Unexpected times

The world has changed this year under the shadow of the COVID-19 pandemic. Lockdowns around the world have reduced energy demand, resulting in emissions declines, but what could the post-COVID-19 world look like — a return to normal, or will this start a transition?

Negative oil prices, flight cancellations, offices and industry closed, major cities becoming ghost towns as people stay at home — the start of 2020 has seen these and many more unexpected things. As the COVID-19 epidemic grew and spread, the world responded by limiting movements and shutting down workplaces to try and control the pandemic. In a year where a number of key climate and environmental action meetings were scheduled (*Nat. Clim. Change* 10, 1; 2020), the calendar is now looking empty, as these have been pushed back to deal with the pressing health issues and the knock-on economic effects.

This shift from normal life has reduced energy demand, which has reduced emissions, and in a *Nature Climate Change* Article Corinne Le Quéré and Global Carbon Project colleagues quantify these reductions for six sectors from daily data. The largest drop seen in the analysis was on 7 April — a 17% decline globally, taking emissions down to around the level of 2006 emissions. Regionally, China and India saw peak decline of around 25%, a result of reduction in industrial activity and power use, while the United States — which saw a peak decline of around 30% — and Europe had greatest reductions from reduced travel. Plots of individual countries and sectors are available (<https://bit.ly/2XgKKm2>). However, these dramatic declines are likely short-lived, with lockdown easing resulting in a return to pre-confinement emissions. In spite of that, the authors estimate emissions for the year could be down 4–7% (depending on the duration of confinement measures). This would be the largest seen since World War II, and around the annual level needed to meet ambitious climate targets.

Fossil fuel demand and the value of these investments nosedived as confinement measures were enacted. US oil prices crashed, reaching negative prices for the first time, and a low for West Texas Intermediate of –US\$40 was reached on 20 April, as demand declined and storage facilities such as Cushing, Oklahoma — the largest US facility with capacity for approximately 76.1 million barrels — reached capacity. Price declines occurred

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to a lesser extent in other regions; however, Brent crude, a North Sea product and the European benchmark oil, has declined by ~50% since the beginning of the year (at the time of writing, with a decline of 68% in late April), resulting from the combination of a price war between Russia and Saudi Arabia followed by the reduced demand. The future of crude oil production depends on sufficient demand, as while prices remain low (~\$25 per barrel), ~35% of North Sea hydrocarbons, many in undeveloped fields, would be unprofitable (<https://nyti.ms/2ZqdY4E>).

A shift away from fossil fuels (which can bring more than just environmental benefits (for discussion of co-benefits, see *Nat. Energy* 5, 351; 2020)) will require energy demands to be met in other ways. Renewable energy growth was expected to be over 10% this year as countries invested to meet climate targets and investors looked to take advantage of favourable policies before being phased out in 2021 (<https://bit.ly/2TwEFke>). The current situation may limit this growth in the short term, but policymakers will be looking at economic recovery and long-term plans; renewable

energy investments should feature in future planning.

In these uncertain times, we need to look ahead and work towards creating a better world. Emissions reductions are urgently needed, but while a pandemic and the resultant global shutdown have shown a drastic way that this can be achieved, it is not a sustainable path nor what anyone would ever wish to have happened. But how do we move forward? That is the question for society to address in the coming weeks and months. As John Houghton — a driving force in the establishment, and the early days, of the IPCC — told his long-time friend and collaborator Fred Taylor when asked if climate change challenges were enough to drive one to despair: “absolutely not — it is a totally solvable problem.” (to read more about Sir John Houghton’s life and achievements, see the *Obituary* in this issue). We need to follow his lead with optimism in this ever-shifting landscape, and work on those solutions. □

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