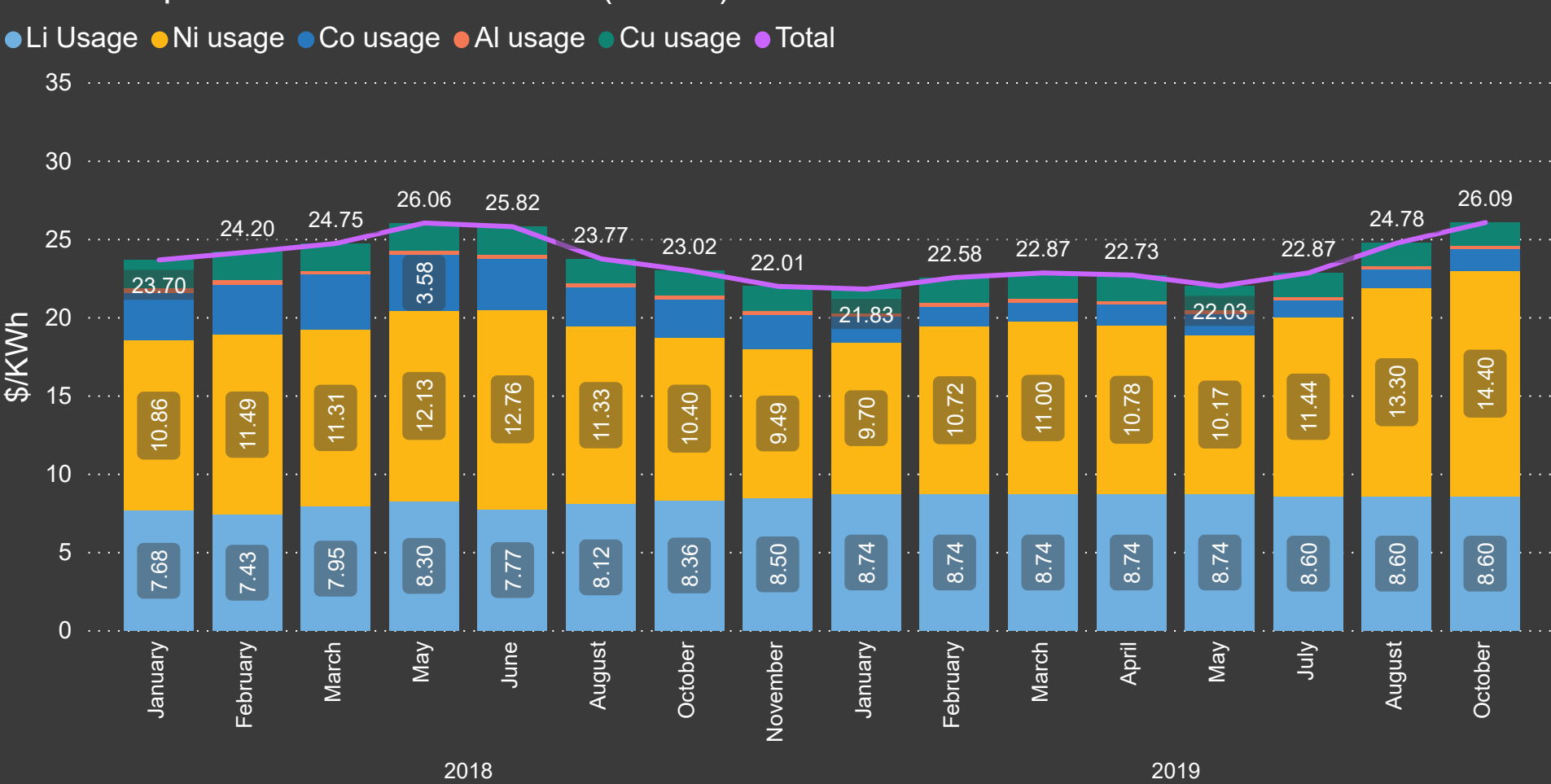
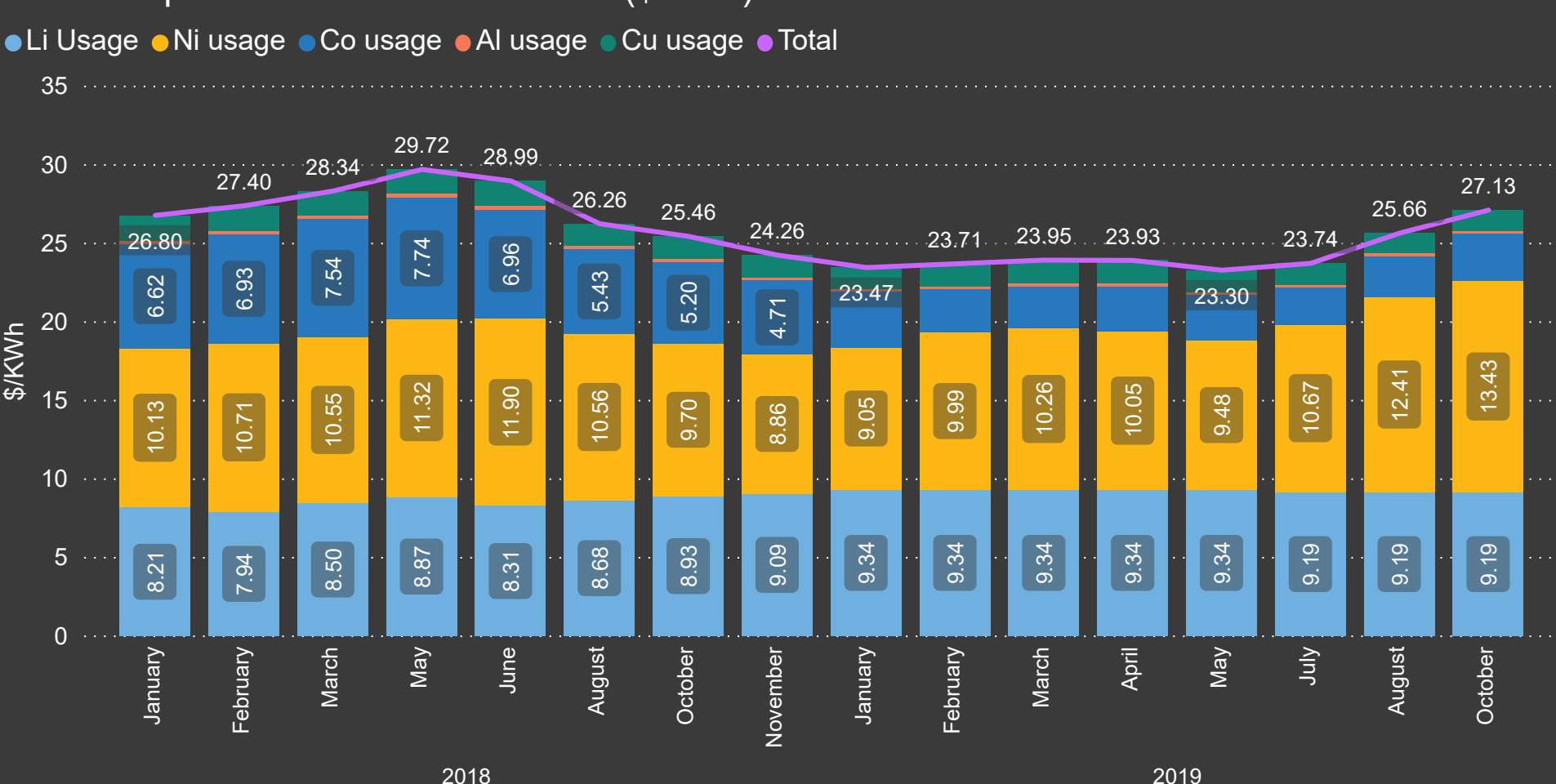


Metals Market Visualizations (October '19)

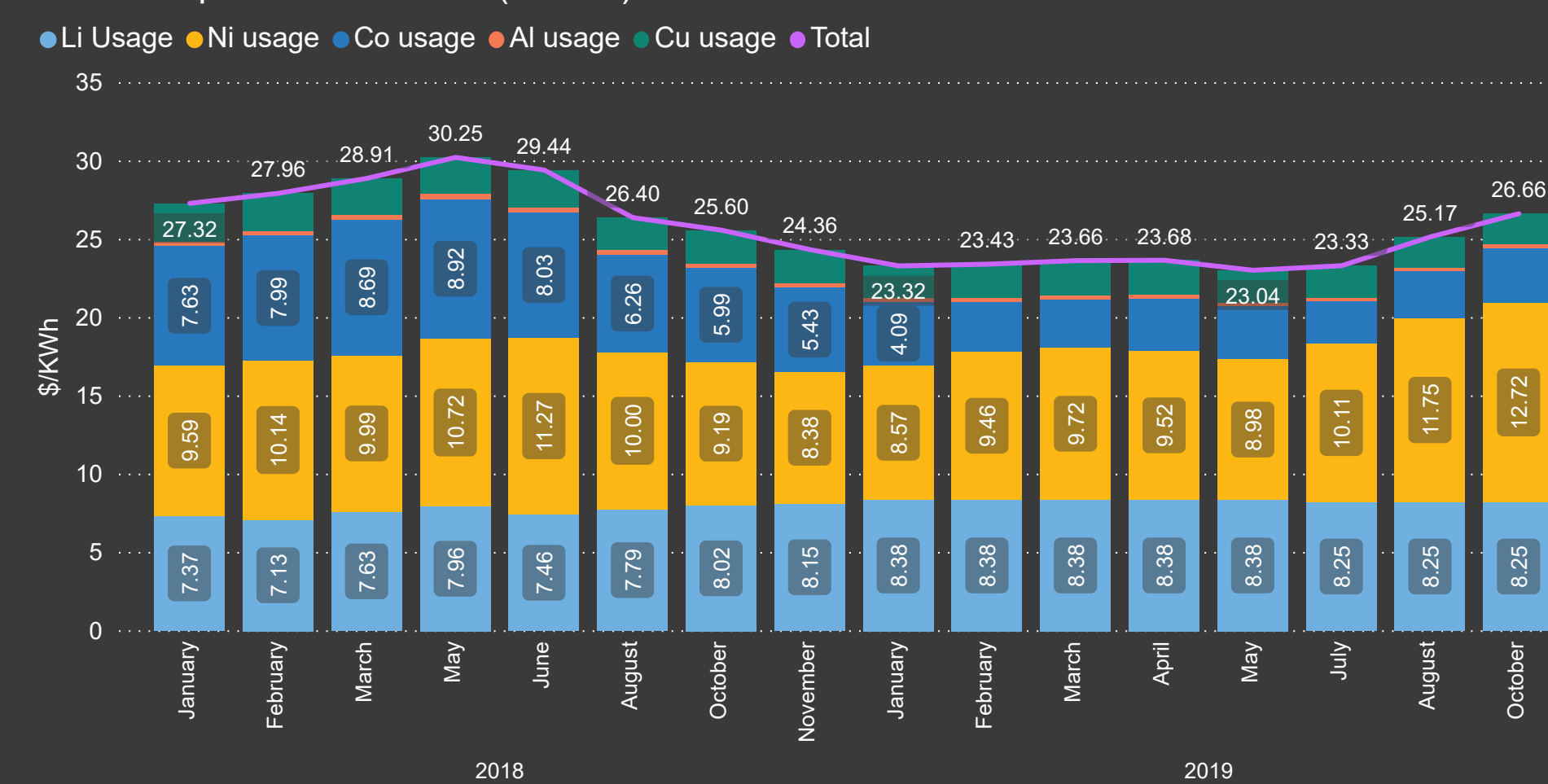
Metals Impact on Panasonic 2170C (\$/KWh)



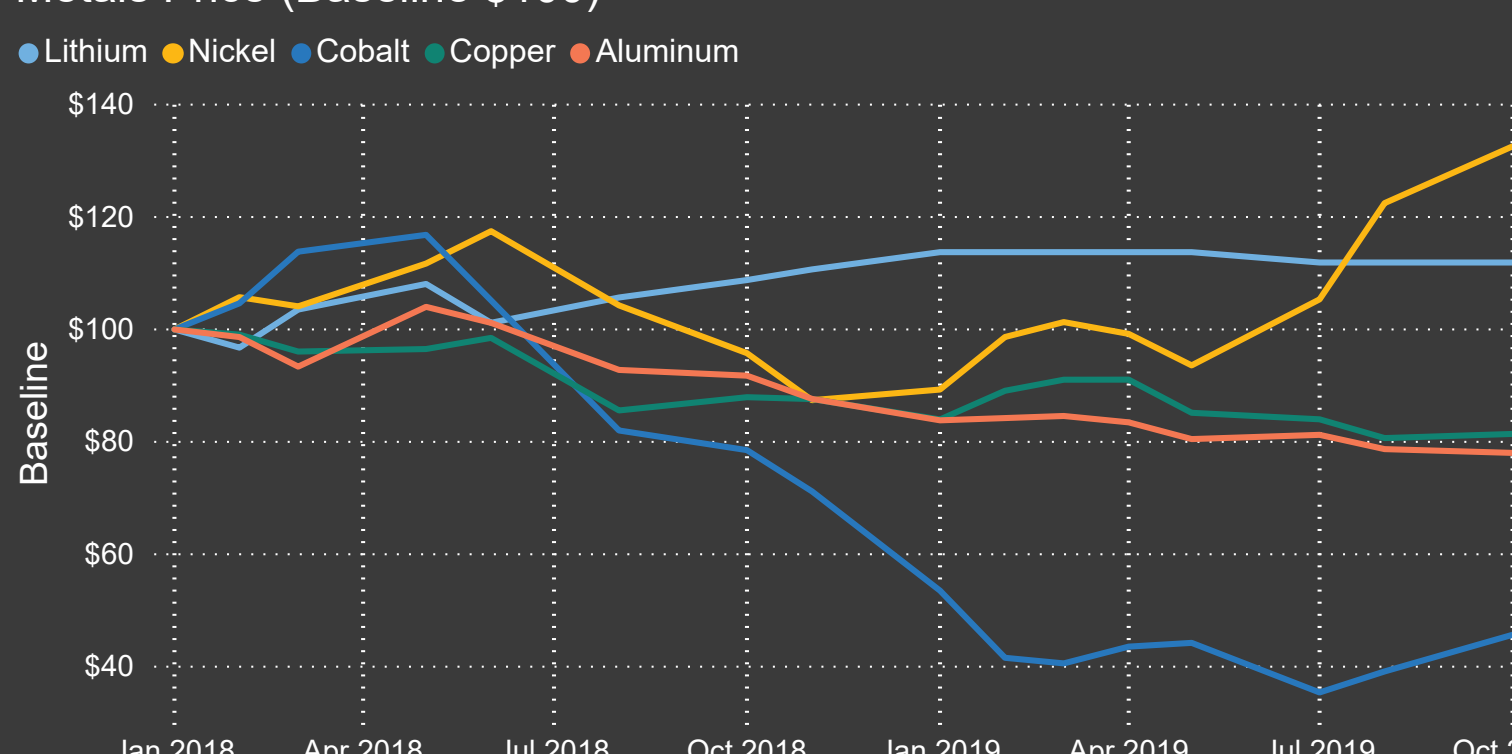
Metals Impact on Panasonic 18650H (\$/KWh)



Metals Impact on LG M48F (\$/KWh)



Metals Price (Baseline \$100)



Li Baseline (last month)  
\$111.91

Ni Baseline (last month)  
\$132.57

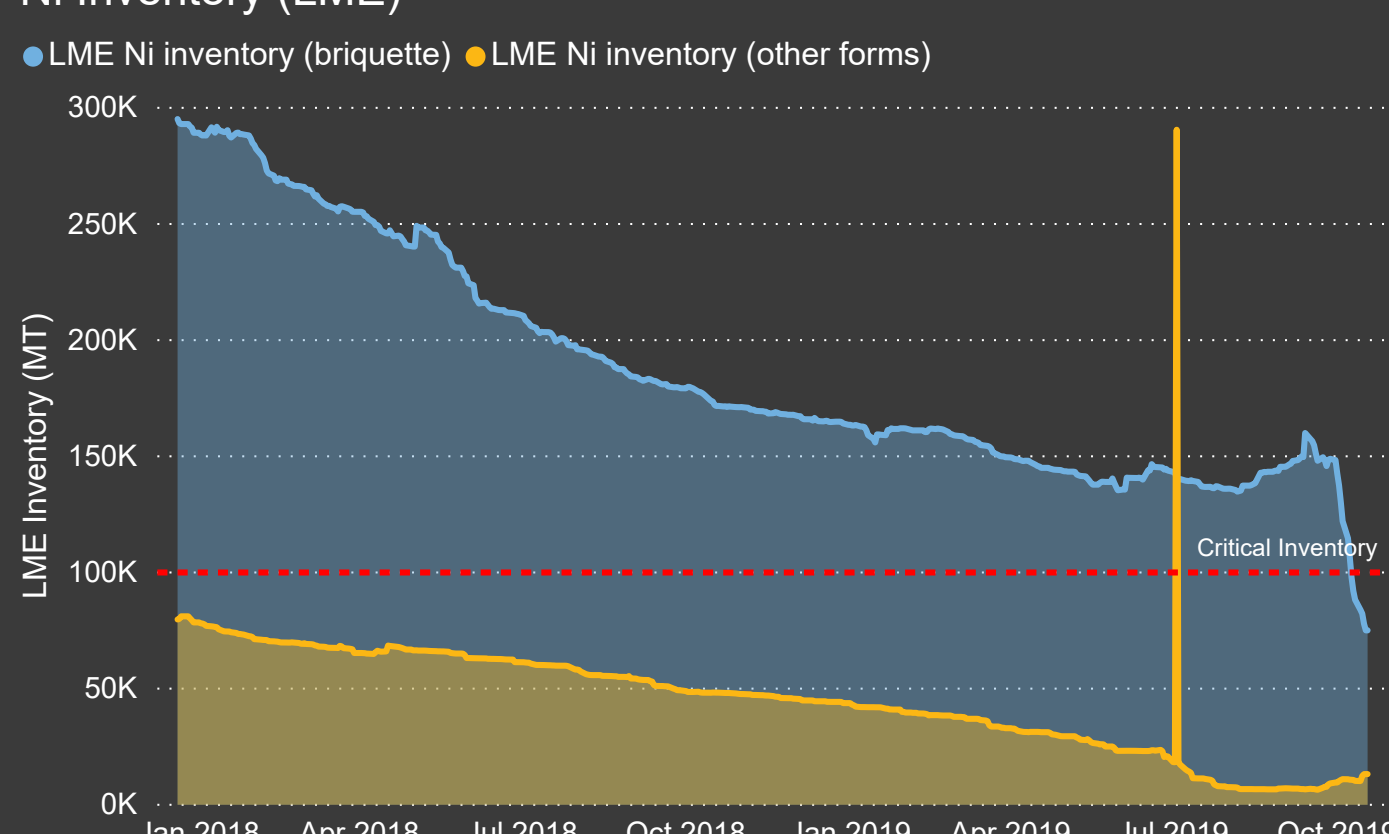


Filter by Date Range

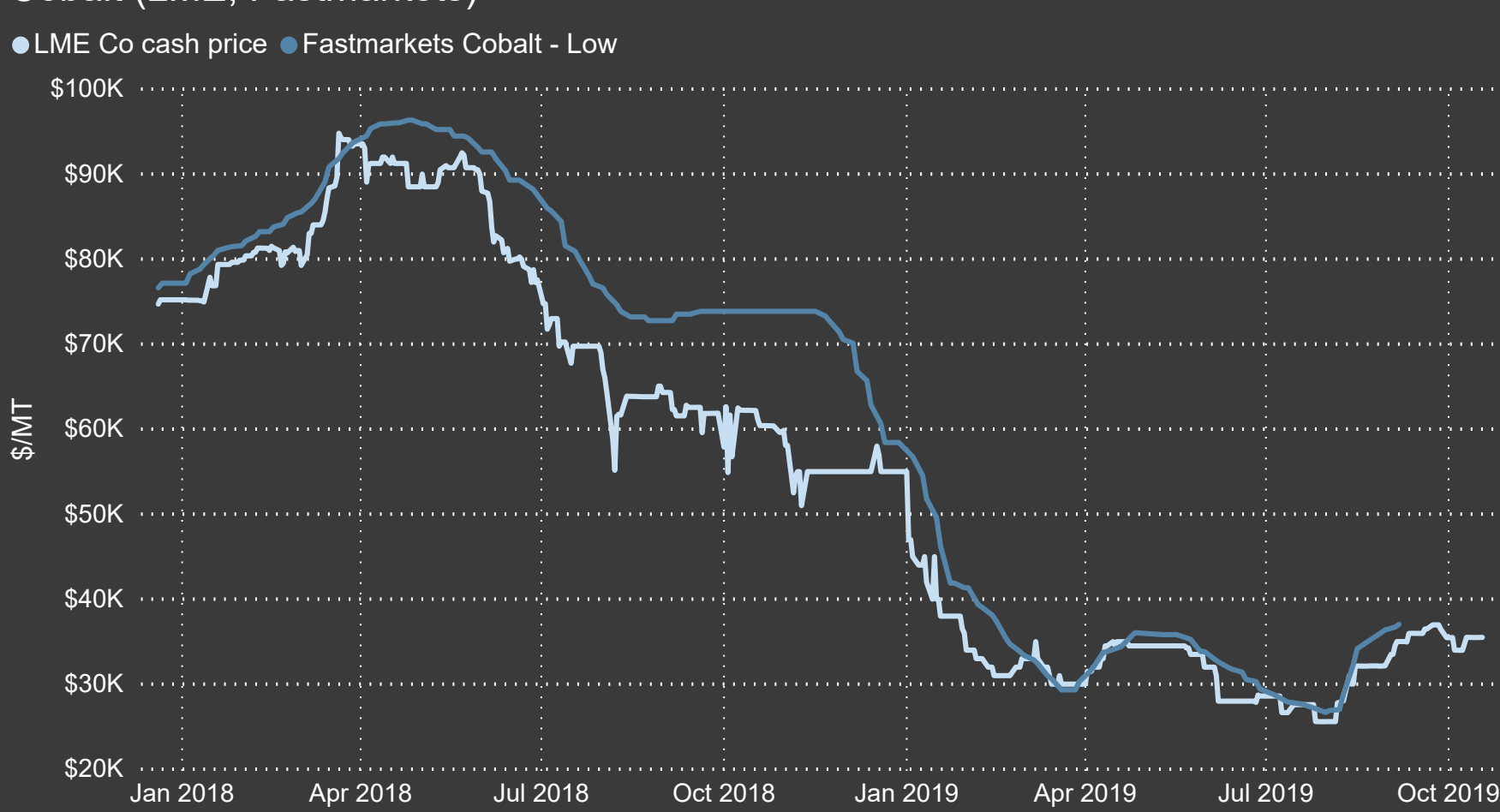
12/20/2017 10/18/2019

Ni Cash Price - Oct (\$/MT)  
\$16.37K

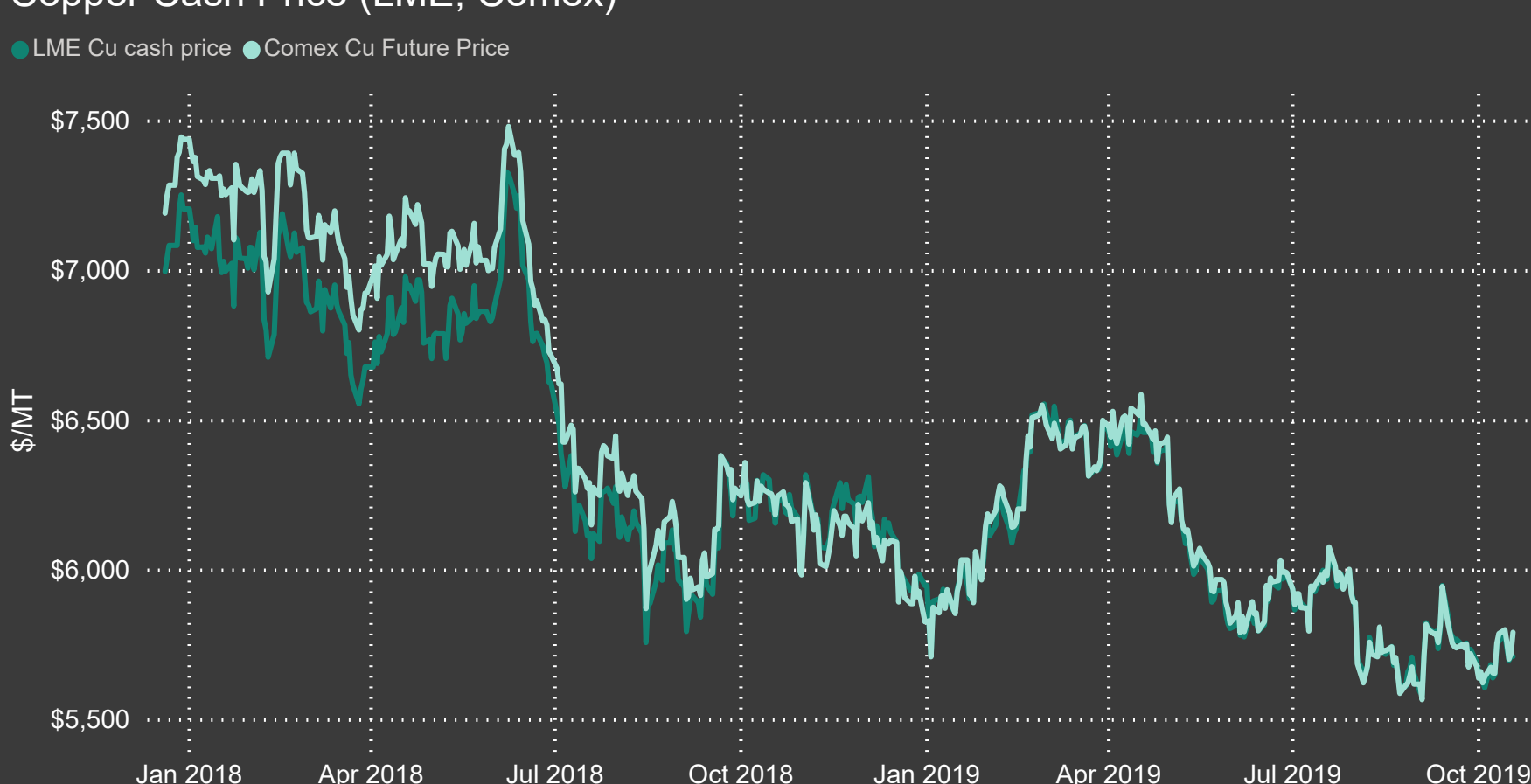
Ni Inventory (LME)



Cobalt (LME, Fastmarkets)

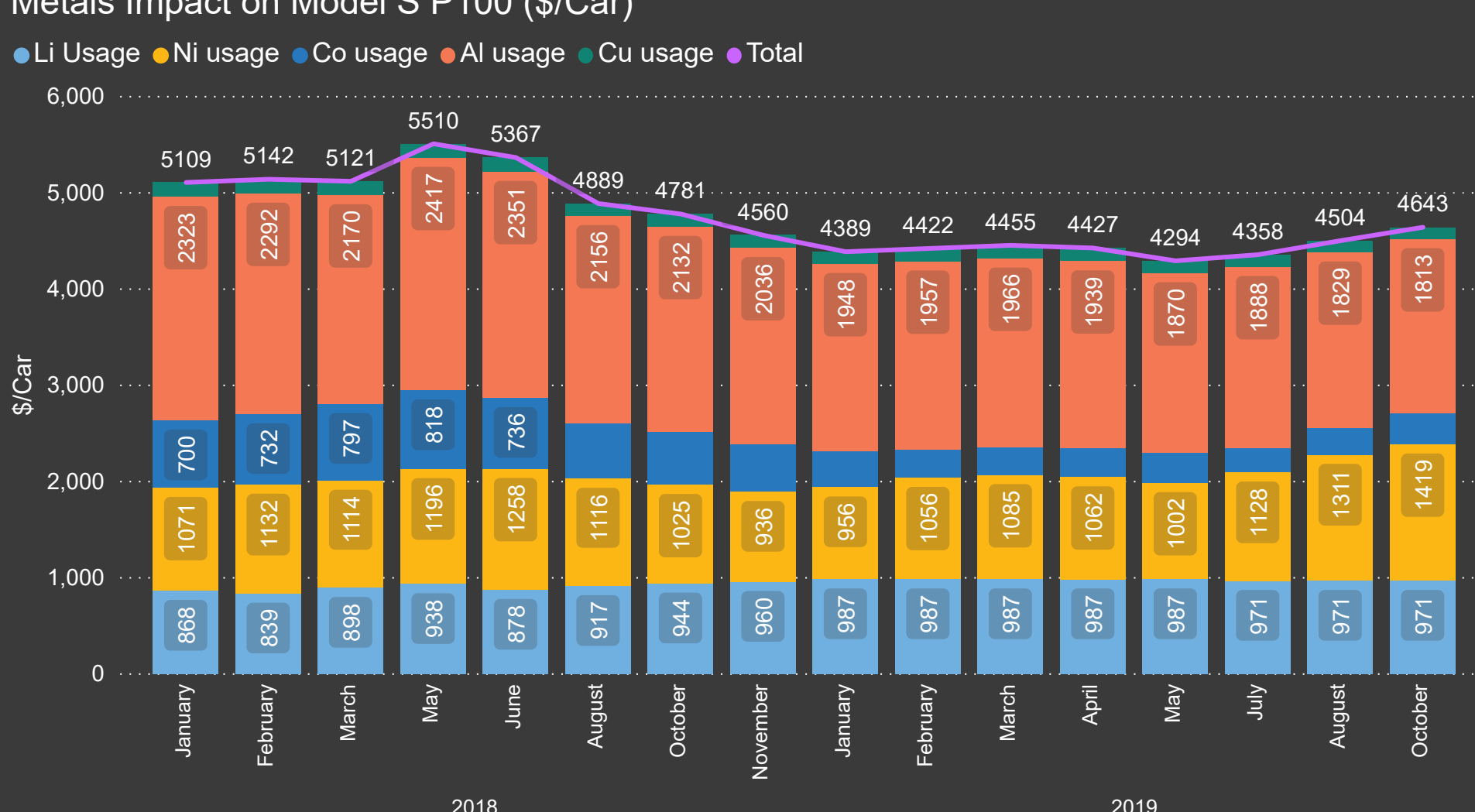


Copper Cash Price (LME, Comex)

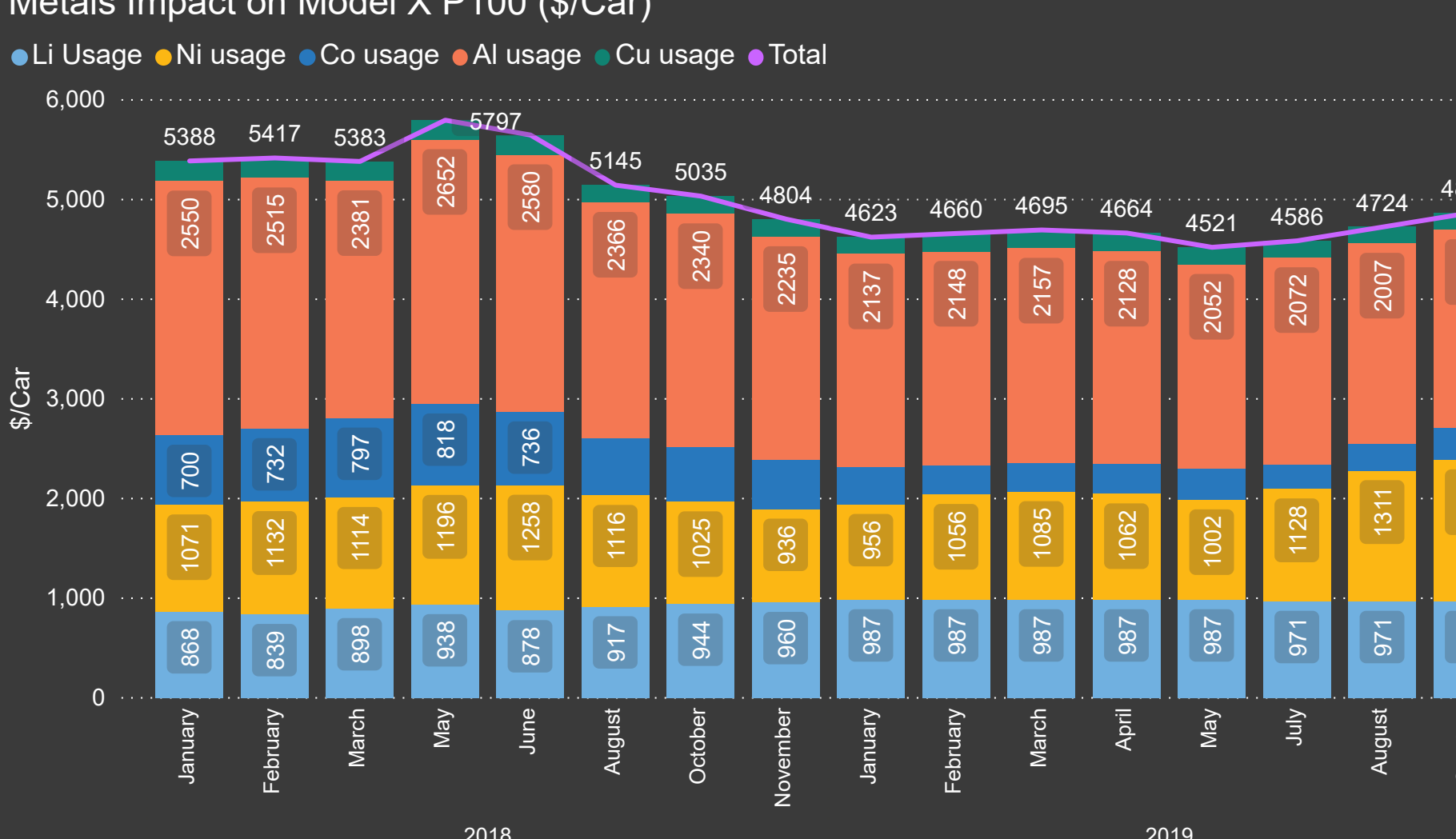


Metals Impact On Vehicles

Metals Impact on Model S P100 (\$/Car)



Metals Impact on Model X P100 (\$/Car)





NEF Manufacturer Data

Filter by Country

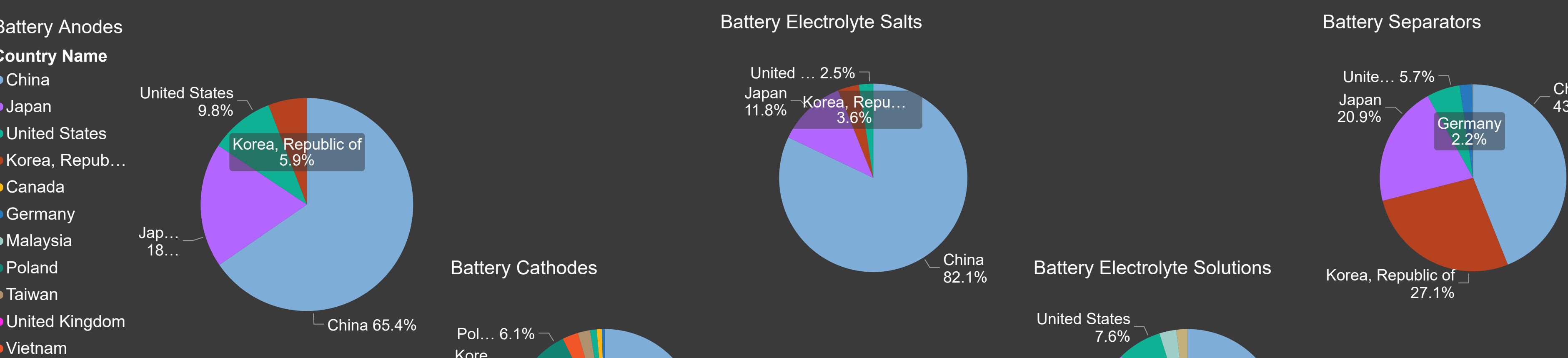
Country	Canada	China	Germany	Japan	Korea, Republic of	Malaysia	Poland	Taiwan	United Kingdom	United States	Vietnam
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Manufacturing by Components

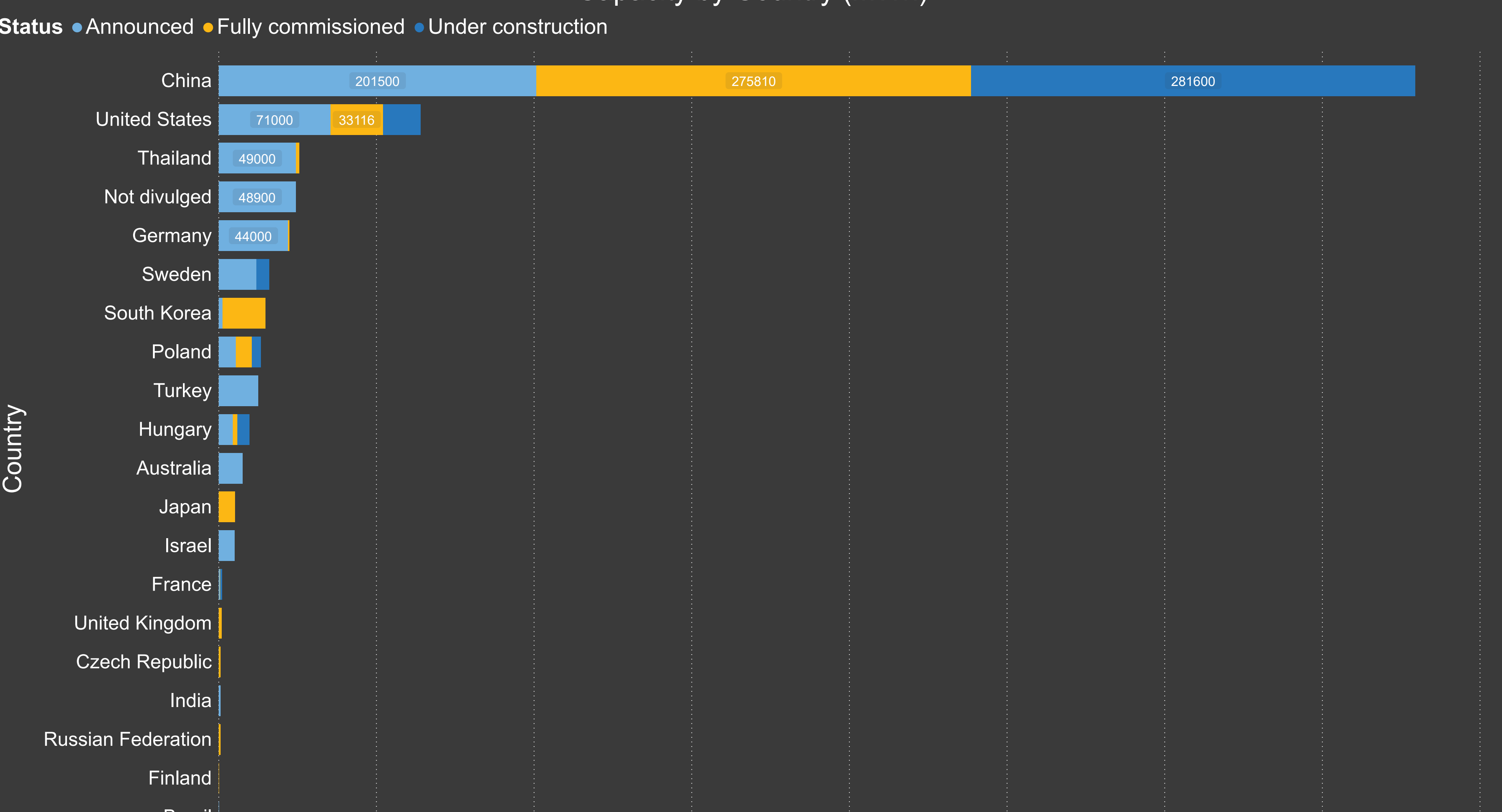
(in Tons, Battery Separators in Million Sq. Meters)

	Manufacturer	Battery Anodes	Battery Cathodes	Battery Electrolyte Salts	Battery Electrolyte Solutions	Battery Separators
Count Fully Commissioned	16					
Fully Commissioned Capacity	33116					
Count Announced	3					
Announced Capacity	71000					
Count Under Construction	5					
Under Construction Capacity	23800					
	BTR New Energy Materials Inc	57000	2400	0	0	0
	Shanshan Technology Group Co Ltd	50000	55000	6000	22000	1
	Hitachi Chemical Co Ltd	48000	0	0	0	0
	Pyrotek Inc	40000	0	0	0	0
	Shenzhen Sinuo Industrial Development Co Ltd	34000	0	0	0	0
	Mitsubishi Chemical Corp	31000	0	0	52000	0
	POSCO Chemtech Co Ltd	24000	0	0	0	0
	Jiangxi Zichen Technology Co Ltd	20000	0	0	0	0
	Huzhou Chuangya Power Battery Materials Co Ltd	15000	0	0	0	0
	Hunan Shinzoom Technology Co Ltd	14750	0	0	0	0
	Jiangxi Zhengtuo New Energy Technology Co Ltd	13000	0	0	0	0
	Altair Nanotechnologies Inc	10000	0	0	0	0
	Nippon Carbon Co Ltd	6000	0	0	0	0
	Tangshan Kimwan Special Carbon & Graphite Co Ltd	6000	0	0	0	0
	Beijing Easpring Material Technology Co Ltd	5000	11200	0	0	0
	Heter Electronics Group Co Ltd	5000	0	0	0	0
	Greentech Advanced Materials Co Ltd	4800	1000	0	500	0
	JFE Chemical Corp	4600	0	0	0	0
	Kureha Corp	3800	0	0	0	0
	Hipower New Energy Group Co Ltd	3700	6600	0	0	0
	Changsha Colin Battery Materials Co Ltd	3000	0	0	0	0
	Changsha Hairong Electronic Materials Co Ltd	3000	0	0	0	0
	Tokai Carbon Co Ltd	3000	0	0	0	0
	Showa Denko KK	1500	0	0	0	0
	Chuo Denki Kogyo Co Ltd	1200	0	0	0	0
	Honjo Chemical Corp	1200	1200	0	0	0
	Nippon Power Graphite Co Ltd	1000	0	0	0	0
	Hebei Gallec New Energy Science & Technology Co Ltd	500	0	0	0	20
	Xinxiangshi Green New Energy Materials Holding Co Ltd	300	4000	0	0	0
	Shenzhen Tianjiao Technology Development Co Ltd	150	5500	0	0	0
	MT Carbon	0	0	0	0	0
	Advanced Electrolyte Technologies LLC	0	0	0	5000	0
	Advanced Lithium Electrochemistry Cayman Co Ltd	0	5300	0	0	0
	Aekyung Chemical Co Ltd	0	0	0	0	0
	AGC Seimi Chemical Co Ltd	0	15500	0	0	0
	Asahi Kasei Corp	0	0	0	0	405
	BASF SE	0	6000	0	10000	0
	BASF Toda Battery Materials LLC	0	18000	0	0	0
	Beijing Chemistry Reagent Institute	0	0	0	10000	0
	Beijing Institute of Chemical Reagents	0	0	0	7000	0
	Best New Energy Technology Co Ltd	0	0	0	0	60
	BYD Co Ltd	0	0	0	0	45
	Cangzhou Mingzhu Plastic Co Ltd	0	0	0	0	170
	Celgard LLC	0	0	0	0	210
	Central Glass Co Ltd	0	0	500	18300	0
	Changzhou Xuntang Electronics Technology Co Ltd	0	0	0	0	8
	Changzhou Zhongke Laifang Energy Development Co Ltd	0	0	0	0	0
	China Zhejiang Great Southeast Group Corp	0	0	0	0	60
	Chisso Corp	0	0	0	0	0
	Chongqing Libeide Battery Co Ltd	0	0	0	0	0
	Chongqing Newmi Advanced Materials Technological Co Ltd	0	0	0	0	60
	Total	408500	628412	60800	516300	4523

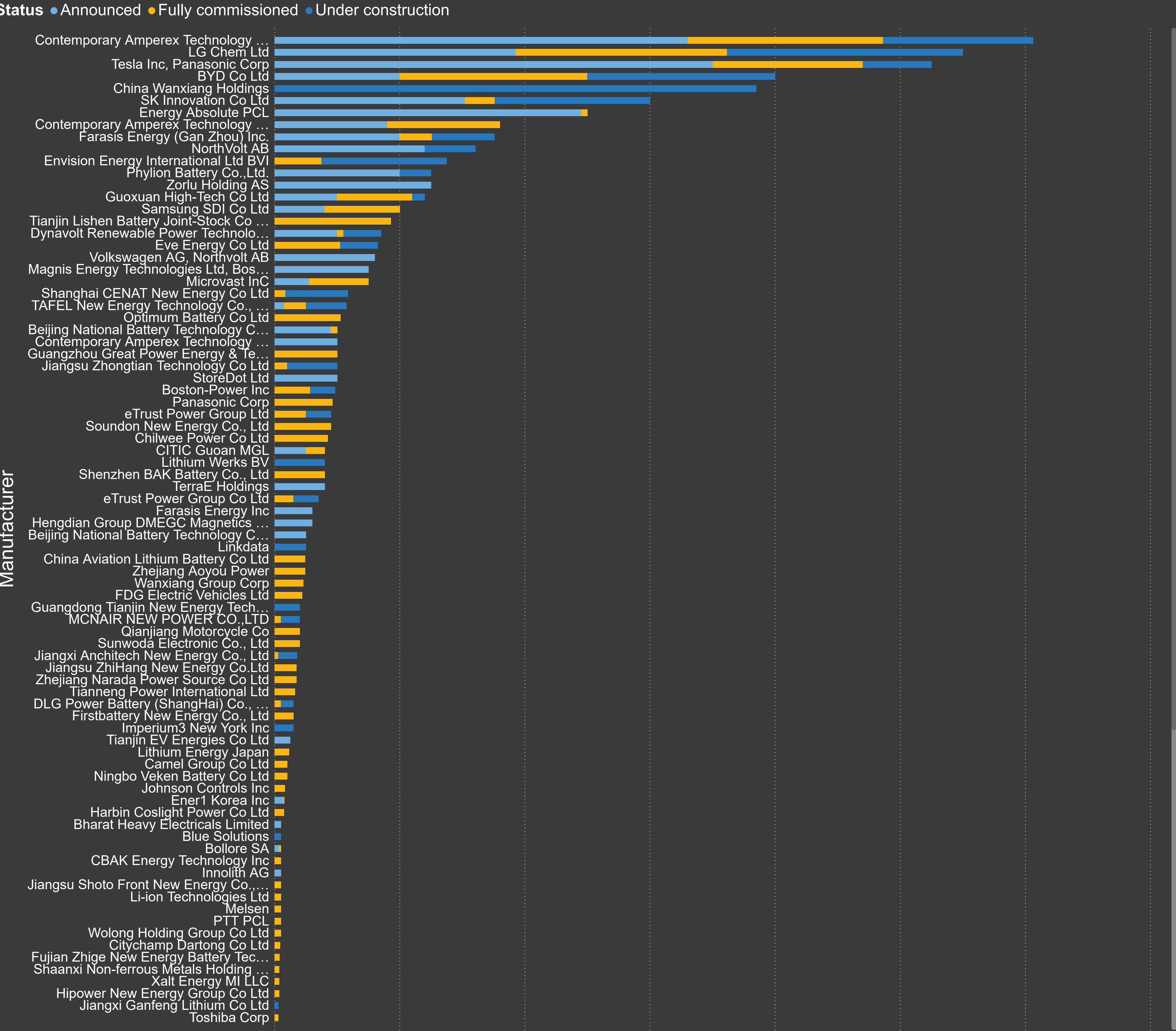
Component Production by Country



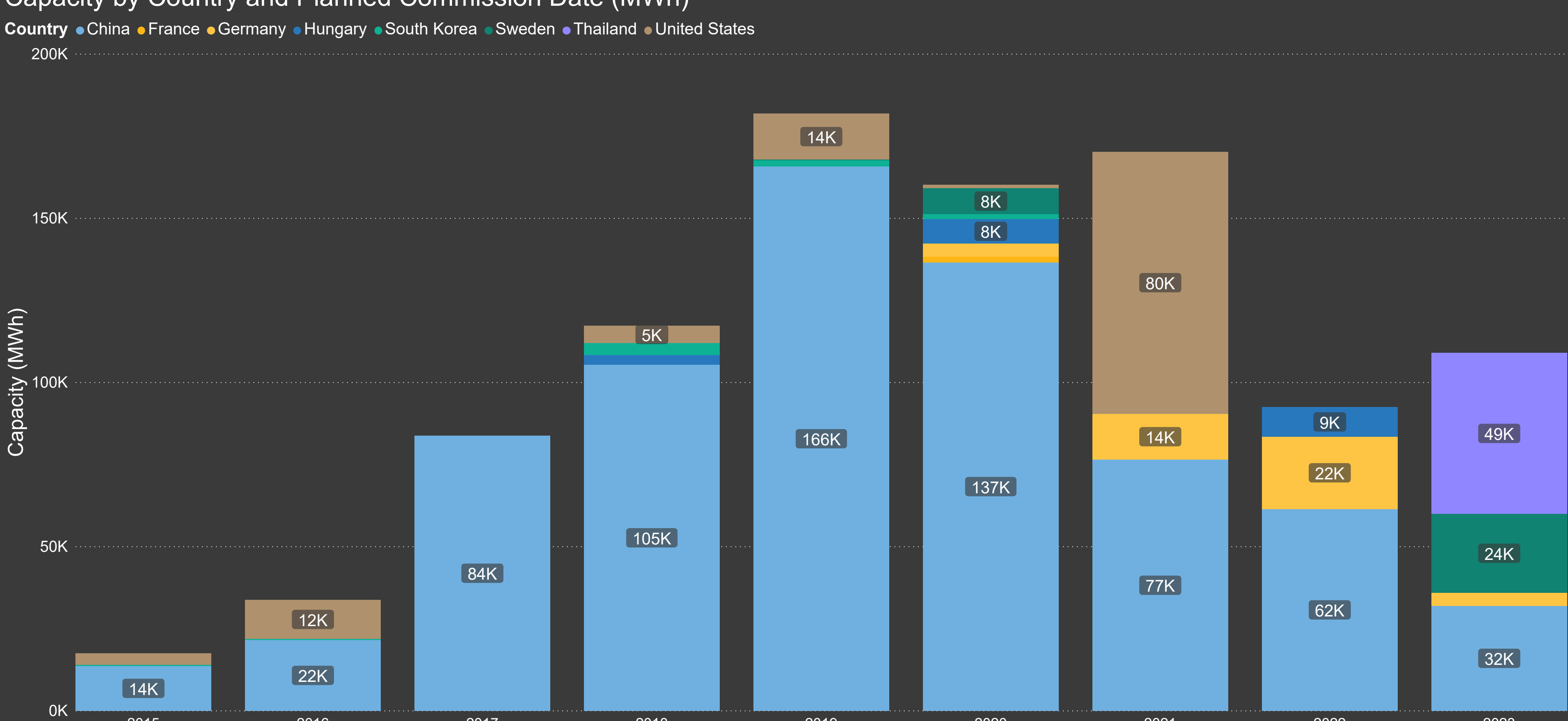
Capacity by Country (MWh)



Capacity by Manufacturer (MWh)



Capacity by Country and Planned Commission Date (MWh)



Capacity by Chemistry Composition and Planned Commission Date (MWh)

