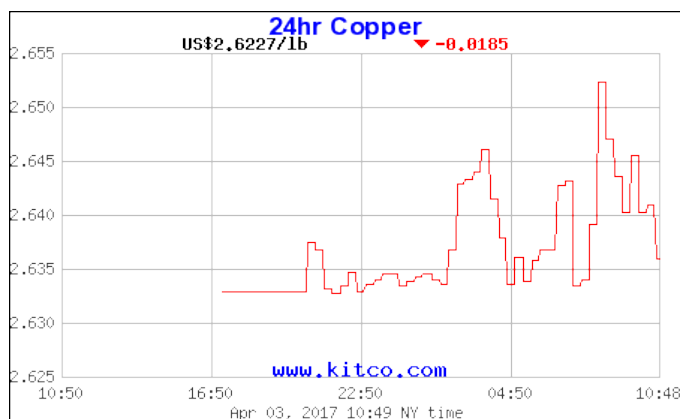
Overview of Old and New Copper Market (1989 -2016)

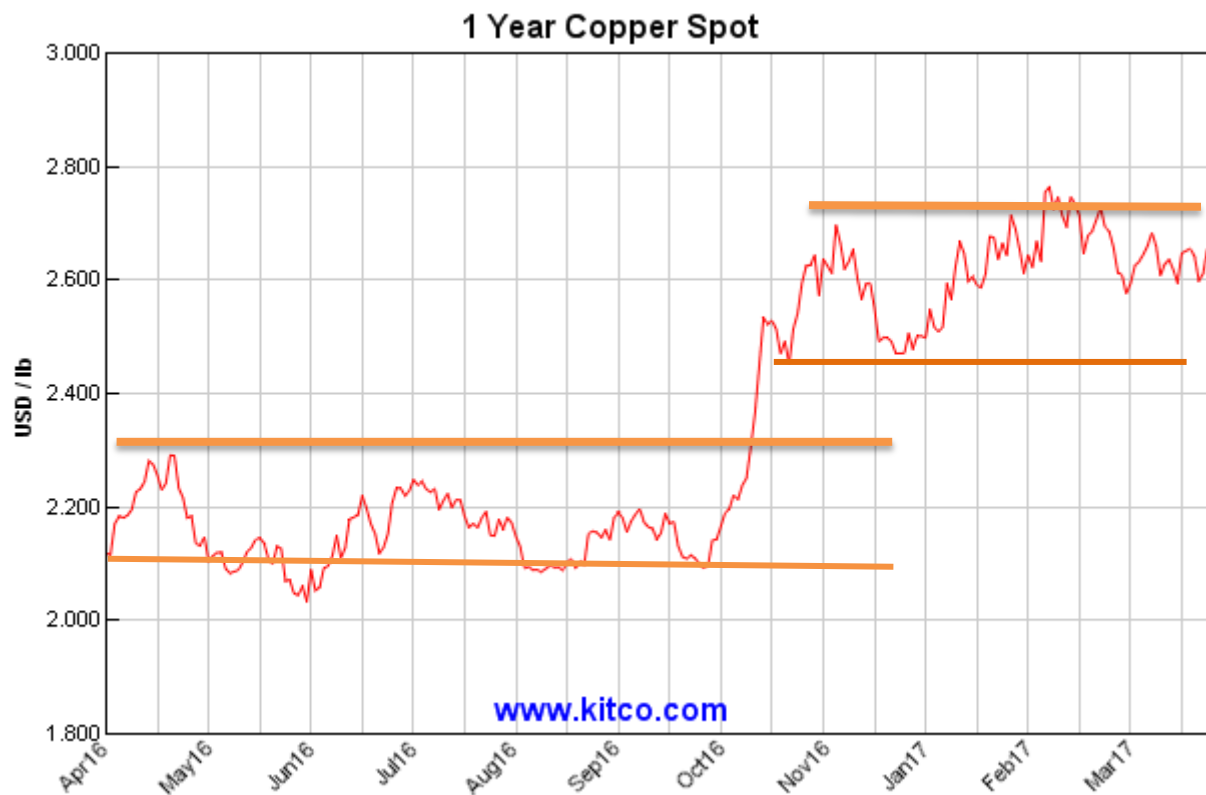
The following chart illustrates copper pricing over a 29 year period and the new copper market.



New Copper Market – Copper Pulls Pack following Q3 2016.

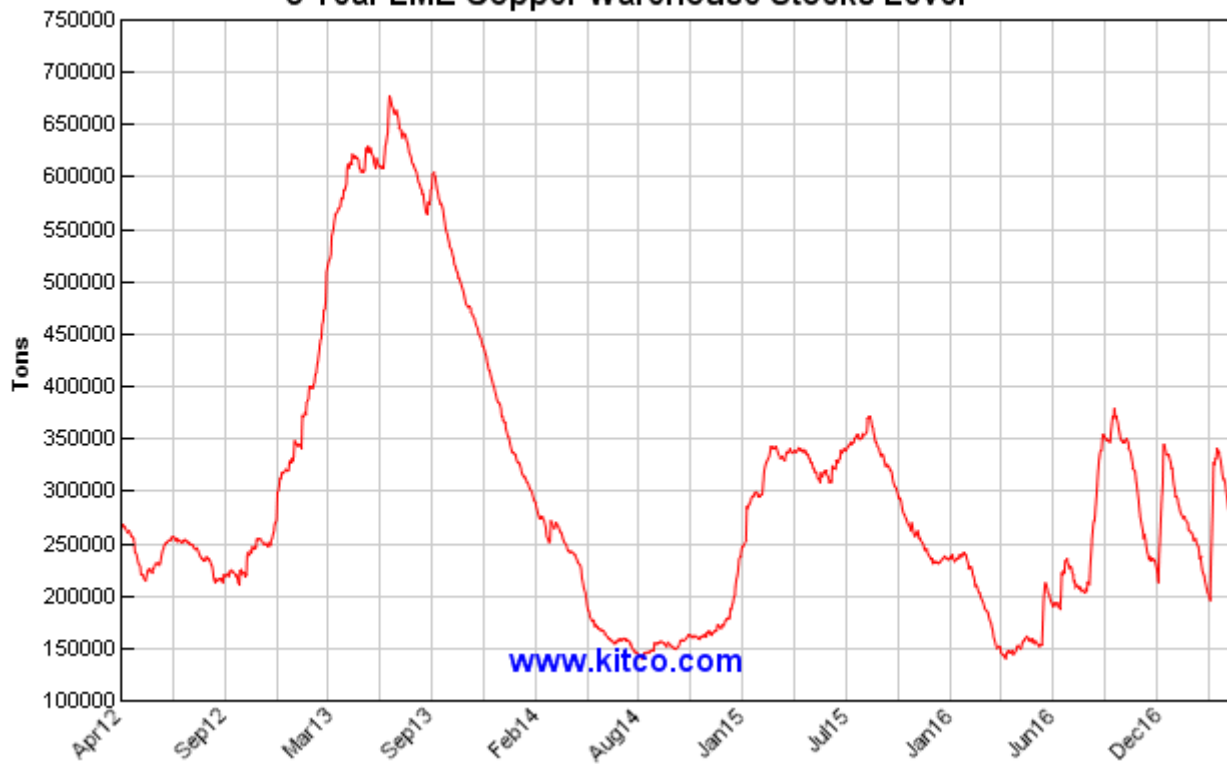
Copper breaks 5 year decline trend, recently breaking US\$2.30 and run up to US\$2.76 December Feb 13, 2017; now trading in the US\$2.50/lb to US\$2.70/lb range.



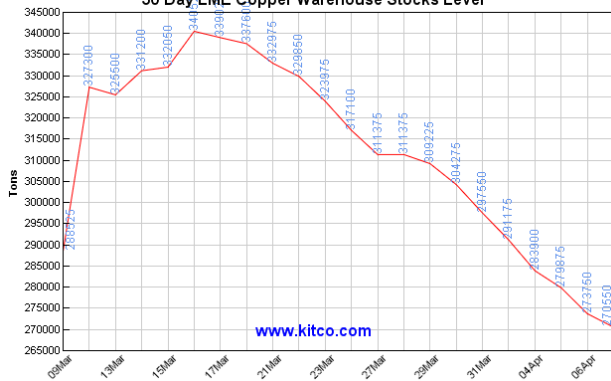


LME copper inventories decline from 380,000 tonnes August 2015 peak, to March 2016 low of approximately 145,000 tonnes, a five-year low . Recently, LME inventories ran up to 380,000t in late Sept, it then fell 159,000 tonnes to 212,000 tonnes Dec 11, 2012, subsequently rebounding and now moving lower to 199,000 tonnes as of March 5th, 2017 which is followed by a rebound to 330,025 tonnes. Recent large increases into Singapore, South Korea and Taiwan warehouses. Current LME is 270,550 tonnes as it moved downward.

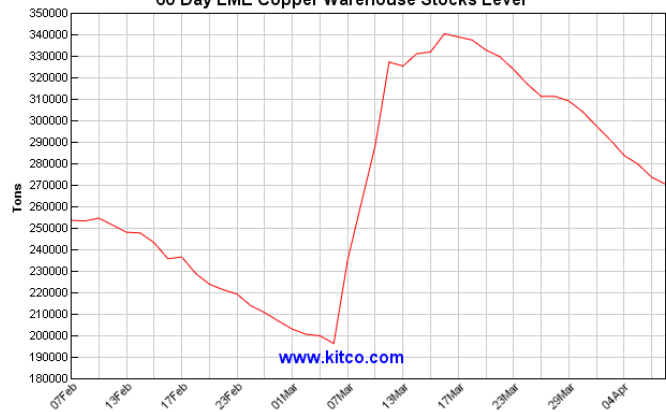
5 Year LME Copper Warehouse Stocks Level



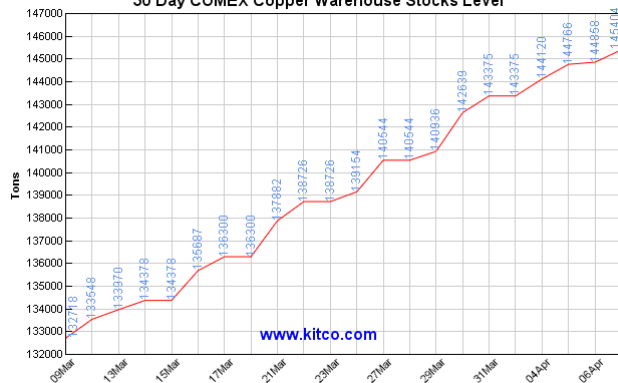
30 Day LME Copper Warehouse Stocks Level



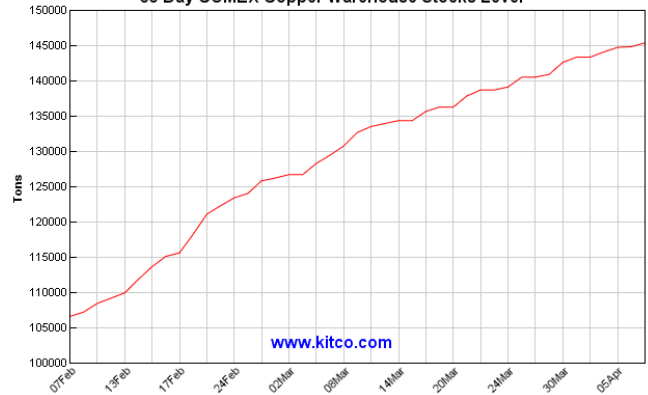
60 Day LME Copper Warehouse Stocks Level



30 Day COMEX Copper Warehouse Stocks Level



60 Day COMEX Copper Warehouse Stocks Level



Copper Inventory Adjustments (Note: table does not include private stocks of smelters, governments, etc.)

LME runup (159,000 t) to 380,000 tonnes in late August 2016, inventories declined to lower to low of 199,100 t followed by large LME increase during the past week to 270,550 tonnes; Shanghai down slightly and Comex continues increase.

Week Of	LME (65%)	Shanghai (23%)	Comex (11.5%)
Apr 3, 2017	tonnes	tonnes	tonnes
Mar 27, 2017	-21,350	-5,208	+3227
Mar 20, 2017	-25,075	- 12,964	+3,192
Mar 13, 2017	+ 12,100	-1,454	+2,964
Mar 6, 2017	+129,075	+12,859	+5,164
Feb27, 2017	-14,375	+23,974	+4,031
Feb 20, 2017	-18,275	- 5,831	+7,085
Feb 13, 2017	-19,125	+18,071	+5,810
Jan 30, 2017	-6,625	+10,925	+4,346
Jan 23, 2017	-11,624	Nil	+2,672
Jan 16, 2017	-6,300	+2,184	+2,251
Jan 9, 2017	-13,425	-766	+ 2,957
Jan 3, 2017	-27,100	+24,963	+2,727
Dec 28, 2016	-12,300	+12,221	+2,694
Dec 19, 2016	+27,450	-9,649	+ 2,866
Dec 12, 2016	+93,750	+12,076	+2,726
Dec 5, 2016	-20,700	-3,413	+443
Nov 28, 2016	-2200	-42,491	+8,104
Nov 21, 2016	-16,500	+9,527	+1,192

Production cut-backs, decline of mine head grades, reduced treatment and refining charges, and falling inventories, all suggest copper supply shortfalls in the making? Volatility largely reflects exchange rate fluctuation, hedge positions, and country supply risk.

HM Visagie Daily Notes

April 7, 2017

- Japan's **Pan Pacific Copper (PPC)** plans to cut its Apr17-Sep17 output of refined Cu by 19.9 % from the same period last year due to long maintenance at one of its plants. Japan's biggest Cu smelter forecast output of 235,200 t of refined Cu in the six months starting Apr0117, down from 293,800 t a year earlier.

April 6, 2017

- Freeport McMoRan Inc (FCX.N)** is awaiting final details on a temporary export permit in Indonesia, which would end a 12-week ban that has cost the world's biggest publicly traded Cu company nearly \$1 B in lost revenues, its top executives told Reuters in an interview on Wednesday. "With the short-term arrangement, we'll start ramping production back up to feed our mill 100 %," said CFO Kathleen Quirk referring to Freeport's Grasberg mine.

April 5, 2017

- Indonesia has issued **Freeport McMoRan Inc's (FCX.N)** local unit a temporary "special mining permit" allowing the miner to apply for a resumption of Cu concentrate exports while the 2 sides negotiate longer-term mining rights.
- **Anglo American (AAL.L)** could begin to expand Cu capacity starting in Peru in 2018 after another year without added supplies as the Company remains focused on cutting costs, the head of its Cu division said in an interview. The first expansion project would be at Quellaveco in Peru, where all permits have been approved and the project of up to 225,000 t annually could be executed by the end of 2018. In AAL's main copper interests in Chile - Los Bronces and Collahuasi - expansion is 6 years or more away, he said, although AAL eventually sees potential for expansion around Los Bronces to try to compensate for a decline in the grade of ore.
- **Southern Copper Corp.(SCCO.N)** should share more of its profits with workers in Peru to avoid an indefinite strike at its Toquepala and Cuajone mines starting on April 10, a union Leader said. If confirmed, the strike would follow

labor disruptions at Peru's biggest copper mine, Cerro Verde, and Chile's Escondida, the world's Largest copper mine, earlier this year.

- Chile's Cu industry needs to adopt new technologies and improve labor and community relations to keep its global standing, a senior BHP Billiton executive said on Tuesday. Chile, which accounts for 30 % of the world's Cu supply, is grappling with falling productivity because much of its best quality ore has already been mined.
- Peru will likely gradually increase its Cu production to 3.1 M t in 2021 from an annual 2.35 M t expected for both this year and next, the country's energy and mines minister told the CRU World Cu Conference in Chile.
- The success of opposition-led stay-at-home protests in the DRC this week shows the country's opposition is more able to mobilize support than previously thought, raising the risk of violence amid a worsening political crisis in Africa's No.1 Cu producer, says Jared Jeffery, analyst with NKC African Economics. Ahead of next week's planned street marches to call for the implementation of a stalled succession deal that would see President Joseph Kabila cede power this year, potential violence raising further concerns notably for mining investors with operations in flashpoint mining cities of Lubumbashi and Goma. *Comment: We believe political risk will delay DRC's development of new projects.*

April 3, 2017

- **Codelco** produced 1.83 M t Cu in 2016--of which 1.71 M t came from its wholly owned mines. Codelco expects a similar level of output in 2017. That 1.71 M t figure is down around 1.4 % from 2015, as the miner digs deeper and scrabbles through poorer quality ore to keep output flowing. But costs were lower, with reported production costs per lb of Cu at \$1.26 in 2016 from \$1.39 in 2015.

Mar 31, 2017

- **Freeport McMoRan Inc's (FCX.N)** Indonesian unit is close to reaching a deal that would allow the world's biggest publicly listed copper producer to temporarily resume concentrate exports, Indonesia's mining minister said on Thursday.
- Workers at Peru's biggest Cu mine, **Freeport-McMoRan Inc's (FCX.N)** Cerro Verde, will resume work on Friday after voting to end a nearly 3-week strike, the union said on Thursday. The union reached an agreement for better benefits with FCX late on Wednesday, union leader Jesus Revilla said.
- U.S. commodity hedge fund Blenheim Capital Management said Cu and Zn are the 2 standouts among a brightening outlook for base metals, with supply constraints and China-driven demand set to lift prices in coming months.
- The failure of **BHP Billiton** and workers at its Escondida mine to agree on a wage deal after a long and bitter strike has stoked some concerns over the possible fate of other key contract talks at Cu mines in Chile over the next year. A

cluster of other mines responsible for a combined 6 % of global Cu output are due to negotiate wage deals in Chile. Contract talks are scheduled this year, including at **Anglo American Plc (AAL.L)** and **Glencore Plc's (GLEN.L)** Collahuasi and **Antofagasta's (ANTO.L)** Zaldívar. In both cases, the 2 sides are already trying to find common ground.

Mar 28, 2017

- Chile's state Cu commission Cochilco revised up its Cu price forecast for 2017 after supply disruption at world's large Cu mines. Cochilco estimated that global Cu demand will grow by 2-3 % this year, and the world's Cu market will see a supply shortage of 200,000-250,000 t after supply contraction at Escondida and Grasberg.
- Reuters reports that China's top Cu smelters have agreed to TC/RCs of \$80/dmt and \$.08/lb Cu--down from \$90/\$.09 in Q117.

Mar 27, 2017

Escondida Workers Back to Work For Now

- The end of a historic strike at Chile's Escondida Cu mine, the world's biggest, has left its owner, **BHP Billiton (BHP.ASX)** with an estimated \$1 B loss and probably in a weaker position for negotiations in a year or so. On Thursday, the 2,500-member union at the mine decided to end the strike after 43 days by invoking a legal provision that allows it to extend the old contract by 18 months. Workers will begin the gradual job of getting Escondida up and running again from Saturday, in a tense atmosphere and with little resolved for either the union or BHP.
- When the 2 sides sit down next year, there will be one key difference. Legislation passed last year by the center-left government of President Michelle Bachelet and taking effect next month will likely give the union a number of useful legal tools they previously lacked.
 - Reducing previous benefits would be largely illegal. And the Company would be forced to use the previous contract's minimum benefits as its negotiating floor.
 - The labor reform will also prohibit the replacement of striking workers.
- Contract negotiations would need to be initiated in as soon as a year, a short time after the mine is back up and running. Relations have become bitter after 6 weeks of recriminations and suspicion.
- Escondida President Marcelo Castillo said the mine would take up to 8 months to resume full operations.
Comment: Originally, we estimated that Escondida would produce 1.2 M t Cu in 2017 (cathode & concentrate). Now, with lost production from the strike and the slow ramp up to full production, we expect Escondida to produce about 900,000 t Cu--down 25 % from initial forecasts.

- An Indonesian senior minister insists **Freeport-McMoRan (FCX.N)** must reduce its stake in its operations there to below 50 % from the current 91 % when an operating agreement expires in 2021. The government, which holds the remainder, will allow the Papuan government to gain 5 % ownership of PT Freeport Indonesia. FCX losing controlling status was called for as part of new rules in Jan17 which would allow FCX to resume the export of Cu concentrates; it's agreed to shed up to 30 % of its holdings. FCX last month threatened to take the dispute to an international arbitration if the sides fail to reach an agreement.
- The Cerro Verde Cu-Mo mine in Peru is calling on workers to return to work as a dispute over pay and conditions moves into a third week. The strike, which began on Mar1017, was declared illegal and was halted on Mar2317 and restarted on Mar2417. In 2016, the mine doubled output to 522,130 t CU and 9,580 t Mo. The Company said production has "not been materially impacted" by the strike. Union leaders said the mine is running at 50 % of capacity, because of the deployment of replacement workers.

World Copper Mine Production Rises - ICSG

- Global mine production of Cu increased in 2016, supported by rising output in Peru and fewer supply disruptions, preliminary data. Output rose by over 5 % to 20.2 M t last year--up from 19.1 M t in 2015, the report said. There were fewer disruptions caused by strikes, accidents or adverse weather conditions than in previous years.
 - Peruvian concentrate production increased by 38 % to 2.35 M t, adding 650,000t to 2016 global output. Projects such as US miner Freeport McMoRan's Cerro Verde mine and Las Bambas, owned by China's MMG, accounted for the country's expanded output.
 - But mine supply from Chile, fell by 3.8 % to 5.54 M t due to lower grades and lack of investment in the country's biggest mines have slowed output expansion since 2010. Production from DRC fell by 4.5 % last year, following the suspension of output by global trading and mining company Glencore.
- Global refined Cu production increased by 2.5 % to 23.4 M t, the ICSG said. Primary output was 3 % higher at 19.5 M t, although secondary production from scrap fell by 2 % to 3.8 M t.
- China was the main contributor to increased refined production, with output up by 6 % to 8.4 M t, followed by the US and Japan, where production was 7 % and 5 % higher, respectively.
- The global refined Cu balance recorded a 50,000 t deficit in 2016, mainly because of a 2.5 % increase in Chinese apparent demand, the report said.

- The strike at Escondida, the world's largest Cu mine, will end after workers decided to invoke a legal provision that allows them to extend their old contract for 18 months, after leaving a union meeting on Thursday. The workers said they will present their decision to the government on Friday and will return to work Saturday at Escondida, operated by **BHP Billiton (BHP.ASX)**.
- **Freeport-McMoRan Inc (FCX.N)** said, Thursday, that a nearly 2-week strike has not materially impacted production levels at its Cerro Verde Cu mine in Peru, the country's biggest, though the union said output has been cut in half. The union is preparing to skirt an order by the labor ministry to return to work by formally declaring an end to its current strike on Friday and immediately starting a new one, said Cesar Fernandez, the union's deputy secretary general.

Mar 23, 2017

- Leaders of the striking union at **BHP Billiton's** Escondida mine in Chile will meet with the rank-and-file before making any additional decisions about negotiations, a union spokesman said after exiting a meeting with BHP on Wednesday. BHP and leaders of the 2,500-member union at Escondida left the meeting in the city of Antofagasta without offering additional comment, or saying when the parties would next sit down.
- **BHP Billiton (BHP.ASX)** has decided to suspend all works related to Escondida mine in Chile, including construction of Coloso desalination plant and Los Colorados beneficiation plants. It made the decision after Escondida Cu mine's labor union continued to hinder restart from a strike which had lasted for 42 days.
- The Indonesian unit of **Freeport-McMoRan Inc. (FCX.T)** has resumed Cu concentrate production after workers at the smelter in East Java ended a strike earlier this month, but production remains well below normal levels. PT Freeport Indonesia spokesman Riza Pratama said, "Our [current] production is not that big, only to match the processing capacity of the Gersik smelter, which is only 40 % of our normal production of 160,000 t/d."

Mar 22, 2017

- The striking union at **BHP Billiton's (BHP.ASX)** Escondida copper mine in Chile, the world's largest, will meet with the Company on Wednesday to resume conversations. In a letter sent to the members of the 2,500-member Escondida union, labor leaders said they would meet with BHP in the hopes of putting an end to the 41-day strike.
- **Zambian copper miners** including the local unit of **Glencore Plc (GLEN.L)** could face a power bill of more than \$276 M if they lose a dispute with the government over electricity tariff rises, according to Cubelt Energy Corp., their biggest supplier. Zambia is emerging from its worst-ever power shortage, which started when hydropower dam levels dropped in 2015, leading to rolling outages that lasted as long as 12 hours a day. The supply situation has improved as rains replenish reservoirs used to generate almost 90 % of the country's electricity.

Mar 21, 2017

- A strike at Peru's top copper mine, Cerro Verde, is set to end by government order on Thursday, but workers said the stoppage would start right back up on Friday if no deal over their demands is reached with management. Production at the mine, which generated nearly 500,000 t Cu last year, has fallen by 50 % since some 1,300 of about 1,650 workers joined the strike, the union secretary Mujica said earlier this month.

Mar 20, 2017

- Risk of violence in Uganda's Cu producing Kasese region remains high following the assassination of Andrew Kaweesi, a top Ugandan police officer. Kaweesi was likely targeted as "the public face of police," a day after government said it would not probe last year's clashes in the region, in which some 155 people died. The violence is unsettling news for China's Tibet Hima Industry Co., currently implementing a \$175M project to revamp operations at Kilembe, a defunct Cu mine in the border region, which is also a key transit point for mineral exports from Eastern Congo.

Mar 17, 2017

- The striking union at Escondida mine in Chile, the world's biggest Cu mine, said on Thursday it would return to the negotiating table if the Company gave a written guarantee that it would only discuss the union's 3 key demands. Escondida did not immediately respond to requests for comment.
- Poland's state-run KGHM--one of the world's biggest Cu and Ag producers, posted a consolidated net loss of 4.37 B zlotys (\$1.09 B) for 2016, hit by an impairment related to the value of foreign assets. The loss was bigger than analysts' expectations of 3.87 B zlotys.
- Per China's NBS, Cu cathode, Zn and Pb production grew in the first 2 months of 2017. Cu cathode output totaled 1.37 M t--a rise of 6.7 % YoY. Zn production rose 4.4 % YoY to 982,000 t and Pb production increased 7.4 % YoY to 837,000 t.

Mar 16, 2017

- Chile's mined Cu production in January fell by 2.9 % from a year earlier. Jan17 Cu production totaled 446,200 t--down from 459,400 t in Jan16 and 11.2 % less than Dec16 total of 502,200 t. Chuquibambilla suffered the biggest decline among state-controlled producer Codelco's Cu projects, while output was also markedly down Escondida at Anglo American Sur's divisions. Chile's Cu output fell to 5.54 M last year, down by 3.8 % from the 5.76 M t/y produced in 2015.

Mar 15, 2017

- The Escondida Cu mine in Chile plans to restart operations after striking workers again rejected an invitation by controlling owner BHP Billiton to return to negotiations, an executive told reporters late Tuesday.
- A strike at Peru's top Cu mine, Cerro Verde, may end next week if the labor ministry declares it illegal, the head of the union said on Tuesday after negotiations with owner Freeport-McMoRan Inc ended without an agreement on labor demands. Workers began the strike on Friday to demand better family health benefits and a bigger share of the mine's profits, but the ministry has issued a preliminary decision against the stoppage that the union is appealing, Cerro Verde Union President Zenon Mujica said on a phone call.
- DRC's Central bank Gov. Mutombo Nyembo expects GDP to rise 4.9 % in 2017--double last year's rate. The outlook is a rare blight spot for restive DRC, which has been dogged by worsening economic and security turmoil since President Kabila refused to step down when his mandate expired in Dec16. DRC's Cu output fell 5 % in 2016, but prices are up some 25 % the past 6 months.

Mar 14, 2017

- **BHP Billiton (BHP.ASX)**, on Monday, invited striking workers at its Escondida Cu mine in Chile, to return to the negotiating table, after they rejected a similar approach on Saturday. Escondida's 2,500-member union has been on strike since Feb. 9 after new contract talks fell apart, and the mine has produced no Cu since then.
- A strike at Peru's biggest Cu mine, **Freeport-McMoRan Inc's (FCX.N)** Cerro Verde, stretched into its fourth day after a meeting between the union and management failed to resolve a dispute over labor demands, a union official said on Monday. The mine is now producing about half as much Cu as it normally does because FCX has hired contract workers to operate key areas, said union official Jesus Revilla.

Mar 13, 2017

- Around 1,500 workers launched today an indefinite strike at the Cerro Verde copper mine in Peru controlled by US based **Freeport-McMoRan (FCX.N)**, which already faces an outage at its largest mine in Indonesia. Union members said they launched the strike after salary negotiations broke down yesterday at the mine, which doubled copper output to 522,134 t Cu in 2016 on the back of expansion projects. The expansion saw Mo production rise by 188 % to 9,580 t last year. The Cerro Verde union initially scheduled a 5-day strike but voted this week to stop Work pushing for family health benefits and bigger share of the mine's profits, Fernandez said.

- **Freeport-McMoRan (FCN.N)** and Indonesia's government agreed to extend by 6 months the negotiating period for resolving their dispute over the Grasberg Cu and Au mine in Papua province. The move pushes back a timeline that started on Feb1717, when Freeport-McMoRan filed a formal notice of dispute to the government, triggering a contract clause that allows the company to file an arbitration claim if a settlement is not reached within 4 months.
 - Both parties have said they want to reach a mutually beneficial agreement, but there has been no sign of progress in resolving their disagreements. Jakarta has suspended exports of Cu concentrate from Grasberg, the world's second-largest Cu mine, and has offered to resume allowing shipments only if FCN consents to its so-called contract of work being converted into an operating licence.
 - The licence requires FCN to build a smelter within 5 years, pay new export taxes and sell majority ownership of the mine within 10 years. It would also make FCN subject to any subsequent government regulations, without respect to its former contract protections. The government already owns a 9.36 % stake in Grasberg and is preparing a fund to increase its interest to 51 %.

Some production at Grasberg is scheduled to resume later this month because although the company still cannot export Cu concentrate, the resumption of operations at the country's main Cu smelter will enable the product to be refined and then shipped out. Jakarta has pressed for more of the country's metals to be processed domestically to derive greater value from Indonesia's mineral resources.

- The striking union at BHP Billiton's Escondida copper mine in Chile told Reuters on Saturday that it will not accept an offer from the Company to return to the negotiating table, and it called on the Company to clarify some of its negotiating positions. BHP said on Friday that it had invited the union to resume talks as a first step toward ending a month-long strike.

Comment: With 3 of the largest Cu mines in the world on strike or restricted production, the likelihood of Cu supply sliding into a deficit position in 2017, is high.

Mar 9, 2017

- The Indonesian unit of **Freeport-McMoRan Inc (FCX)** is targeting to resume production of Cu concentrate on Mar2117 at its giant Grasberg mine in Papua, amid an ongoing stoppage of concentrate exports. While it cannot export concentrate FCX will adjust its output to the amount it can process at Indonesia's main Cu smelter.
- **BHP Billiton (BHP.ASX)** may try to restart production at the world's No.1 Cu mine Escondida in Chile using temporary workers once the strike surpasses 30 days, BHP told a local radio station on Wednesday. If their safety could be assured "there is the option of using contractors' help to try to get production going" and it will be evaluated day by day, Escondida's corporate affairs director Patricio Vilaplana told Teletrece in an interview.
- According to the preliminary data from the GAC, China's imports of unwrought Cu and Cu semis were 340,000 t during Feb17, with YTD imports from Jan17 to Feb17 at 720,000 t--down 15.8 % YoY. China's exports of unwrought Al and Al semis were 260,000 t in Feb17, with YTD exports from Jan17 to Feb17 at 650,000 t--down 2.1 % YoY.
- China's Cu cathode output was 634,500 t in Feb17--up 0.55 % on the month and 2.67 % YoY. Output totaled 1.27 M t during Jan17-Feb17--a rise of 3.48 % YoY. In March Cu cathode production is forecasted to drop 1.09 % YoY to 638,000 t in Mar17 due to some smelter capacity being down for maintenance.
- China Minmetals plans to increase its Cu production given rising Cu prices, cankaoxiaoxi.com reported. The Beijing-based company will increase Cu ore output from 650,000 t to over 1 M t in about 5 years. The focus in expansion will be on Cu and Zn.
- Per SMM, Cu inventory at Shanghai Bonded Zone increased to 595,000 t from the week ending Mar0317 from 125,000 t seen in the week ending Dec3016.

Mar 8, 2017

- Spot processing fees in Asia for Cu concentrate have slid to their cheapest in 4 years as shutdowns at the world's top 2 mines in Chile and Indonesia grind on longer than anticipated, and it is likely they will drop further in the coming month. TC/RCs for trader-to-smelter deals for shipments to China in Mar17 and Apr17 have fallen to around \$70/dmt and \$.07/lb, according to a smelter and a trading source. That is the weakest since around Apr13, per CRU, and a steep drop from 2017 term rates of \$92.50/dmt. *Comment: We note that Citi estimates 3.5 Mt of annual smelter capacity is going on maintenance in Mar17 due in part to the tight concentrate market.*

Mar 7, 2017

- Workers at Cerro Verde mine, one of the largest Cu producers in Peru, plan to start a 5-day strike on Mar10 to demand better labor conditions, a union representative told Reuters. Cerro Verde is controlled by **Freeport-McMoRan (FCX.N)**, which owns a 53.56 % stake. Sumitomo Metal Mining Company Ltd controls a 21 % stake and Buenaventura 19.58 %.

Mar 6, 2017

- Codelco Chairman, Oscar Landerretche said Cu prices will rise to close to \$3/lb by the end of 2017 due to limited supply and expected increased demand from China and the US. In an interview published on Sunday by Chile's El Mercurio newspaper, Oscar said the prospects for Cu prices had changed radically due to better economic data from China and the new U.S. administration's plans to boost infrastructure spending. Codelco is forecasting a Cu deficit of up to 100,000 t in 2017.

Mar 2, 2017– Continued copper supply problems.

- **Freeport-McMoRan's (FCX)** Indonesian unit sees "no returning to business as usual", an internal company memo said, as the miner cut output and laid off workers at its giant Grasberg Cu mine in a battle with Jakarta over mining rights that has paralyzed its operations. FCX's Indonesian unit has shelved plans to invest \$1 B a year in long-term UG expansion at the world's second-biggest Cu mine, FCX said in a memo to all staff on Feb. 28, citing a stoppage to Grasberg exports since mid-Jan17 resulting from changes to Indonesian mining rules.
- Workers at the **BHP Billiton's (BHP.ASX)** Escondida mine in Chile, the world's biggest Cu mine, blocked several access roads Wednesday as they complete their third week of strike, triggering violent confrontations with police. The group of protesters illegally set barricades on the main roads to the mine and set tires on fire, which eventually cause police intervention,

March 1, 2017

- **Freeport-McMoRan Inc (FCX.N)** said there will be "no returning to business as usual" for its giant Grasberg Cu mine in Indonesia, where operations have been disrupted as a result of an export stoppage imposed since mid-Jan17. Under a revised plan for 2017 (Feb2817), Grasberg's daily Cu ore output will be scaled back to 95,000 t from a previous estimate of 140,000 t.
- Chile's government reported the country's Cu output was 452,035 t in Jan17--down 2.6 % yoy. Cu production was 517,257 t in Dec16.
- **RK Capital Management LLC's** co-founder David Lilley expects Cu supply will fall short of demand for the first time in 6 years in 2017 due to strike, technical interruption, lower ore grade and adverse weather. The deficit will reach 327,000 t in 2017, 266,000 t in 2018, 270,000 t in 2019 and 600,000 t in 2020.
- A minor technical glitch forced Japan's Mitsubishi Materials Corp to stop operations at Indonesia's main Cu smelter, briefly resumed on Wednesday after a strike had halted all but the refining process since Jan. 19, a spokesman said. The Gresik smelter, owned by PT Smelting, produced about 190,000 t Cu cathode in the year to Mar16 and had planned to produce 260,000 t through to Mar3117, before accounting for the strike's impact.

Feb 23, 2017

- Peru's government said it expects construction on the delayed \$1.4 B Tia Maria Cu project to begin in 2019. Progress on the 120,00 t/y Cu greenfield project operated by Arizona-based **Southern Copper Corporation (SCCO)** has been held up for years by local protestors fearing environment and damage to agriculture. The Tia Maria project will use SX-EW technology and consume around 700,000 t/y of sulphuric acid to produce Cu cathode.

Feb 21, 2017

- **Freeport-McMoRan Inc (FCX.N)** has declared force majeure on Cu concentrate shipments from its Grasberg mine in Indonesia following a 5-week export suspension. Meanwhile, Chappy Hakim, CE of FCX's Indonesian unit, has resigned.
 - Production at the giant mine in Papua, Indonesia came to a standstill last week after the government banned Cu concentrate exports Jan1217, part of an effort to boost Indonesia's smelter industry. FCX has said the government's export ban would reduce Grasberg's monthly output by about 70 M lb Cu and 70,000 oz Au.
 - Under new Indonesian mining rules introduced in Jan17, FCX must switch from its current COW to a special mining permit before applying for export permits. The mining ministry recommended on Friday that FCX be allowed to export 1.1 M t Cu concentrates until Feb1618.
 - TCX export permit is conditional on FCX accepting the special mining permit, said spokesman Eric Kinneberg, adding that FCX will only agree to a permit with the same fiscal and legal protection in its current contract.
 - It is expected the new permit would require FCX to pay taxes and royalties it was previously exempt from and divest up to 51 % of its Indonesian unit, from 30 % previously. To date, it has divested 9.36 %.

FCX's CE said on Monday its Indonesian unit has made its first lay-offs since a dispute over its mining contract started with the Indonesian government and may let go of more workers this week. Richard Adkerson told a news conference in Jakarta that about 10 % of the expatriate workforce had been laid off on Friday and that this week "we will be releasing contract workers." Of FCX Indonesia's 32,000 workers, only 12,000 are employees and the rest are contractors.

- A government-mediated meeting between **BHP Billiton (BHP.L)** and striking workers at its Escondida mine in Chile has failed, and workers will head back to their encampment without any future dialogue planned, a union spokesman told Reuters on Monday. The strike is entering its 13th day. Escondida has a capacity of over 1.2 M t/y Cu. Last year, the mine produced 648,900 t Cu in concentrate in 2016--down from 916,100 t Cu in 2015, accounting for around 5 % of global concentrate production. In addition, the mine produced Cu Cathode production of 330,300 t.

Feb 9, 2017 - Copper Supplies At Risk

- **Rio Tinto (RIO.L)** is considering walking away from its interest in the huge Grasberg copper mine operated by **Freeport McMoRan Inc (FCX.N)** in Indonesia, RIO CE said yesterday. Under a JV deal (1995) with FCX, RIO gets a 40 % share of Grasberg's production above specific levels until 2021, then 40 % of all production after 2021. The world's No.2 Cu mine is facing a stoppage in its Cu concentrate exports and permit issues with the Indonesian government, which FCX has warned could force it to slash production and its local workforce.
- Disruptions at the world's 2 biggest Cu mines by strikes and other issues this week are threatening to reduce global Cu supplies, pushing LME prices back towards their highest levels for 2017. **BHP Billiton (BHP.L)** said it would halt output in Chile at its Escondida mine, the biggest Cu producer, during a strike to begin on Thursday. **Freeport-McMoRan Inc (FCX.N)** warned it will scale back output at its Grasberg mine in Indonesia, the second-biggest, amid a smelter strike and issues over renewal of its mining permit. For each day, the cut backs are in place, 5,000 t Cu production is lost.

Jan 23, 2017

- UBS expects a .5 M t Cu deficit in 2017 driving a "meaningful increase in Cu prices." UBS expects Cu-supply growth to be flat in 2017 with tail end of the growth projects offset by a normalization in disruptions, but demand set to grow by 3-4 %, resulting in a deficit of 0.5 Mt. UBS estimates a 20 % increase in spot Cu prices.

- Macquarie expects global Cu consumption to rise 2.6 % to 22.81 Mt this year from 22.24 Mt in 2016. At the same time, global refined Cu output is expected to rise 1.9 % to more than 22.91 Mt in 2017, with the refined balance seen hovering around 100,000 t throughout this year and eventually growing to 344,000 t in 2018. However, worldwide Cu mine production is seen falling 1.8 % to slightly less than 19.34 Mt. Aging mines like Escondida and Grasberg in Chile, which combined produce about 10 % of global output, were cited for the reduced supply.
- Chile's state Cu commission Cochilco on Monday forecast average Cu prices of \$2.40/lb in 2017, up from its prior projection of \$2.20. Cochilco, estimated Chile's 2017 Cu production will increase 4.3 % to 5.79 Mt
- **Pan Pacific Copper (PPC)**, Japan's biggest copper smelter, has mostly agreed with producers on treatment and refining charges (TC/RCs) for 2017 that are 5 % lower than last year, amid tighter supplies. A source said, "We have mostly agreed to TC/RCs for this year at \$92.50/t and 9.25 cents a pound although some negotiations are still continuing." This is the second annual cut in a row and is down from \$97.35/t and 9.735 cents a pound for 2016 term contracts as a surge in supply mostly from Peru begins to fade out.
- China produced an estimated 19 M t of Cu products in 2016--up 12.9 % yoy due to increased demand, China Nonferrous Metals Industry Association said in a report on its website Tuesday. Output of 10 nonferrous metals in 2016 is estimated to hit 52 M t--up 1.5 %, while output of Al products is estimated at 53 M t--up 11.8 %, the figures showed. In 2015, China consumed 9.93 M t of refined Cu and 30.64 M t of refined Al, respectively, the CNIA figures showed.

Jan 4, 2017 – China Continued Major Investment in Electric Rail

- China plans to spend 800 B yuan (\$115.09 B) on building railways this year, the same budget as last year, to grow its network to 150,000 km. China plans to add 2,100 km of track this year, mostly in its central and western regions, and electrify 4,000 km of railways, Xinhua reported, citing a statement released by national operator China Railway Corporation after an annual work conference.

China's Five-Year Plan Could Boost Chinese Cu Demand: ICA

- China's current Five-Year Plan, running from 2016 to 2020, could boost Chinese Cu demand by up to 15 %, the International Cu Association (ICA) said Monday. Aggregated Cu demand is expected to total 29.5 M t by the end of the current plan, its 13th, up from 25.6 M t at the end of its 12th Five Year Plan in 2015.
- With China expected to see at least 6.5 % annual growth in GDP and double the personal income of its citizens by the end of 2020, "the government will have to invest great resources in areas such as transportation, building infrastructure and energy," Richard Xu, the ICA's Asian regional director, said.
- The ICA predicts Cu demand to grow by 82% in the areas of power generation and 40 % in the power grid, totaling an extra 1.78 M t. The share of renewable power installations is set to grow to 40 % from 13 %, important for Cu as they use 4-12 times more Cu than traditional power generation, the ICA said.
- Cu demand is also set to benefit from a rise in the use of electric vehicles, expected to grow more than eightfold during the period. Electric cars use 3-4 times more Cu than gasoline and diesel engines.

Comment: Continued growth of Cu in China and increased Cu demand from India and other SE Asian economies will keep Cu demand growth strong.

Thomson Reuters Production of top 10 countries and producers (4 companies gained and 6 lost)!

TOP-10 COPPER PRODUCING COUNTRIES

Rank		Country	Production (000 t)	
2014	2015		2014	2015
1	1	Chile	5,750	5,764
2	2	China	1,694	1,659
4	3	Peru	1,339	1,654
3	4	United States	1,391	1,408
5	5	Australia	969	960
6	6	DR Congo	915	918
7	7	Russia	740	741
9	8	Zambia	693	705
8	9	Canada	694	690
13	10	Indonesia	379	587

Source: GFMS, Thomson Reuters

TOP-10 COPPER MINE PRODUCERS*

Rank		Company	Production (000 t)	
2014	2015		2014	2015
1	1	Codelco	1,839	1,893
2	2	Freeport-McMoRan	1,470	1,547
3	3	Glencore	1,296	1,259
4	4	BHP Billiton	1,203	1,178
5	5	Southern Copper	665	745
7	6	KGHM Polska Miedz	506	562
6	7	Rio Tinto PLC	636	555
8	8	Anglo American	504	472
9	9	Antofagasta	455	400
10	10	First Quantum Minerals	380	366

*Attributable basis – totals may differ from company reports
Source: GFMS, Thomson Reuters

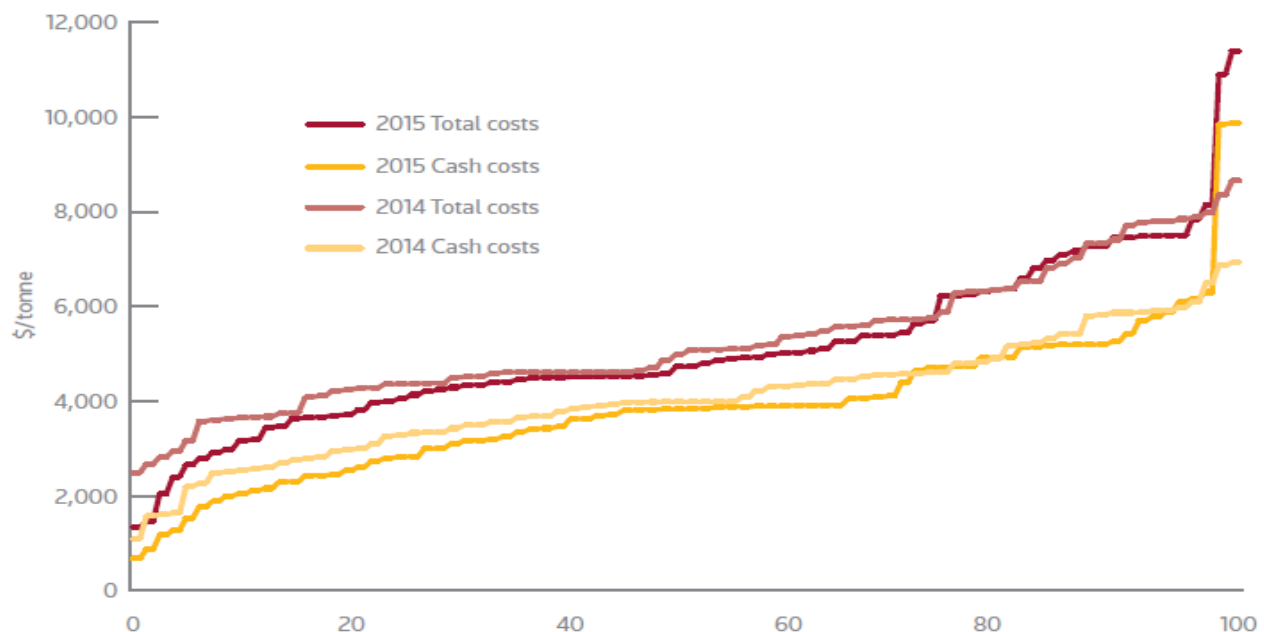
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The following table illustrates development projects. The capex estimates and timelines are an indicator of future mine development necessary to meet future global mine supply. Most of the projects are large capex and long timelines for production.

Thompson Reuters notes that the 2015 copper incentive price required to meet new mine supply demand is US\$3.14 per pound of copper. The new PEA for Carmacks Project will soon provide new information on C1 cash and Total costs of producing copper.

COST CURVES 2014 AND 2015



Source: GFMS, Thomson Reuters

Note Carmacks capex to be revised downwards

MAJOR COPPER PROJECTS

Project	Company	Location	Process	Type	Capacity	Capex*	Start Date
Ajax	KGHM	Canada	Conc	New Project	50	795	2019
Agua Rica	Yamana	Argentina	conc	New Project	150	2,122	2021?
Aktogay	KAZ Minerals	Kazakhstan	SX-EW/Conc	New Project	104	2,300	Q4 2015/17
Andina	Codelco	Chile	Conc	Expansion	na	1,400	2022
Aynak	MCC	Afghanistan	Conc	New Project	200	3,000	Post-2020
Bozshakol	KAZ Minerals	Kazakhstan	Conc	New Project	75	2,150	Q1 2016
Bytrinsky	Norilsk Nickel	Russia	Conc	New Project	66	1,700	End-2017
Carrapateena	Oz Minerals	Australia	Concs	New Project	40	555	2019
Carmacks	Copper North	Canada	SX-EW	New Project	14	225	Q2 2018
Chuquibambilla UG	Codelco	Chile	Conc	Expansion	367	4,000	2018
Cobre de Panama	First Quantum	Panama	Conc	New Project	320	5,950	End-2017
Collahuasi	Anglo American/Glencore	Chile	Conc	Expansion	496	6,500	na
El Arco	Southern Copper	Mexico	Conc/SX-EW	New Project	190	2,600	2020
El Pachon	Glencore	Argentina	Conc	New Project	280	4,100	na
El Pilar	Southern Copper	Mexico	SX-EW	New Project	35	300	2018
El Teniente new mine level	Codelco	Chile	Conc	Expansion	432	5,100	2020/21
El Tesoro (Encuentro Oxidos)	Antofagasta	Chile	SX-EW	Expansion	50	636	Q4 2016
Esperanza (2nd concentrator)	Antofagasta	Chile	Conc	Expansion	140	2,700	Post-2019
Frieda River	Guangdong Rising Asset Mgmt	Papua New Guinea	Conc	New Project	125	1,700	na
Galore Creek	Teck/Novagold	Canada	Conc	New Project	154	na	na
Golpu (Stage 1)	Harmony (50%)	Papua New Guinea	Conc	New Project	80	2,600	2023
Haquira	First Quantum	Peru	Conc	New Project	190	na	na
Inca de Oro	Guangdong Rising Asset Mgmt/Codelco	Chile	Conc	New Project	50	na	na
Koksay	KAZ Minerals	Kazakhstan	Conc	New Project	80	na	na
Los Pelambres	Antofagasta	Chile	Conc	Expansion	95	1,600	Post-2019
Michiquillay	na	Peru	Conc	New Project	155	700	na
Olympic Dam	BHP Billiton	Australia	Conc/SX-EW	Expansion	225	na	2025
Oyu Tolgoi Underground	Rio Tinto	Mongolia	Conc	Expansion	250	4,400	2021
Project Corridor	Goldcorp/Teck	Chile	Conc	New Project	190	3,600	na
Pumpkin Hollow	Nevada Copper	United States	Conc	New Project	125	1,000	2019
Quebrada Blanca Phase II	Teck	Chile	Conc	Expansion	200	5,600	na
Quellaveco	Anglo American	Peru	Conc	New Project	225	na	na
Radomiro Tomic Sulphides	Codelco	Chile	Conc	Expansion	354	5,400	Post-2020
Roseby (Little Eva)	Sichuan R'way Invstmt/ Altona	Australia	Conc	New Project	39	232	2019
Rosemont	HudBay	United States	Conc	New Project	110	1,226	2020?
Schaft Creek	Teck/Copper Fox Metals	Canada	Canada	New Project	105	3,257	na
Sierra Gorda Phase II	KGHM/Sumitomo	Chile	Conc	Expansion	100	na	2020
Serrrote	Aura Minerals	Brazil	Conc	New Project	30	420	na
Taca Taca	First Quantum	Argentina	Conc	New Project	244	3,000	na
Tampakan	Indophil Resources	Philippines	Conc	New Project	375	5,900	na
Tia Maria	Southern Copper	Peru	SX-EW	New Project	120	1,400	na
Toquepala concentrator	Southern Copper	Peru	Conc	Expansion	100	1,200	Q1 2018
Toromocho	Chinalco	Peru	Conc	Expansion	75	1,320	na
Twin Metals	Antofagasta	United States	Conc	New Project	82	na	Post-2020
Victoria	KGHM	Canada	Conc	New Project	15	na	2021
Zafranal	Teck 50%/AQM Copper	Peru	Conc	New Project	54	na	na
Zone 5	Cupric Canyon Capital	Botswana	Conc	New Project	50	350	H1 2018

*Recent CAPEX figures not yet available for some operations.

Source: GFMS, Thomson Reuters