

# Argus White Paper: Battery Materials



## Renewables most resilient to Covid-19

Renewable energy has been the most resilient energy source to Covid-19 lockdown measures so far in 2020, according to the IEA. Renewable electricity has been largely unaffected while demand has fallen for other uses of renewable energy. In 1Q 2020, global use of renewable energy in all sectors increased by about 1.5pc compared to a year ago. Total global use of renewable energy is forecast to rise by about 1pc in 2020, compared to falls of between 2pc (nuclear) and 9pc (oil) in more traditional energy sources.

Renewable electricity generation increased by almost 3% in 1Q 2020, mainly because of new wind and solar PV projects completed over the past year and because renewables are generally dispatched before other sources of electricity. Along with depressed electricity demand, power grids have managed heightened shares of wind and solar PV.

Global offshore wind installations surpassed 27,000MW by the end of 2019, according to the Global Offshore Wind Report 2019 by World Forum Offshore Wind (WFO). More than 5,000MW of offshore wind capacity went into operation during the last year, making 2019 a new record year in terms of new offshore installations, with 24pc growth as compared to 2018.

## Demand for lithium ESS rising on lower costs

Global demand for lithium-based energy storage systems (ESS) is accelerating as costs decline, despite near-term disruptions to the supply chain from the Covid-19 pandemic. Demand for ESS equipment rose substantially in the final months of 2019 and the first quarter of this year, Netherlands-based ESS and electric vehicle (EV) charging equipment provider Alfen said in its quarterly report.

The cost of ESS is falling and strong demand for new contracts is continuing in the second quarter. For example, US utility Southern California Edison has signed seven contracts for the delivery of 770MW of battery systems by August 2021, exceeding the total 523MW installed across the whole of the US in 2019.

Demand for US-based EV and ESS manufacturer Tesla's new Megapack energy storage product is "far outpacing" its production capacity, the company said in its quarterly report. Tesla deployed its first 3MWh Megapack in the first quarter, and is expecting rapid growth in sales when it returns to full operations following the pandemic disruption.

Argus battery material indexes (cumulative averages)

Element		Month index Apr 20	Moving quarterly average	Moving yearly average	Forecast Apr 21
Li carbonate cif China	\$/kg	8.75	8.99	10.25	9.50
Li hydroxide fob China	\$/kg	10.25	10.49	11.75	11.00
Co hydroxide cif China	\$/kg	10.20	10.28	na	11.50
LME Nickel 3M Official	\$/t	11,824	12,189	13,921	15,000
Ni sulphate ex-works China	Yn/t	25,875	26,343	27,724	35,750
Mn flake fob China	\$/t	1,555	1,657	1,726	1,700
Graphite flake fob China	\$/t	552.50	552.17	597.58	585.00

— Argus Consulting

## Battery material output could rise 500pc by 2050

Production of battery materials (including graphite, lithium, nickel and cobalt) may need to rise by nearly 500pc by 2050 from 2018 levels to meet demand from energy storage technologies in the clean energy transition, the World Bank said. But these minor metals, which a new World Bank report terms concentrated minerals, are needed for just one or two technologies and so possess higher demand uncertainty, given technological disruption and deployment could significantly impact their demand.

The report estimates more than 3bn t of minerals will be needed to deploy energy storage, solar PV, wind and geothermal technologies to reach a 1.5-2°C future. “A low-carbon future will be very mineral intensive because clean energy technologies need more materials than fossil-fuel-based electricity generation technologies,” it said.

### For more information:

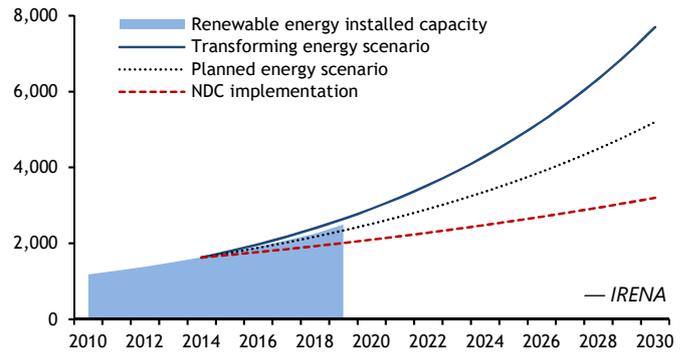
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## Renewable energy forecast, 2010-2030



## Energy demand in 2020 vs 2019

