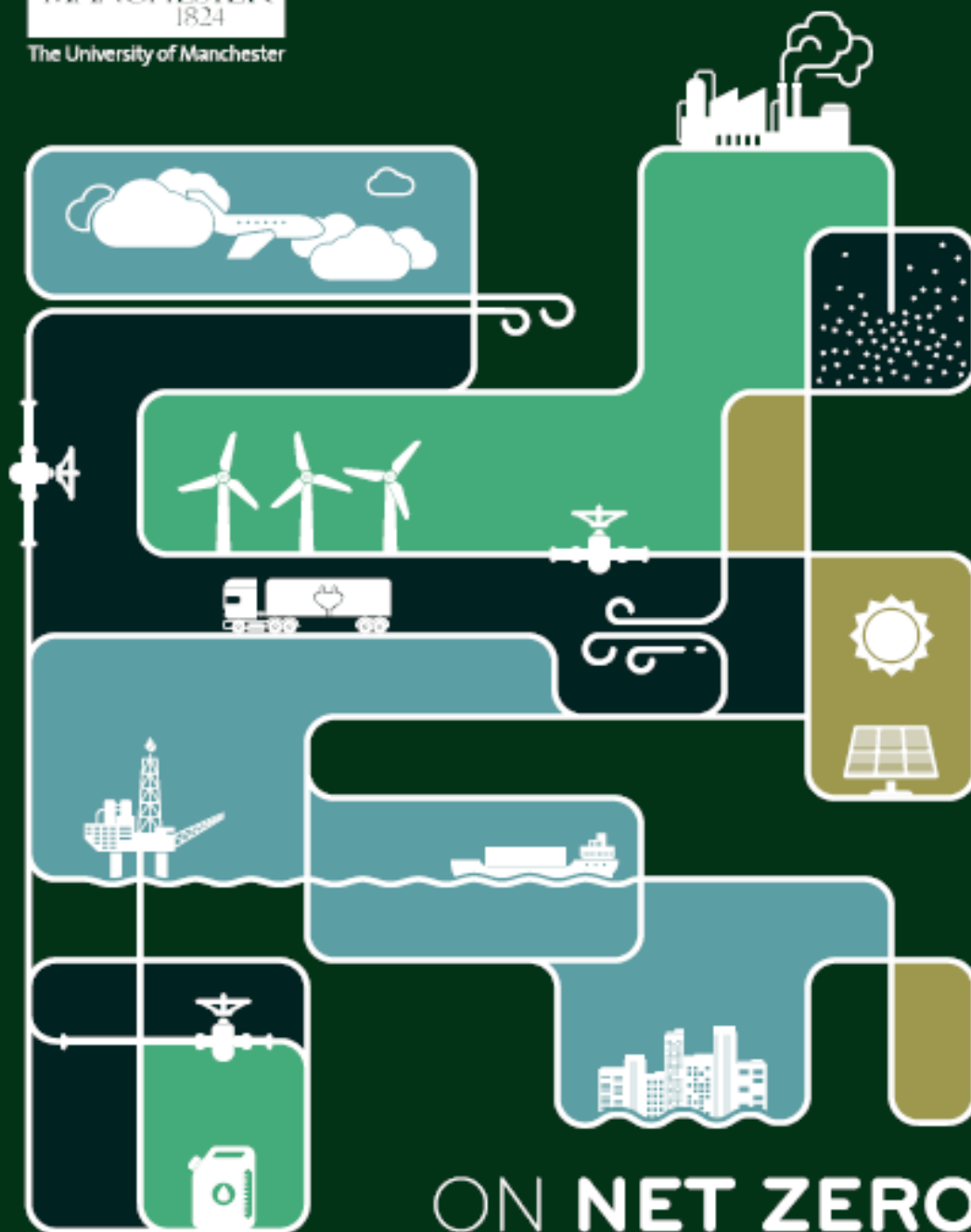


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ON NET ZERO

This publication is a collection of individual updates for the articles published in [On Net Zero](#). Each update provides additional context in response to the COVID-19 pandemic and should be read in conjunction with the relevant article in the original publication.

## [Foreword](#)

### **An Update from Lord Deben**

The COVID-19 pandemic has changed our lives almost beyond recognition. Its effects are profound – its implications many. Last June, in our annual report to Parliament, we urged Government to act on climate. “Now, do it” we urged. Twelve months on, that remains our emphatic message, but with a new determination: we must seize the opportunity to make the COVID-19 recovery a defining moment in tackling the climate crisis.

We must take urgent steps to frame a recovery from Covid-19 that both accelerates the transition to net zero and strengthens our resilience to the impacts of climate change, whilst driving new economic activity. In May, we set out six key principles for a resilient recovery and we're pleased to see these principles guiding the growing momentum towards achieving that. It's clear that steps taken in this Parliament will define the pathway for many years to come.

Strong domestic climate action will provide the basis for the UK Government's vital international leadership in the coming year as it takes on the presidency of the COP26 climate summit in 2021. The UK's international credibility is on the line. The much-anticipated climate conference will be a major test of global cooperation as the world seeks to recover from the havoc COVID-19 has wrought. With strong climate action taking place here at home, the UK will be well placed to guide that global response.

The priorities ahead are clear. The most effective and decisive action to secure our recovery from COVID-19 will also accelerate the transition to net zero and strengthen our resilience to the changing climate. Unifying these aims is absolutely necessary and entirely possible.

## [Net Zero Explained](#)

### **An Update from Professor Carly McLachlan**

Since putting this collection of pieces on net zero together, the COVID19 pandemic has taken hold with wide ranging implications for our health, our societies and our economies. Government at all levels around the world are now urgently planning not just for navigating the immediate health risks but the recovery of their economies.

Extensive global economic analysis of potential stimulus interventions shows that green projects create more jobs, deliver higher short-term returns and lead to increased long-term cost savings [compared with traditional fiscal stimulus](#). As well as interventions targeted to support accelerated growth in low carbon sectors, bailouts and other support must come with conditions that support and facilitate transition to a net zero pathway for all sectors of the economy. For example, the [case of Air France](#) where support is conditional on the airline stopping domestic routes where a rail service of under 2 ½ hours is available<sup>1</sup>. We must use the evidence challenge any outdated arguments that now is not the time to 'green' the economy and learn from and adapt the policies that others have adopted.

Analysis of the impact on emissions of various lockdown orders across the world has demonstrated an average global reduction of 17%. The analysis estimates that even if some restrictions remain in place to the end of 2020, the overall reduction in [emissions for the year will only be 3-13%](#). Whilst this does tell us that we can do things differently and that it does have an impact, it also indicates how deeply embedded the use of fossil fuels is in our lives. Even when our lives 'feel' very different – they are still powered by fossil fuels. Our recovery must support structural change that addresses the way we power our lives – all levels from the individual, to business, to the energy system, to government policy must be aligned to deliver the significant reductions we need.

This is a period where we can try things that were previously not seen as possible – extensive active travel networks, much reduced commuting, disruption to the idea our businesses and individuals can indefinitely rely on (too) cheap flights. The stimulus and recovery programmes have the opportunity to catalyse the projects and pathways that organisations, cities and nations have already been planning for, and to allow them to be even more visionary and ambitious. In particular, investment in low carbon energy, deep retrofits and active travel infrastructure. What we are presented with is a chance to pivot as we rebuild our economies. This is our chance to pursue a greener economy. One that considers local prosperity, jobs, resilience, equality as well as a thriving economy as we reassemble our daily lives.

## [The true price of fashion](#)

### **An Update from Dr Patsy Perry**

Before the pandemic, critics argued that the fashion industry's carbon reduction initiatives were not drastic enough to meet the net zero target. Since lockdown, the closure of stores and factories in many countries has halted fashion supply chains as retailers cancelled millions of pounds' worth of orders for the spring/summer season.

Although halting production has resulted in a significant and much-needed reduction in emissions, which would not have been achievable otherwise, it has also led to significant hardship for vast numbers of laid-off garment workers, especially in developing countries where they have no savings or access to governmental support to make up for their loss of income. Although the fashion industry is responsible for a significant carbon footprint, it also supports the livelihoods of millions of people around the world, most of whom are the poorest paid workers in the supply chain. The trade-off between meeting environmental goals and supporting social sustainability for some of the world's most vulnerable workers has never been more apparent.

It is imperative that we do not return to the destructive and wasteful nature of pre-corona 'business as usual'. The seven principles of the Policy Hub's Proposals for an EU Green Recovery Plan in the textile, apparel and footwear industry provide guidance for how this could be supported by policy in terms of recovery investment being tied to the development of a circular economy. However, it is also imperative that any green recovery plans protect people as well as planet.

## [Decoupling aviation and shipping](#)

### **An Update from Professor Alice Larkin**

When writing the 'net-zero' aviation and shipping blog, the conclusion focused heavily on the problem of rising demand for air travel and consumption of goods set against the timeframe for deep decarbonisation. In light of COVID-19, has this conclusion been turned on its head? Well yes and no – for aviation, a big question is how sustained will the impact be? For shipping, some markets face a much more uncertain future than others.

In the short-term, a drop in aviation demand is inevitable with border constraints, quarantine policies and current absence of effective health and safety precautions in the close confinement of a cabin. Nevertheless, in the past, following other epidemics (e.g. SARs), terrorism (e.g. Sept '11) or economic downturns, demand has rebounded over a few years. However, the depth of the impending global recession will not have been experienced by this industry since it became mainstream and some airlines will never recover.

With less money in the sector, this raises a question over whether any investment in alternative fuels will stagnate. Moreover, other shifts, such as replacing lucrative business travel with virtual alternatives, rise of online learning in Universities and whether or not a vaccine is successfully developed, could all lead to a reset of 'normal' levels of demand. For shipping, of course supply chains have been impacted and consumption will reduce in line with a global recession – typically the shipping sector closely matches global GDP patterns. So if GDP bounces back, so will shipping. For a time there may be overcapacity of ships, which could lead to fewer new, and hence more efficient ships being built, but this could also incentivise more slow-steaming, a quick way to cut the CO<sub>2</sub> intensity of shipping. More interesting perhaps is the impact on ferries and cruise shipping. Both have been hit hard by travel restrictions, and the cruise industry in particular, with its characterisation of a 'floating petri-dish', probably relies on there being a successful vaccine if it is to regain its popularity. So yes, COVID-19 impacts on aviation and shipping demand and hence decarbonisation – but only time will tell if this aligns positively with a net-zero agenda.

## [Rethinking offsetting for a Net Zero world](#)

### **An Update from Dr John Broderick**

The unfolding COVID pandemic has dramatically reduced the use of air travel around the world with commercial flights in May 2020 down 70% from the year before (Flightradar24). Although numbers are increasing as countries come out of lockdown, the industry as a whole is expecting much reduced activity in coming years due to widespread recession. This has implications for the future scale of offsetting through the incoming CORSIA regulation. International aviation has historically been left out of the UN's global agreements on climate change and considered by the International Civil Aviation Organisation (ICAO). 2020 is the first year of ICAO's new offsetting scheme, CORSIA, and is scheduled to serve as the baseline for the sector, with emissions in excess of this level being matched by offsets in future years.

CORSIA has been criticised for not incentivising direct reductions in emissions from aircraft by only adding a cost to growth in emissions, not the whole amount, and that cost being further limited by the use of business as usual reductions credits from other sectors. Were outturn data from 2020 to be used as a baseline then the sector would have to pay for a larger quantity of emissions to be offset in future, and with lower passenger densities on flights implementing social distancing measures this cost will be shared among fewer tickets. So far, the industry has successfully lobbied to use 2019 as the baseline year and this will be presented as the European position at the ICAO meeting in June 2020. Whatever the final decision on the baseline year, the credits that will be purchased will not permanently remove carbon dioxide from the atmosphere so the impact will be economic rather than material.

## [Small Nuclear, Big Difference?](#)

### **An Update from Professor Richard Taylor**

If the current crisis has taught us anything it is how quickly we are able to adapt to a 'new normal'. This piece celebrates society's capacity to do this, to act with 'common sense' and to recognise how to keep calm and carry on. Small nuclear could be a game-changer as we progress to net zero and our recent experience shows us that we are more ready to adapt to its presence amongst us than our policy makers traditionally give us credit for. Looking to the future and our economic recovery from the pandemic, we must ensure policymakers remain committed to a timely net zero goal as part of this. Small nuclear reactors could play a key role in that green recovery as we strive to build back better.

## [The Offshore Wind Challenge](#)

### **An Update from Professor Mike Barnes**

COVID-19 has, like other sectors, had an impact on the offshore wind industry. The trade body WindEurope estimates installations in 2020 will be down 30% compared with forecasts; though it also reports that all turbine and component factories are now open across the continent and appropriate sanitary measures are being implemented. Any change in the cost of finance will have an impact on industry costs, as will any continued restrictions on the movement of goods or key personnel. Where supply chains are global, the impact of COVID-19 in other countries, for example India, must also be considered.

COVID-19 has also had an impact on grid connection. The Kriegers Flak Combined Grid Solution – the connection of the transmission grids of Denmark and Germany as well as the grid connection of local offshore wind farms – has been delayed until August due to movement restrictions. In the longer-term, remote monitoring, artificial intelligence and robotics could make the industry more resilient to such shocks. These technologies would allow key parts of operation and maintenance to be modified so that fewer workers are required to undergo transfer offshore. Many would thus avoid the confined, and potentially dangerous, conditions of offshore platforms and helicopters.

## [Getting Serious about CO2 Removal](#)

### **An Update from Dr Claire Gough and Dr Andrew Welfe**

If the UK is to meet its target to become net zero by 2050, rapid transition to low carbon energy technologies will be required. Although to become truly net zero the UK will also need mechanisms for generating negative emissions such as bioenergy with carbon capture and storage (BECCS), in order to compensate for the continuation of emission generating processes such as agriculture – where full decarbonisation will be hard to achieve. The COVID-19 pandemic and the resulting momentary dip in emissions due to reduced economic activity has potentially allowed time for policy makers to decide and commit to technologies such as bioenergy and BECCS, each providing options that may help to sustain UK industry, bring high-skilled jobs and support a low carbon economy.

## **Fixing the food chain: Accountability in emissions**

### **An Update from Professor Sarah Bridle**

COVID-19 has changed the way most people eat, and heightened interest in self-sufficiency from both citizens and government. The pandemic has created new challenges for food producers due to travel and social distancing restrictions, and created economic disruption that will last well beyond the pandemic itself. Meanwhile the climate continues to change, and increases the threat of compounding shocks to the food system, such as droughts and wildfires.

Data science has enabled us to optimize our food system to allow just-in-time sourcing from across the world. However, optimization is the antithesis of resilience, and the resulting fragility has now been exposed for all to see. To move forward, we need to use these same tools for a new end as part of a green recovery: a quantitative model of the food system, that can be stress-tested for resilience. At the same time, to mitigate against future climate-induced shocks we need to quantify our food emissions and incentivise change, as described in the article below. A new mode of collaboration is required across government departments, academia and industry to join up economic and environmental metrics within the quantitative systems model and thus allow us to simultaneously address resilience and climate change.

## **Everyday water demand: How to reduce emissions in unseen sectors**

### **An Update from Dr Claire Hoolohan**

There are many interactions between everyday water use and COVID-19; from concerns about [access to water to increase hygiene](#) and control viral spread, to general concerns about high levels of domestic water use while [people are home during the summer months](#), to potential for tracing community infections through [sewer surveillance](#). Though evidence of these trends is beginning to emerge, there are important blind-spots in our understanding of how and why demand is changing during the pandemic. There is a need for substantial investment in qualitative and mixed-method research to understand how and why the changes we're observing are happening and how people's experiences of the pandemic impact differently on water demand. These insights are essential evidence to support appropriate policy interventions.



## [Energy equity in the drive for Net Zero](#)

### **An Update from Professor Stefan Bouzarovski**

The COVID-19 crisis has significantly impacted energy use across the world. Against the background of an overall fall in energy demand due to decreases in economic activity, there has been a rise in residential energy use due to increased home working, unemployment and lockdowns. Households vulnerable to fuel poverty and domestic energy deprivation have become more precarious due to income reductions, lack of access to needed infrastructure, and rising energy needs. As always, energy efficiency improvements, disconnection bans as well as improved energy management and social services remain key to addressing both energy poverty and sustainability challenges.