

# Nickel and Cobalt: bullish fundamentals, tepid current outlook

Henrique Ribeiro  
Editor  
Metals – LatAm

02/12/2019 – Pasadena, CA



# Agenda

- S&P Global Platts: who we are and what we do
- Nickel market trends: Indonesian ban impacts still unclear
- Cobalt market trends: drastic shift in the horizon
- General perspectives for EVs and the li-ion battery industry

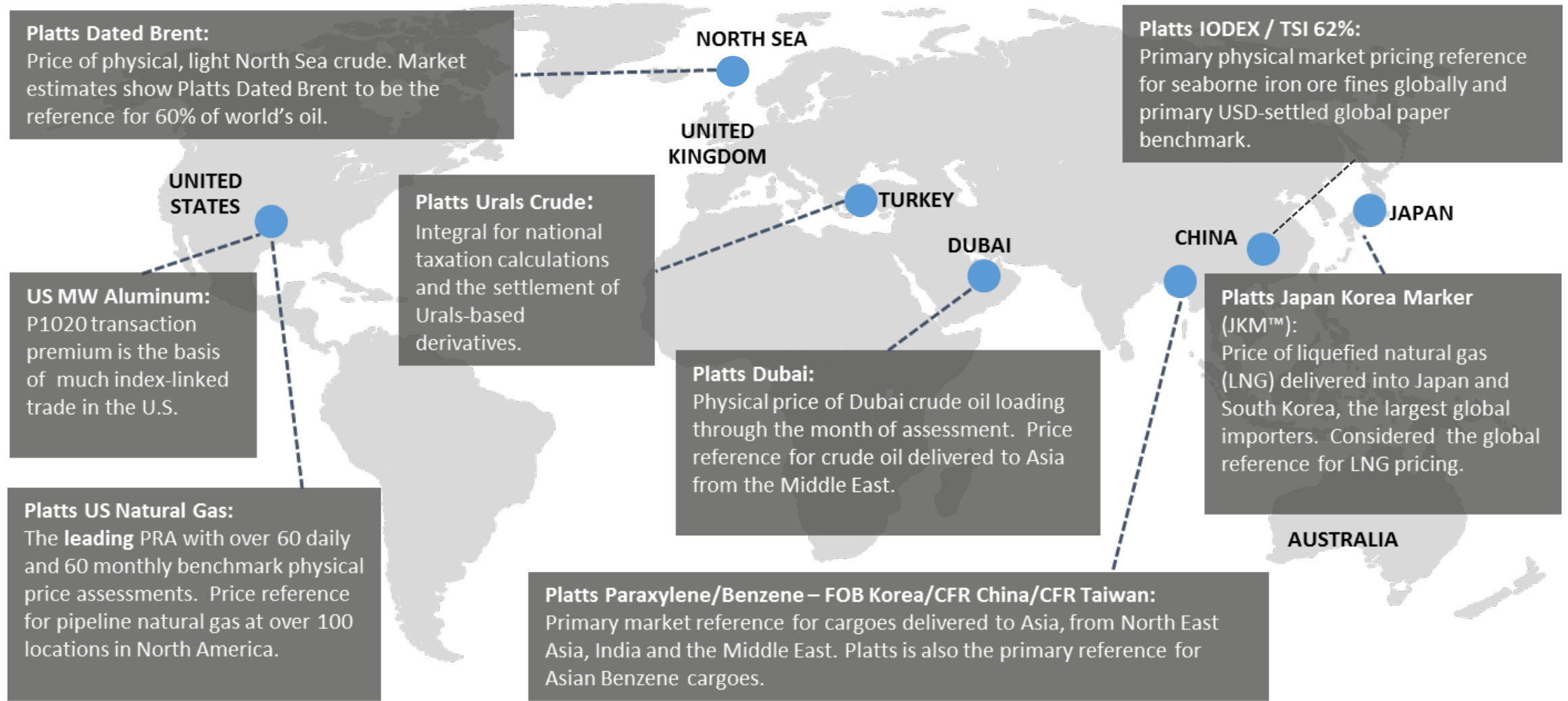
# Platts: part of S&P Global

- McGraw Hill Financial became S&P Global in April 2016
- Founded in 1909, Platts has over 1,000 professionals in office locations worldwide
- Over 10,000 customers in more than 150 countries

Beijing	Houston	Shanghai
Boston	London	Singapore
Buenos Aires	Melbourne	Tokyo
Denver	Mexico City	Washington
Dubai	Moscow	
Hightstown	New York	
Hong Kong	Pittsburgh	
	Sao Paulo	



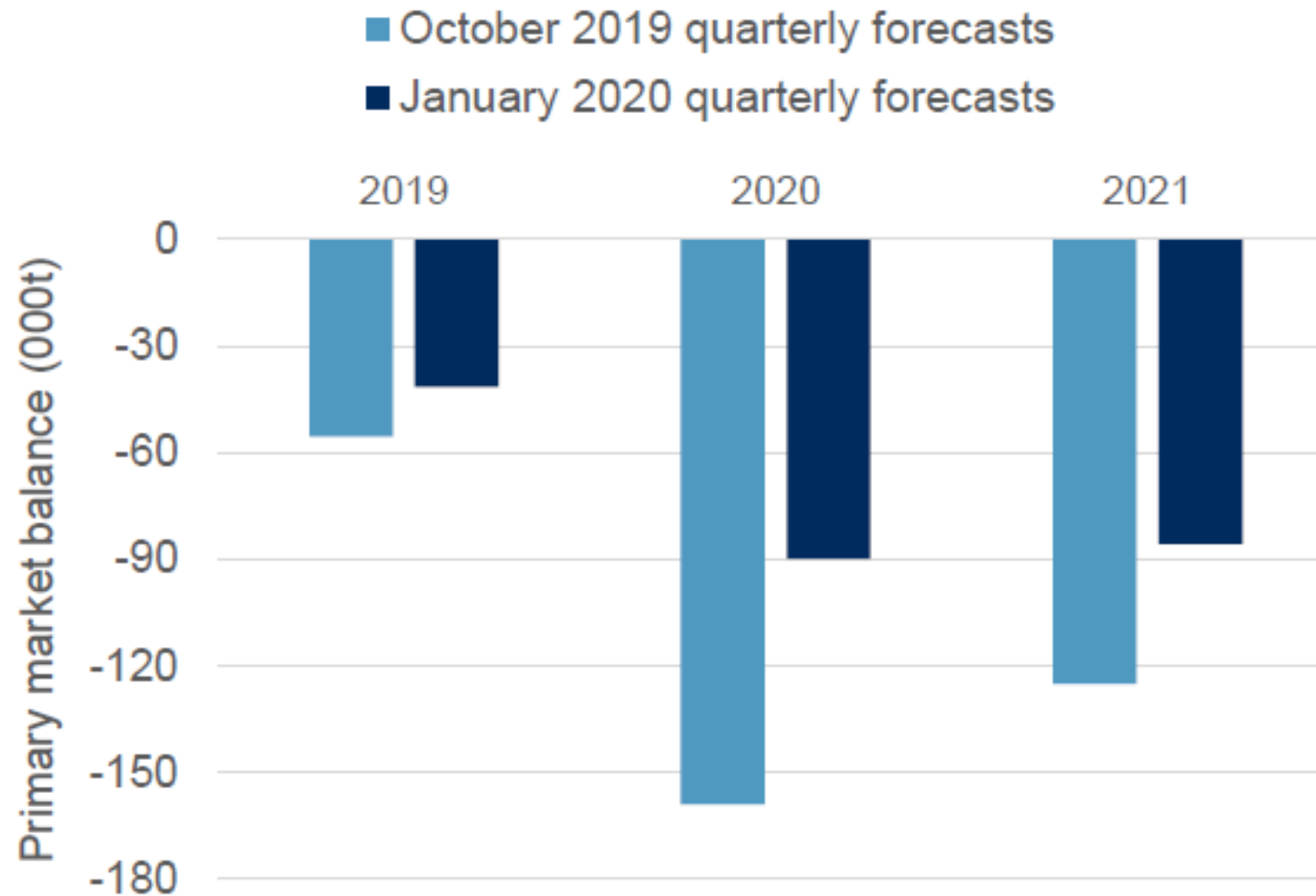
# S&P Global Platts has benchmarks across several industries



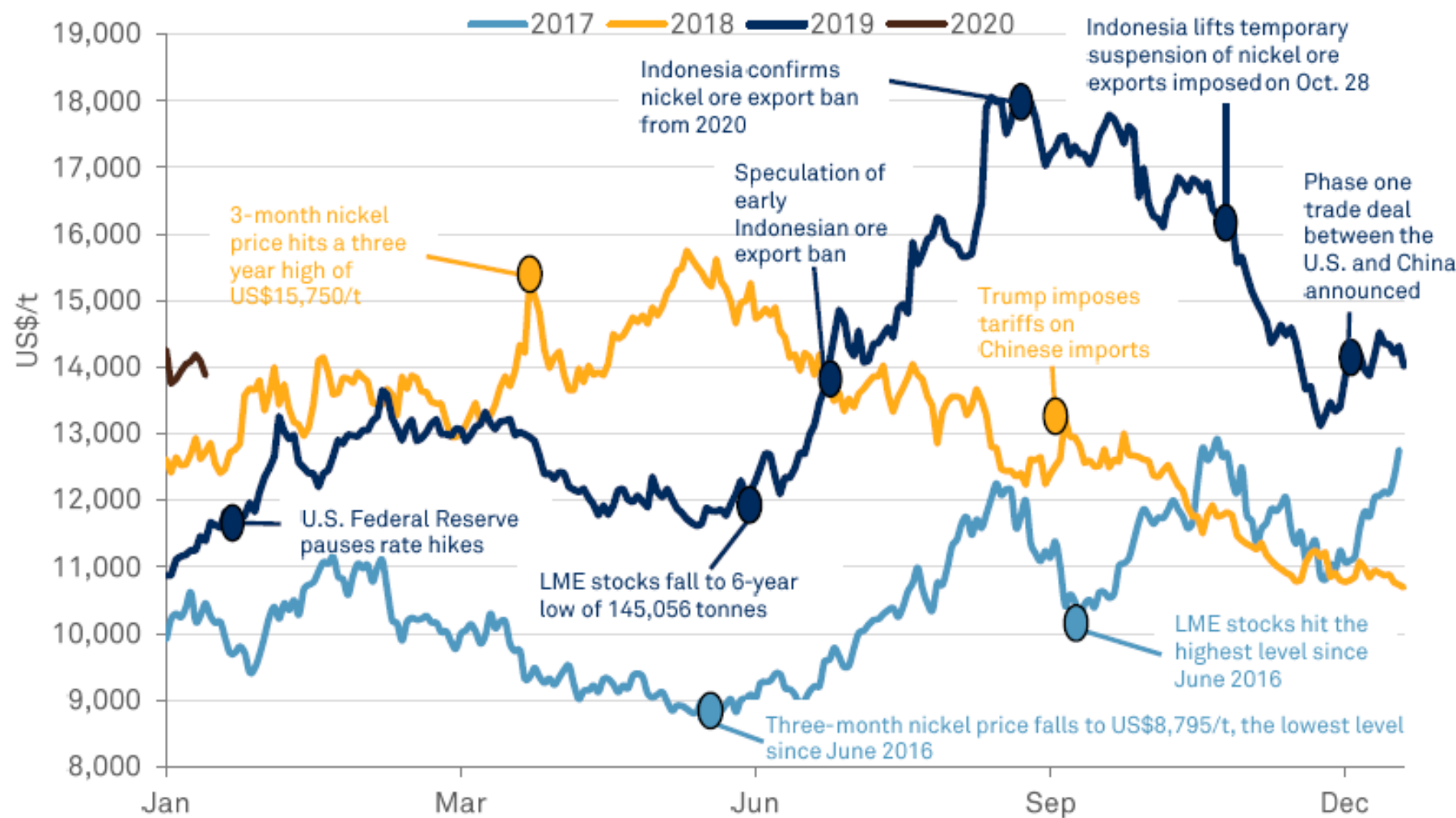
# Nickel market trends: Indonesian ban impacts still unclear



# Primary Nickel deficit to widen, but less than previously expected



# Nickel prices to have slight annual increases in the coming years



**US\$13,970/t**

Average LME 3-month nickel price in 2019

**US\$15,325/t**

Expected average LME 3-month nickel price in 2020

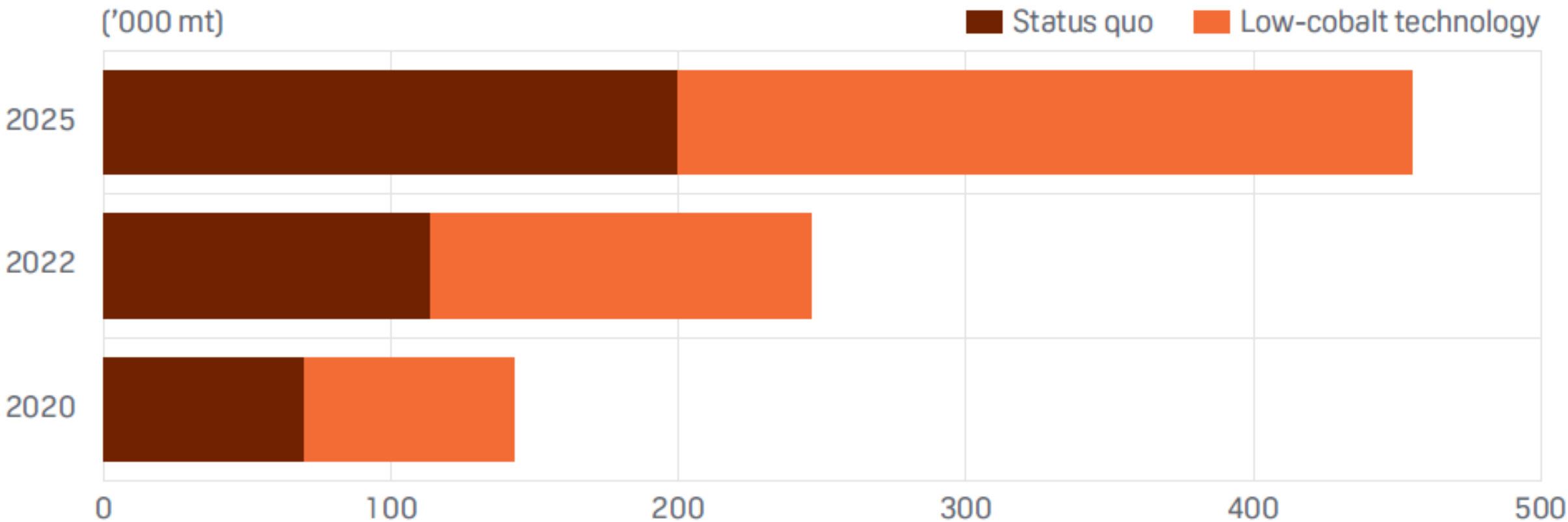
Average prices (US\$/t)	
2019	13,970
2020	15,325
2021	15,650
2022	15,750

# Nickel demand to grow faster than supply

Forecast at a glance (000 t)					
	2019	2020	2021	2022	
Supply	2,367	2,379	2,444	2,509	+6%
Demand	2,409	2,469	2,531	2,587	+7.4%
Balance	-42	-90	-86	-78	
LME 3-month price (US\$/t)	13,970	15,325	15,650	15,750	
Data as of Jan. 14, 2020.					
Sources: S&P Global Market Intelligence; London Metal Exchange					



# Ni demand from LD PEV likely to quadruple by 2025



Source: S&P Global Platts Analytics - scenario planning service: most likely case

# Cobalt market trends: drastic shift in the horizon

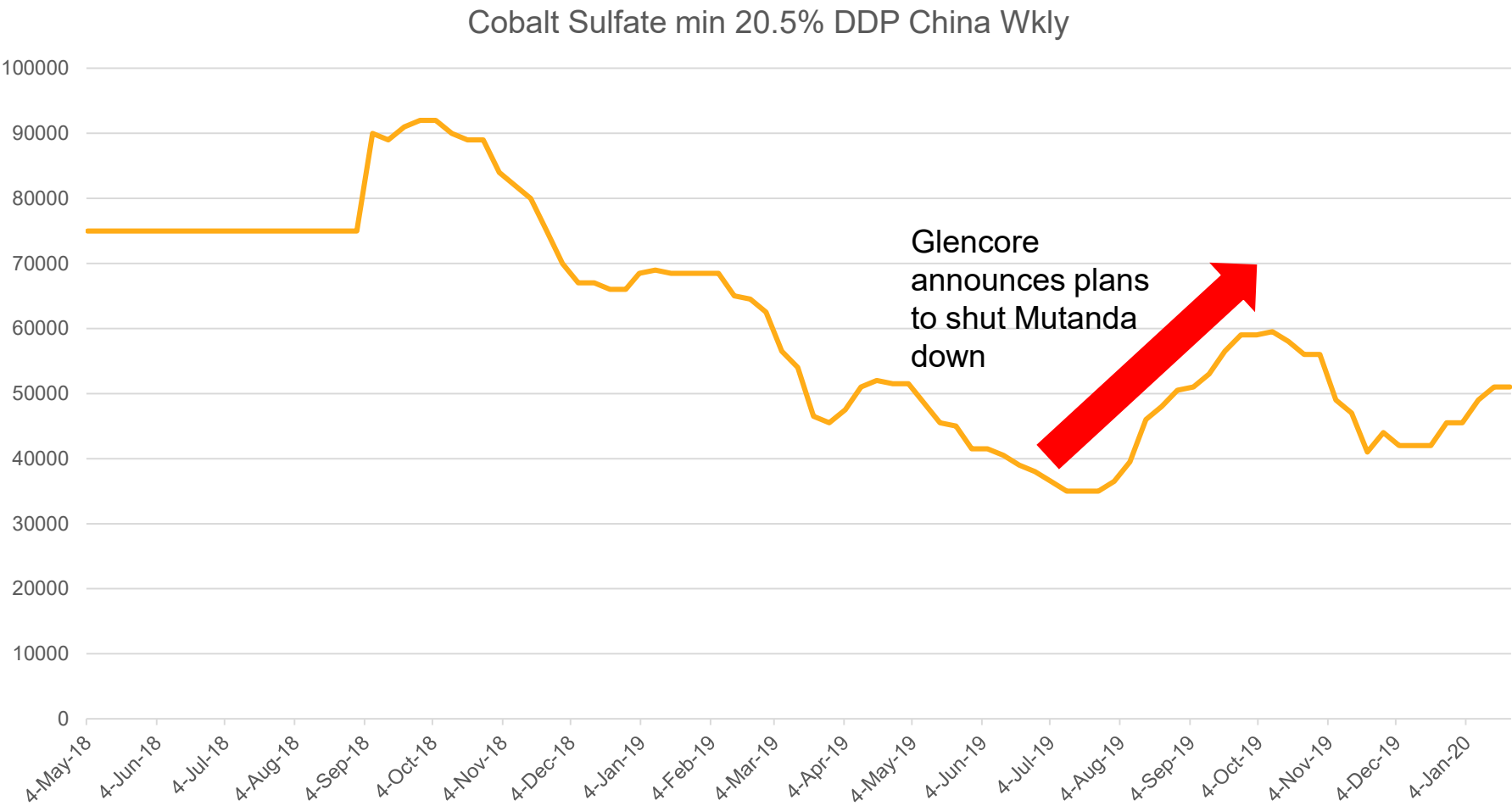


# Cobalt market: deficit or surplus?

Metric Tonnes	2018	2019F	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Mine Production (Post-Disruption)	139600	138849	143015	158071	173563	180463	190401	207569	206838	203750	205440	209213	215064
Possible/Probable (Adj for risk & disruption)				2110	9610	13080	15730	18180	20020	22980	23730	24270	23810
Total Mine Production	139,600	138,849	143,015	160,181	183,173	193,543	206,131	225,749	226,858	226,730	229,170	233,483	238,874
% growth	16%	-1%	3%	12%	14%	6%	7%	10%	0%	0%	1%	2%	2%
Refined Production (inc Secondary)	116,000	114,700	118,400	132,500	151,600	160,300	171,200	187,600	192,800	197,000	203,900	213,400	227,800
<b>Demand</b>													
Total Demand	109,100	111,700	121,400	132,200	145,300	158,700	171,300	189,900	209,600	216,200	228,700	235,500	246,300
% growth	5%	2%	9%	9%	10%	9%	8%	11%	10%	3%	6%	3%	5%
Surplus/Deficit	6,900	3,000	-3,000	300	6,300	1,600	-100	-2,300	-16,800	-19,200	-24,800	-22,100	-18,500
Potential Estimated Stock Demand	-2,600	-2,200	900	2,100	4,000	5,700	2,600	600	-700	-400	-2,000	-4,600	-6,400
In Months of EV demand	-1.5	-1.2	0.4	0.7	1.0	1.1	0.4	0.1	-0.1	0.0	-0.2	-0.4	-0.6
Surplus/Deficit (post consumer stocking)	9,500	5,200	-3,900	-1,800	2,300	-4,100	-2,700	-2,900	-16,100	-18,800	-22,800	-17,500	-12,100
Katanga Stockpile	3,700	9,700	6,800	4,700	4,100	1,400	0						
Net Katanga stock change	3,700	6,000	-2,900	-2,100	-600	-2,700	-1,400						
Surplus/Deficit (post Katanga Stock pile)	5,800	-800	-1,000	300	2,900	-1,400	-1,300	-2,900	-16,100	-18,800	-22,800	-17,500	-12,100
As % of the market			-1%	0%	2%	-1%	-1%	-2%	-8%	-10%	-11%	-8%	-5%
Price (\$/t)	81,869	35,635	40,500	45,000	45,000	55,000	65,000	70,000	71,400	72,900	74,400	75,900	77,500
Price (\$/lb)	37.1	16.2	18.4	20.4	20.4	24.9	29.5	31.8	32.4	33.1	33.7	34.4	35.2

Source: Bloomberg, LME, Woodmackenzie, Citi Research

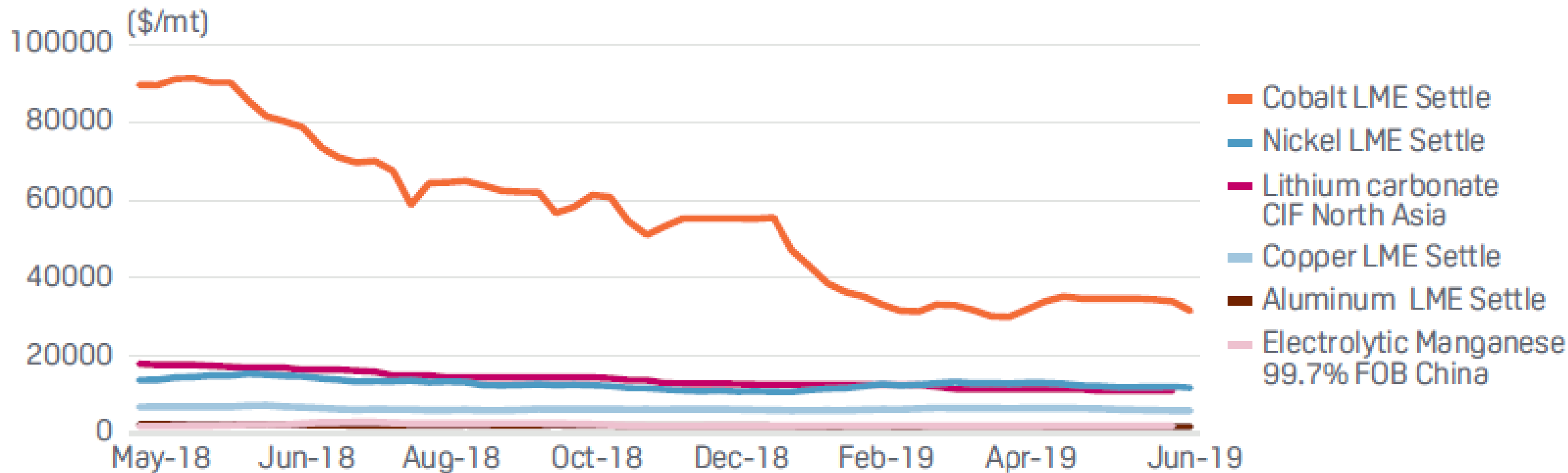
# Cobalt Sulfate prices rebounded in late 2019-early 2020



Source: S&P Global Platts

# Low Cobalt cathode chemistries still trending

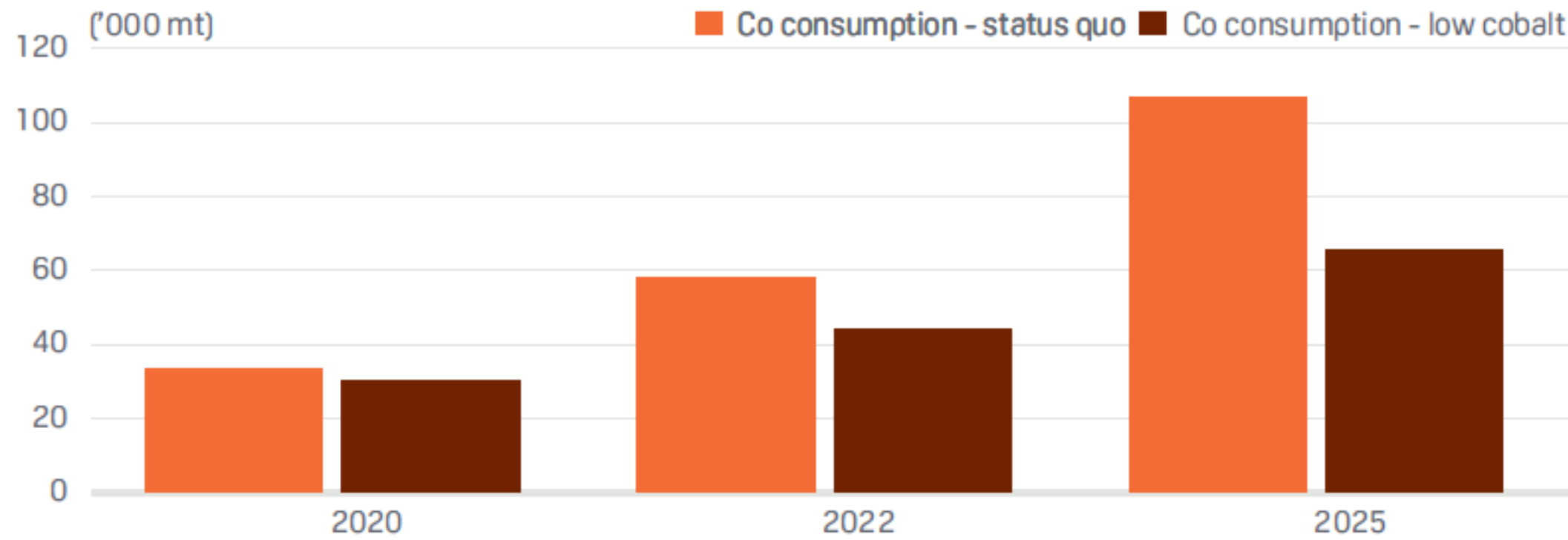
## COBALT IS THE MOST EXPENSIVE METAL USED IN BATTERIES



Source: S&P Global Platts

# Cobalt use in electric vehicles could triplicate by 2025

GLOBAL COBALT DEMAND FROM PASSENGER LIGHT-DUTY VEHICLES

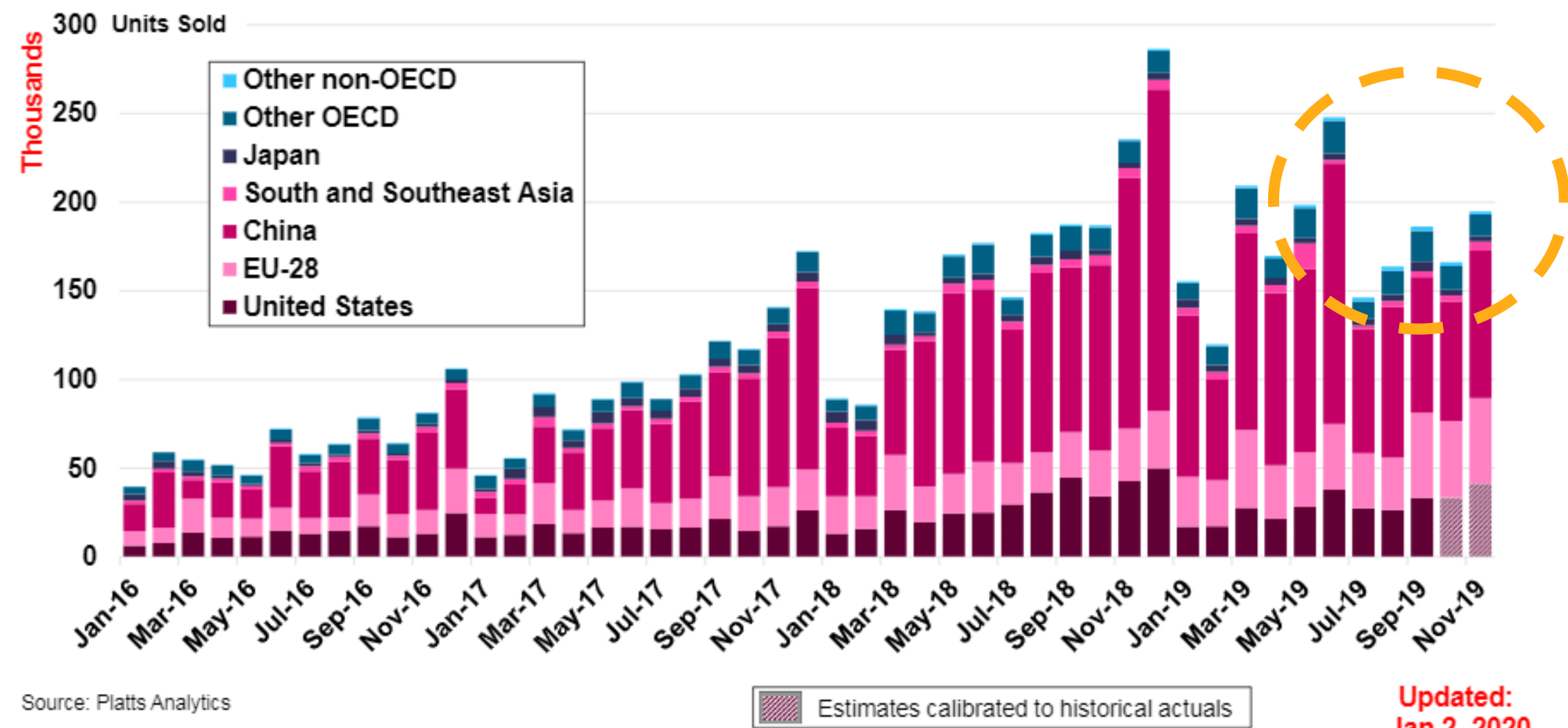


Source: S&P Global Platts Analytics

# General perspectives for the li-ion battery industry



# Light-duty plug-in passenger vehicles (LD PEV) sales – World

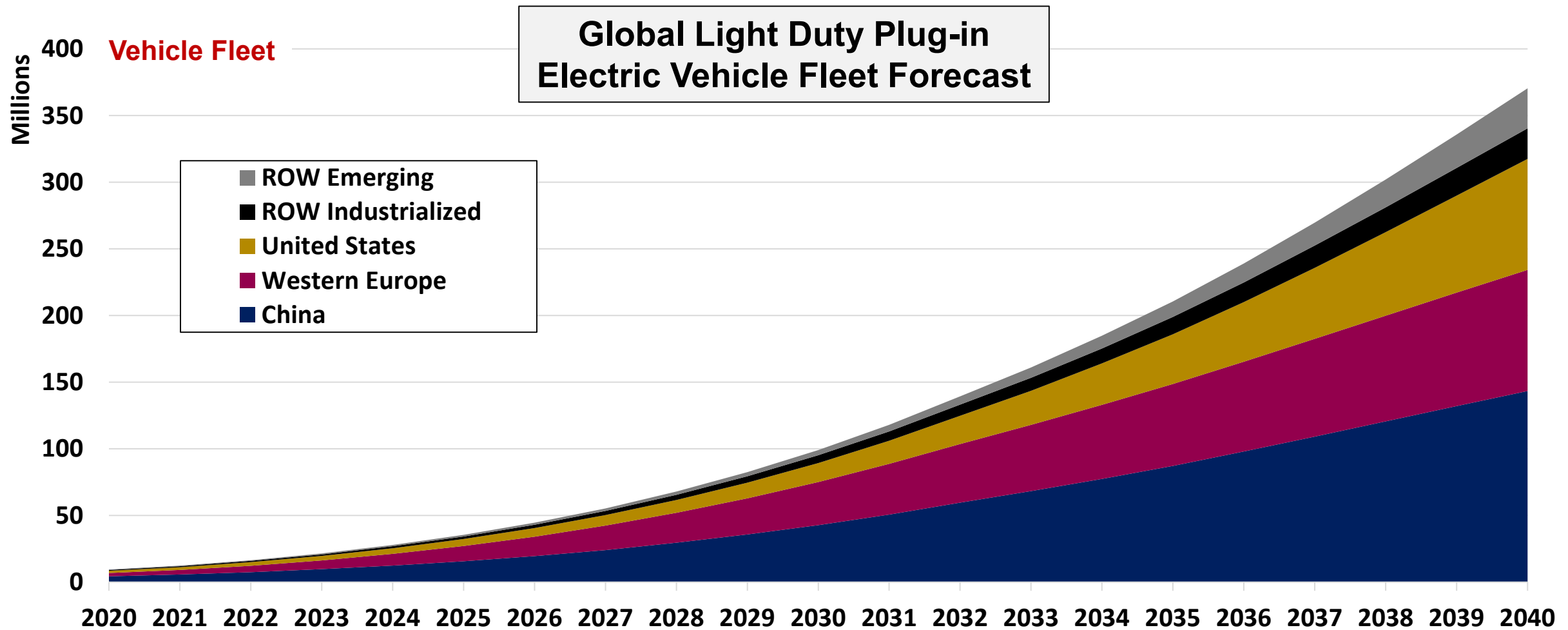


Source: Platts Analytics

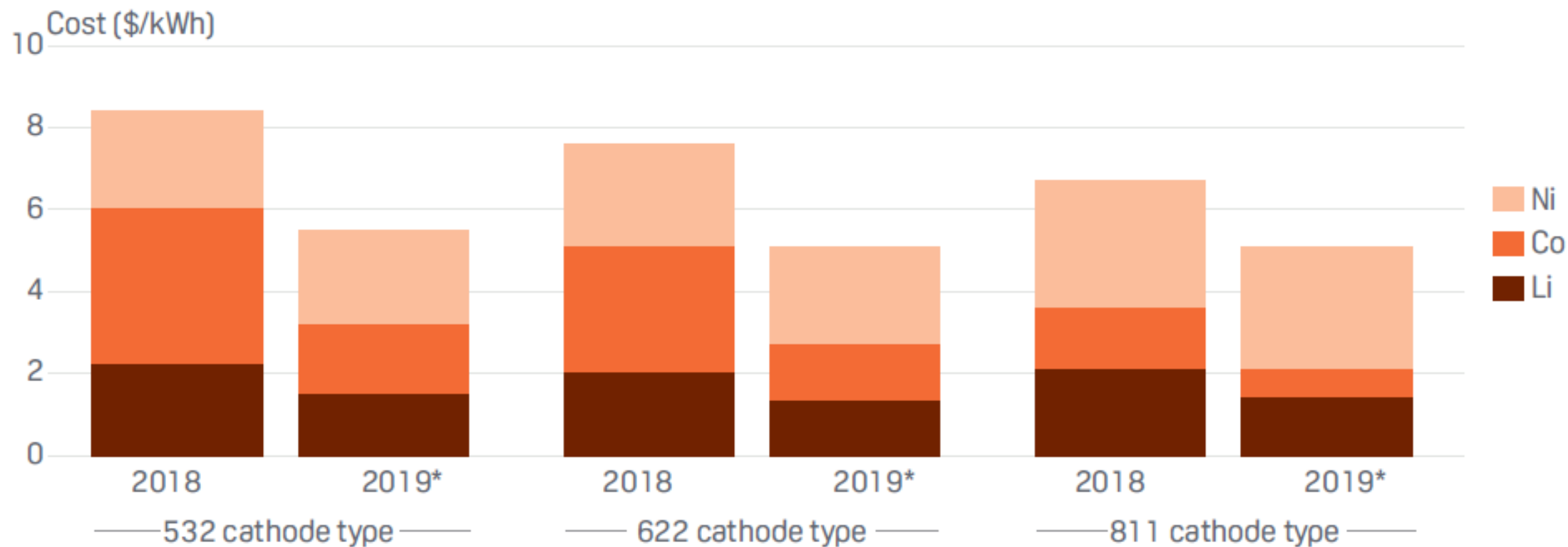
Updated:  
Jan 2, 2020



# China and W. Europe to account for over half of the global EV fleet



# 811 was still the most cost effective NCM cathode in 2019



Data as of 5 November 2019.

\*Price level reflects the 2019 averages up until Nov 5, 2019.

Source: S&P Global Platts, S&P Global Market Intelligence, International Energy Agency, Shanghai Metals Market, Benchmark Minerals

# Conclusions

- Both Nickel and Cobalt prices to be boosted by supply constraints – Ni a lot more flexible than Co
- Demand to grow faster than supply for both Ni and Co in the coming years
- Ni and Co chemicals' prices strongly correlated to EV adoption – slow 2020, very positive long term
- Long term perspective remains bullish, but 2020 could go from a “transition year” into another flop
- Li-ion technology boom to be led by the Chinese EV industry, nickel-rich technologies to prevail (but cobalt demand will also surge)

# Thank you!

Henrique Ribeiro

Editor, Metals – LatAm

(+55 11) 3818 4120

(+55 11) 97427 5007

[henrique.ribeiro@spglobal.com](mailto:henrique.ribeiro@spglobal.com)