-THE FUTURE IS CLOSER THAN WE THINK!--

Commodity demand is changing more quickly than you think!

A revolution is about to occur in metal demand as the world economy embraces electric vehicles. While we are all familiar with electric vehicles and hybrids, a large part of the population does not realise that their purchase of a new car in the next few years will likely be an electric vehicle. Indeed confronted with the choice of purchasing a new petrol or diesel car that may depreciate rapidly rather than a new electric vehicle, it will come down to simple economics.

Why do we think this will be the case? Look at these facts:

One of Germany's legislative bodies has already moved to ban petrol-powered cars in favour of electric vehicles by 2030. While seems a long way into the future, it sets a target that will potentially apply across the EU. Indeed, many German car brands, including BMW, Mercedes-Benz and Volkswagen, are already rolling out battery-powered vehicles.

BMW launched its first fully electric production car, called the BMW i3, back in 2013, while Audi unveiled an all-electric version of its R8 super-car, the Audi R8 e-tron, in 2015.

Recently Daimler has commenced a €500m expansion of lithium-ion plant in Germany and is following through with plans to aggressively develop 10 new electric vehicles to market by 2020. The investment is planned to quadruple existing battery capacity at the site with is run by Accumotive, a subsidiary of Daimler.

-Meanwhile in the US & China!--

Meanwhile in the US electric vehicle (EV) sales in the U.S. in January 2017 indicate a 70% year-on - year increase in monthly sales and maintain strong momentum from 2016. Overall U.S. EV sales jumped by 37% in 2016 and by year-end there were about 30 different EV offerings, with total sales of 159,139 vehicles.
Five different models sold at least 10,000 units in 2016, namely, Tesla Model S, Tesla Model X, Chevrolet Volt, Nissan Leaf, and Ford Fusion Energi. More than half of all EV sales took place in California, driven by the state's zero-emission vehicle (ZEV) mandate, which requires that a certain percentage of an automaker's sales must be ZEVs. California's goal is to put 1.5 million ZEVs on the state's roads by 2025.

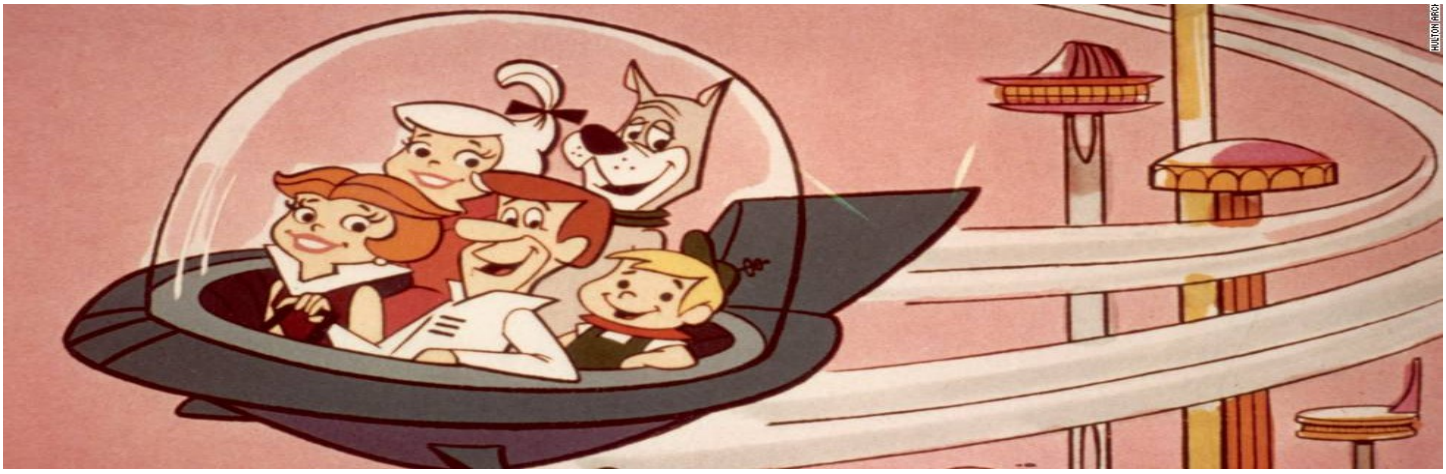
In China the government is pushing for more electric cars on its road, proposing that all carmakers ensure new energy vehicles account for 8% of their fleet by next year and while it has drawn some criticism from its industry, it has demonstrated the Government's commitment to electric vehicles.

In 2014, public charging stations still didn't exist in Beijing but today there are thousands of public electric car charging stations. However there is a significant impetus for Chinese citizens to purchase electric cars as any local in places like Beijing can purchase one while there are restrictions on petrol and diesel car ownership and you must sometimes wait years in the 'car lottery' to be able to purchase one.

The relative ease of buying electric vehicles is part of a national push to put 5 million electric vehicles on China's roads by 2020.

In 2016 alone China produced almost 500,000 while there were sales of 28 million cars, electric vehicles accounted for less than 2% of sales.

Since 2012 China has spent billions of renminbi subsidising its electric car industry.
Both consumers and carmakers receive generous subsidies and tax exemptions and incentives.
The government is also investing heavily into infrastructure by building 100,000 new public charging stations in 2017. The government is on a quest to become a world leader in electric vehicle production which also helps solve pollution issues in Chinese cities.
Battery technology is steadily improving, but there is a concern that expectations are too high but nevertheless the government has set a clear strategy for the future.



So how does it affect our investment strategies?

At Breakaway Research we see a number of changes that will occur. Apart from fewer service stations, less mechanical repairs, lower oil prices, declining second-hand car market, etc. our main focus is on the potential changing demand in commodities. In particular, we see an unexpected increase in demand for certain base metals, lithium, rare earths.

Recently Glencore highlighted some of these aspects at a Merrill Lynch Conference where CEO Ivan Glasenberg noted that the electric vehicle revolution is happening and its impact is likely to be felt faster than expected. He outlined the metal consumption in electric cars across batteries, charging points and the car itself.
Glencore estimates that in copper alone, the consumption is around 160kg per vehicle.

Source: Glencore

Glencore estimates that demand for copper and nickel could increase as follows:

- **2020** – additional 373,000 Cu, and an additional +40,000 Ni
- **2205** – additional 1.65 million tonnes Cu and an additional 210,000 tonnes Ni
- **2035** – If a rapid adoption scenario where 95% of global vehicles are electric vehicles, this would require an additional 20 million tonnes Cu, 1.8 million tonnes Ni and 679,000 tonnes Co

Of course a downside is that there will be a decline in demand for platinum group metals (UBS forecast a 53% decrease in demand).

Breakaway Research believes that the market will start to acknowledge these demand changes where base metals, lithium and REE are the winners and perhaps iron ore, coal and oil are the losers. Also within the base metals complex there will be winners and losers as copper, nickel and cobalt look exciting while lead is less so. Interestingly zinc is experiencing a supply short fall and is more likely to experience a surge from increased construction activity –
perhaps President Trump's rebuilding of America!

Breakaway Research

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For enquiries, please contact:

Rachel Szabo
Manager Client Services

+61 2 9392 8032

rachel.szabo@breakawayinvestmentgroup.com
www.breakawayresearch.com.au