Delivery Proof

Name of KIC project the report results that contributed to / resulted in the deliverable	Covid-19 Call – Future-proof finance for resilience and adaptation (Project Cygnus)
Name of report	DEL03 Open policy report
Summary/brief description of report	Policy and positioning materials which will shorten the pathway between innovation and policy. In light of the findings of WPs 1 & 2, we will present recommendations on policies that can accelerate a green and sustainable recovery post-pandemic.
Date of report	2020-12-18

Supporting Documents: See Appendix at the end of the document

Executive Summary

Three policies stand out to create a Covid-19 economic recovery that is both more sustainable and more local in the UK and Ireland:

1. We need to get more houses in the UK and Republic of Ireland **retrofitted** so that they are energy efficient.
2. We must make **transportation** in those countries as **sustainable** as possible as soon as possible.
3. Perhaps most importantly, we need better **data infrastructure** to navigate the climate crisis - and particularly to tie it together with Covid-19 economic recovery.

There is agreement across the political spectrum not only on the need to tackle the climate crisis while linking it directly back to economic recovery, but on the ways to do so. What is missing is the means. Data infrastructure is not widely understood enough by governments and this needs to change.

The UK is facing an economic downturn of unprecedented proportions. Ireland has been impacted less severely economically than the UK by Covid-19 measures overall, yet unemployment in Ireland was immediately increased by the crisis, hitting 28.3% in April 2020.

Coming into the crisis, neither country was doing well enough on sustainability. While on paper the UK's 39% reduction in carbon emissions over the past three decades is impressive, it is mostly offset by how much carbon the country imports. In Ireland, a sharp increase in manufacturing, particularly in the pharmaceutical sector, which is high in carbon emissions, has resulted in the country treading water in terms of making the economy greener. Both the UK and Ireland needed to do more to make their economies more sustainable pre-Covid-19; in the midst of the recovery, this is even more crucial.

Having a greater number of people working from home will not be enough. Our research suggests that:

1. It is impossible to tell how many people will end up working from home once the Covid-19 crisis has been judged to have been overcome but the polling suggests it could be far less than is often assumed.
2. The carbon emissions upside to having more people working from home may be very limited. While having less people commuting to work is certainly good, if it means more people using a lot more energy up at home, then this could be largely negated.

Local government in the UK is under equipped to handle this problem. In a survey conducted by Demos in November 2020, commissioned by Project Cygnus, revealed strikingly low confidence levels among councillors regarding the ability to tackle net zero goals:

- 36% (more than a third) of councillors say they are not confident their council can meet net zero targets.
- 40% said they were not confident they had sufficient information to make informed decisions about plans to reach net zero emissions.
- 44% aren't confident they have enough info to make informed decisions on Covid-19 economic recovery.

We took an approach of continuous learning and training throughout all work packages; a summary of this can be found in DEL04.

Introduction

The purpose of the research was to understand four key questions in detail and then use the knowledge gained to create three policy recommendations for how best to ensure the economic recovery from the Covid-19 crisis is both sustainable and local.

The four questions were:

1. What was the financial impact of Covid-19 on the UK and Ireland?

2. Where were the UK and Ireland on carbon emissions pre-crisis? In order to understand what the crisis had changed and not changed and from there, to outline the scale of the current climate crisis in the two countries, post-Covid-19.

3. What are the governments in the UK and Ireland planning in terms of sustainable Covid-19 recovery?

4. How has working from home impacted the environment, how much of those impacts look to be long term and what we can tell about current attitudes about working from home?

The results were derived from data discovered and models created within the Project Cygnus Infrastructure and Analysis work packages (refer to DEL01 and DEL02 reports), in combination with the Policy research of this work package that conducted literature reviews, interviews with politicians, experts and academics as well as ran a series of fact finding events (refer to DEL04). The end result of this work is manifested in the three policy proposals laid out in the final section of this report.

The financial impact of Covid-19 on the UK and Ireland
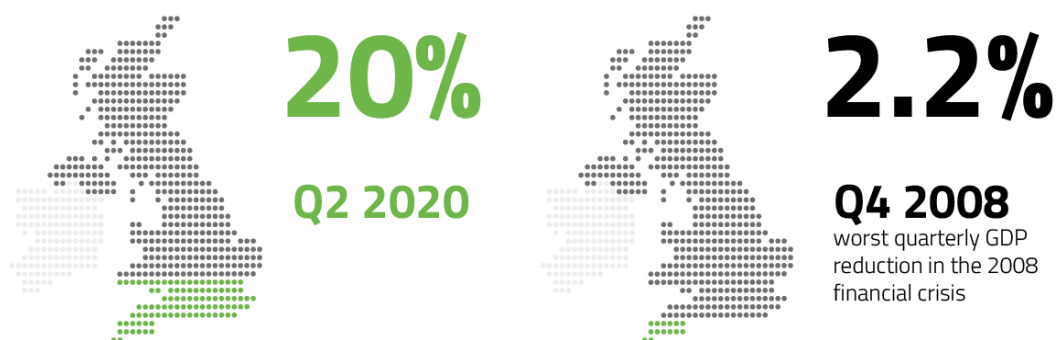
In the second quarter of 2020, the UK economy contracted by over 20%[1]. For comparison, the worst quarterly reduction in GDP during the aftermath of the 2008 financial crash in the UK was 2.2%, in Q4 of 2008 itself[2]. Even the Great Depression is of a different magnitude to what we're currently experiencing – in 1931, the peak of the depression in the UK, the British economy contracted by 5% across the year[3]. The scale of the economic contraction in the UK as the result of the Covid-19 crisis, as in many countries

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[1] GDP monthly estimate, July 2020, ONS

[2] Ibid

[3] Bank of England historical records

across the globe, is on a fundamentally different scale to what we've ever seen before. To make things worse, the impact thus far has fallen hardest on small to medium sized enterprises[4].

Ireland has been impacted less severely than the UK by Covid-19 measures, at least to date - GDP "only" decreased by 6.1% in Q2 of 2020[5]. Nonetheless, several sectors have been hit very hard this year in Ireland. Distribution, Transport, Hotels and Restaurants recorded a decrease of 30.3% in Q2 2020 compared with the previous quarter; Professional and Administrative Services contracted 28.2% over the period; Construction declined by 38.3% between Q1 and Q2 of 2020; Agriculture, Forestry and Fishing fell by 60.6%; Arts and Entertainment by a whopping 65.5% in value terms[6].

As pointed out in the analysis work package (DEL02 Results of the statistical analysis), grants remain important for green companies, and this has not been factored in enough during the Covid-19 crisis in either country. Grants are still an important funding form for companies or projects that are still in a very early stage of development, accounting for 4% in the UK and 5.6% in Ireland.

Where the UK and Ireland were on carbon emissions pre-crisis

Reduction of UK CO_2 emissions
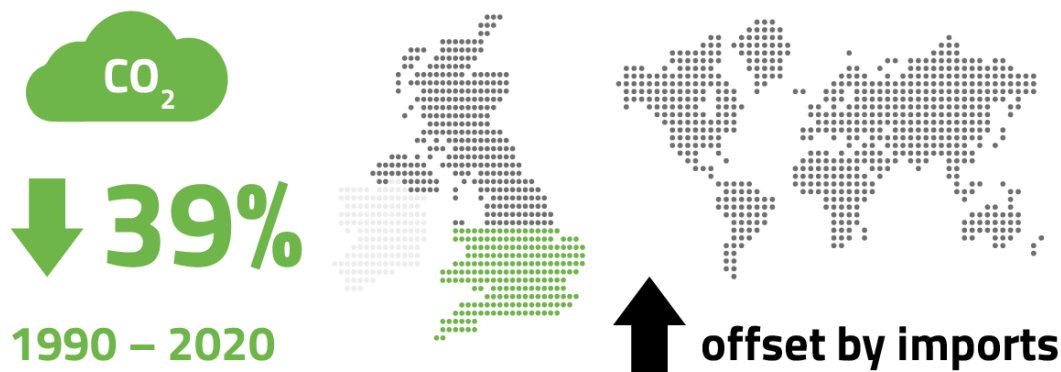
Since 1990, the United Kingdom has reduced carbon emissions within its borders by 39% and all greenhouse gas emissions by 44% over the same period[7]. This sounds positive, particularly when, during the same period, China has increased its carbon emissions by 321% and India by around 261%[8]. The problems come when you take into account imported emissions and how that affects the UK's overall environmental footprint.

There are several reasons that carbon emissions have fallen in the UK over the last thirty years[9], but the easiest to understand is that the United Kingdom makes far less than it once did. A decline in manufacturing has naturally resulted in a fall in emissions.

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[4] More information on this in the appendix
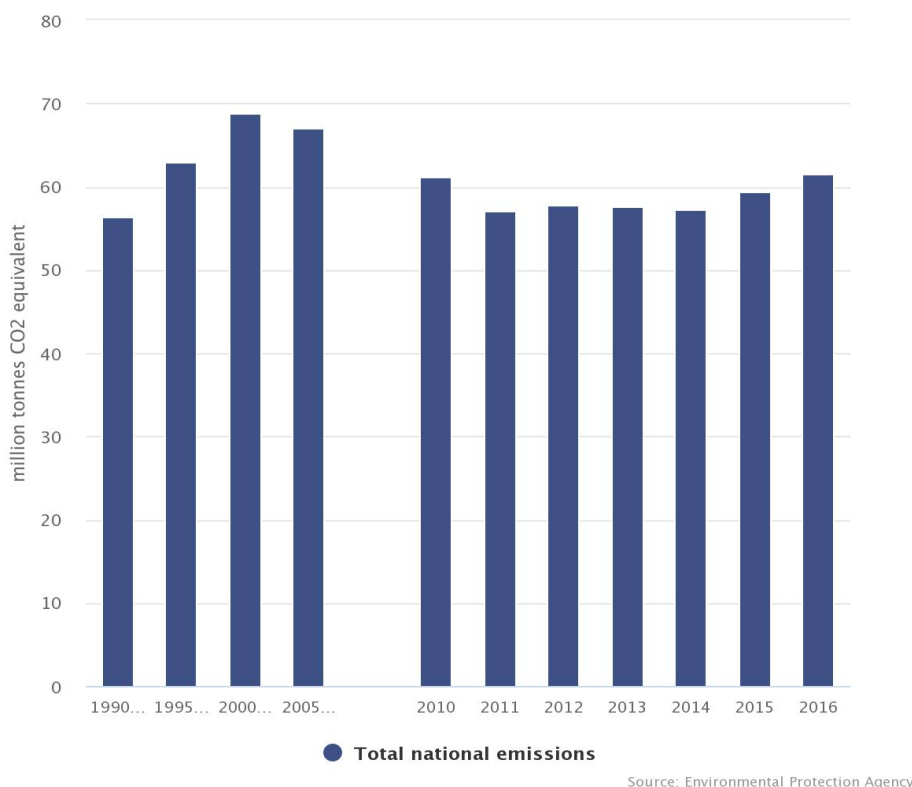[5] Quarterly Accounts, CSO, 7 September 2020
[6] Ibid
[7] 2017 UK Greenhouse Gas Emissions report, ONS
[8] World Bank data, 2019
[9] See appendices for more details

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In 2018, Ireland's greenhouse gas emissions were 60.9 million tonnes of carbon dioxide equivalent. This is 9.9% higher than the 1990 figure of 55.5 million tonnes, meaning that emissions have actually increased in Ireland over the past thirty years.[10] This is to some degree understandable as manufacturing in Ireland has had periods of massive growth over the last three decades. The volume of manufacturing production grew at an exceptional rate of 13.8 per cent per annum in between 1991 and 2001[11].

Figure 2.1 Ireland: Greenhouse gas emissions 1990–2016

Source: Environmental Protection Agency

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EIT, a body of the European Union

What the governments in the UK and Ireland are planning in terms of sustainable Covid-19 recovery

UK government plans for green recovery

£4bn

green recovery plan

In November, Downing Street announced a new, much improved green Covid-19 recovery package, worth around £4 billion. The main points of the plan are:

1. £1bn next year for funds to insulate homes and public buildings (essentially, an extension of the current Green Homes Grant).

2. A plan to produce enough offshore wind to power every home, quadrupling how much the UK produces to 40GW by 2030. The UK government believes this will create 60,000 jobs.

3. £200m extra invested in carbon capture initiatives.

4. 30,000 hectares of trees planted every year for the foreseeable future.

5. A ban on combustion engine sales by 2030. Alongside this, grants will be available for electric cars (unclear how this will work in practice) and funding for charge points.

6. Investing in nuclear power, developing the next generation of small and advanced reactors. The government says this could "support" 10,000 jobs.

The Fianna Fail-Fine Gael-Green coalition in Ireland has put together a €7.4 billion stimulus package to help the country recover from the Covid-19 crisis - around 25% of which will be related to green and sustainable efforts. The headline policies that the Irish government will be pursuing for a sustainable economic recovery are:

• Increase retrofitting to 500,000 homes by 2030;

• Install 600,000 heat pumps in residential buildings by 2030;

• Support the infrastructure necessary for electric vehicles (EVs): 900,000 EVs are targeted for 2030

In addition to these large-scale measures, there are other, smaller items that have been fully costed by the Irish government. There is €40million allocated to local authorities to improve pedestrian infrastructure across the country; €42million allocated to local authorities to improve cycling infrastructure; €21million allocated to support and enhanced programme of track relaying on the main

inter-urban route between Dublin and Cork to facilitate increased speeds as well as an expanded programme of ballast cleaning on the network generally, something intended to cut car usage; and €250,000 will be put towards transitioning local link vehicles to zero-emission alternatives in rural parts of the country[12].

As stated in DEL02, given the net zero targets of both countries, more will have to be done by the governments of both.

A post-Covid-19 world: will working from home become the new norm? And what will the environmental impact of that be?

Working from home trend
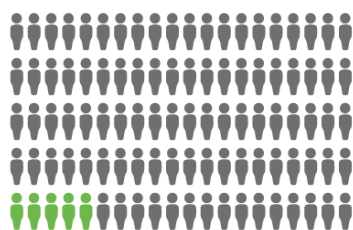
+5% Britons want to work from home all of the time
compared to before the crisis

In a YouGov poll taken in between the 2nd and 6th of September 2020, people were asked about working conditions pre-Covid-19 and then post-lockdown. 13% of individuals said they had worked from home all of the time, 19% some of the time, 68% never before the crisis; 33% responded that they now worked from home all of the time, 15% some of the time, 46% never, with 7% furloughed. Where the poll became interesting was in what people said when asked what they wanted post-Covid-19: 18% wish to work from home all of the time, 39% some of the time, 39% never[13]. There has been a sharp increase in people wanting to work from home some of the time as compared to the pre-Covid-19-19 period; but most people want to be able to go to the office when necessary as well.

From an environmental perspective, having vastly more people working from home isn't as beneficial as has sometimes been assumed. There are definite upsides - less people commuting into city and town centres is a big one. Although a lot of city and suburban dwellers tend to think of commuting as rail or metro, in Britain, 54% of people commute via car[14]. So, fewer people commuting almost assuredly means fewer people driving. However, there are environmental downsides to more people working from home. Shared office space tends to be much more energy efficient than people working separately from home, particularly in winter.

Homes are poorly insulated in the UK and the problem is equally severe in Ireland. Without an extensive programme of retrofitting in both countries, the increase in people working from home could conceivably

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[12] The data for the Irish portion of this section comes from off the record interviews with individuals inside of the current Irish governing coalition
[13] YouGov poll, 2-6 September, 2020, sample size 4,933
[14] National Travel Survey UK, 2019

begin to have a net negative impact on the environment, even if emissions from commuting come way down.

It is clear that working from home is not the only thing required to solve the climate crisis; nor can we have any degree of certainty how much it will continue as the Covid-19 crisis subsides. We have to be ready for any eventuality.

Three key policy areas for a green and sustainable economic recovery from the Covid-19 crisis

1. Retrofitting homes to make them more energy efficient

**80%** of the homes we live in today will still be in use in **2050**

Making new builds energy efficient as well as retrofitting existing housing stock will be important to meeting carbon goals set by the UK and Irish governments. However, approximately 80% of the homes we live in today will still be in use in 2050, so retrofitting is of prime importance. The UK's building stock remains one of the most inefficient and oldest in Europe[15]. The situation in Ireland is similar.

Work done by ODI Leeds underscored the scale of the problem. EPC data from a case study done in Leeds shows that evaluations on homes are rarely done with any view to making the houses more energy efficient:

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[15] UK Standard Assessment Procedure, 2016
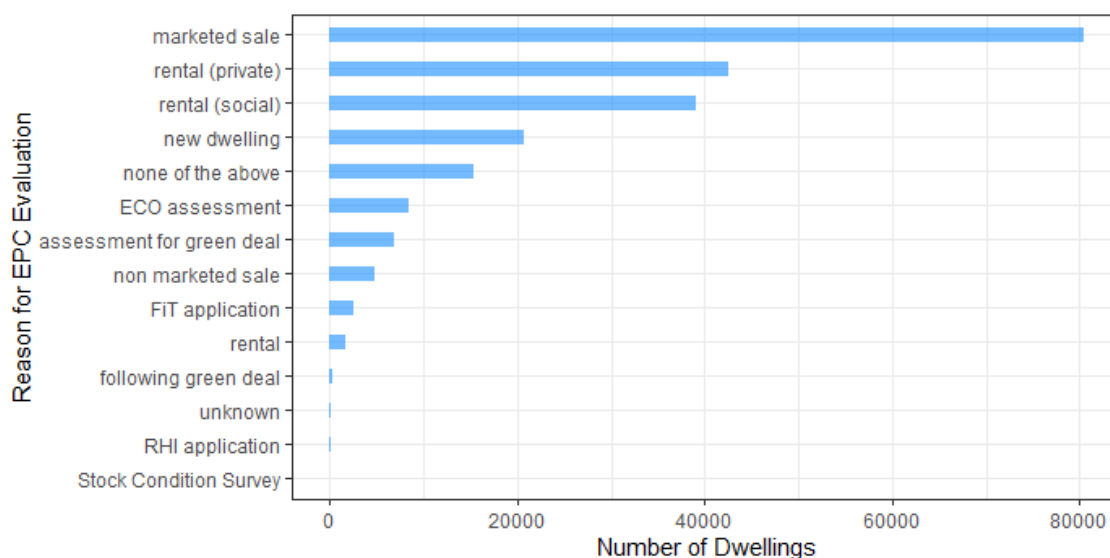
Additionally, Icebreaker One has done some case studies on retrofitting[16].

In 2019, the UK Climate Change Committee (CCC) found that the UK's climate change targets will not be met without the near-complete elimination of greenhouse gas emissions from UK buildings, meaning retrofitting becomes absolutely vital to making the UK's net zero targets.

Both countries need to make their houses much more energy efficient. Three policy suggestions to achieve this are:

1. A public awareness campaign is the best thing the UK and Irish governments can do as a next step. The CCC states that the installation of new gas boilers must be phased out by 2035, but public awareness is low (48% of the population were not aware that gas boilers were a source of CO_2 emissions) and barriers to replacement are high. The private sector could be heavily involved when it comes to retrofitting - if only the public were made more aware of the problem and how to fix it.

2. Tax adjustments on gas should be utilised. In the UK, VAT rates on residential gas should move from 5% to 20%. VAT on electricity should be reduced to zero. Brexit will allow the UK Treasury complete freedom to do this. Ireland has less ability to make this sort of adjustment, but any use of the tax system to tilt towards electricity and away from gas is recommended.

3. Local needs to become key. Devolve as much of this to local level, where first-hand knowledge about where the homes most in need of retrofit resides. In the UK, devolve as much of the competence to councils as possible, all while allowing them the budgets necessary.

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[16] See Appendices

![EIT Climate-KIC logo]

2. Sustainable transportation

of people considering buying or replacing their current car or van

17%

would choose

a hybrid vehicle

5%

would choose

an electric vehicle
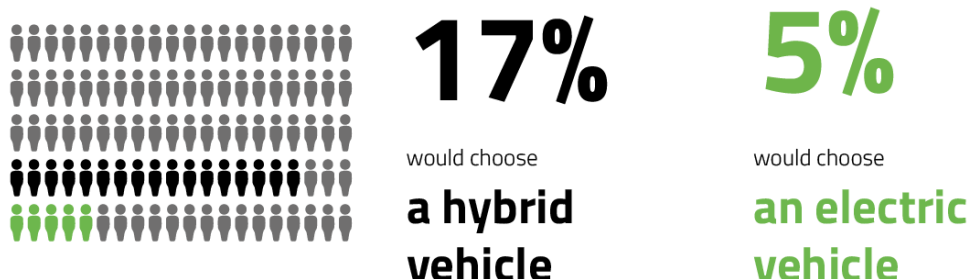
As the Covid-19 crisis enters its latest phase, transport has once again become the largest carbon emitting sector in the UK[17]. Emissions from transportation dipped dramatically in the UK during the first lockdown at the end of March only to start to creep back up to pre-crisis levels during Q4 of 2020. Making transportation more sustainable is important in two ways:

1. Net zero is impossible without it.
2. It is one of the best ways to create jobs while pursuing a green agenda.

The UK government has announced that petrol and diesel fuelled motor vehicles will be banned from sale in 2030, which leaves little time to make the adjustments necessary. There are over 240,000 battery electric and plug in hybrid vehicles registered in the UK; however, there are over 40 million cars in the UK, illustrating the scale of the problem.

Our policy recommendations are:

1. Car companies in the UK and Ireland should be legally required to sell a minimum share of zero-emissions vehicles, reaching 100% by 2032 at the latest. There is little point in applying a strict cut-off date for petroleum fuelled cars at one end without pulling other legal levers in order to make it happen.

2. The planned £1.3 billion to accelerate the rollout of charge points for electric vehicles in homes, streets and on motorways across England needs to be devolved to councils. The development of infrastructure and the production of electric vehicles needs to sync. This can be done by Westminster funding local councils' budget and then devolving the competency of building EV infrastructure. Finishing off EV infrastructure should be devolved to the most local level practically possible in Ireland.

3. Governments in the UK and Ireland should subsidise battery prices for the next decade. Although battery prices for EVs have fallen 80% in the past ten years, they need to come down further, quicker in order to incentivise the mass buying of electric vehicles.

4. Another public awareness campaign is needed. Only 17% of people considering buying or replacing their current car or van would choose a hybrid and 5% would choose an electric vehicle[18]. People need to be told constantly about the 2030 deadline over the next decade in

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[17] 2019 UK greenhouse gas emissions, provisional figures, BEIS
[18] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/932122/decarbonising-transport-setting-the-challenge.pdf

order to get people to start buying more sustainable vehicles. Governments in the two countries need to start doing this now.

3. Better data infrastructure

The governments of the UK and Ireland should mandate the publishing of any non-sensitive data under an open license

As well as the physical infrastructure detailed above, we need the data infrastructure to navigate the climate crisis - and particularly to tie it together with Covid-19 economic recovery. Having better data available would help every part of economic Covid-19 recovery: at a national government level, where having better information to hand would elevate every part of the Whitehall decision making process; at local level, where being better informed would allow councils to make the right calls on green recovery; in the private sector, in allowing companies to make educated choices. The last item is crucial: if we want a greener economy to emerge from the Covid-19 crisis, better data infrastructure is key to private enterprise making more sustainable choices. As we discovered in DEL02, environmental data and software companies received the largest portion of equity funding in the UK, so this should be achievable.

DEL01 describes our achievements regarding data infrastructure and governance outputs that provide a foundation for data driven solutions. We have also produced a substantial report[19] to identify opportunities that could reduce effort and complement ongoing international initiatives by examining the scope and complexity of data sharing across markets, supply and value-chains. We highlight solutions that can reduce friction in data-sharing and propose levers of change that can help unlock innovation that would directly benefit policy and regulatory decision makers such as those working on the Covid-19 crisis. These solutions will further inform other activities such as UNEP's STRATA project[20] which also aims to improve policy making and programme design within the UN while monitoring environmental and climate stress using Earth Observation data.

As the UK leaves the EU it must look to keep to a European standard on data - or even better it. Finding a "goldilocks" zone of regulation - one that allows the right data to be shared while protecting data that needs to remain closed - will be difficult, yet vital. Some of the guiding principles to make this happen we know already: reduce the burden of information gathering and analysis by those requiring non-financial reporting data; reduce the burden of reporting from organisations across reporting frameworks, jurisdictions and scopes.

Our recommendations are:

1. Data must be usable by machines, not just humans. Policies must mandate that data be machine-readable in order that it may be collected and used in an efficient manner. As important is the ability to discover that the data exists, what it is, where it is from, and how it may be used. This

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[19] https://icebreakerone.org/report-nfdf

[20] https://newsroom.eodatascience.com/geo-gee-project-strata-uneps-earth-stress-monitor

'metadata' is a priority to make available so that data may be found and information about it accessed.

2. The governments of the UK and Ireland should mandate the publishing of any non-sensitive data under an open license. This is essential to enable large-scale discovery of what data exists. Policies should also mandate the publishing of sensitive non-financial reporting data under a shared data infrastructure framework.

3. Data increases in value the more it is connected, so maximum connectivity must be a goal. A focus on systemic cohesion and interoperability reduces the burden of sharing by creating common rules and frameworks for sharing that address good data governance. It ensures data is used appropriately for the purposes intended, addressing questions of security, liability and redress.

Conclusion

The three moving pieces in terms of making all of this happen - national government, local government, the private sector - must move in harmony. They all have their parts to play in making the economic recovery from the Covid-19 crisis sustainable and if coordinated correctly, the moves of each three could be beneficial to everyone.

If retrofitting can be done correctly, thousands of jobs could be created in the UK and Ireland. Having more sustainable transportation will cut down on carbon emissions while the shift towards sustainability, away from fossil fuels, should also create more jobs. We will need better data infrastructure than we have now for almost everything we do.

The Covid-19 crisis cannot be used as an excuse to push the climate agenda into the long grass. Instead, the crisis must be harnessed as a catalyst for real change responding to the findings, we have outlined in DEL02 and evolving the innovations we have described in DEL01. We have evidenced this consensus for change across the political spectrum and defined actionable policy recommendations that will stimulate a green economic recovery from Covid-19.

Appendix

More on Financial impact of Covid-19 on UK

To drill down further, the impact thus far has fallen hardest on small to medium sized enterprises, and correspondingly, the owners and operators of smaller businesses and their employees.

Percentage of companies currently trading, paused trading or ceased trading as compared to the start of the Covid-19 crisis[21]:

Size of company (by no of employees)	Currently trading	Paused trading	Ceased trading
Less than 10	82.5%	14.4%	3.1%
10 - 49	95.7%	3.6%	0.7%
50 - 99	96.5%	2.7%	0.8%
100 - 249	98.3%	1.3%	0.4%
250+	97.4%	2.3%	0.3%
All companies	83.9%	13.2%	2.9%

In terms of how this has impacted employment, overall the picture is misleadingly comforting for the UK. The unemployment rate countrywide is 4.1% as of July 2020[22], which is astonishingly low, all things considering . Yes, furlough would have helped keep this number lower than it might have been, but still, 4% is healthier than you might imagine. The figures are impressive, so long as you dig down only generally and nationwide: unemployment was 3.85% at the end of 2019, so the impact of Covid-19 so far on total unemployment is only to increase it by 0.3%. 76.5% of all people between 16 and 64 in the UK are in employment, which is actually 0.4% higher than this time last year[23].

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[21] Coronavirus and the economic impacts on the UK: 24 September 2020, ONS
[22] Labour market overview, UK: September 2020, ONS
[23] Ibid

The problem here comes when you drill down by age. For 18 to 24 year olds, employment decreased by 146,000 in Q2 of 2020, a record decrease for this age group in a single quarter[24]. Employment numbers by age group are steady for almost every group apart from those under 25. This fuels worries that this generation of young people are bearing the brunt of the Covid-19 crisis economic fallout without this even being widely known, never mind something being done to ameliorate the problem.

More on Financial impact of Covid-19 on Ireland

Unlike in the UK, where unemployment has been largely kept under control, unemployment in Ireland was immediately impacted by the Covid-19 crisis. For all of the 21st century up until the 2007/2008 crash, the Irish unemployment rate was under 5%. This rose to 12.61% in 2009 and peaked at 15.45% in 2012[25]. From there, it came down every year until finally in 2019, it reached below 5% once again (4.93%). In April 2020, the unemployment figure hit 28.3%[26]. The pain of this was offset by the Irish government setting up a Pandemic Unemployment Payment (PUP) on March 16th, 2020, something which pays those resident in Ireland up to €300 a week. Thankfully, the unemployment rate, including those receiving PUP, was down to 14.7% as of September 2020[27].

More on UK's pre-crisis carbon footprint

The sale of manufactured goods accounted for 16.7% of UK GDP in 1990; by 2019, that figure had fallen to 8.6%[28]. The peak of carbon emissions created on UK soil was 1972[29], at which time manufacturing accounted for 28.1% of the UK's GDP[30]. In 1990, 15.7% of all jobs in the UK were manufacturing in nature; by 2019, that figure had fallen to 7.6%[31]. What's even more stark is that in 1981, 21.8% of all jobs in the UK were in manufacturing[32], demonstrating the long term nature of this trend. Rather than actually eliminate its carbon footprint, the UK has taken it offshore.

There are four ways that the UK reduced its territorial carbon footprint over the past thirty years. Firstly, the reduction of coal usage over that period. Coal's share of the UK's total carbon emissions was 28% in 2012; by 2018, that had fallen to 5.5%[33]. Secondly, the amount of energy efficiency improvements made over the last three decades, in particular more efficient household appliances combined with the phase out of incandescent lightbulbs. This has resulted in reduced emissions across several sectors, most notably, residential, business, energy and the public sector. Thirdly, mostly through subsidies, cleaner power has become much more prevalent. Energy from renewable sources was only 4.56% of the UK market in 2006; in 2019, this had jumped to 35.8%[34]. The fourth and final reason is a decrease in UK based manufacturing.

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[24] Ibid

[25] World Bank statistics

[26] Monthly unemployment, September 2020, CSO

[27] Ibid

[28] World bank statistics, 2019

[29] The decoupling of economic growth from carbon emissions: UK evidence, ONS, 2019

[30] Changes in the economy since the 1970s, ONS, 2019

[31] Manufacturing: statistics and policy, House of Commons library paper 01942

[32] Ibid

[33] 2017 UK Greenhouse Gas Emissions report, ONS

[34] K Energy Statistics, Q1 2019, BEIS

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More on the impact of the pharmaceutical industry on carbon emissions

The carbon footprint of the pharmaceutical industry is large, comparable in scale with the oil and mining or meat and dairy industries. To produce just 1 kg of an active ingredient, the industry often uses up to 100 kg of materials[35]. Globally, the pharmaceutical industry emits more carbon than the automotive industry[36]. Given how large a sector this is in Ireland, decarbonising the pharmaceutical industry will be part of Ireland attempting to reduce its territorial based carbon emissions.

More on working from home

There is also a growing worry that the effect of Covid-19 may actually drive up car usage, at least in the UK. A big red flag is that reluctance to use public transport is now higher than it has been for the last eighteen years[37]. Although half of people across the UK are using their cars less than they did compared with last year, 57%, perceived access to a car as more important now than before the coronavirus pandemic[38]. There is a reasonable worry that because of fear of Covid-19, people will use public transport less and their cars more in the coming years.

We constructed a model to test the parameters of working from home and its impact on the environment. I will now take the model to its limits - to construct a scenario based on current known variables and take them all in the direction most favourable to the environment to see what we get. In the YouGov poll, 20% of the population would like to work at home more than they do now. For argument, let's say all of them are allowed to do this. This would result in around 3.3 million more homes operating as working spaces as compared to pre-crisis. If we assume the current proportions of commuting technique, this would result in a best case scenario of a decrease of around 4 MTCo2e a year, or 0.7% of the UK's total carbon emissions from all of those workers no longer commuting.

More on the Green Homes Grant

The Green Homes Grant was launched by the UK government on September 30th 2020[39]. Under scheme, homeowners and landlords in England will be able to apply for vouchers worth up to two thirds of the cost of upgrading the energy efficiency of their home, with the maximum contribution available being £5,000. Households on low incomes will be eligible for up to 100% funding, up to a maximum of £10,000. It is targeted at substantial measures such as heat pumps and biomass boilers, as well as various types of wall/floor insulation. On November 18, a further £4 billion was pledged toward the continuation of the programme in 2021.

Although we are in the middle of the scheme and don't know what the final numbers are, problems have been cited by numerous councils in England already, pointing to the administration which is acting as a barrier to take-up. When a voucher is applied for, it must include details of your chosen measures and tradespeople, therefore quotes must be gathered beforehand. It looks like this is putting people off using the scheme. The Energy Saving Trust also warn that eligible tradespeople are likely to be very busy and MoneySavingExpert is reporting that householders are struggling to find eligible installers in their area due at least in part to Covid-19 measures[40]. The policy should be seen as part of the economic Covid-19

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[35] The European Environmental Bureau, *The Problem of Pharmaceutical Pollution*

[36] Lotfi Belkhir, McMaster University, 2019

[37] https://www.theguardian.com/uk-news/2020/nov/09/Covid-19-set-back-attitudes-to-public-transport-by-two-decades-says-rac

[38] RAC Annual Report on Motoring, 2020

[39] https://www.gov.uk/guidance/apply-for-the-green-homes-grant-scheme

[40] https://www.moneysavingexpert.com/utilities/green-homes-grant/

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support measures, but is too short-term and cautiously designed (to maximise the use of taxpayers money) to be significant.

More on Irish Retrofitting Plans

In Ireland, what the government is proposing looks more promising than what is happening in the UK.. €100 million has been allocated to the Energy Efficiency National Retrofit Programme. The National Retrofitting Programme, strengthens the commitment in the recent Programme for Government (2020) aimed at raising the energy rating of 500,000 homes and installing 400,000 heat pumps in existing homes over the next 10 years to reduce carbon emissions and make homes more comfortable. There will be a focus on community retrofit schemes, retrofit schemes supporting those in energy poverty as well as other initiatives to support the achievement of our retrofit targets. The scheme will be implemented by the Sustainable Energy Authority of Ireland (SEAI).

Retrofitting case study: a user's journey

Local Authorities delivering a Local Energy Plan must be able to understand the impact of Low Carbon Technologies and whether retrofitting or new installations would be achievable without investment by the local Distribution Network Operator. With the rapid pace of change, understanding how a specific retrofit sits within an overall regional plan, or where investment will be required over time, is critical both for the Local Authority and the District Network Operator (DNO). This lack of certainty can cause significant delays to the rollout of retrofitted low carbon technologies (LCTs).

How does this look to Leah, a Project Manager for the community retrofit project at the Local Authority? She's comfortable with using analytical software, and needs to be able to understand how Local Authority decisions will impact the DNO available capacity and the implications of any transmission constraints. She decides to use a service called 'Retrofitly', an Energy Data Service Provider. Leah starts by setting the area they are working on and searches for the energy data she needs. The search is easy and intuitive to use. She selects 8 data sets. Some are Open, others are Shared, only accessible through a company like Retrofitly, because it's a licenced service provider for Open Energy. As she's from a Local Authority and her request comes through an approved service provider, access to the Shared data is granted.

Access control is managed through the Open Energy Governance Platform (OEGP). This ensures that only authorised service providers can access the data, provides the control point over the specific datasets, signposts the API endpoints, confirms the security protocols, and allows the data provider to recognise that it is a legitimate request.

Retrofitly presents Leah's range of scenarios back to her, demonstrating the impact on DNO available capacity. This is crucial in the decision making process, discussions with the DNO, and with citizen engagement. As a result, the certainty provided means that the retrofit proceeds faster than previously possible.

The Knowledge Graph solves the problem of searching for and finding the correct information amongst the diverse and disparate data sets. It collates the availability, structure and content metadata to simplify the discovery of data for the end-user. It identifies parties that can provide the required data, confirms where that data is, and what level of regulatory authorisation is required to access that data. The combination of easier search and access will benefit new service providers and incumbents alike. A

More on Electric Cars

Sales of electric cars topped 2.1 million globally in 2019, surpassing 2018 – already a record year – to boost the stock to 7.2 million electric cars.1 Electric cars, which accounted for 2.6% of global car sales and about 1% of global car stock in 2019, registered a 40% year-on-year increase[41].

Note on how the three policy areas were arrived at

We evaluated policies based on four criteria. One, what had the most cross the spectrum support, with both centre-left and centre-right figures/organisations making arguments in favour; two, which had the greatest bang for buck, ie what could make the greatest difference for the least amount of expenditure; three, which would work regardless of the work patterns during the Covid-19 recovery and after; four, and in many ways most importantly, what would create jobs and otherwise allow the country to best economically recover from the still ongoing Covid-19 crisis.

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[41] Global EV Outlook 2020, IEA, June 2020

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