

# Essex Green Recovery Assumptions

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The following analysis outlines the proposed supporting assumptions for the third shock to be considered as part of the Essex Economic Scenarios, utilising Cambridge Econometrics' LEFM model. Specifically, it outlines a potential green recovery trajectory for the Essex economy in the wake of the shock associated with the COVID-19 pandemic.

It should be emphasised that at this early stage, any efforts to determine the quantitative implications of COVID-19 on the UK economy and its potential recovery are highly uncertain and indicative. Bearing in mind these considerations, a credible and realistic green recovery narrative reinforced by a set of underlying assumptions have been developed.

## What does Green Recovery mean?

The green recovery is a popular term for a potential package of environmental, regulatory and fiscal reforms to be utilised in the recovery from the economic shock of the COVID-19 pandemic.

It emphasises investment that lifts countries out of economic recession by reducing global warming from the use of fossil fuels (coal, oil and gas), and increasing the uptake and efficiency of clean transport, energy, buildings, and corporate or financial practices.

The call for 'green' recovery plans is gathering momentum around the world, with broad support from political parties, governments, business groups, activists and academia. Blueprints for a 'Green New Deal', and the European Commission's 'European Green Deal' for instance, are already at a reasonably advanced stage.

## Potential components of a Green Recovery

Cambridge Econometrics' [analysis of the government response to the 2008/09 financial crisis](#) found that environmental spending accounted for only a small share of the economic stimulus packages.

The recession caused by the COVID-19 pandemic and subsequent lockdown offer an opportunity for public policy intervention to be 'reset', providing a stimulus package which could not only help people get back to work but also set the UK on a low-carbon trajectory more aligned with ambitions to become a net-zero economy by 2050.

Proposed categories of potential 'green' investment are considered and described in more detail in Table 1 (adapted from [CEP AND Grantham Research Institute \(2020\) analysis](#)). These initiatives map to the UK's highest-emitting sectors, whilst also providing opportunities for robust job creation and associated multipliers in the short term, with potential productivity gains in the longer term.

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Table 1: Potential green recovery investments in the UK (Source: CE, adapted from CEP, Grantham Research Institute)

Investment	Example of employment and growth drivers	Potential CE LEFM sectors impacted
<b>Carbon capture, utilisation and storage (CCUS) and hydrogen</b>	<ul style="list-style-type: none"> <li>- Construction and operation of scale pilot projects for hydrogen production</li> <li>- Construction and operation of CCUS infrastructure in high emitting industrial clusters</li> </ul>	Energy, construction, advanced manufacturing
<b>Renewable power generation and distribution</b>	<ul style="list-style-type: none"> <li>- Wind turbine and solar PV installation and operation</li> <li>- Distribution infrastructure installation and operation</li> <li>- Wind turbine and solar PV assembly</li> </ul>	Energy, construction, advanced manufacturing, architecture & engineering
<b>Electric vehicles (EVs)</b>	<ul style="list-style-type: none"> <li>- Construction and operation of EV charging infrastructure</li> <li>- Operation and maintenance of EV charging infrastructure</li> <li>- UK production of, and R&amp;D related to:               <ul style="list-style-type: none"> <li>- <i>Raw materials for electric vehicles (e.g. lithium)</i></li> <li>- <i>Electric vehicle component production</i></li> <li>- <i>Electric vehicle assembly</i></li> <li>- <i>Electric vehicle charging infrastructure</i></li> </ul> </li> </ul>	Advanced manufacturing, construction, automotive
<b>Active travel equipment and infrastructure</b>	<ul style="list-style-type: none"> <li>- Construction and operation of:               <ul style="list-style-type: none"> <li>- <i>Walking infrastructure schemes and networks</i></li> <li>- <i>Cycling infrastructure schemes and networks</i></li> <li>- <i>Traffic calming schemes</i></li> <li>- <i>On-street cycle hire schemes</i></li> <li>- <i>Improved rail connectivity and services</i></li> </ul> </li> </ul>	Construction, transport and logistics, PAD
<b>Housing energy efficiency</b>	<ul style="list-style-type: none"> <li>- Production and installation of:               <ul style="list-style-type: none"> <li>- <i>Loft insulation</i></li> <li>- <i>Solid wall insulation</i></li> <li>- <i>Cavity wall insulation (filling)</i></li> <li>- <i>Floor insulation (draft proofing)</i></li> <li>- <i>High efficiency glazing</i></li> </ul> </li> </ul>	Advanced manufacturing, construction
<b>Natural capital</b>	<ul style="list-style-type: none"> <li>- Creating, maintaining or restoring:               <ul style="list-style-type: none"> <li>- <i>Non-woodland ecosystems (e.g. wetlands)</i></li> <li>- <i>Woodland ecosystems (including tree planting)</i></li> <li>- <i>Saltmarshes and peatlands for carbon sequestration</i></li> <li>- <i>Parks and urban green space</i></li> <li>- <i>Sustainable drainage systems (SuDS)</i></li> <li>- <i>Continued creation, maintenance and restoration of natural capital</i></li> <li>- <i>Ecosystems services</i></li> </ul> </li> </ul>	Construction, agriculture, waste and water, PAD

The investments set out in Table 1 can be regarded as ‘shovel ready’, and therefore able to address the acute, short-term pressure for the recovery package to generate jobs and growth. It should be emphasised that this is a non-exhaustive list, and instead represents a realistic and achievable set of short-term policy initiatives to constitute a green recovery.

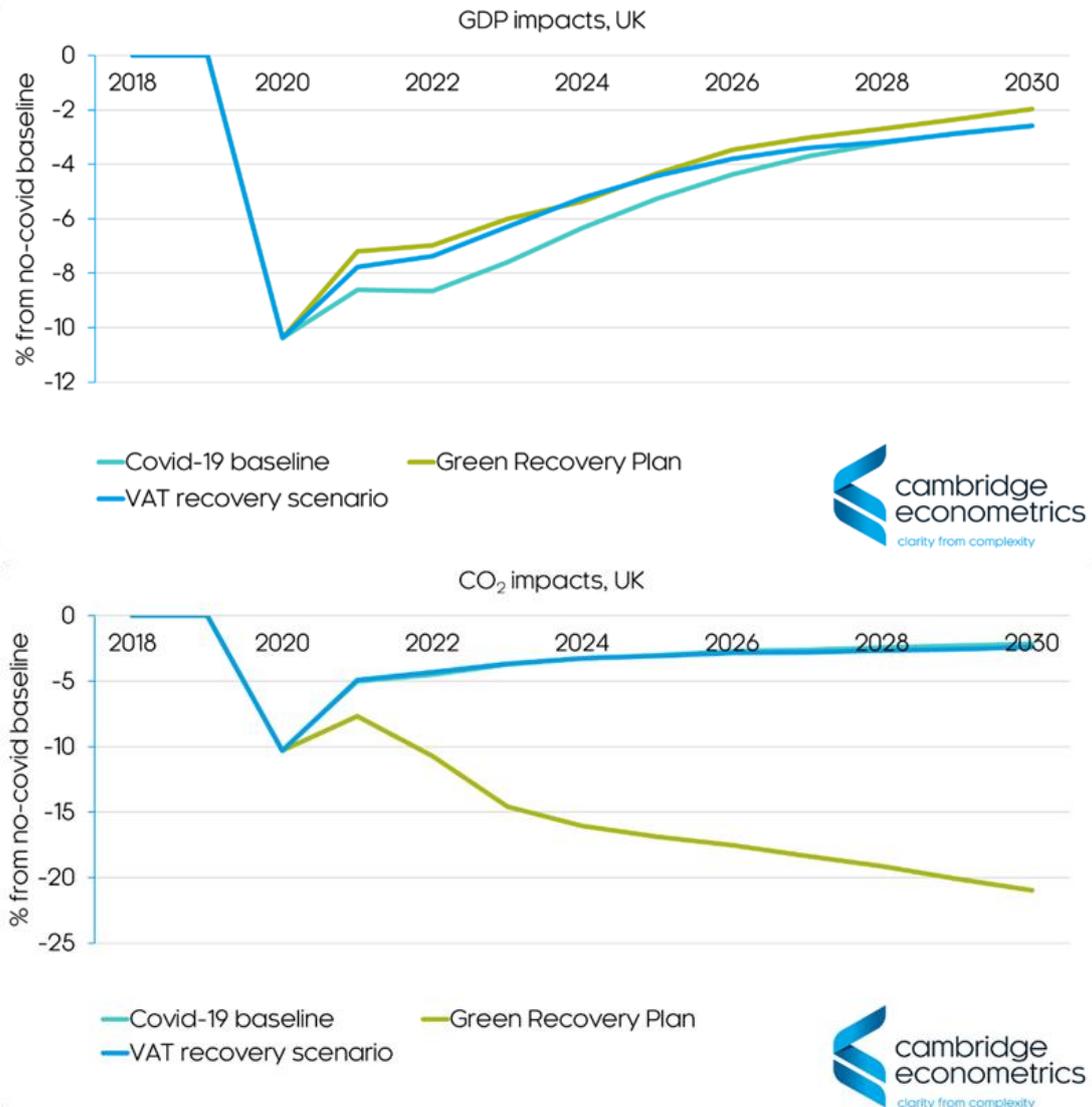
## Potential macroeconomic impacts of a Green Recovery

[Recent analysis \(October 2020\) by CE](#) shows that the implementation of even a limited number of the investments in Table 1 could boost income, employment and GDP in the UK more than ‘return-to-normal’ stimulus measures, with the added benefit of reducing emissions along a 2050 net-zero trajectory (see Figure 1).

In both the UK and across a range of other countries, green recovery plans based on such investments were found to be more effective than the traditional ‘return-to-normal’ stimulus approaches that reduce VAT rates and encourage households to resume spending.

However, the findings also reiterate the substantial and longer-term impact of the COVID-19 pandemic on global economic activity, even with substantial green recovery investment.

Figure 1: UK GDP and CO2 impacts under various recovery scenarios (Source: CE)



The analysis modelled a five point ‘green recovery plan’ (including a host of the measures outlined in Table 1) and a ‘return-to-normal’ plan (which both equated to an equal cost to government.) The headline sectoral results (as measured by sector output in 2030, relative to a COVID-19 baseline) for the UK are summarised in Table 2 below.

Table 2: UK sector output under various recovery scenarios (% relative to a pre-COVID trajectory. Source: CE. \* denotes sector benefitting from VAT cut)

	Baseline COVID recovery (relative to pre-COVID trajectory)	‘Return-to-normal’ recovery (relative to pre-COVID trajectory)	Green recovery plan recovery (relative to pre-COVID trajectory)
Agriculture, forestry & fishing	-0.3%	-0.3%	-0.2%

Mining & quarrying	-2.5%	-2.4%	-10.1%
Manufacturing	-10.2%	-10.4%	-7.8%
Electricity, gas, steam & air conditioning supply	-5.5%	-5.3%	-4.1%
Water supply, sewerage, waste & remediation activities	-3.7%	-3.7%	-1.9%
Construction	-7.1%	-7.0%	-5.8%
Wholesale & retail trade; repair of motor vehicles and motorcycles*	-1.8%	-1.7%	-1.9%
Transport & storage	-3.2%	-3.1%	-1.9%
Accommodation & food service activities*	-2.6%	-2.5%	-0.3%
Information & communication	-2.6%	-2.6%	-1.8%
Financial & insurance activities	-1.9%	-1.8%	-0.9%
Real estate activities	-1.5%	-1.5%	-0.5%
Professional scientific & technical activities	-2.3%	-2.3%	-1.4%
Administrative & support service activities	-3.4%	-3.5%	-2.5%
Public admin & defence; compulsory social security	-0.7%	-0.7%	0.4%
Education	-0.3%	-0.3%	-0.1%
Human health & social work activities	-0.3%	-0.3%	0.0%
Arts, entertainment & recreation*	-2.1%	-2.0%	-0.2%
Other service activities*	-1.2%	-1.2%	-0.4%
<b>All industries (output relative to pre-COVID trajectory)</b>	<b>-3.1%</b>	<b>-3.1%</b>	<b>-2.3%</b>

## Refining Green Recovery assumptions for Essex

The previous sections gives an indication as to potential scale of impacts at the national level, however greater leverage could be achieved in Essex as a result of its sectoral structure and strengths, strategic assets and local policy aspirations, leading to higher proportional local impacts.

- Given the scale of population and housing growth expected in Essex, the South East LEP (SELEP) emphasised in its [local industrial strategy](#) that “*the quality and energy efficiency of new development will be vital, and the SELEP area will play a major role in delivering ‘A Green Future’.*” It also notes local “*activity in low carbon and environmental goods and services, partly linked with the area’s large construction industry.*” The Essex Climate Action Commission has also proposed ambitious delivery around this theme, targetting 67% of existing homes to be net zero by 2030.

With these factors in mind, it is likely that the employment and output impacts of the transition to more energy efficient homes will be even greater in Essex, with the potential for the county to be at the forefront of the UK’s efforts in this area.

- The [Essex Economic Plan](#) notes the strength and growth potential of the local low carbon and renewables sector, “*with Harwich International Port already at the leading edge of servicing offshore wind farm delivery, as well as significant activity in Maldon, including potential for a new nuclear power plant at Bradwell.*”

Alongside any early impacts from the construction of Bradwell B, Essex' advantageous geography and existing renewable energy assets could contribute to additional employment and output benefits as a result of a further shift to low carbon energy.

- As part of its [Transport Strategy](#), Transport for the South East (TfSE) articulated a Sustainable Route to Growth scenario, which included the prioritisation of integrated public transport systems ahead of facilitating unlimited growth in car usage and measures to encourage and facilitate active modes of transport. Developed pre-COVID, there was a clear focus on balancing economic, social and environmental sustainability ahead of “*growth at any cost*”.

Given these sustainable travel aspirations – which could be accelerated post-COVID - additional employment and output impacts could be expected in Essex, especially given the pre-COVID volume and strain on its existing transport network and the potential for private vehicle displacement to more sustainable methods.

## UK Governments Ten Point Plan for a Green Industrial Revolution

The UK Government outlined its approach to a green recovery in a recently published Ten Point Plan for a Green Industrial Revolution, which is summarised in Table 3 below. The plan specifically references potential benefits of delivery, including employment, investment and emissions effects. The plan includes a number of the initiatives suggested by the Grantham Research Institute in Table 1.

Table 3: The Ten Point Plan for a Green Industrial Revolution (Source: UK Government)

Ambition	Government description	Potential employment benefit (by 2030)	Potential CE LEFM sectors impacted
<b>Advancing Offshore Wind</b>	1. Offshore wind: Producing enough offshore wind to power every home, quadrupling how much we produce to 40GW by 2030, supporting up to 60,000 jobs.	60,000	Construction, energy, advanced manufacturing and engineering
<b>Driving the Growth of Low Carbon Hydrogen</b>	2. Hydrogen: Working with industry aiming to generate 5GW of low carbon hydrogen production capacity by 2030 for industry, transport, power and homes, and aiming to develop the first town heated entirely by hydrogen by the end of the decade.	8,000	Construction, energy, advanced manufacturing and engineering
<b>Delivering New and Advanced Nuclear Power</b>	3. Nuclear: Advancing nuclear as a clean energy source, across large scale nuclear and developing the next generation of small and advanced reactors, which could support 10,000 jobs.	10,000 (at peak)	Construction, energy, advanced manufacturing and engineering
<b>Accelerating the Shift to Zero Emission Vehicles</b>	4. Electric vehicles: Backing our world-leading car manufacturing bases including in the West Midlands, North East and North Wales to accelerate the transition to	40,000	Advanced manufacturing, construction, automotive

	electric vehicles, and transforming our national infrastructure to better support electric vehicles.		
<b>Green Public Transport, Cycling and Walking</b>	5. Public transport, cycling and walking: Making cycling and walking more attractive ways to travel and investing in zero-emission public transport of the future.	3,000 (by 2025)	Construction, transport and logistics, PAD
<b>Jet Zero and Green Ships</b>	6. Jet Zero and greener maritime: Supporting difficult-to-decarbonise industries to become greener through research projects for zero-emission planes and ships.	5,200	Transport and logistics, advanced manufacturing
<b>Greener Buildings</b>	7. Homes and public buildings: Making our homes, schools and hospitals greener, warmer and more energy efficient, whilst creating 50,000 jobs by 2030, and a target to install 600,000 heat pumps every year by 2028.	50,000	Advanced manufacturing, construction
<b>Investing in Carbon Capture, Usage and Storage</b>	8. Carbon capture: Becoming a world-leader in technology to capture and store harmful emissions away from the atmosphere, with a target to remove 10MT of carbon dioxide by 2030, equivalent to all emissions of the industrial Humber today.	50,000	Energy, construction, advanced manufacturing
<b>Protecting Our Natural Environment</b>	9. Nature: Protecting and restoring our natural environment, planting 30,000 hectares of trees every year, whilst creating and retaining thousands of jobs.	20,000 (to 2027)	Construction, agriculture, waste and water, PAD
<b>Green Finance and Innovation</b>	10. Innovation and finance: Developing the cutting-edge technologies needed to reach these new energy ambitions and make the City of London the global centre of green finance.	"hundreds of thousands" (300,000 in exports and domestic industry)	Professional services, finance and insurance

## The Impacts of the 10 Point Plan on Essex

In order to estimate the extent of the impact of the national plan on the county of Essex, we use a series of proxy calculations to estimate the proportion of activity that might take place within the area. These effects have been estimated by distributing the UK-wide employment benefits (from Table 2) to constituent regions and local areas depending on their current and expected expertise in such areas, proxied by associated indicators (e.g. to allocate green public transport employment benefits, public travel commuting patterns in local areas has been observed).

Table 4 outlines the use of proxy calculations to convert from national to local level effects.

**Table 4. Using proxies to translate from national to local impacts**

Point	Description	Jobs (by 2030)	Essex proxy calculation		Essex jobs	Proposed sector distribution	
1	Advancing Offshore Wind	60,000	Installed offshore wind capacity	1.9%	1,112	Electricity & Gas	222
						Machinery	334
						Construction	222
						Architecture & Engineering	334
							<b>1,112</b>
2	Driving the Growth of Low Carbon Hydrogen	8,000	Electricity & gas workforce	2.9%	233	Electricity & Gas	47
						Machinery	70
						Construction	47
						Architecture & Engineering	70
							<b>233</b>
3	Delivering New and Advanced Nuclear Power	10,000	Bradwell B impact assessment	N/A	900	Electricity & Gas	900
						Construction	7,200
						Architecture & Engineering	1,800
							<b>9,900</b>
4	Accelerating the Shift to Zero Emission Vehicles	40,000	Automotive jobs	2.5%	1,009	Motor Vehicles	606
						Machinery	202
						Other transport equipment	101
						Construction	101
							<b>1,009</b>

5	Green Public Transport, Cycling and Walking	6,000	Public travel commuters	3.3%	198	Land Transport	138
			<i>Source:</i>			Other transport equipment	40
			<i>ONS (Census)</i>			Construction	20
						Public Administration	20
							<b>217</b>
6	Jet Zero and Green Ships	5,200	Aerospace and marine jobs	3.2%	168	Water transport	50
			<i>Source:</i>			Air transport	84
			<i>ONS (BRES)</i>			Other transport equipment	34
							<b>168</b>
7	Greener Buildings	50,000	Dwelling stock	2.6%	1,315	Construction	1,184
			<i>Source:</i>			Architecture & Engineering	132
			<i>MHCLG (Live Tables on Dwelling Stock)</i>				<b>1,483</b>
8	Investing in Carbon Capture, Usage and Storage	50,000	Industry/commercial carbon emissions	1.2%	595	Electricity & Gas	60
			<i>Source:</i>			Machinery	238
			<i>BEIS (Local/Regional CO2 emissions)</i>			Construction	119
						Architecture & Engineering	179
							<b>595</b>
9	Protecting Our Natural Environment	20,000	Green Space (non-agri use)	3.6%	722	Agriculture, Forestry & Fishing	289
			<i>Source:</i>			Construction	144
			<i>MHCLG (Live Tables on Land Use)</i>			Water, sewerage & Waste	144
						Public Administration	144
							<b>722</b>
10	Green Finance and Innovation	80,000	R&D workforce	3.2%	2,548	Financial & insurance	255
			<i>Source:</i>			Other professional services	2,294
			<i>ONS (BRES)</i>				<b>3,270</b>

## Proposed approach

Assuming the implementation of the investments in Table 4, supplemented with the aforementioned local evidence, the following direct impacts of a green recovery have been calculated for Essex (see Table 4 below). These estimates will be carried through to the LEFM modelling, to gauge the wider direct, indirect and induced effects of a green recovery.

Table 5 Sector effects for Essex green recovery

<b>With Bradwell</b>			
	<b>Total additional jobs 2030 by sector</b>	<b>Current (2019) sector jobs</b>	<b>Relative to 2019</b>
Agriculture, Forestry & Fishing	289	10,504	3%
Machinery	844	5,093	17%
Motor Vehicles	606	1,655	37%
Other transport equipment	174	466	37%
Electricity & Gas	1,229	911	135%
Water, sewerage & Waste	144	11,238	1%
Construction	9,037	69,997	13%
Land Transport	138	25,748	1%
Water transport	50	403	12%
Air transport	84	2,872	3%
Financial & insurance	255	22,441	1%
Architecture & Engineering	2,514	19,190	13%
Other professional services	2,294	28,718	8%
Public Administration	164	22,952	1%
<b>Total</b>	<b>17,821</b>	<b>222,188</b>	<b>8%</b>
<b>Less Bradwell</b>			
	<b>Total additional jobs 2030 by sector</b>	<b>Current (2019) sector jobs</b>	<b>Relative to 2019</b>
Agriculture, Forestry & Fishing	289	10,504	3%
Machinery	844	5,093	17%
Motor Vehicles	606	1,655	37%
Other transport equipment	174	466	37%
Electricity & Gas	329	911	36%
Water, sewerage & Waste	144	11,238	1%
Construction	1,837	69,997	3%
Land Transport	138	25,748	1%
Water transport	50	403	12%
Air transport	84	2,872	3%
Financial & insurance	255	22,441	1%

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Architecture & Engineering	714	19,190	4%
Other professional services	2,294	28,718	8%
Public Administration	164	22,952	1%
<b>Total</b>	<b>7,921</b>	<b>222,188</b>	<b>4%</b>

*\*not that this shows % effect, which will naturally be higher for smaller sectors (e.g. water transport). Similarly, the effect may appear small for larger sectors (e.g. construction)*