

June 16, 2016

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## Survey Structure

### 13 copper fabricators and suppliers to copper fabricators:

- ▶ 3 cable and wire manufacturers
- ▶ 2 transformer manufacturers
- ▶ 2 copper pipe makers
- ▶ 1 copper sheet and strip company
- ▶ 3 traders in copper anode
- ▶ 2 scrap traders (1 domestic, 1 international)

### Regional:

- ▶ 5 East China
- ▶ 4 South China
- ▶ 3 Central China
- ▶ 1 North China

### Ownership type:

- ▶ 5 SOE
- ▶ 5 private
- ▶ 3 foreign

The total amount of copper consumed/traded by the survey group is 885,000 tons (approx. 10% of total copper consumed in China). 3 companies trade/consume 690,000 tons and the other 10 companies typically consume around 10 – 30,000 tons.

- ▶ **Repeat sources: All**
- ▶ **Interviews Apr 11 - 15**

## Objectives

To understand the current demand and outlook for copper from different sectors, we survey sales, price, inventory, financing, and the industry environment to build a picture of demand and outlook.

# Copper Survey Q2 2016

## Stimulus Fails to Drive Copper Up

### ▶ Copper Demand Up Slightly

Copper demand was up 0.4% in Q2, incrementally increasing over the -4.5% decline in Q1

### ▶ Grid Investment Up

Grid investment is up 39% YoY, but did not translate to copper demand, which is only up 9.5% from grid demand.

### ▶ Flat Construction Demand

Construction demand for copper was flat in Q2 despite an improved real estate market and strong infrastructure investment.

### ▶ White Goods Demand Down

Air conditioner production has fallen 12% and copper demand for white goods overall was down 11%.

### ▶ Overcapacity Woes

Overcapacity in the copper refining and fabricating sector worsened this quarter as another 600,000 tons of fabricating capacity came online, despite more small copper fabricators going out of business.

### ▶ Imports Likely to Fall

Previously, Import growth through April was driven by a persistent gap between higher domestic prices and international prices. Beginning in May, this trend reversed, and domestic prices are falling faster than international prices. Domestic copper traders are experiencing higher sales volumes, which we expect to push imports of copper to fall in June.

# Stimulus Doesn't Bolster Copper Demand

**Table 1. Demand Estimates Q1 2016**

	Share of Market Demand	Q2 2016 Demand Growth YoY
<b>Power Grid</b>	26%	9.5%
<b>Construction</b>	35%	0%
<b>White Goods</b>	14%	-11%
<b>Auto</b>	8%	10%
<b>Industrial</b>	10%	-10%
<b>Electronics</b>	7%	-5%
<b>Total</b>		0.4%

Source: J Capital

We estimate that copper demand grew by 0.4% in Q2, improving from the -4.5% contraction in Q1—our survey showed a split between enterprises reporting increases and decreases in demand, with one reporting flat demand. This is despite reported increases in property sales this quarter and generally positive reporting from the construction sector overall, as our survey respondents reported demand from construction was flat at best. Our survey found that actual construction activity only increased by 5% at most, and was flat at worst. The infrastructure sector showed an even worse disparity. Despite investment being at historically high levels with construction activity up 15-20% YoY, copper demand from infrastructure remains stubbornly flat overall. We add the caveat that copper usage is heavier later in the construction cycle, so the corresponding demand in this sector could come later in the year in response to the Q1 stimulus drive, but we remain pessimistic as projects turning towards completion were also up this quarter.

## Power Grid: Demand Out of Sync with Investment Growth

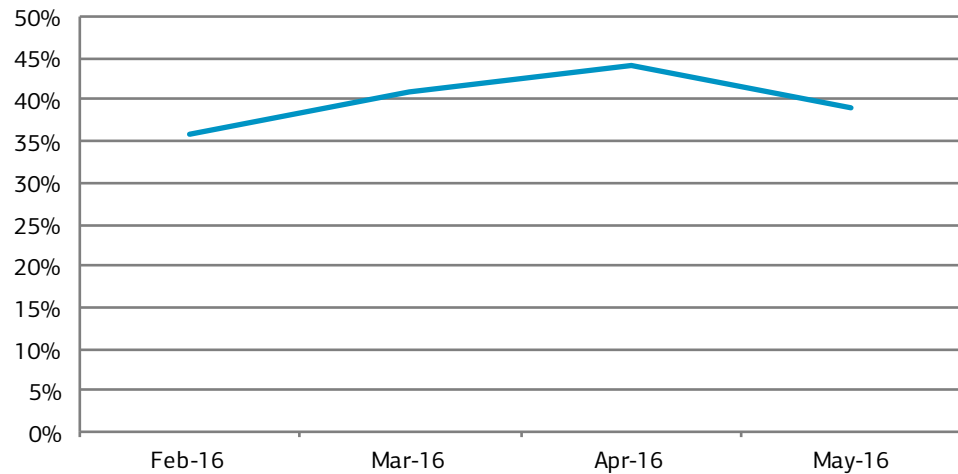
Investment in the power grid grew at the fastest pace ever, 39% YoY, over the first 5 months of 2016, translating to an additional RMB 46 billion in spending. Despite this, copper demand from the grid only rose 9.5%, with transformer demand being the stand-out performer. This fits with our view that the power grid is shifting its investment mix to high voltage (HV) transmission, which is aluminium intensive, and away from more copper-intensive urban distribution, as transformer demand is typically linked HV transmission growth. It is worth noting that SOE companies had the stron-

Demand from the auto sector was the standout in Q1

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gest sales to the grid: the state sector is looking after its own.

### Chart 1. Grid Investment RMB Growth YTD YoY



Source: Wind, J Cap

### White Goods Demand Falling

Four survey respondents singled out poor demand from the white goods sector as the driver for poor growth in copper demand in Q2. Air conditioners, the most copper intensive appliance, saw production decline 12% YTD through May, as domestic production collapsed and exports, which account for 40% of total production, grew only 3% YoY. We estimate apparent domestic demand for air conditioners has fallen 19% so far this year. Robust real estate sales normally correlate closely with strong sales of air conditioners, but we believe that the high inventory levels—causing distributors to try to sell down inventories first—combined with exaggerated real estate sales data explain the deficient demand from this sector. While selling down inventories might produce a short term increase in demand for white goods, we think that the structural issue of slowing real estate will continue to drag on the sector, and we are beginning to see the leveling off of demand domestically. (See chart 2.)

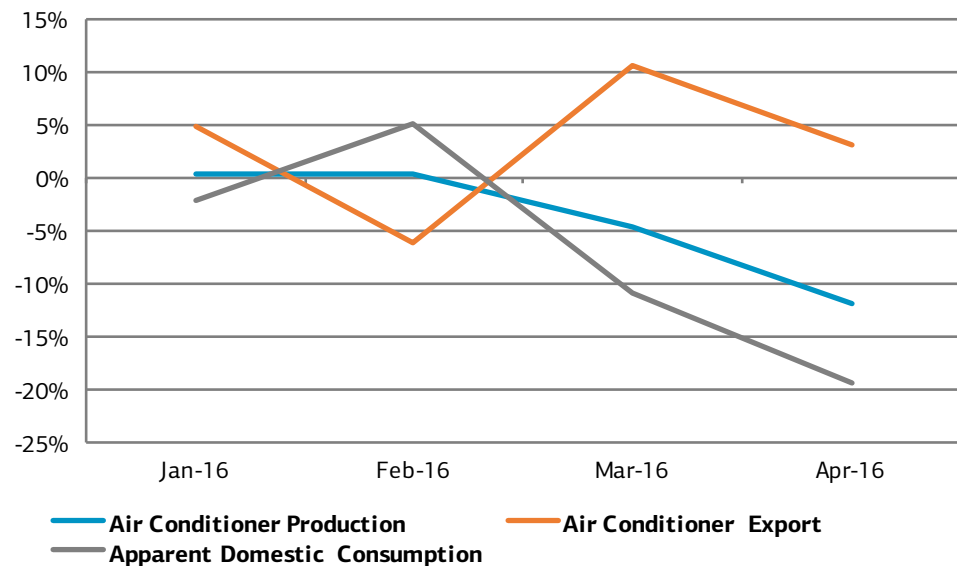
### Overcapacity: Adding Salt to the Wound

More new capacity came online in Q2, worsening the already problematic overcapacity issue in copper production. However, this week the State Council rolled out a new round of measures specifically targeting overcapacity in the non-ferrous metals segment, so monitoring of that policy initiative's impact will be imperative in H2.

It is clear that SOE enterprises drive the overcapacity in the copper refining and fabricating sector. All fabricators increased production in Q2 over

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**Chart 2. Copper Price LME and China Domestic Prices**



Source: Wind, J Cap

Q1, a typical seasonal pattern, but SOEs had much lower capacity utilization rates in Q1 and Q2—averaging 40-85% in Q2—whereas the private sector maintained exceptionally high rates (85-95%). Private operators quickly ramped up production at the start of Q2 in anticipation of peak season, and thus exacerbated the gap with the SOE sector in efficiency. We see the necessity for SOE producers to reduce capacity and allow swing capacity to be handled by the private sector, which has proven more flexible, as necessary for rebalancing the market.

We estimate an additional 600,000 tons of copper refining capacity came online in Q2 mainly in Shandong, Hunan and Henan. This accounts for a 5% increase in installed capacity.

The State Council recently released guidelines for restructuring the non-ferrous sector that was made public this week. The goals as outlined are:

- 1) Strictly control new capacity
- 2) Accelerate the elimination of excess capacity
- 3) Increase technological innovation to improve product quality and efficiency
- 4) Greater vertical integration
- 5) Increase State and Commercial reserves
- 6) Increase “international cooperation,” which appears to mean export capacity.

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The State Council guidelines also included support for restructuring with the oft used mechanisms of subsidies for the industry and funds for re-deploying redundant workers elsewhere. The guidelines require that local governments make specific plans for restructuring and that the NDRC and MIIT enforce the restructuring. We remain skeptical as to how effective these policies will be at addressing the core stressor: demand is down and unlikely to recover.

### Industry Consolidation

A deal that was supposed to have the largest copper pipe manufacturer, Hailiang, acquire the second largest copper pipe manufacturer, Golden Dragon, has fallen apart six months after it was first announced. While falling demand seems to have been a contributor to the withdrawal of the deal, more acutely was the fact that Golden Dragon appears to have been overstating assets.

Several small cable and wire companies went bankrupt in Q2, and it appears that more will follow. The top 9 companies in the cable and wire segment are relatively stable, but several are actively looking to shift inland to lower labor costs.

A number of domestic scrap copper recyclers—largely concentrated in Wenzhou, a well known hub of financing speculation—have closed, while many across Guangdong and Zhejiang have reduced output. Producer report declining orders and poor pricing as the primary drivers, with increasing environmental constraints on copper recycling requiring investment in new equipment also a factor in raising their costs in the near term.

**Table 2. Capacity Utilization Q1 and Q2 2016**

Company	Type/Region	Capacity Utilization Q2	Capacity Utilization Q1	Notes
Cable and wire	Foreign/South China	85%	75%	
Cable and wire	Foreign/East China	90%	40%	
Cable and Wire	Private/East China	95%	70%	
Transformer Manufacturer	SOE/North China	60%	40%	
Transformer Manufacture	Private/Central China	95%	95%	Shifting contracts from subsidiaries to this factory to keep utilization high

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Company	Type/Region	Capacity Utilization Q2	Capacity Utilization Q1	Notes
<b>Copper Pipe</b>	SOE/Central China	40%	39%	
<b>Copper Pipe</b>	Private/Central China	87%	82%	
<b>Copper Sheets and Strip</b>	SOE/East China	85%	85%	
<b>Trader – Copper Anode</b>	Private/East China	90%		Traders copper smelter
<b>Trader – Copper Anode</b>	SOE/South China			Trader only
<b>Trader – Copper Anode</b>	SOE/South China			Trader only
<b>Scrap Trader - Imported</b>	Foreign/East China			Scrap processing output fell 25% in Q2
<b>Scrap Trader - Domestic</b>	Private/South China	95%	80%	Scrap processing

Source: J Capital

### Table 3. Copper Demand Q2 2016 and Outlook for Q3 2016

Company	Supplies to	Type/Region	Sales Vol 2016 2Q PoP	Sales Vol 2016 2Q YoY	Demand Drivers	2016 Q3 YoY Estimate	Demand Outlook
<b>Cable and Wire</b>	10,000 tons to autos and white goods	Foreign/South China	20%	50%	Consumer electronics down 15%, auto sector up 30%. Total market up 15%.	10%	Q3 is the peak period
<b>Cable and Wire</b>	20,000 tons to construction industry and grid	Foreign/East China	50%	Flat	Construction orders up. Delayed construction orders now being completed.	Up	Expecting improved sales as our customers' cash flows improve
<b>Cable and Wire</b>	7,000 tons to power and communications industry, warehouse automation, control systems, cable harness factories	Private/East China	50%	-5%	The economy overall is down, particularly the construction, so demand is clearly down. All price rises right now just have to do with the fact that it is peak season, not overall demand increases. Auto demand is up 60% PoP, white goods up 20% PoP, but no increase in construction demand PoP.	Down	Low period for industrial demand due to summer heat.
<b>Transformer Manufacturer</b>	140,000 tons of high voltage transformers to grid (30%), also supplies to autos, chemicals, coal, rail, metallurgy	SOE/North China	40%	15%	Export sales and new energy projects have increased. Grid demand is up 10% and construction demand is down 30%.	100%	Grid demand will be strong, as will demand from new energy projects.

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Company	Supplies to	Type/Region	Sales Vol 2016 2Q PoP	Sales Vol 2016 2Q YoY	Demand Drivers	2016 Q3 YoY Estimate	Demand Outlook
<b>Transformer Manufacturer</b>	3,000 tons to grid, power plants, industrial and rail	Private/Central China	-10%	-20%	The downturn in the economy means we have many fewer construction projects to supply, and demand from industry is also down. Grid demand is down 5%, and industrial demand is down more than 20%.	-5%	Available projects declining, so expect sales to continue falling.
<b>Copper Pipe</b>	10,000 tons to power plants, auto, bathroom plumbing, electronics	SOE/Central China	2.5%	-14.8%	The market is in a continued malaise and demand is still contracting; demand from autos and shipbuilding is down.	Flat	We do not expect the market to improve. Auto and shipbuilding expected to continue declining.
<b>Copper Pipe</b>	400,000 tons total, 80% to white goods, 20% to construction	Private/Central China	10%	-20%	This should be the peak season but the market is contracting. The white goods sector is particularly bad.	-15%	Market is heading into the low season
<b>Copper Sheets and Strip</b>	15,000 tons to electronics sector	SOE/East China	Flat	5%	Selling more direct to customers. New energy and the autos market are doing well. Computing industry down, mobile phone demand stable. White goods demand down because domestic demand is down, increasingly that sector is focusing on generating export demand.	Flat	Concerned the economy will continue to fall
<b>Trader – Copper Anode (newly established e-commerce platform)</b>	150,000 tons total going to white goods, processors, traders	Private/East China	20%	300%*	Downstream demand is not strong. White goods and construction demand is poor and inventory is high.	30%	Q3 is the best period for sales.
<b>Trader – Copper Anode</b>	150,000 tons to grid, white goods	SOE/South China	17%	-9%	Rising prices led to restocking, downstream customers operating rates higher (10%), trading volumes higher (20%)	Flat	End demand has not had a clear recovery. Trading volumes may increase.
<b>Trader – Copper Anode</b>	20,000 tons to construction, autos and trading	SOE/South China	20%	20%	Less demand from processors for financing. Construction up 4%, autos up 4%, trading volume up 20%.	No response	

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Company	Supplies to	Type/Region	Sales Vol 2016 2Q PoP	Sales Vol 2016 2Q YoY	Demand Drivers	2016 Q3 YoY Estimate	Demand Outlook
<b>Scrap Trader - Imported</b>	40,000 tons to scrap processors, refineries, brass processors	Foreign/East China	-12.5%	2%	Construction, white goods and autos all relatively stable. Air conditioning demand down. Smelter output is down, despite improved processing prices, due to lack of supply of copper concentrate. Copper recyclers scrap supply is low and output has fallen 25%.	5%	Q3 is a seasonally better so expecting sales to improve.
<b>Scrap Trader - Domestic</b>	20,000 tons to white goods, clothing	Private/South China	10%	-10%	Poor macro economy. Electronics up 5% and clothing up 15%. Construction falling.	-12.5%	Orders for Q3 are not looking good.

\* The 300% yoy increase is mainly due to a low base as the business opened in Q2 2015. | Source: J Capital

**Table 4. Copper Inventory in Industry**

Company	Supplies to	Inventory YoY	Reason	Outlook Q3	Customer Inventory Levels	Reason	Outlook Q3
<b>Cable and Wire</b>	10,000 tons to autos and white goods	No Inventory	Zero inventory strategy	No Inventory	Flat		Increasing
<b>Cable and Wire</b>	20,000 tons to construction industry and grid	No Inventory	Zero inventory strategy	No Inventory	Flat	Customers in the past restocked when prices rose, now they are more cautious and hold stocks stable.	Slight increase
<b>Cable and Wire</b>	7,000 tons to power and communications industry, warehouse automation, control systems, cable harness factories	Slight decrease	Poor economy so holding less stock.	Slight decrease as Q3 is a lower period for sales	Slight increase	Due to the poor economy, customer sales are down as they are experiencing inventory build of finished goods, which has led to tightening financing, which in turn has reduced orders.	Inventory may increase as production slows and demand is weak
<b>Transformer Manufacturer</b>	140,000 tons of high voltage transformers to grid (30%), also supplies to autos, chemicals, coal, rail, metallurgy	Up 15%	Orders increasing so holding more inventory	Up 30%	Up 20%	Demand up so need more stock	Up 25%, as demand is better



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Company	Supplies to	Inventory YoY	Reason	Outlook Q3	Customer Inventory Levels	Reason	Outlook Q3
<b>Transformer Manufacturer</b>	3,000 tons to grid, power plants, industrial and rail	Up 10%	Orders slower than expected so building inventory	Flat	Flat	Customers are ordering just for production, not inventory	Flat
<b>Copper Pipe</b>	10,000 tons to power plants, auto, bathroom plumbing, electronics	-16%	Reducing inventory to improve cash flow	-5%	-15%	Reduce exposure to copper price and improve cash flow	-5%
<b>Copper Pipe</b>	400,000 tons total, 80% to white goods, 20% to construction	No Inventory	Zero inventory strategy	No Inventory	Up 2%	Demand for air conditioners down, production down, so inventory rising	Slight increase
<b>Copper Sheets and Strip</b>	15,000 tons to electronics sector	Flat	Matching orders to purchases to keep inventory low	Slight increase as Q3 is peak period for sales	Flat	High levels of inventory in Q1	Flat
<b>Trader – Copper Anode</b>	150,000 tons total going to white goods, processors, traders	Slight increase	Sales did not meet expectations	Slight decrease as sales increase	Flat	Ordering for production only	Flat
<b>Trader – Copper Anode</b>	150,000 tons to grid, white goods	-5%	Demand poor, price and volumes volatile	Flat, poor economic outlook	Flat	Inventory levels remain very low	Down, most people do not see domestic demand improving anytime soon
<b>Trader – Copper Anode</b>	20,000 tons to construction, autos and trading	No inventory	Zero inventory strategy	No Inventory	Slight decrease	Move away from imported copper to domestic copper	Slight increase
<b>Scrap Trader - Imported</b>	40,000 tons to scrap processors, refineries, brass processors	-10%	Inventory is lower as supply of scrap is lower	7.5%, Q3 is a seasonal high	-10%	Our supply is limited to them so they are holding less inventory	0-5%, hard to predict
<b>Scrap Trader - Domestic</b>	20,000 tons to white goods, clothing	Up 15%	Base effect: last year we had very low stocks	Flat	-10%	Inventory levels are back to normal low levels – less speculation on price	Flat as customers are being cautious

Source: J Capital

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**Table 5. Finance**

Company	Type/Region	Financing	Rates	AR
<b>Cable and Wire</b>	Foreign/South China	Tight	BAN 5%, grey market 15%	Receivable days increasing, some defaults
<b>Cable and Wire</b>	Foreign/East China	No change in bank and grey market	6%	Payments are good
<b>Cable and Wire</b>	Private/East China	Poor economic conditions, so companies have tight finances now, bad debts are increasing and financing getting harder	BAN 3.6%, grey market 8-20%	Payments for some customers are 30 days late and we have had some defaults
<b>Transformer Manufacturer</b>	SOE/North China	No financing problem for SOEs		Some clients are delaying payments
<b>Transformer Manufacturer</b>	Private/Central China	Some factories are closing due to financial problems	BAN 3%	Large increase now 30% of clients delaying payments
<b>Copper Pipe</b>	SOE/Central China	Falling rates as the PBOC lowers rates		No problems
<b>Copper Pipe</b>	Private/Central China	Bank financing is more difficult		No problems
<b>Copper Sheets and Strip</b>	SOE/East China	Payments slowing so financing requirements rising		Customers paying later but no defaults
<b>Trader – Copper Anode</b>	Private/East China		Grey market rates stable at 8%, LOC 3.5%	No problems
<b>Trader – Copper anode</b>	SOE/South China	Financing remains difficult for the sector	BAN 3.2%, grey market 15%	No problems
<b>Trader – Copper anode</b>	SOE/South China	Financing copper sales has been further reduced. Bank lending increasingly restricted.	Grey market 12-15%	Many traders that were primarily lenders have left the market. Those remaining are focused on trading.
<b>Scrap Trader - Imported</b>	Foreign/East China	Everyone is tightening cash flow in the industry, we get financing from outside of China where it is easier. Falling copper prices has put pressure on finances.	USD LOC rate is 2%	
<b>Scrap Trader - Domestic</b>	Private/South China	Only use our own capital		Reduce AR days from 30 to 18, any clients that do not accept have been cut off

Source: J Capital

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