

Commodity Market Trends

The Rise of Electrification, Energy Storage, and Impact on Commodity Markets

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Berlin

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Commodity Markets

Energy, and the Future of Transportation

Metal Markets and «Energy Metals» like Lithium



Macro Risk Factors. The Future is written in the Stars...



Schlagzeilen



US-Importsteuer - Wie sich Europa auf einen Handelskrieg mit den USA vorbereitet

SZ.de · vor 2 Tagen



Nach Trump-Warnungen: So bereitet sich Europa auf einen Handelskrieg vor

Business Insider · vor 1 Tag



Droht ein Handelskrieg? - Trump bremst Chinas Börsenfrühling

cash.ch · vor 2 Stunden

make
AMERICA
great again

- Brexit
- Greece
- Italy/Spain
- Turkey
- Populism & Refugee Crisis



- Geopolitical factors
- Terrorism

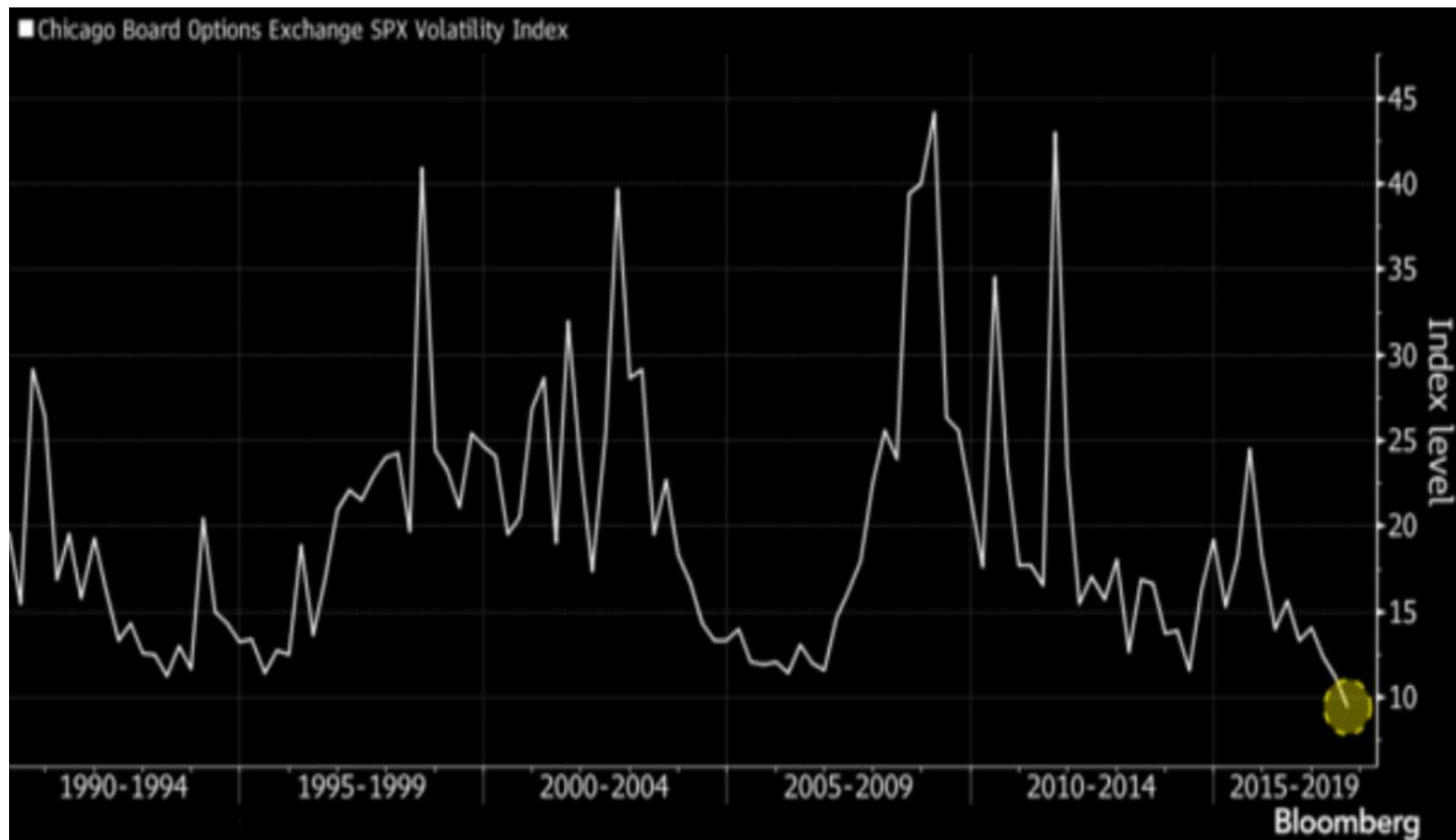
- «Trade war» Scenario
- Growth, debt, shadow banking
- Real estate



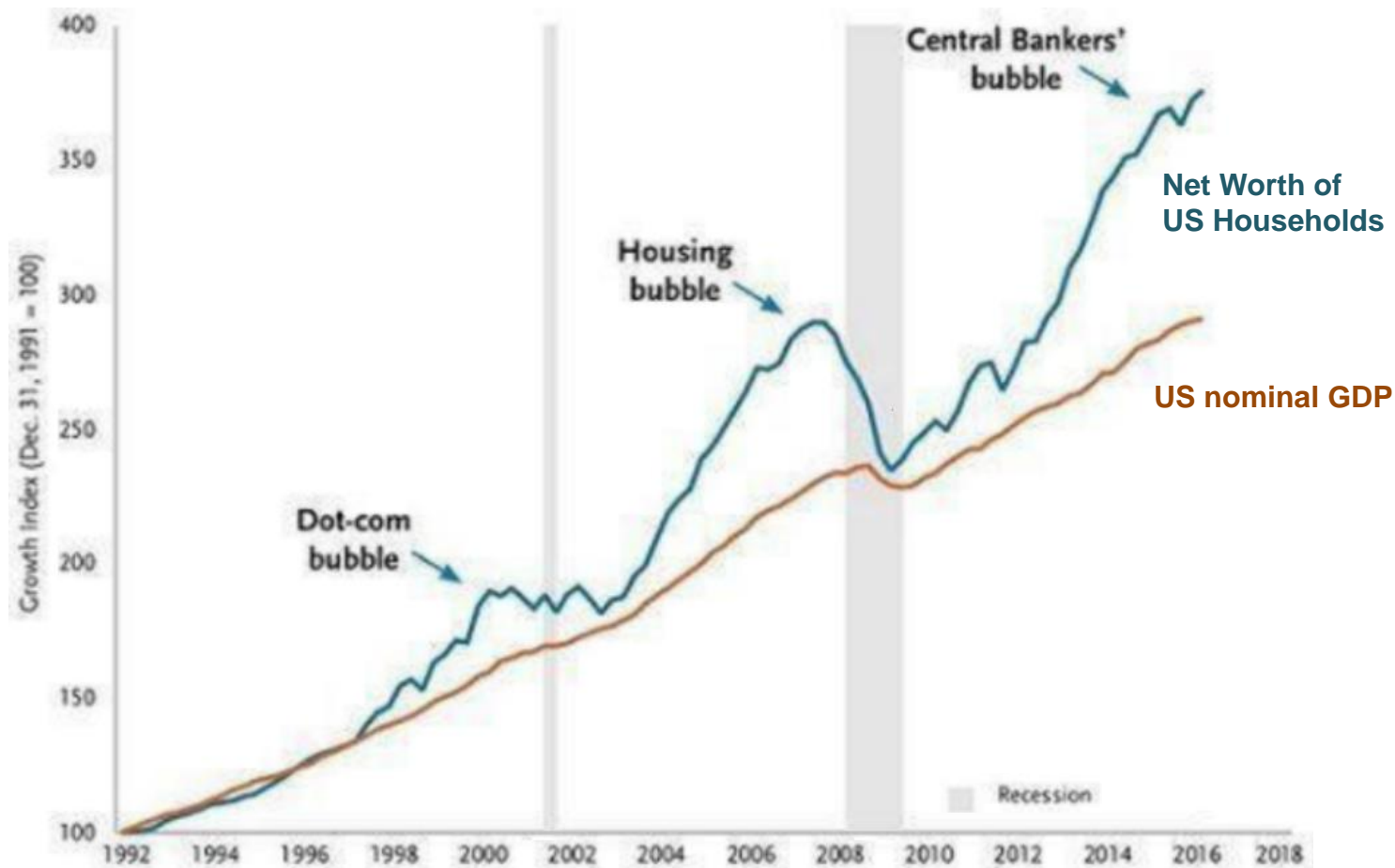
Record Highs. S&P 500 and the Three Bear Markets



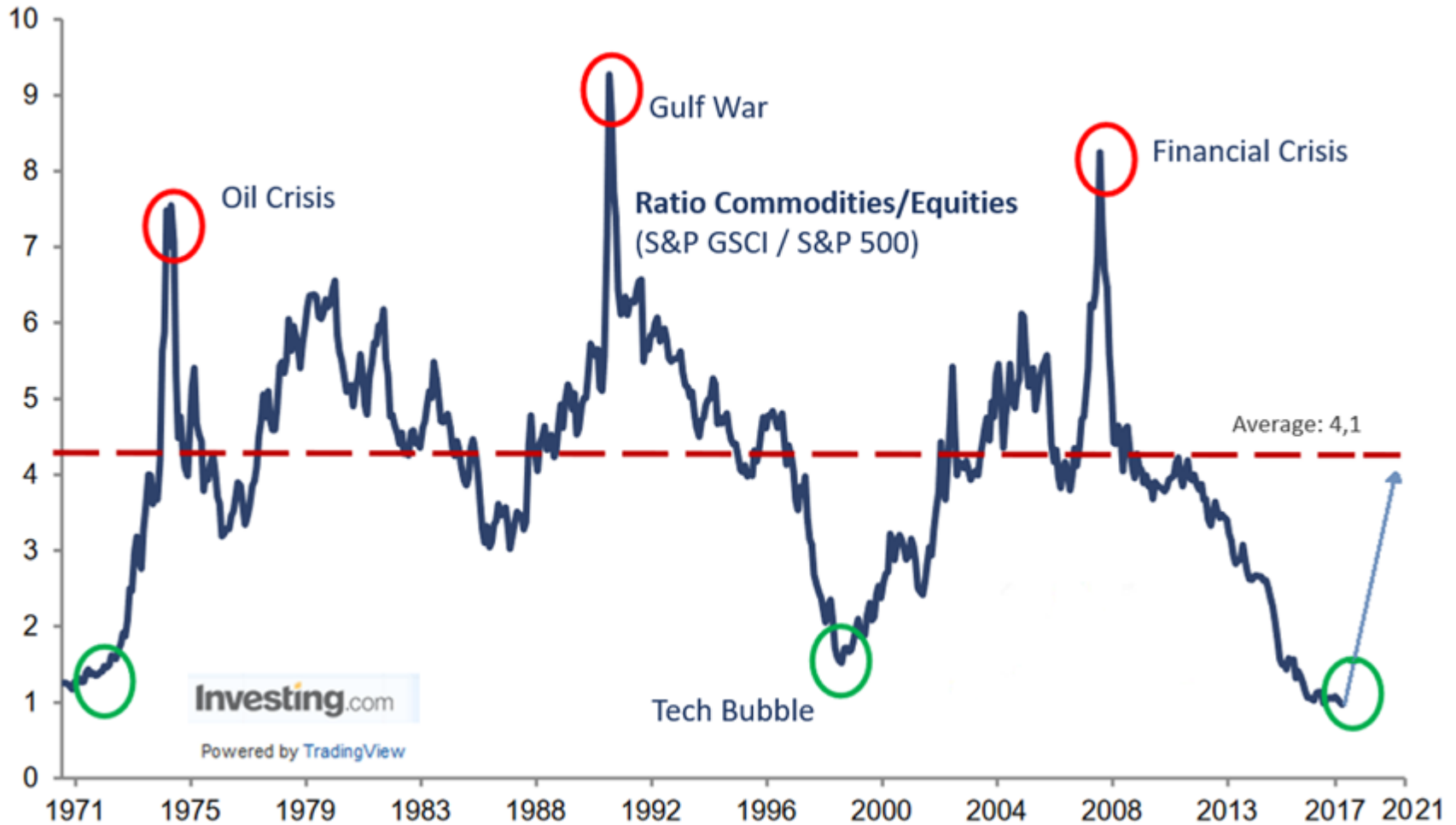
No Fear. VIX Index falls to all-time low



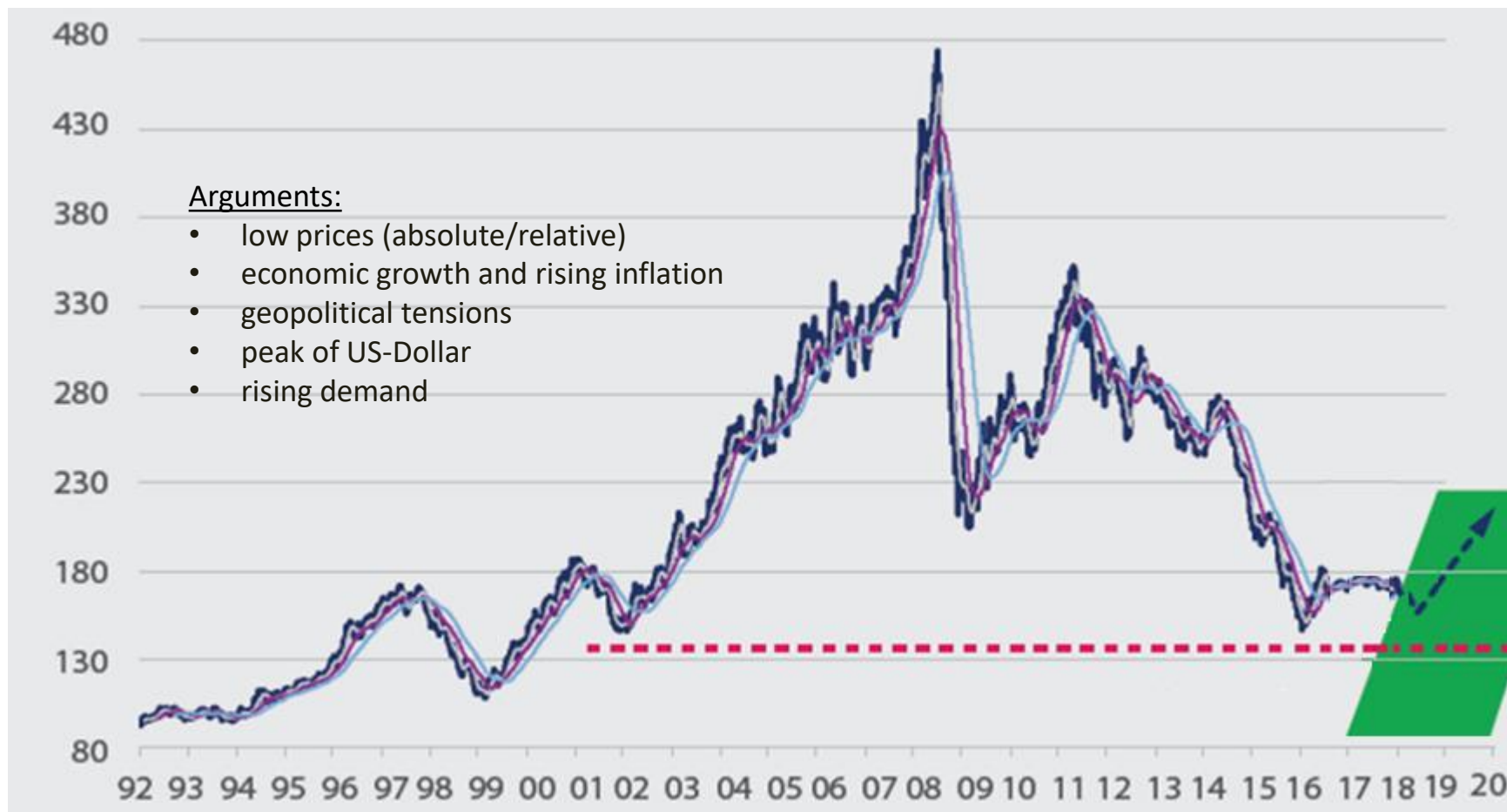
Asset Prices vs GDP – The “Everything” Bubble



The “Everything” Bubble and Commodities



Constructive Outlook for Commodities 2018

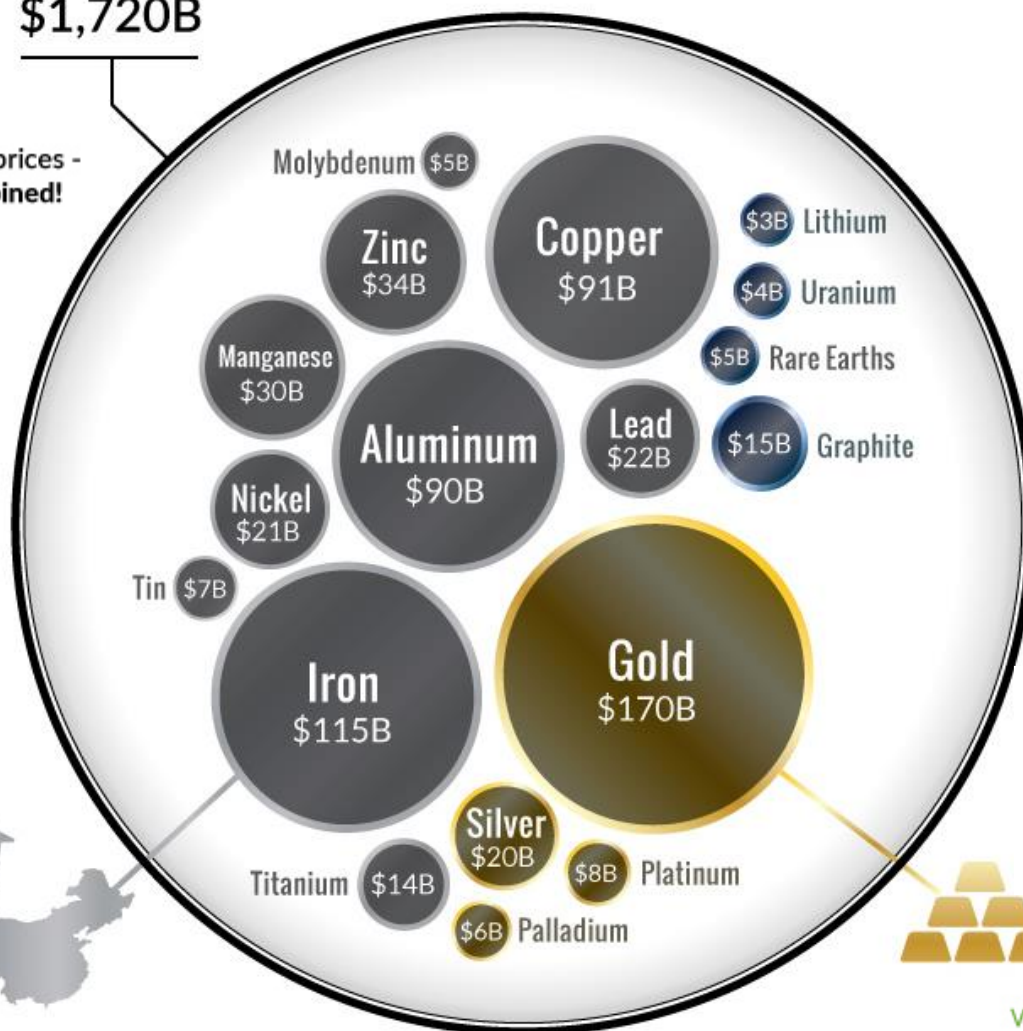


Crude Oil in comparison to major Metal Markets

The global market for oil was 94 million barrels per day in 2015.

This puts the oil market at \$1.7 trillion per year with today's prices - far more than all raw metals combined!

\$1,720B



The largest metal market by tonnage is iron ore.

China alone consumes 1 billion tonnes per year mostly to produce steel.



The world's largest metal market by dollar value is gold.

The physical market is worth \$170 billion per year at today's spot price.



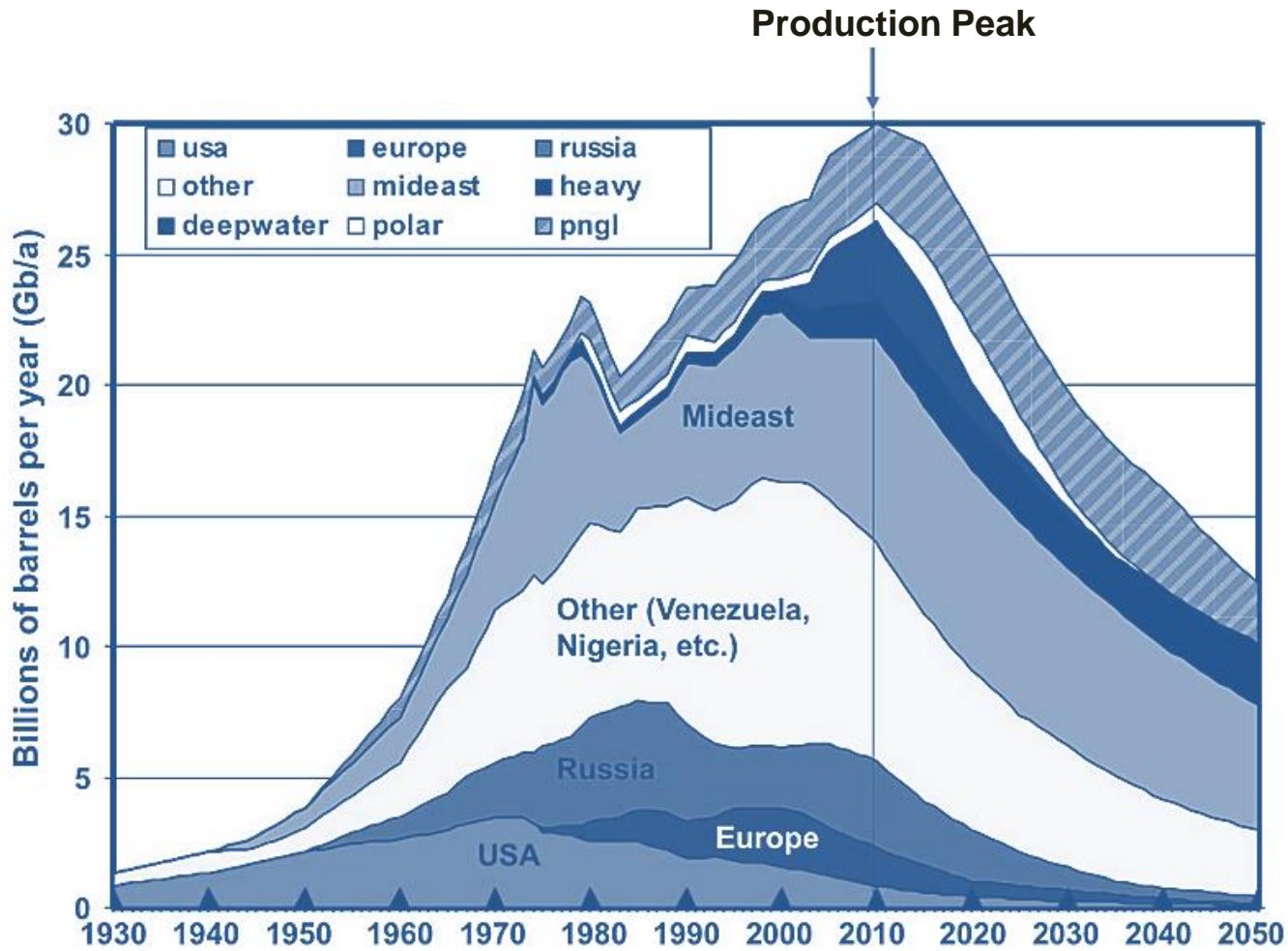
visualcapitalist.com

Commodity Markets

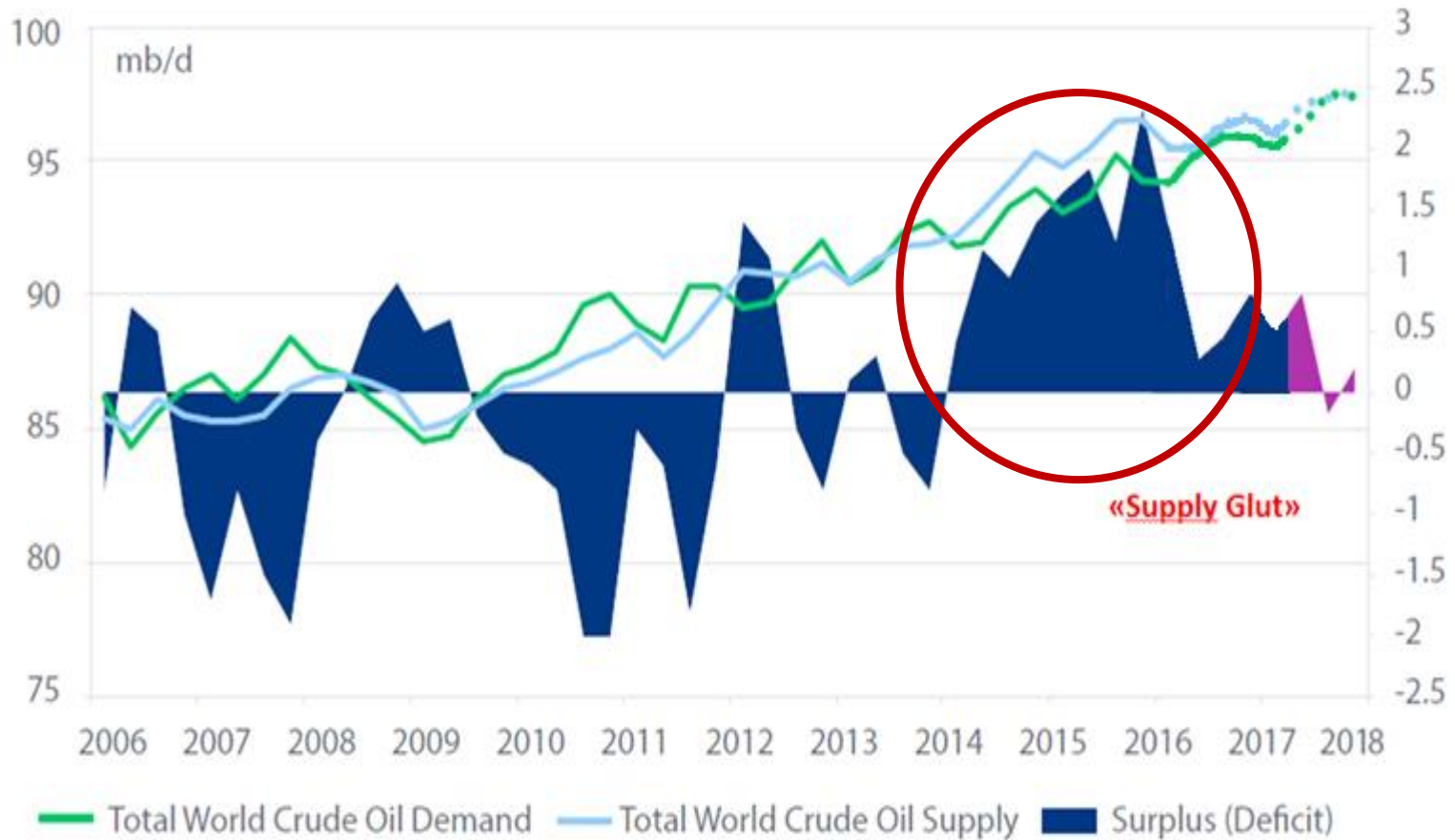
Energy, and the Future of Transportation

Metal Markets and «Energy Metals» like Lithium

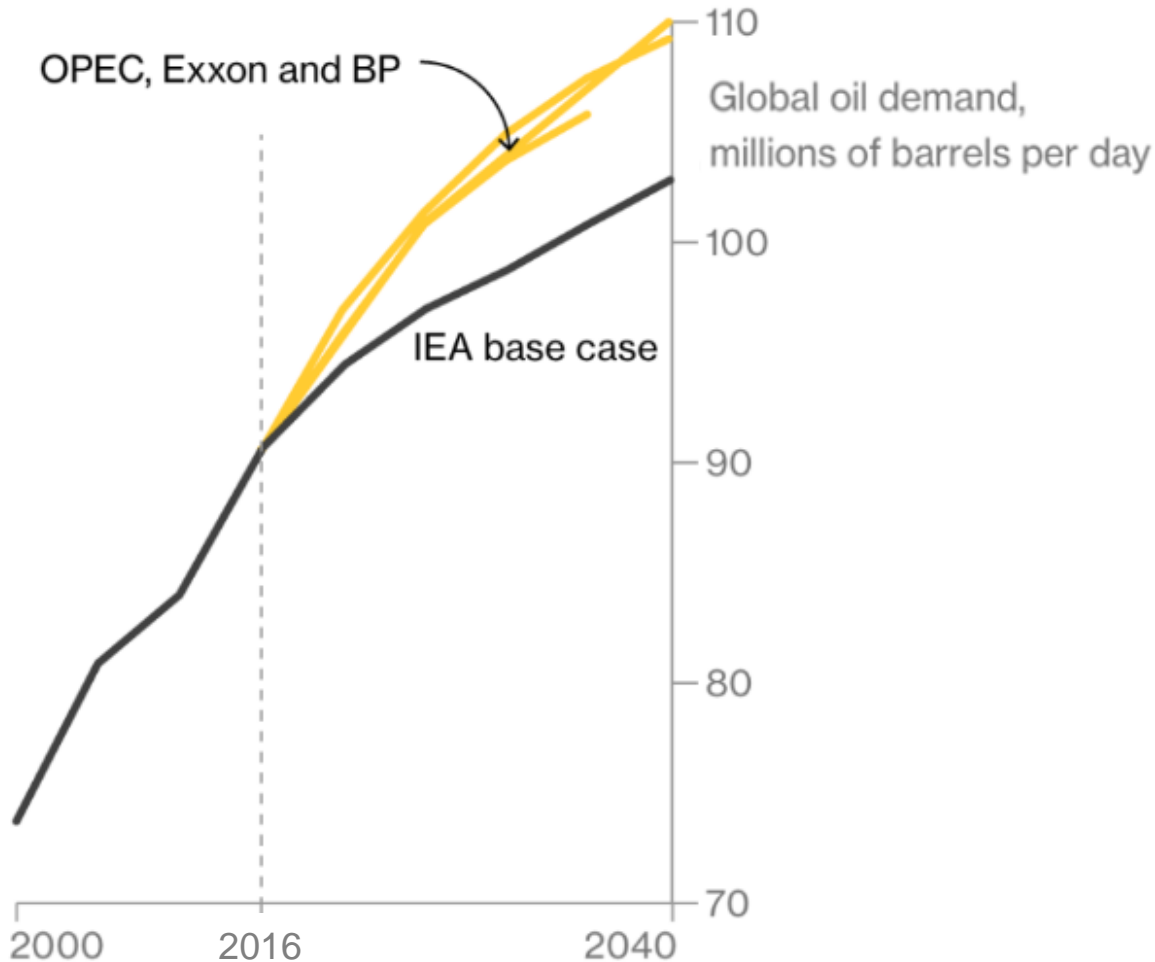
Are we in a “Peak Oil” Scenario?



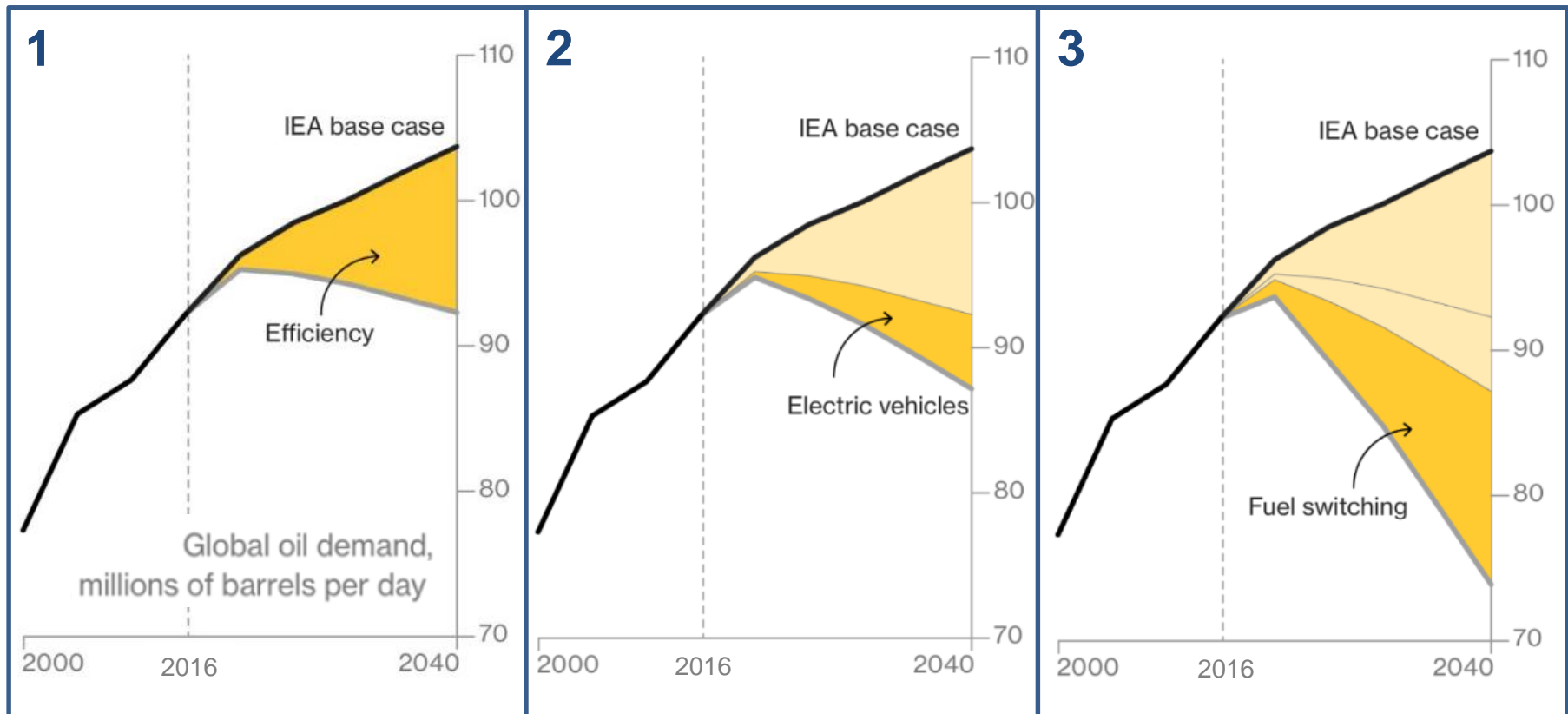
Crude Oil Supply and Demand



Demand Forecasts expect nothing but growth



Different Scenarios including efficiency, electric vehicles, and fuel switching

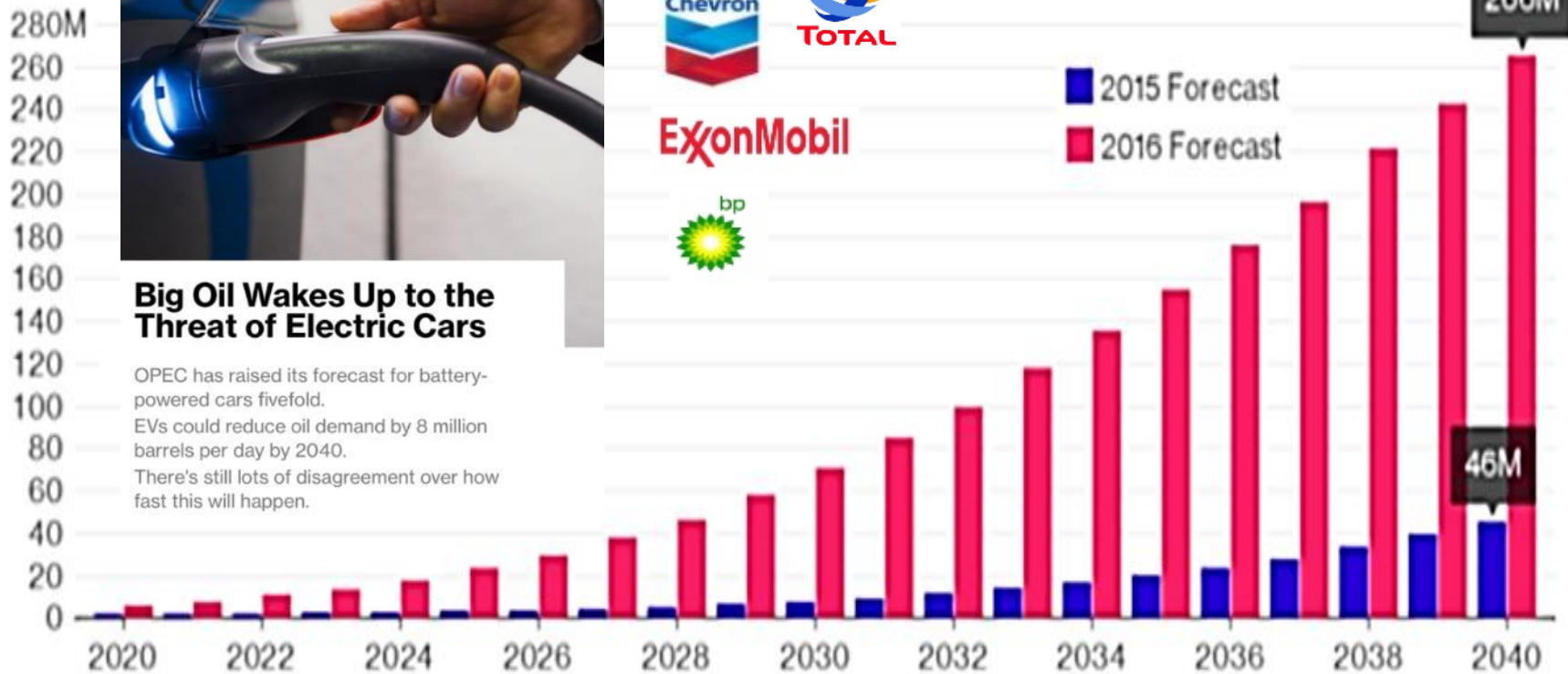


OPEC Raised Electric Vehicle Forecast by almost 500% in 2016



Big Oil Wakes Up to the Threat of Electric Cars

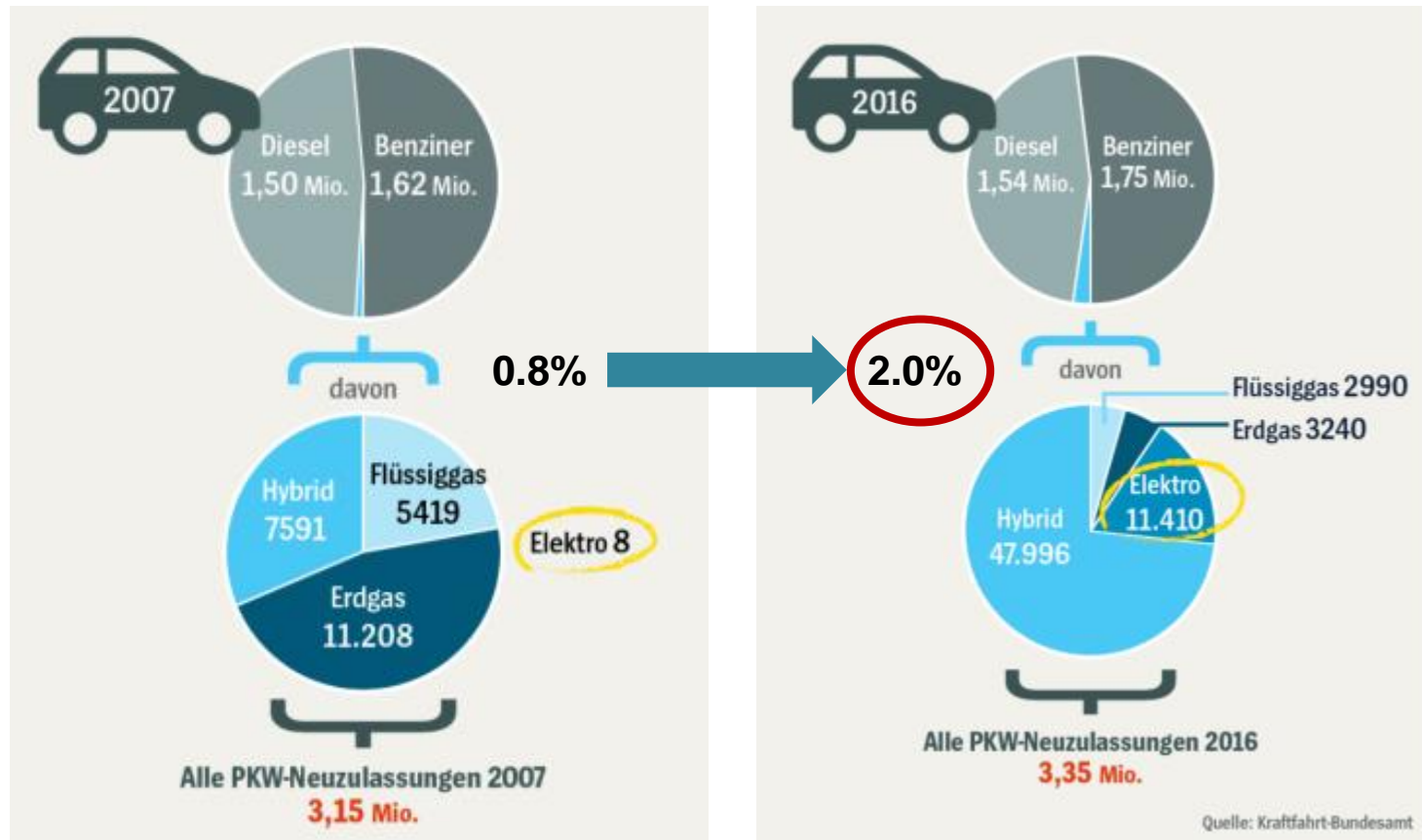
OPEC has raised its forecast for battery-powered cars fivefold.
EVs could reduce oil demand by 8 million barrels per day by 2040.
There's still lots of disagreement over how fast this will happen.



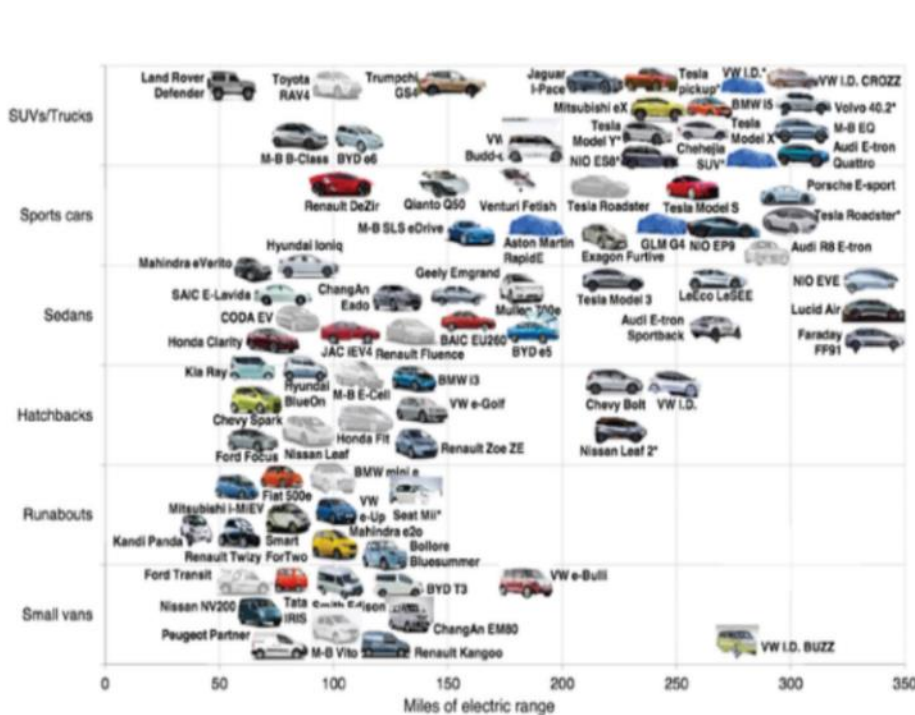
Source: Bloomberg New Energy Finance

Bloomberg

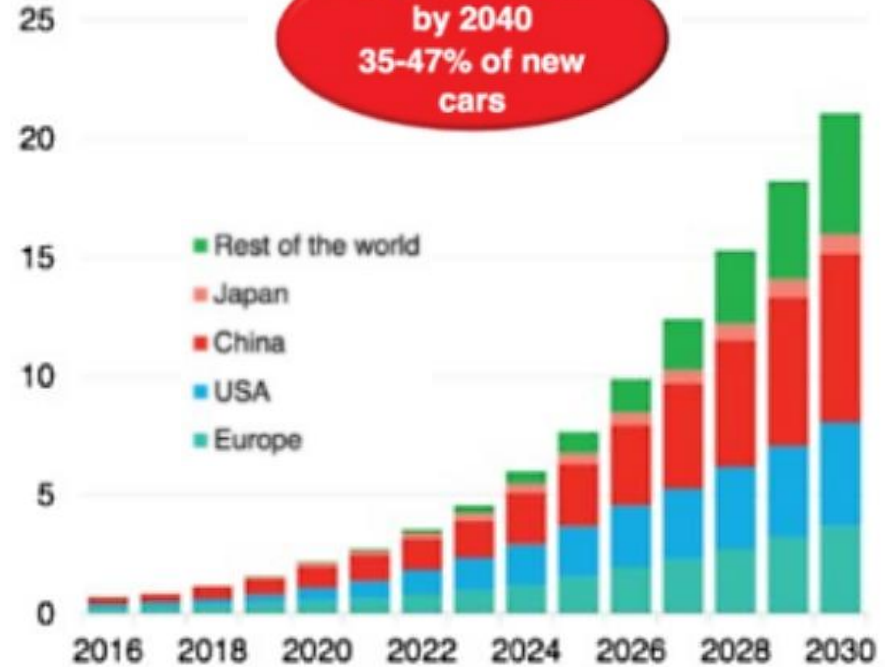
Registration of New Cars in Germany. 2007 vs 2016



Growth of Electric Cars Industry Bloomberg (BNEF) sees more than 20 million sales by 2030



Millions














Source: Bloomberg 2017





But it is not Tesla, Tesla, Tesla,...



But it is not Tesla, Tesla, Tesla,...

Automaker	Targeted EV Volume
 Volkswagen	20 – 30% of sales by 2025
 BMW	15 – 25% of sales by 2025
 Mercedes	15 – 25% of sales by 2025
 Ford	up to 25% of sales by 2020
 Honda	67% of sales by 2030
 GM	~30k Bolts in 2017
 Tesla	0.5m by 2018; 1m by 2020
 Nissan	20% of European sales by 2020/21
 Audi	25 – 30% of sales by 2025
 Volvo	All new models will be electric or hybrid starting 2019
 Jaguar Land Rover	All new models will be electric or hybrid starting 2020

...and Government Policy

 China	5m EV unit sales by 2020 7m EV unit sales by 2025 Considering ban on petrol and diesel cars and vans
 UK  France	Ban on all new petrol and diesel vehicles from 2040
 Norway	Phase out sales of new petrol and diesel cars by 2025 using a 'polluter pays' tax system

...?

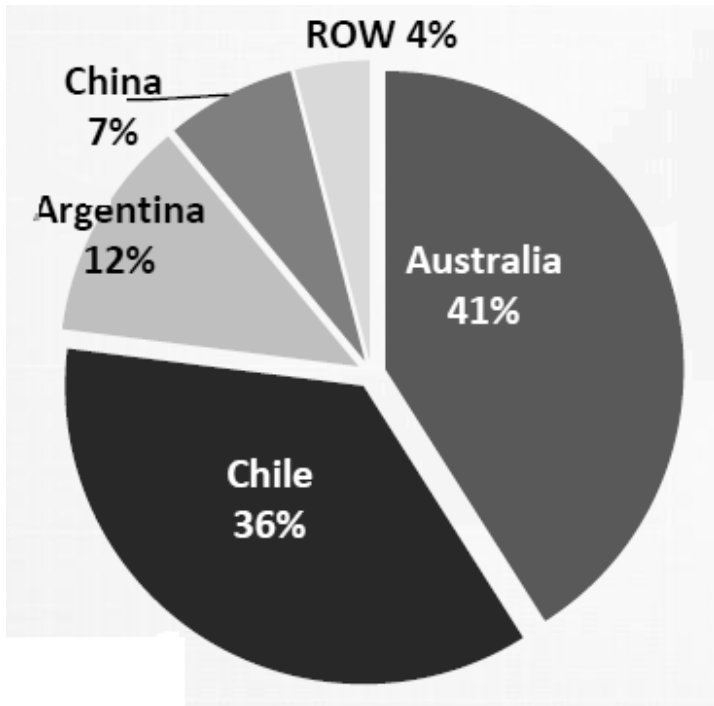
Source: UBS Global Research report dated May 18, 2017; Bloomberg New Energy Finance.

Lithium Market in a Nutshell

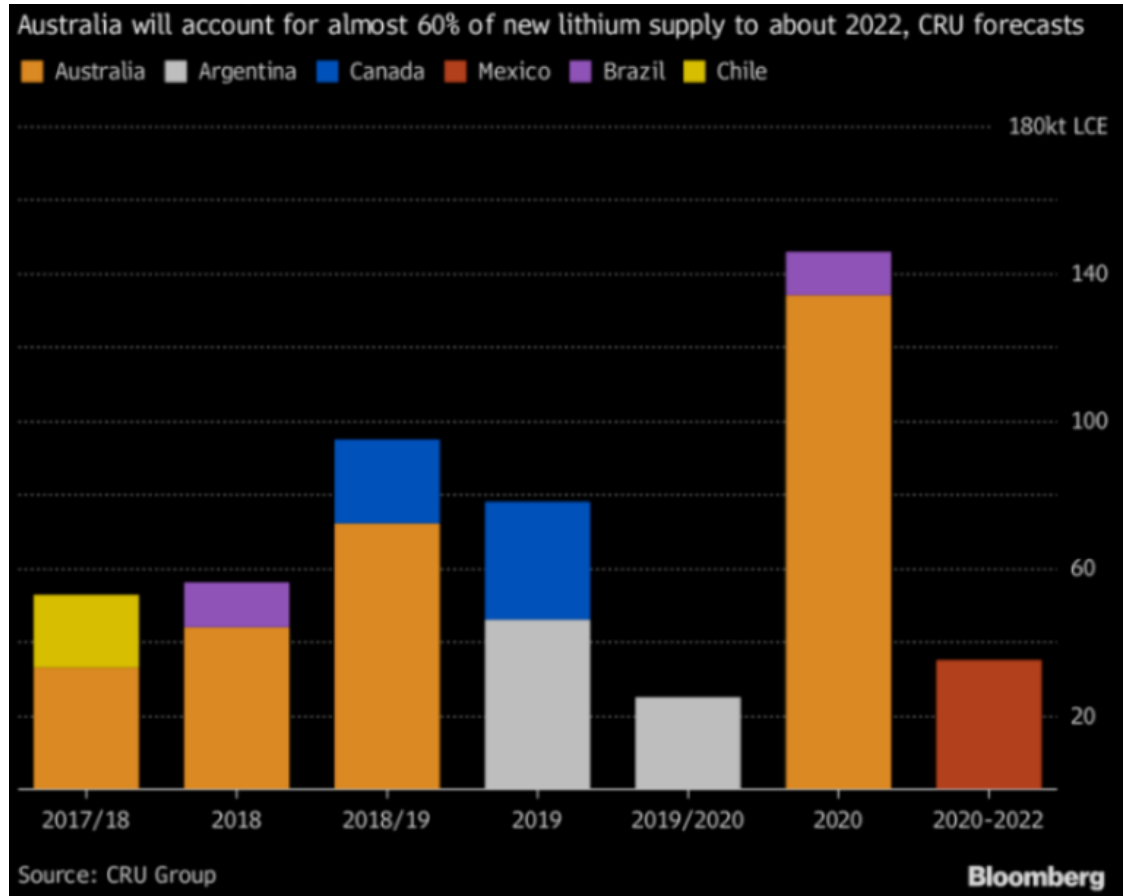
	LCE content / unit	2014 total Li Content (MT)	Projected CAGR (14-24)
Smartphone	5-7g	8,400	8-10%
Tablet	20-30g	7,800	8-10%
Notebook	35-45g	7,650	8-10%
Powertools	60g	3,900	>15%
HEV	5 kg	9,000	20-30%
PHEV/BEV	40-80 kg	18,000	20-30%
Stationary	1.5 Mt	1,000	>30%

- Battery demand now represents 30% of the Lithium market, up from 5% in 2000 and **is expected to rise to 80% by 2025.**
- The fast growing market for hybrids and EVs is being driven by regulations/targets on CO₂ emissions, falling battery costs, improved driving range and expanding charging infrastructure.
- One Tesla Model S battery contains more Lithium than 10,000 smartphones due to its much larger battery.

Lithium Supply and Supply Growth



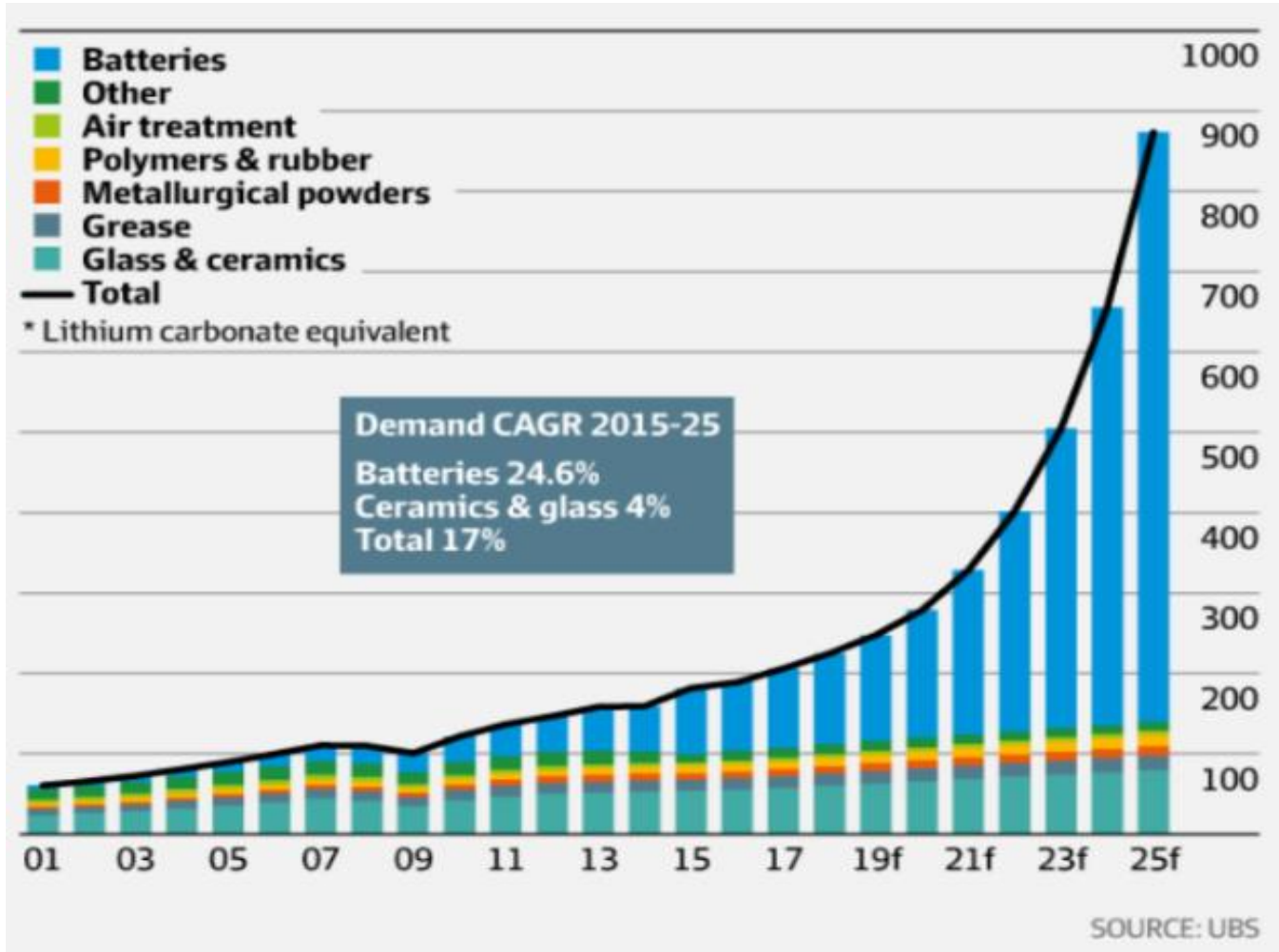
Source: Morningstar, November 2016



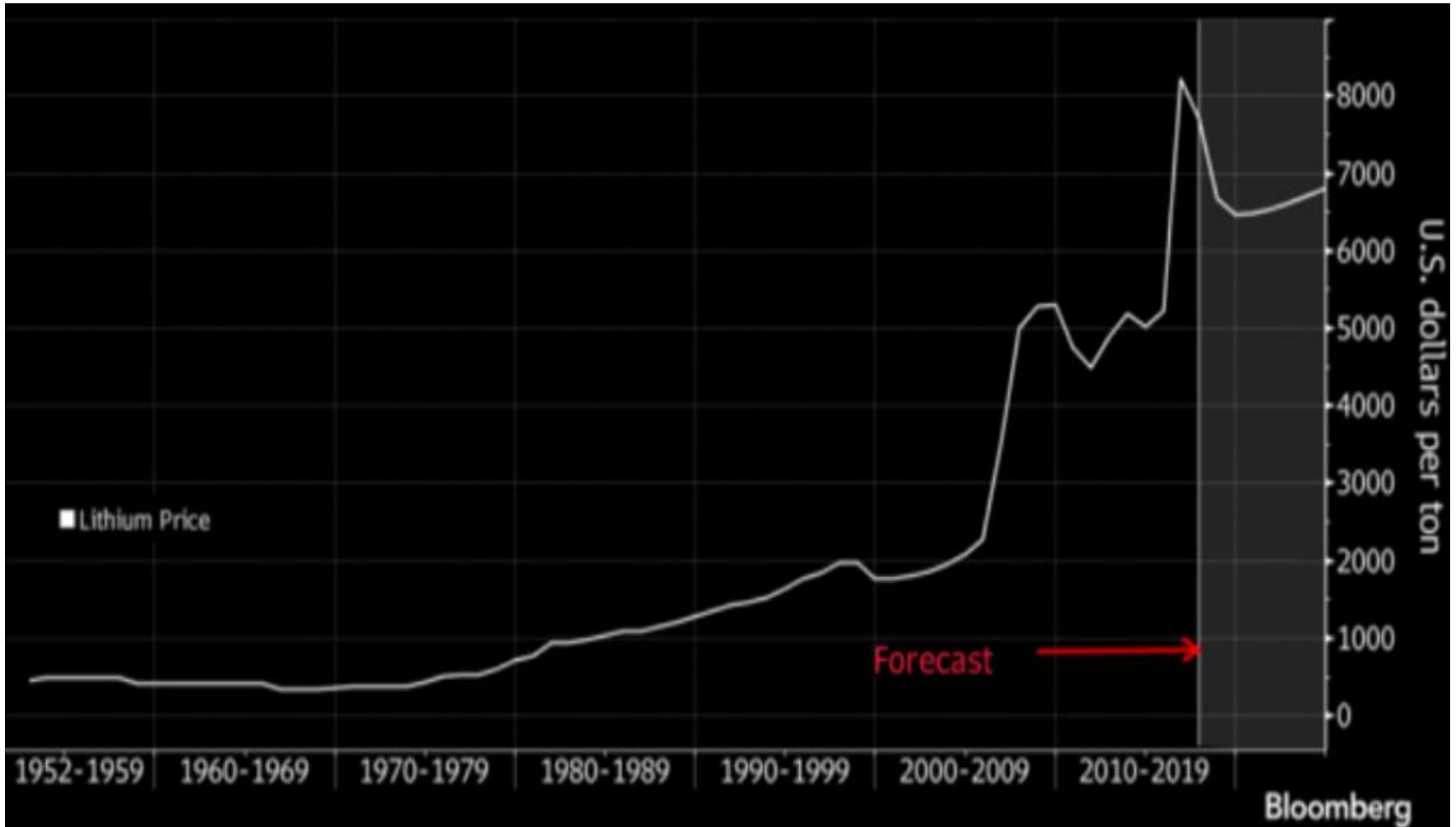
Source: CRU Group

Bloomberg

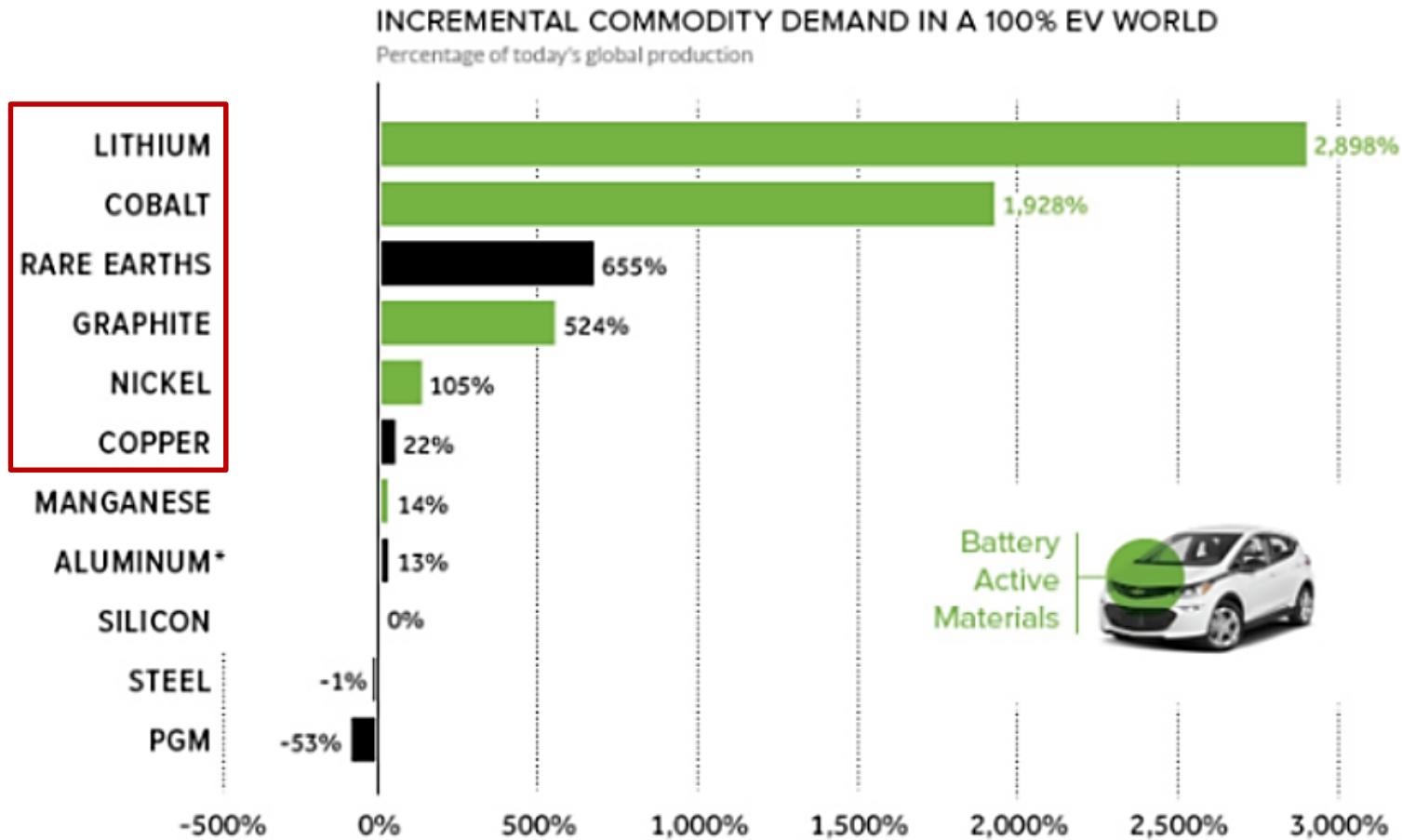
Lithium Demand Forecasts (kt per annum LCE)



Prices soar. Lithium prices rise on electric car demand



But it is not only Lithium. What if...Cars are Electric Tomorrow?



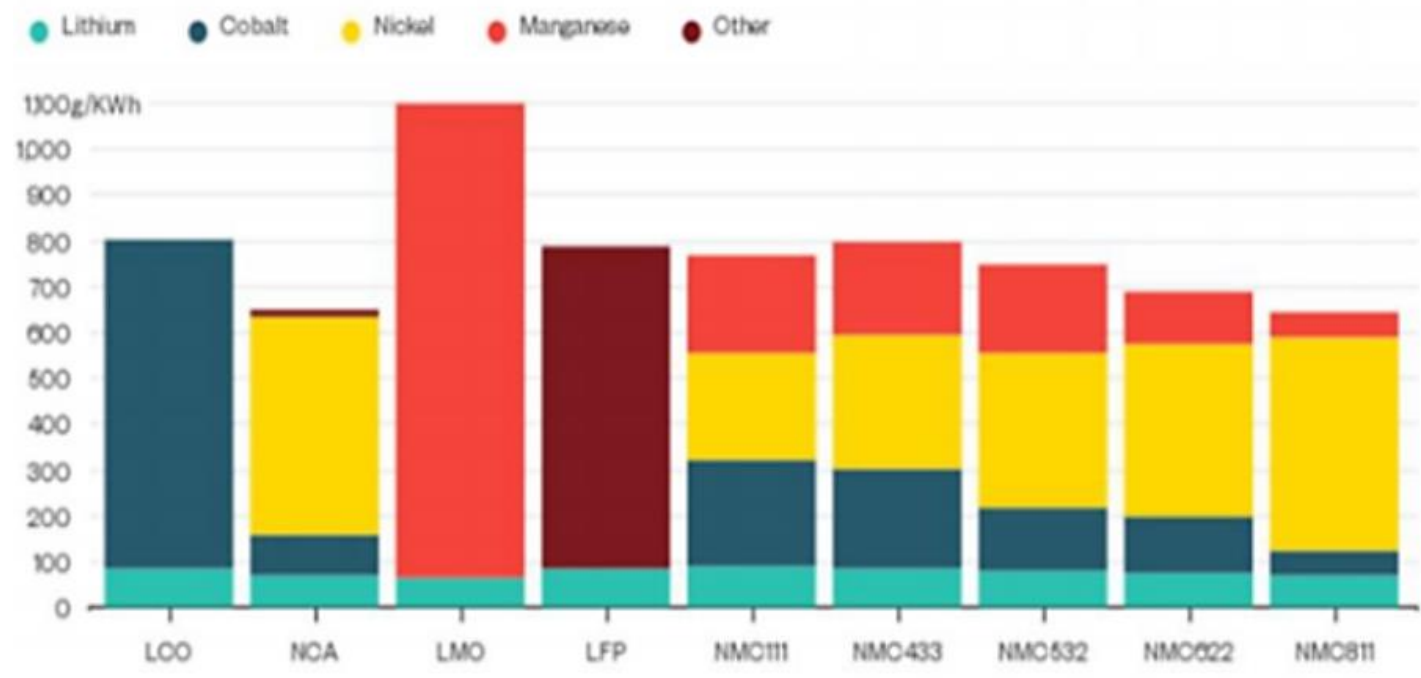
*Small amounts of aluminum are used in NCA batteries, but this change in demand stems mostly from replacing steel in the body.



Source: UBS AG 2017

Material Mix in Rechargeable Batteries – Don't underestimate Nickel + Cobalt!

The mixtures of elements used in different rechargeable battery chemistries vary widely

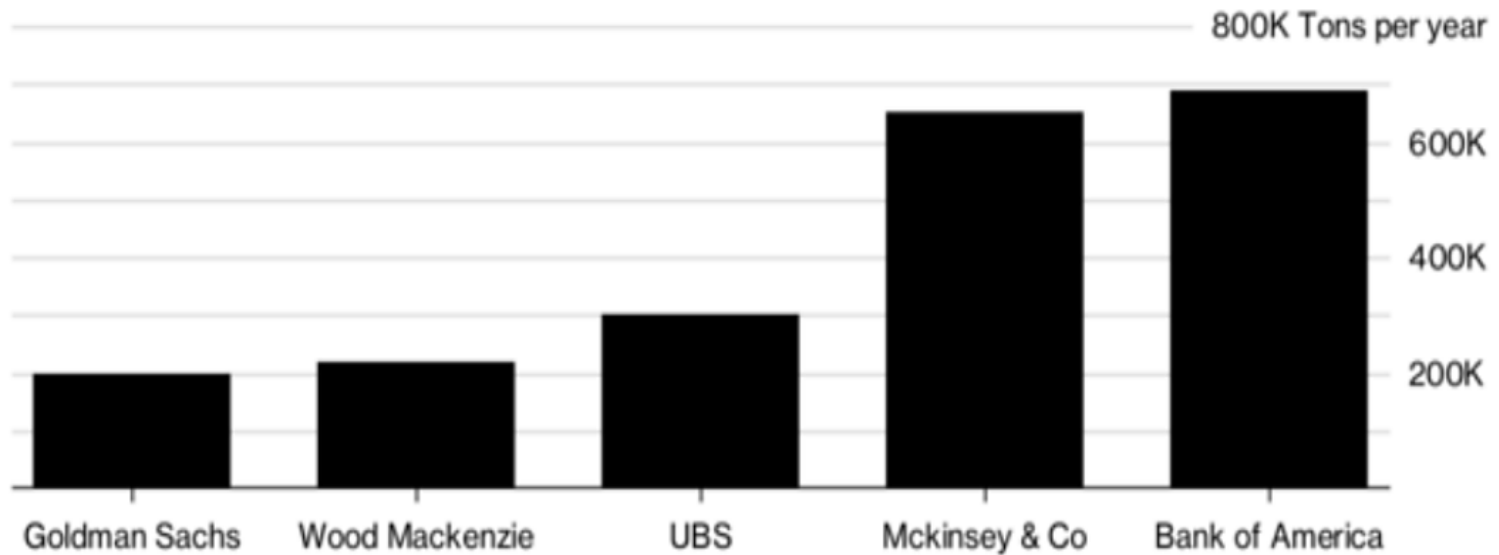


Source: Bloomberg New Energy Finance
Note: *Other* is aluminum (NCA) and iron (LFP).

Bloomberg **Gadfly**

Electric Vehicle Evolution and Nickel Demand (1)

Forecasters see a big demand boost for nickel by 2025 as electric vehicle sales surge

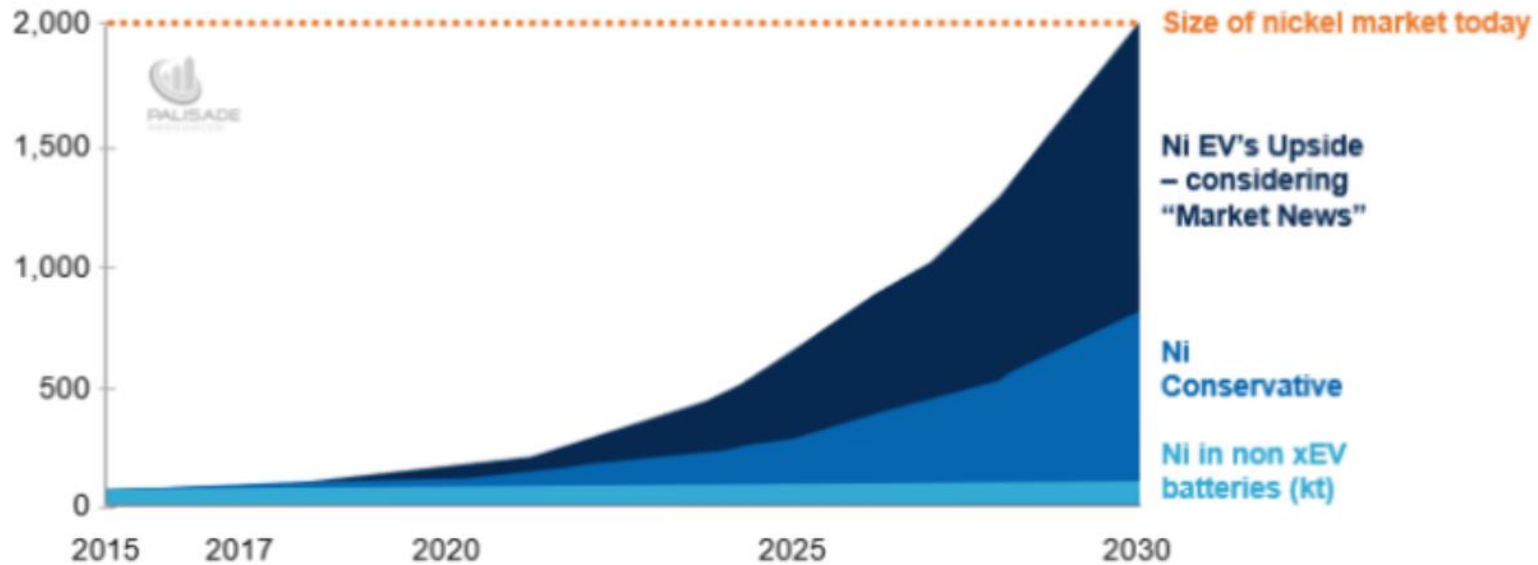


NOTE: Forecasts for annual nickel usage in electric vehicle batteries in 2025

Source: Company research

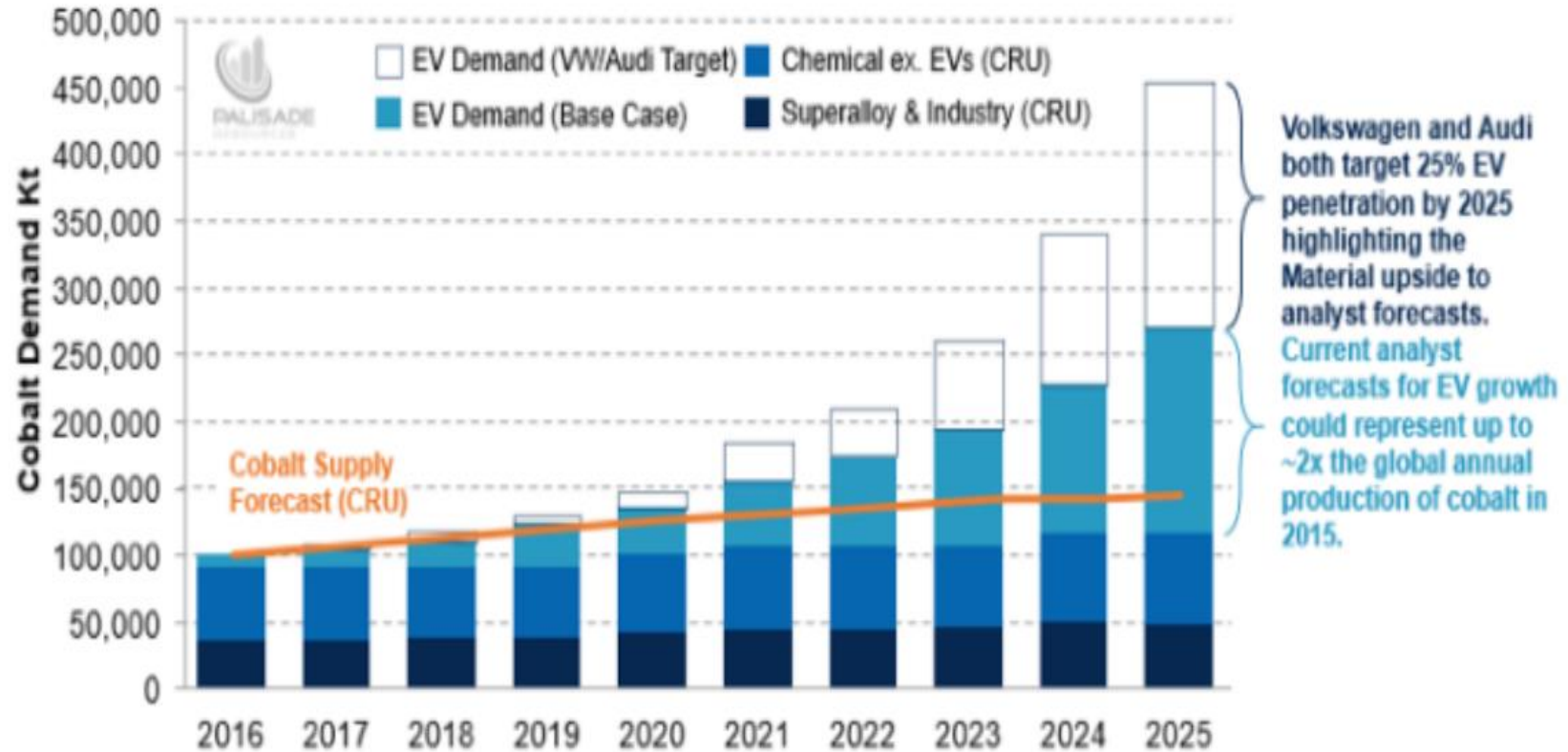
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Electric Vehicle Evolution and Nickel Demand (2)



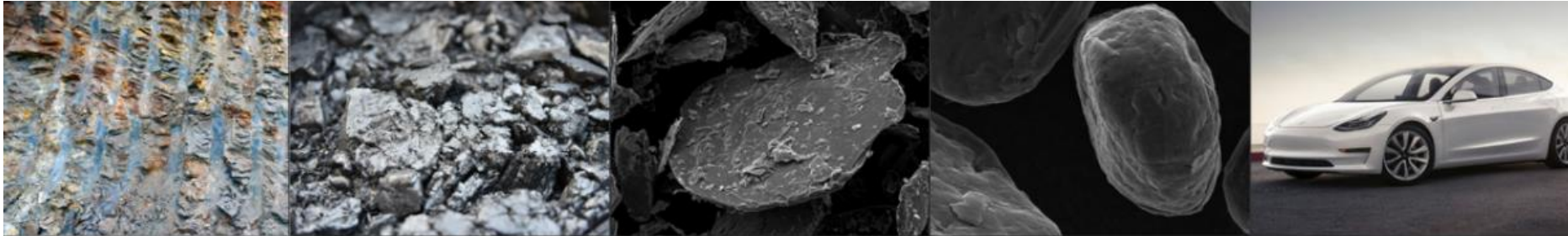
Source: Public Announcements, media, Vale analysis

Electric Vehicle Evolution and Cobalt Demand



Source: CRU Cobalt Outlook Update (Feb 2017), UBS estimates (Sep 2016), IHS Automotive (Jan 2017), company reports

Electric Vehicle Evolution and Graphite Demand



GRAPHITE MINING

PRIMARY
PROCESSING
96.7% Cg PURITY

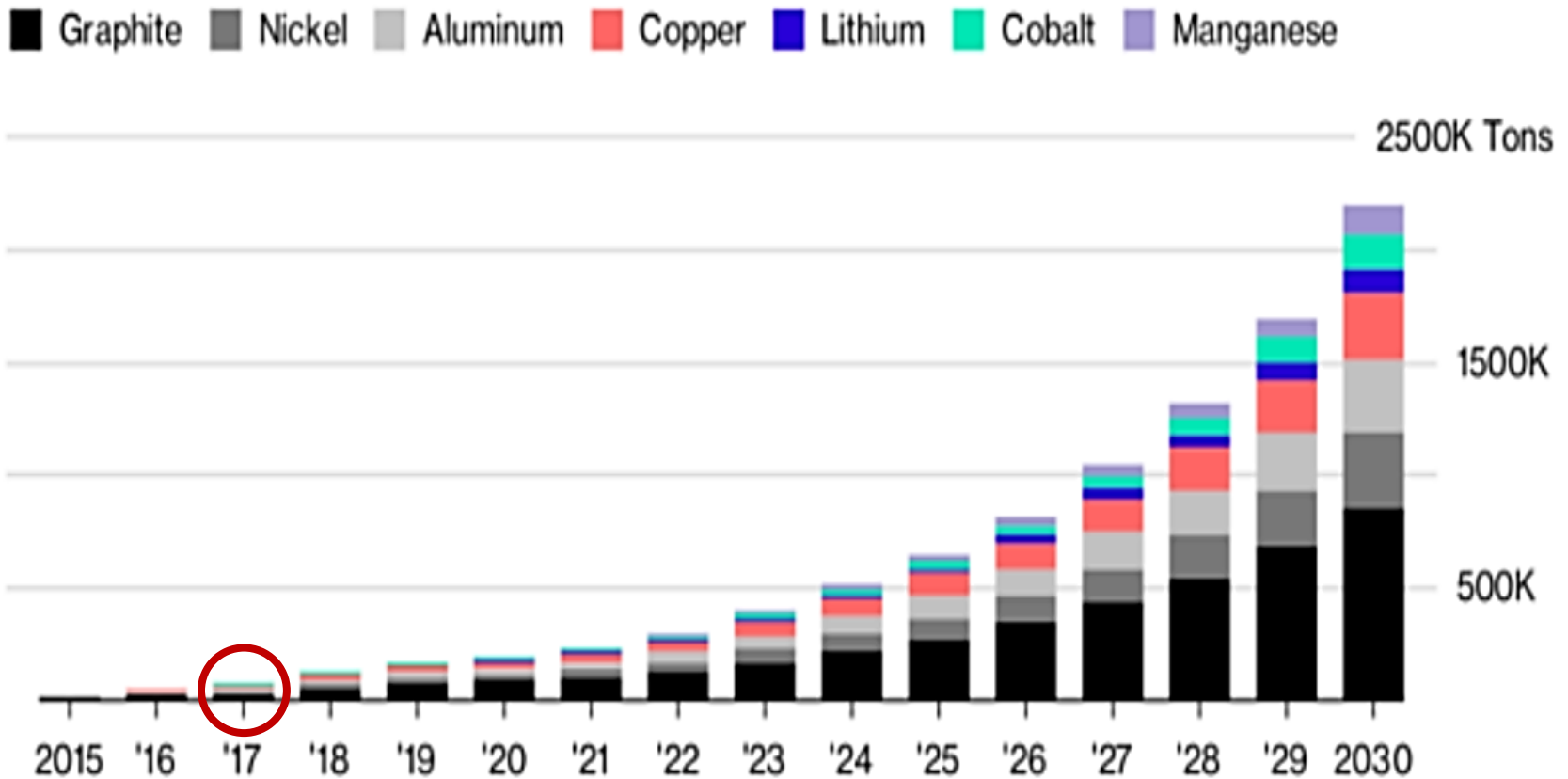
SECONDARY
PROCESSING
99.99% Cg PURITY

SPECIALTY
CSPG GRAPHITE
FOR LI-ION BATTERIES

LI-ION BATTERIES
FOR GREEN-ENERGY
APPLICATIONS



Demand for Metals and Materials from EV Lithium-ion Batteries rises



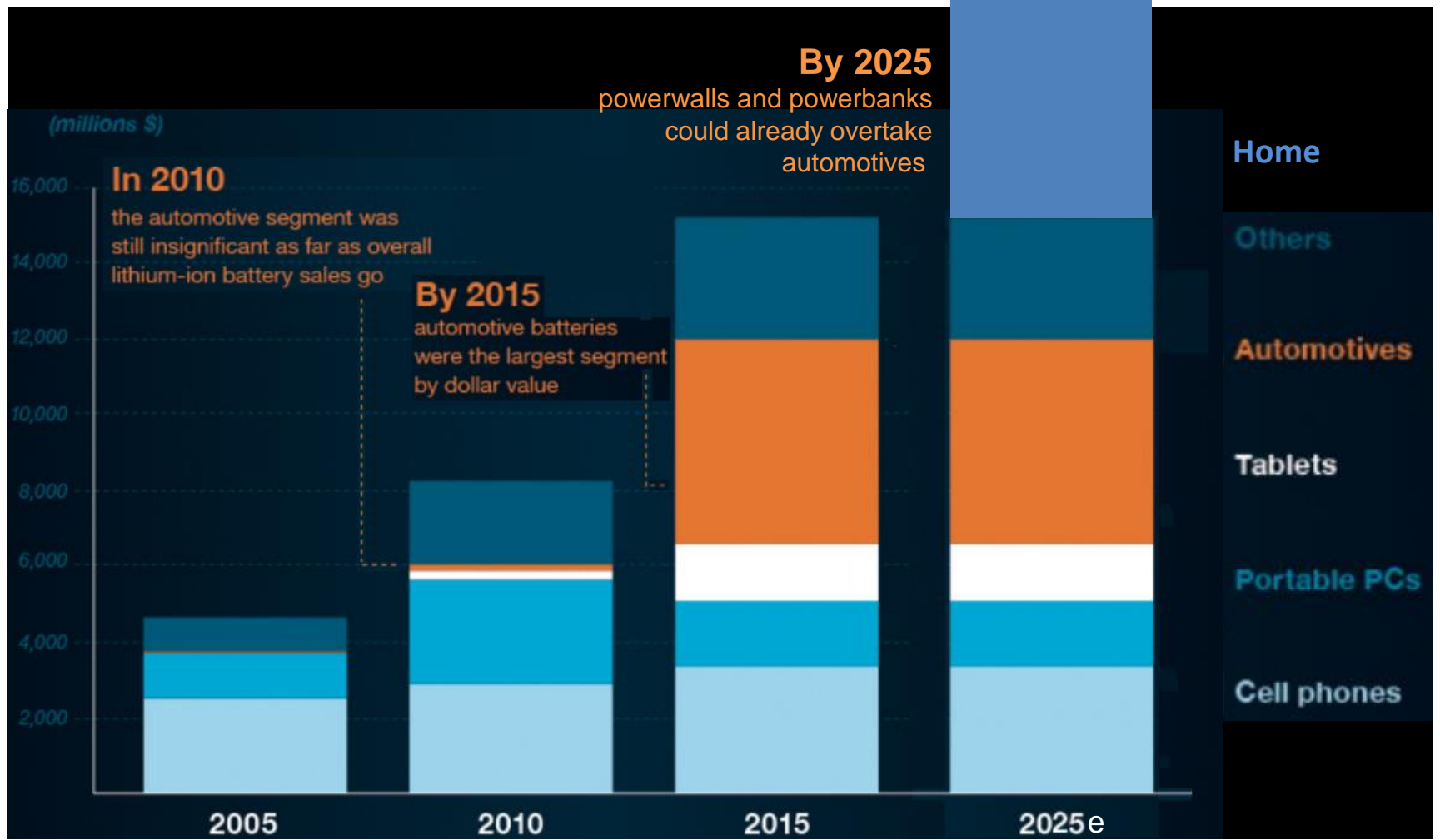
Source: Bloomberg New Energy Finance

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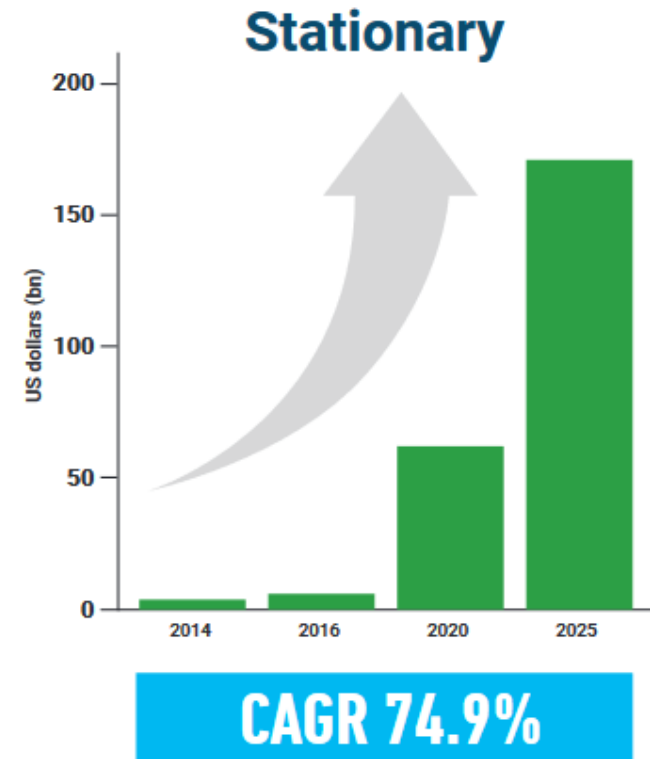
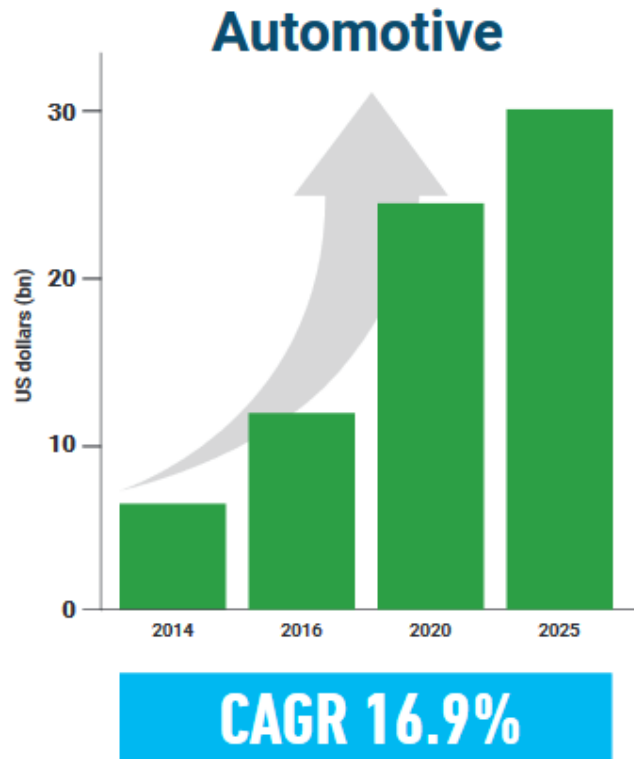
Batteries for Energy Storage is the next “Big Thing”



Lithium-ion Battery Sales

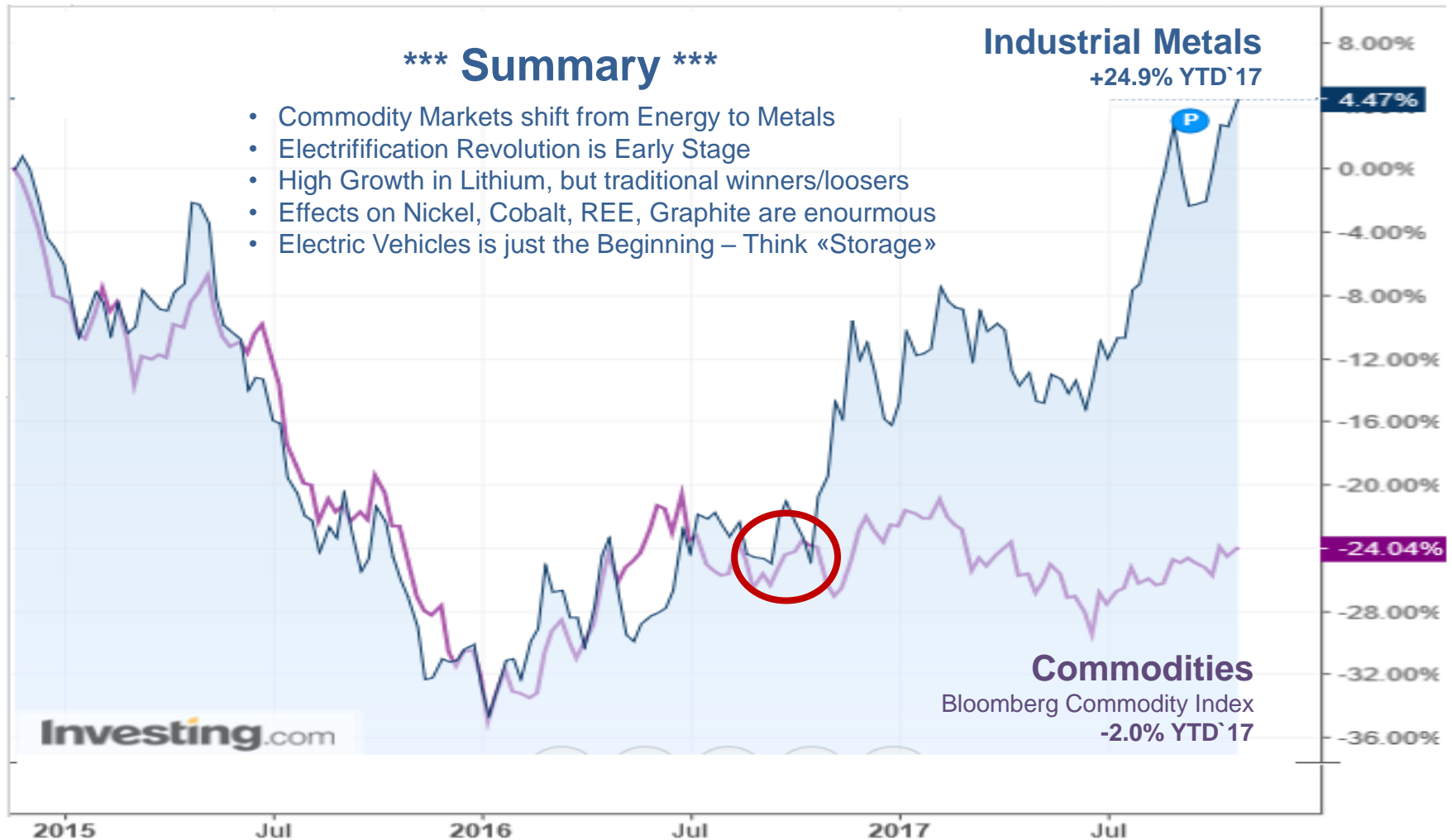


Lithium-ion Battery Market Growth Forecast



Source: Panasonic Corporation/Benchmark Mineral Intelligence (2015)

Metals are outperforming Commodities and Energy



Lynkeus Capital LLC

- Expertise in global financial markets with a focus on commodities and natural resources
- Development of innovative MARS Approach (Multiple Asset Classes Absolute Return Resources Strategy) for commodities
- «Lynkeus» derives from lynx-eyed or sharp-sighted. In Goethe's Faust, Lynkeus is the character who stands on top of the lookout tower and whose destiny is to see
- Therefore, our mission statement is to identify and capitalize outstanding investment opportunities to derive superior investment success within commodities
- Founded in Zug, Switzerland, in January 2016

Dr Torsten Dennin

- Member of Berlin Institute of Finance, Innovation, and Digitalization e.V. (BIFID) in Berlin, Germany
- Founder and CEO of Lynkeus Capital LLC in Zug, Switzerland
- Professional expertise and track record in commodities since 2003
- Ex Commodity Fund Manager at Deutsche Bank AG (2003-10), Co-Head Natural Resources at Altira AG / VCH Investments (2010-13), and Chief Strategist of Tiberius Asset Management AG (2013-17)
- PhD in Economics (thesis on Commodity Forward Curves), studied Finance and Economics at Pennsylvania State University, USA, and graduated at University of Cologne, Germany
- Author of the books "Commodity Markets – Behind the Scenes" and "Africa – Continent of Opportunities"

Afrika - Kontinent der Chancen.

Wettlauf um die Rohstoffe des schwarzen Kontinents; Börsenbuchverlag, 2013

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Ein Blick hinter die Kulissen; FinanzBuch Verlag, 2. Auflage 2011

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Die Möglichkeiten einer dynamischen vs. statischen Allokation auf der Grundlage von Mean Reversion Preiseigenschaften; Eul Verlag, 2009



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