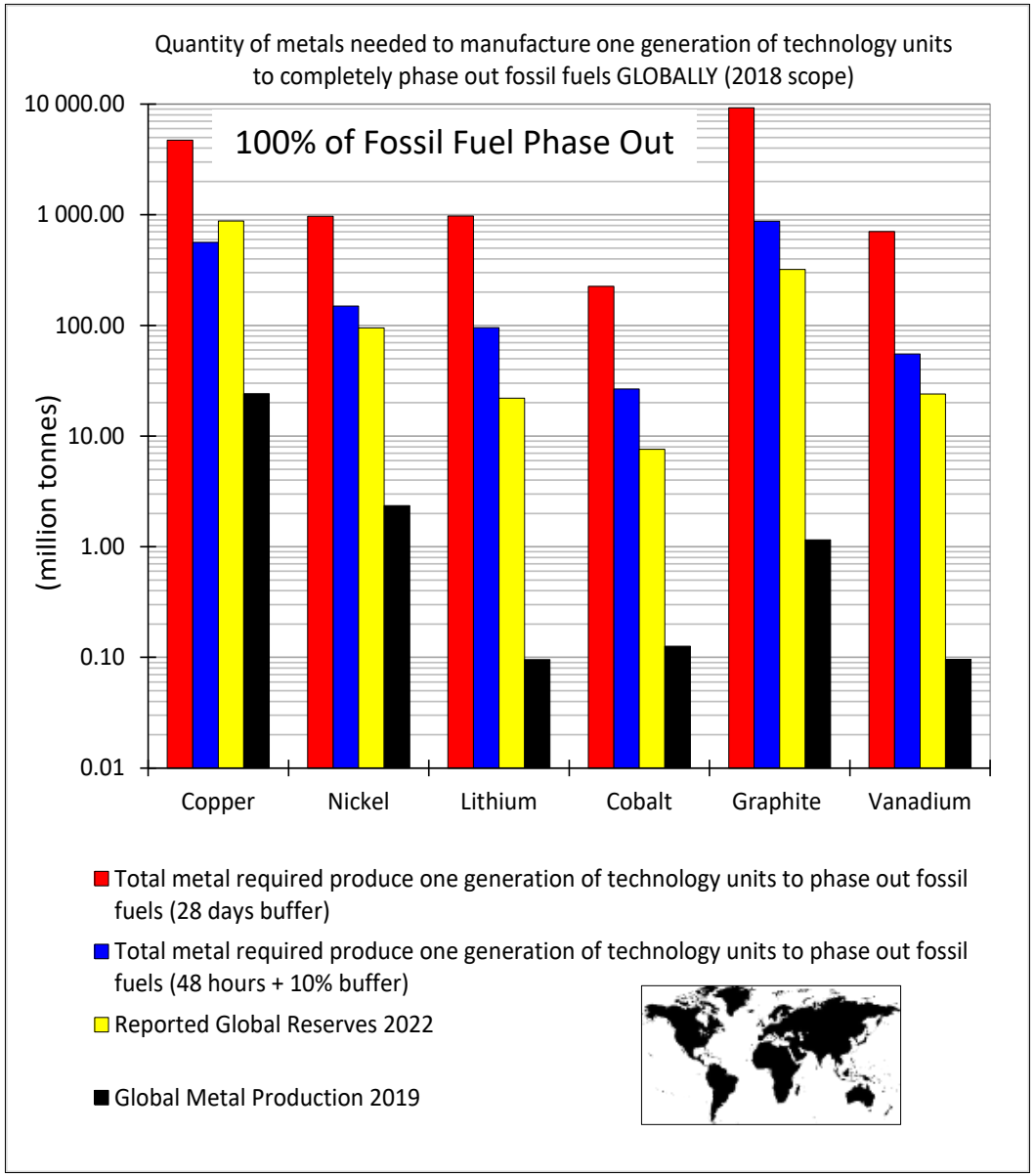
The complete phase out of fossil fuels (globally)



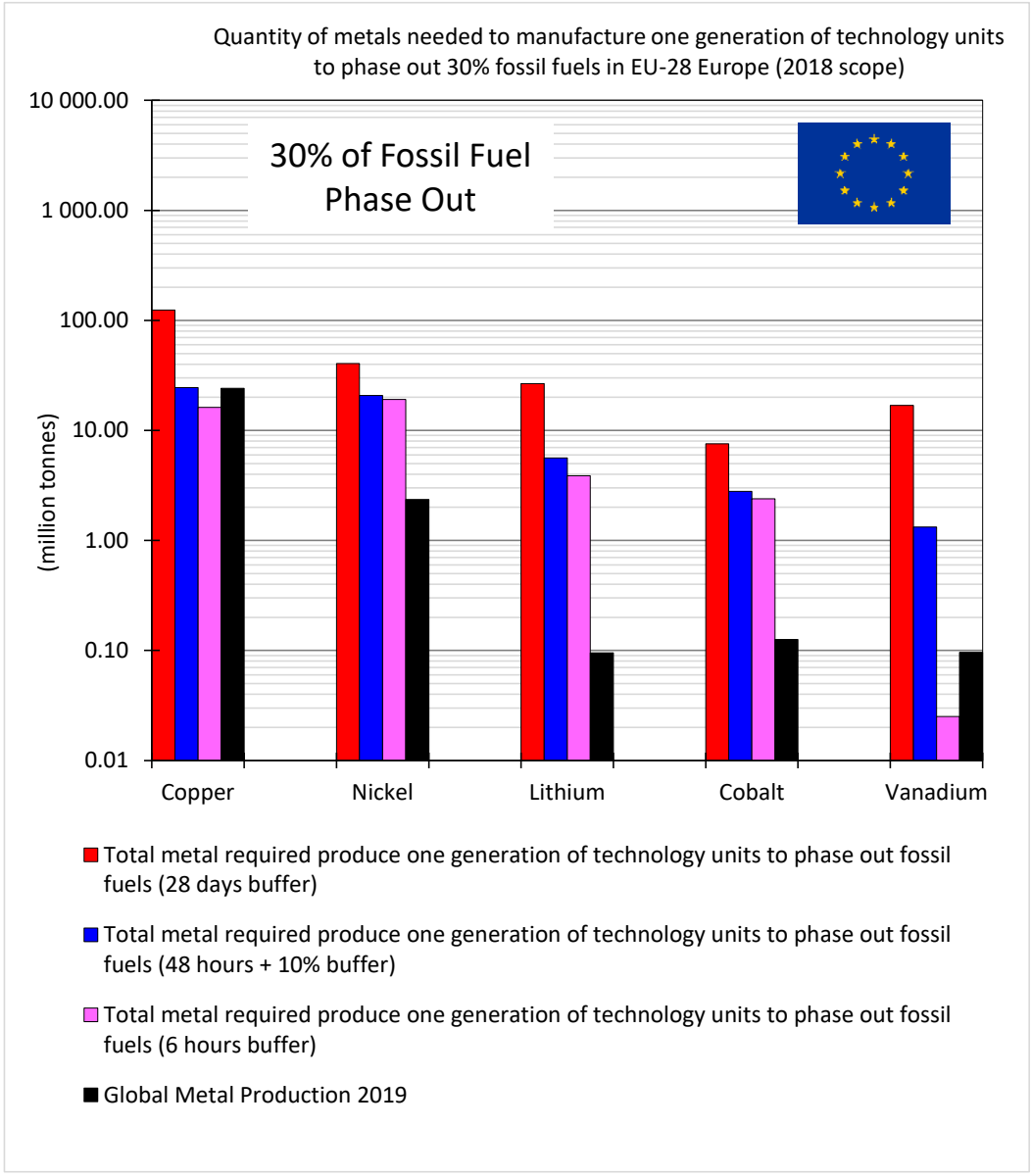
If Europe were to achieve a 30% EV market share by 2030

The Sustainable Development Scenario (IEA 2020), which is fully compatible with the climate goals of the Paris Agreement.

Incorporates the targets of the EV30@30 Campaign to collectively reach a 30% market share for electric vehicles in all modes except two-wheelers by 2030.

IEA (2020): Global EV Outlook- Entering the decade of electric drive?, International Energy Agency report

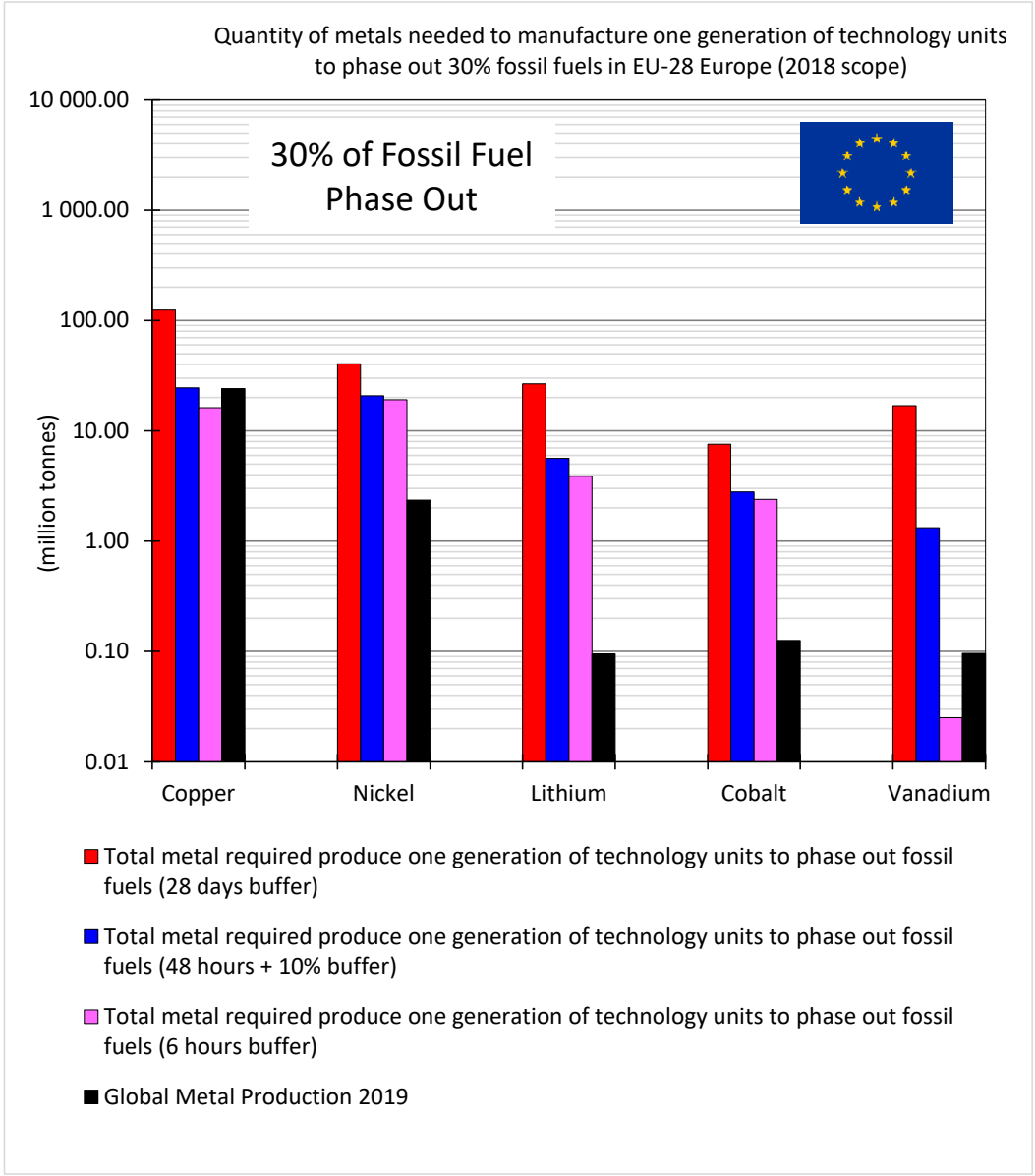
Metal for 30% phase out	Total metal required produce one generation of technology units to phase out fossil fuels (28 days buffer) (million tonnes)	Total metal required produce one generation of technology units to phase out fossil fuels (48 hours + 10% buffer) (million tonnes)	Total metal required produce one generation of technology units to phase out fossil fuels (6 hours buffer) (million tonnes)	Global Metal Production 2019 (million tonnes)	**Number of years of 2019 Global mining production (28 day buffer) (years)**
Copper	124.2	24.6	16.2	24.2	**5.1**
Nickel	40.5	20.8	19.2	2.35	**17.2**
Lithium	26.7	5.6	3.9	0.095	**280.6**
Cobalt	7.5	2.8	2.4	0.126	**59.9**
Vanadium	16.9	1.3	0.0	0.096	**175.5**



If Europe were to achieve a 30% EV market share by 2030

- 76.6 million EV's, with 3.4 TWh of batteries
- 1.7 million H_2-Cell Class 8 HCV trucks
- Capacity to annually produce, transport and store, 2.94 million tonnes of hydrogen
- An extra annual 892.1 TWh of non fossil fuel electrical power generation
- Stationary power storage
  - *52.46 TWh (28 days buffer)*
  - *0.08 TWh (6 hours buffer)*
  - *4.12 TWh (48 hour +10% buffer)*

Power Generation System	Proposed Energy Split non-fossil fuel electrical power systems (%)	30% of expanded extra required annual capacity to phase out fossil fuels (kWh)	Estimated number of required additional new power plants of average size to phase out 30% of fossil fuels (number)	Total **new** annual installed capacity required (MW)
Nuclear	7.50 %	6.69E+10	5	10 695
Hydroelectric	13.36 %	1.19E+11	90	20 264
Wind	38.33 %	3.42E+11	4 209	156 573
Solar PV	38.33 %	3.42E+11	10 349	342 557
Other Renewable	2.48 %	2.21E+10	287	35 039
Total (kWh)		8.92E+11	14 941	565 127
Total (TWh)		892.1		



If Europe were to achieve a 30% EV market share by 2030

If 10% of the metals needs for a 30% phase of fossil fuels was sourced by EU mines

10% of Metal for a 30% phase out of FF sourced from EU mines	Total metal required produce one generation of technology units to phase out fossil fuels (28 days buffer) (million tonnes)	Total metal required produce one generation of technology units to phase out fossil fuels (48 hours + 10% buffer) (million tonnes)	Total metal required produce one generation of technology units to phase out fossil fuels (6 hours buffer) (million tonnes)	Global Metal Production 2019 (million tonnes)	Number of years of 2019 global equivalent mining production (28 days) (years)
Copper	12.42	2.46	1.62	24.20	0.5
Nickel	4.05	2.08	1.92	2.35	1.7
Lithium	2.67	0.56	0.39	0.10	28.1
Cobalt	0.75	0.28	0.24	0.13	6.0
Vanadium	1.69	0.13	0.0025	0.10	17.6

If 40% of Metal for 30% phase out of FF was refined and smelted in EU

Copper	49.69	9.82	6.49	24.20	2.1
Nickel	16.18	8.32	7.66	2.35	6.9
Lithium	10.68	2.25	1.55	0.10	112.2
Cobalt	3.02	1.12	0.96	0.13	24.0
Vanadium	6.74	0.53	0.010	0.10	70.2

If 15% Metal for 30% phase out of FF is recycled in EU

Copper	1.863	0.368	0.243	24.200	0.1
Nickel	0.607	0.312	0.287	2.350	0.3
Lithium	0.401	0.084	0.058	0.095	4.2
Cobalt	0.113	0.042	0.036	0.126	0.9
Vanadium	0.253	0.020	0.00038	0.096	2.6