

# Regional employment creation from a COVID19 clean infrastructure stimulus

Regional analysis of infrastructure investment options to build back better

## Research questions

- What is the regional immediate-term job creation potential of national infrastructure projects as part of COVID19 economic recovery in England and Wales?
- What regional immediate-term jobs can be created by key industrial infrastructure projects identified by the TUC's *Just Transition for the Regions and Nations* report in England and Wales?

## Introduction

Given spiralling unemployment, large-scale government action is necessary to balance out the expected loss of jobs from dampened production and demand and disrupted supply chains. Investing in infrastructure is one of the key tools for government action to create jobs and help economic recovery.

Published August 2020.

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This report was commissioned by the TUC, and researched and written by Mika Minio-Paluello and Anna Markova of Transition Economics.

Transition Economics analysis for the TUC<sup>1</sup> estimates that **1.24 million jobs** across the UK can be created in the coming two years through a two year emergency clean infrastructure stimulus, reabsorbing workers who have lost employment due to the COVID19 crisis. Our analysis recommended 19 infrastructure projects totalling £85 billion public investment, based on investment and employment modelling and ten World Bank-derived criteria including long-term job creation, resilience and sustainability.

The COVID-19 crisis threatens to exacerbate pre-existing economic inequalities, hitting areas with weaker economies hardest. It is therefore important that economic recovery measures prioritise support to held-back regions.

TUC's report *Just Transition for the Regions and Nations* identifies a number of priority industrial policy proposals to support a just climate transition for workers in England and Wales.

## About these estimates

This briefing estimates regional job creation potential in England and Wales from a) the largest infrastructure projects identified by our assessment<sup>2</sup> and b) priority industrial infrastructure projects identified by the TUC's *Just Transition for the Regions and Nations* report.

- **This briefing estimates *direct* employment creation (e.g. jobs in railway construction) by NUTS1 region in England and Wales, in the immediate-term.**
- ***Indirect, or supply chain* employment creation (e.g. jobs in manufacturing construction materials for railway upgrades) is estimated at a national level, as regional estimates for these are likely to be unreliable.**

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<sup>1</sup> <http://transitioneconomics.net/uk-covid-recovery-infrastructure-jobs-tuc>

<sup>2</sup> Excluding broadband upgrades and R&D for decarbonising heavy industry, due to lack of data.

- **The employment figures modelled here represent the immediate-term job creation over the coming two years to deliver infrastructure projects - not ongoing employment from these projects.**

As a result, this analysis demonstrates the regional distribution of 506,000 English and Welsh potential direct jobs, of the 1.24 million jobs (direct and supply chain) that can be created by an infrastructure stimulus UK-wide. Actual regional job creation potential for any NUTS1 region would be higher than the sum of estimates provided for that region in this analysis, due to indirect (supply chain) job creation and smaller projects not included here.

A breakdown of Scottish employment potential is not included in this analysis, but is included in separate Transition Economics analysis for the Scottish TUC.<sup>3</sup>

See Methodology below for a more detailed explanation.

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<http://www.stuc.org.uk/media-centre/news/1452/to-subject-sent-size-categories-dave-moxham-embargo-00-01-sunday-31st-may-stuc-new-analysis-shows-potential-for-a-13-billion-green-stimulus-package-to-create-150-000-jobs-in-scotland>

## Regional job creation in UK-wide infrastructure upgrades

Project	Direct regional job creation, England & Wales										Indirect jobs, England & Wales	Total UK jobs
	East	East Mids	London	North East	North West	South East	South West	Wales	West Mids	Yorks & Humber		
											.	
<b>Transport</b>											.	
Expand and upgrade rail network	2,729	4,875	522	4,176	13,254	569	6,504	5,870	7,759	9,410	53,999	126,540
Electric car charging points (rural)	1,503	1,211	59	440	1,115	1,544	1,761	1,077	1,094	1,053	10,533	23,768
Build cycle lanes & pedestrianisation	4,530	3,867	0	2,789	7,761	3,818	4,426	2,725	5,269	5,325	39,296	103,018
											.	
<b>Buildings</b>											.	
Build social housing (using domestic offsite manufacture)	18,089	13,910	26,917	7,229	28,797	22,327	16,755	9,370	13,249	20,906	172,222	361,613
Retrofit social housing	10,766	8,359	20,949	7,089	15,183	13,702	8,676	7,882	12,141	11,189	112,456	267,715

Energy efficiency assessments	5,201	4,044	6,911	2,385	6,355	7,583	4,962	2,731	4,835	4,703	22,369	79,200
Retrofit public buildings	1,300	904	1,651	597	1,695	1,862	888	572	1,216	1,233	11,561	26,089
											.	
<b>Land</b>											.	
Reforestation schemes	0	1,092	0	5,496	6,376	0	2,481	2,895	1,013	4,402	16,629	63,102

## Immediate-term regional job creation in TUC-identified industrial infrastructure

### Gigafactories

Construction of battery factories for electric vehicles, to support the electrification of private transport and continued manufacturing of EVs within the UK.

Job creation (direct construction jobs)	North East	Wales	West Mids
Build battery factories for EVs	2,040	3,960	3,960

## Offshore wind supply chains: ports and manufacturing

Expansion and redevelopment of ports and shipyards and upgrading fabrication yards. To enable greater domestic and regional capture of the manufacturing supply chain for offshore wind, including manufacturing foundations, jackets, chains and components for floating offshore wind.

	North East	North West	South West	Wales	Yorks & Humber
<b>Upgrade ports and shipyards for offshore wind supply chain</b>	2,780	778	556	1,668	5,004
<b>Build manufacturing facilities for offshore (including floating) wind turbines</b>	720	560	309	240	617
<b>Total</b>	<b>3,500</b>	<b>1,338</b>	<b>865</b>	<b>1,908</b>	<b>5,621</b>

## Steel industry R&D

Investment to transform and decarbonise the Welsh steel industry, through co-located Research & Development sites at steel manufacturer facilities: enabling demonstration projects such as upgrading the Orb steelworks, a HIsarna furnace, or hydrogen and direct reduction furnaces connected to floating offshore wind.

<b>Job creation (direct construction and R&amp;D jobs)</b>	<b>Wales</b>
<b>Steel industry decarbonisation</b>	3,426

## R&D in Carbon Capture & Storage for heavy manufacturing industry

Research & Development pilot funding to connect heavy industry that does not have existing decarbonisation pathways - specifically cement and chemicals - into potential CCS networks. This would be additional to existing government funding and focus on heavy industries that are not receiving funding for CCS development.

<b>Job creation (direct construction and R&amp;D jobs)</b>	<b>North East</b>	<b>Yorks &amp; Humber</b>
<b>R&amp;D in Carbon Capture &amp; Storage for heavy industries (incl cement, chemicals)</b>	685	685

## District heating

Expanding foundational infrastructure for district heat networks, specifically focused on utilising minewater - geothermal energy drawn from disused and now water-filled former mines.

<b>Job creation (direct construction and engineering jobs)</b>	<b>North East</b>	<b>Wales</b>	<b>Yorks &amp; Humber</b>
<b>District Heating</b>	2,102	1,051	2,102

## Methodology

### Selection of projects

The list of projects considered in this research is not exhaustive. It is also limited to infrastructure upgrades that can be initiated and delivered to a substantial extent at short (under two years') notice.

National projects were selected for inclusion from the TUC infrastructure stimulus assessment based on government investment of £2 billion or over, and sufficient data available to enable a reliable estimate of regional investment split. Broadband upgrades and R&D for heavy industry were not included based on insufficient data. See the infrastructure stimulus assessment<sup>4</sup> for more on project selection.

Additional priority industrial projects were selected based on the recommendations in TUC's *Just Transition for the Regions and Nations* report. Non-infrastructure (e.g. further education) and longer-term (e.g. nuclear energy) projects were not included.

### Investment estimates

UK-wide government investment scale and investment leverage multiplier were assessed based on existing published proposals for these or similar projects: e.g. the social housing programme uses Shelter's assessment of the need for social housing investment. Regional split in investment was assessed using appropriate government and 3rd party data (e.g. ONS and other government data on roads, farmland areas, housing, and public buildings) or third party data (e.g. third party assessments<sup>5</sup> of shovel-ready rail improvement projects).

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<sup>4</sup> <http://transitioneconomics.net/uk-covid-recovery-infrastructure-jobs-tuc>

<sup>5</sup> <https://theengineer.markallengroup.com/production/2020/01/Lord-Berkeley-HS2-Review-FINAL.pdf>,  
[https://neweconomics.org/uploads/files/A\\_Rail\\_Network\\_for\\_Everyone\\_WEB.pdf](https://neweconomics.org/uploads/files/A_Rail_Network_for_Everyone_WEB.pdf)



## Job creation multipliers

Unlike our UK-wide assessment, the regional job creation assessment includes only direct (not supply chain) jobs. While supply chain employment can be reliably estimated on a UK-wide level, this is not possible at the required level of detail on a regional level. Multipliers are sourced or calculated from ONS, Homes and Communities Agency and other government sources and supplemented with data from published third-party economic modelling. Note that nearly every multiplier in the assessment relies on input-output modelling (top-down) methodology, which tends to slightly overstate job creation compared to empirical (bottom-up) methods. Due to the lack of exact precedent for many of the projects and due to the need to account for supply chain jobs, we consider input-output based multipliers the most appropriate methodology.

**Important note:** The employment multipliers presented here describe the jobs created in the immediate term as part of an economic recovery stimulus - which often do not correspond to ongoing long-term employment. For example, a government decision to support construction of a gigafactory will lead to short-term construction jobs in building the gigafactory and associated supply chain jobs e.g. providing construction materials and machinery. This is the employment represented above - not the ongoing future jobs in manufacturing EV batteries in the gigafactory. Similarly, this analysis considers the jobs in building and upgrading rail lines and planting forests - not in operating rail lines or managing forests. Longer-term job creation estimates are available from Transition Economics, but not included in this report.