Characteristics and Development Trend of China’s Nickel & Cobalt Industry

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Since the beginning of 2017, both nickel and cobalt prices have recovered to varying degree. From the beginning of this year to the end of September, price of cobalt cathode has increased by 60% from 270K CNY/t to 430K CNY/t, and the price of cobalt chloride has increased by 70% from 62.5K CNY/t to 106K CNY/t. Meanwhile, average price of nickel cathode in spot market has increased by 15% y-o-y to reach 82.7K CNY/t.

Both fundamental improvement and speculation purchase contributed to price recovery. Nickel and cobalt prices have been in low position for several years, which led to large scaled of deficit for relating enterprise. But in the first 8 months of 2017, nickel and cobalt mining, smelting companies have profit 3.3billion CNY, compared to 1.6billion deficit in the same period of 2016. Revenue of main companies has increased by 20% y-o-y to reach 206.8billion CNY.

With the recovery of the market, investment on nickel and cobalt projects has increased. In the first 8 months of 2017, 5.7billion CNY were invested in 60 nickel and cobalt projects, which is slightly lower than the 6.3billion in the same period of 2016. However, if considering the investment to new projects of downstream battery materials, the total investment to the whole industrial chain should be far more than this level.
In the first 8 months, China imported 20.25Mt of nickel ore, increasing by 8.1%. 83% from the Philippine, 8% from Indonesia, and the balance from New Caledonia, Guatemala and Turkey. There is a diversification trend to import nickel ore to avoid the risk of single channel.

Meantime, China imported 134Kt nickel cathode, decreasing by 53.2%, because of the lower domestic nickel price, which is helpful to digest the higher stockpile in China. China imported 991Kt FeNi and NPI, increasing by 55.3%, 73% come from Indonesia, the balance from New Caledonia, Japan, Colombia and Brazil.

In the first 8 months, China imported 140Kt of cobalt HMI, increasing by 23%, the imported cobalt concentrate is 69Kt, decreasing by 37%. The total imported cobalt content in various raw material is 43Kt, increasing by 7%. And the imports of cobalt cathode reduce by 18% to 2270 tonne, the exports of cobalt cathode rise to 1300 tonne, 8 time of the level of last year. The main reason of the changes is the price gap between China and international market.
Ni

- NPI capacity transfer from China to Indonesia
- Expansion of nickel sulphate attracts global attention
- Stainless steel and battery sectors are driving the consumption
- The development trends of nickel industry in China

Co

- Lack of resource stimulate more world investments
- Refined cobalt output and consumption play important roles in the world
- 3C and NEV are the driving force of cobalt consumption
- The development trends of cobalt industry in China
Primary nickel output of China in 2017 is 580kt, down by 4.3% compared with 2016. Of which, NPI output is 390kt, accounting for 62% of the total.

In the meantime, the primary nickel output in Indonesia increases, mainly driven by the NPI output. We estimate that the NPI output in Indonesia will rise from 90Kt in 2016 to 190Kt in 2017.

Sources: Antaike
The development of NEV is in the ascendant, a trend of high nickel and low cobalt for ternary materials is certain. The purpose is to increase energy density while lower the cost, which boost the demand for nickel sulphate dramatically.

Nickel sulfate capacity in China will reach 440Kt in 2017, and the output is around 300Kt, increasing by 50% y-o-y; 64% of them consume primary raw materials, 20% consume scraps, and about 16% consume powder or briquette.
In 2017, the consumption of primary nickel in China will increase by 3.8% to 1.13Mt, with stainless steel sector take up 85% and battery sector take up 3%.

The growth rate of nickel consumption in STS is only 3.3%, while that of battery sector is 44%.

Sources: Antaike
The stainless steel output in China is expected to be 25Mt in 2017, increasing by 2.8, with 50% of 300 series. China takes up 53% of world total STS output.
In 2017 STS apparent consumption in China is around 20Mt, increasing by 3.3%. The amount of apparent consumption of STS will benefit from its lower price and domestic consumption upgrade.
Nickel consumption in China’s battery sector is 49Kt, with 80% of primary nickel. Nickel consumption in Li-ion battery have surpassed that of Ni-MH battery since 2015. In 2017, the power cell for domestic NEV drive about 10Kt of nickel consumption, which will rise to 42Kt in 2020 and 150Kt in 2025. Battery sector will be another driving force to nickel consumption.

Sources: Antaike
From the global view, stainless steel still occupied the majority market share of nickel consumption, but its share will shrink from 68% in 2015 to 62% in 2025, meanwhile share of battery will increase from 3% to 10%.

Stockpile in LME, strategies of traditional nickel producers, and investment intention will change closely with the development trend of NEV.

Sources: Antaike
China will increase the deep exploitation of domestic resources and the utilization of the poor reserve, while keep investing heavily on the development of oversea resources. After the investment to pyrometallurgical FeNi in Indonesia, China is expected to invest on hydrometallurgy projects in countries with existing cooperation like Indonesia and Papua New Guinea.

Domestic output of primary nickel is in decline due to strict environmental regulations, restriction of raw materials and capacity transfer to resource rich area. The product mix will also gradually adjust with the characteristics of downstream development.

Stainless steel industry benefits from global economic recovery and consumption upgrade in China. Capacity transfer of nickel and stainless steel will help to avoid anti-dumping prosecutions. Development of NEV will influence nickel consumption in long term. China will keep being competitive in both stainless steel and battery fields.

Sources: Antaike
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Refined cobalt output of China in 2017 is around 67Kt, increasing by 10% Y-o-Y; China is lack of cobalt resource, most of the refined output depend on the imported raw materials, esp. those from DRC.

In recent years, more cobalt intermediate shipped back to China, and less cobalt concentrate consumed in China, by production from imported nickel materials should also be paid attention.

Sources: Antaike
Co-Lack of resource stimulate more trade and investments

Many Chinese Companies invested in DRC

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Australia, PNG, and other countries

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➢ To get reliable cobalt resource, many Chinese companies invested in DRC in recent 15 years, and great fruits have already born. Among all imported raw materials, the share of equity yield rise from less 5% in 2011 to 15% in 2016.
➢ In addition to DRC, Chinese companies also invested in Australia, PNG to widen the raw materials channels.
From 2011-2016, the ratio of cobalt cathode reduce from 20% to 11.8%, ratio of powder from 11.8% to 9.4%, but ratio of salts rise from 67.8% to 78.9%.

Output of top 10 smelters accounted for 86% of the total in 2016, which is only 73% in 2011.

Sources: Antaike
World refined cobalt output in 2017 will reach 115Kt, China accounted for 58% of world total refined output in 2017.

World total cobalt consumption in 2017 is around 110Kt, China take up 50%, and battery sector take up 56% in 2017.

Sources: Antaike
Refined cobalt consumption in China in 2017 is 54Kt, increasing by 13%. Battery sector takes up 80%, followed by cemented carbide take up 6.1%.

In 2017, the ratio of cobalt consumed in LCO reduce from 79% to 70% and that in NCM rise from 18% to 28%.
In 2017, cobalt consumed in China’s NEV will be around 5230t. It’s expected increase to 16Kt in 2020 and 46Kt in 2025;
To meet the consumption increment, both new smelters and expansion from the existing producers compete in the market.
Although there are some raw materials stockpile in China, but main of them are dominated by the leading players, so there is some structural raw materials shortage.

Sources: Antaike
Co-The development trends of cobalt industry in China

Resource
- China is shortage of cobalt resources. So we pay special effects on overseas investment. The percentage of equity output in imported raw materials is improving continually. Other than DRC, countries like Australia and Cuba are key study objects.

Production
- By importing large amount of raw materials, China’s refined cobalt output resides world first throne firmly. The concentration of cobalt industry has been greatly improved, and the management and anti-risk ability of enterprises has been gradually improved.

Consumption
- Cobalt consumption will remain strong in the future. As the biggest refined cobalt producer, China’s cobalt cathode, powder and salt products can not only meet the demand for domestic consumption, but also export to international market and be part of the global high-end manufacturing supply chain, serving the development of NEV and 3C products.

Sources: Antaike
Thank you for your attention

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