prospect

The Economic Impact of UK Nuclear

A Prospect briefing • July 2021

prospect.org.uk

The Economic Impact of UK Nuclear

A Prospect briefing • July 2021

Contents

Prospect
New Prospect House
8 Leake Street
London SE1 7NN
Tel: 0300 600 1878

prospect.org.uk

Summary of key points

- The UK's civil nuclear industry currently sustains tens of thousands of UK jobs; each installed MW of nuclear capacity supports 4.68 direct & supply chain jobs more than any other low carbon technology
- The civil nuclear industry is one of the UK's most productive, with output per full-time equivalent (FTE) job of £103,500, placing the sector well within the top 10% most productive
- There is a strong regional dimension to the civil nuclear industry in the UK, with close to two-thirds of jobs located either in the North West or South West of England; the civil nuclear industry is estimated to contribute £1 in every £50 of economic output in these two regions
- At a constituency level, nuclear jobs are heavily concentrated in Conservative-held seats, where they contribute millions of pounds annually to their respective local economies
- A full nuclear new build programme, delivering 18GW of new capacity, could create tens of thousands of jobs during the construction phase, add billions to regional economies, while sustaining thousands of high-quality jobs during the 60-year operational life-cycle of the stations

UK nuclear: an engine for jobs & economic growth

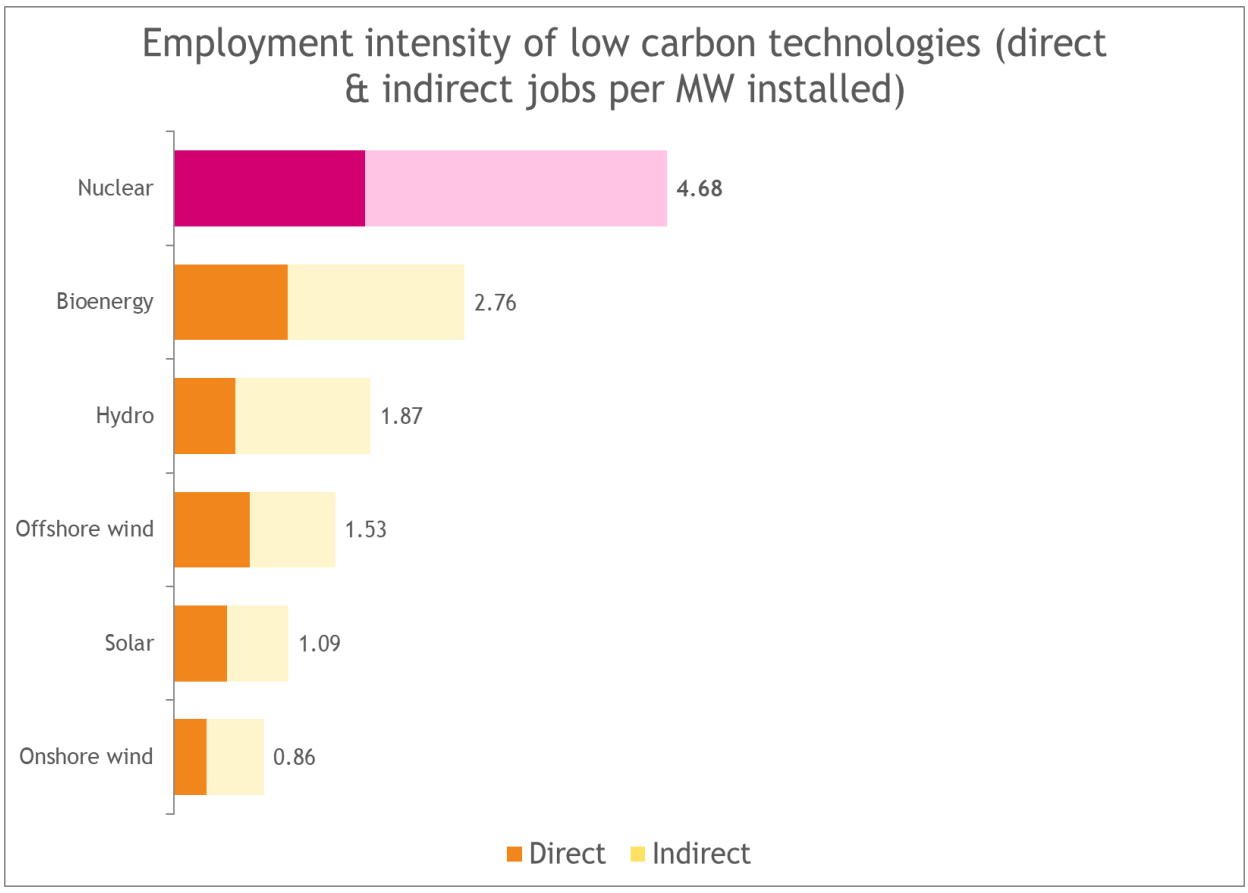
Nuclear has a far greater potential to create and sustain high quality jobs than other low carbon technologies. Based on figures from the ONS, each installed MW of nuclear capacity supports roughly 4.7 direct and indirect (supply chain) full-time equivalent (FTE) roles, compared with 1.5 FTE roles for offshore wind and 1.1 FTE roles for solar.

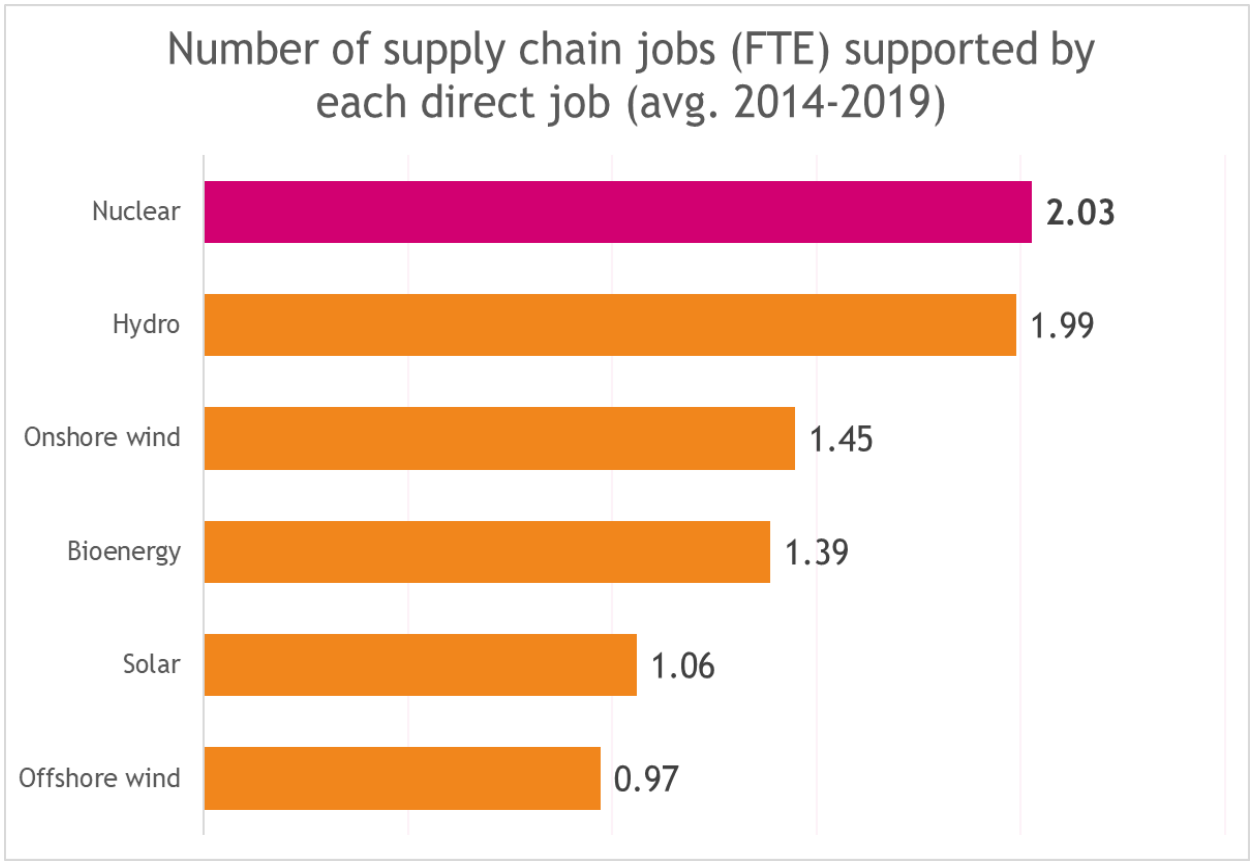
Similarly, averaged over the five years from 2014 to 2019 (the latest available figures), each direct job in the nuclear industry supported more than 2 jobs in the supply chain, whilst each direct job in offshore supported less than one job in the supply chain.[1]

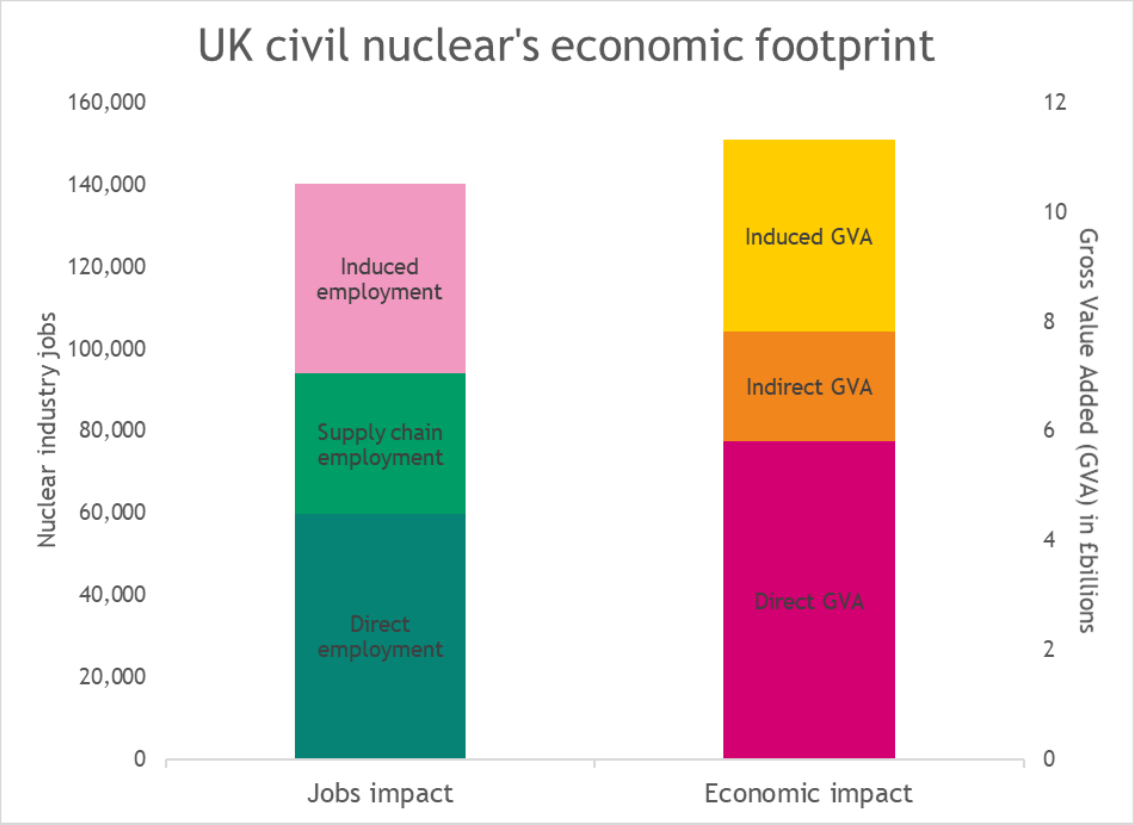
These figures only capture the benefits from activities related to nuclear power generation; according to research by Oxford Economics, the wider nuclear industry (including sub-sectors such as nuclear decommissioning and R&D) supports around 60,000 direct jobs and a further 80,000 jobs in the wider economy.[2] Altogether, the nuclear industry supports more than £11 billion of economic activity.

[1] Prospect calculations using ONS (2021) Low Carbon & Renewable Energy Economy (https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2019)

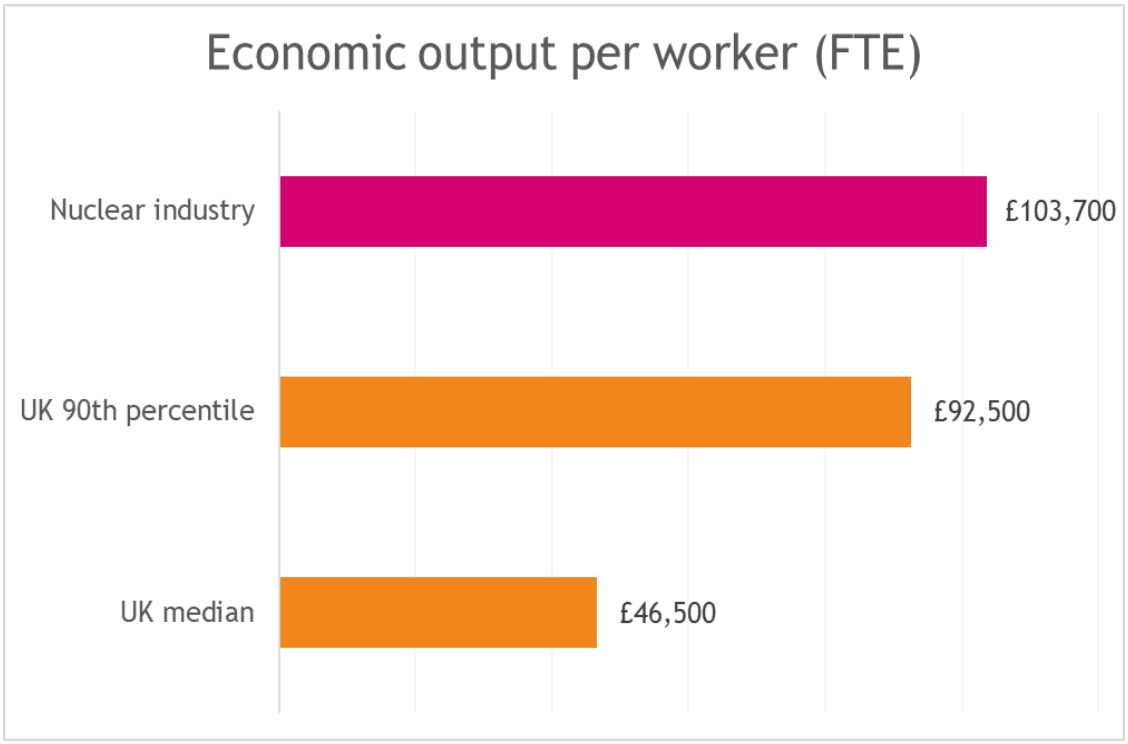
[2] These figures are Prospect calculations based on Oxford Economics employment multiplier figures to reflect updated direct employment numbers. See NIA/Oxford Economics (2017) Nuclear Activity Report (https://www.niauk.org/nuclear-activity-report/)


Employment intensity of low carbon technologies (direct & indirect jobs per MW installed)
Nuclear
4.68
Bioenergy
2.76
Hydro
1.87
Offshore wind
1.53
Solar
1.09
Onshore wind
0.86
Direct
Indirect


Number of supply chain jobs (FTE) supported by each direct job (avg. 2014-2019)
Nuclear
2.03
Hydro
1.99
Onshore wind
1.45
Bioenergy
1.39
Solar
1.06
Offshore wind
0.97



The nuclear industry is also one of the most productive sectors of the UK economy, with each full-time equivalent direct job in the sector contributing around £104,000 of economic output. This is more than double the UK median and puts the nuclear industry firmly in the 10% of UK sectors for productivity.[3]



[3] NIA/Oxford Economics (2017) Nuclear Activity Report (https://www.niauk.org/nuclear-activity-report/)

There is a strong regional dimension to nuclear's economic and employment footprint. The UK's civil nuclear industry is concentrated in particular in the North West and South West regions of England; close to two-thirds of civil nuclear jobs are located in these regions, and the civil nuclear industry is estimated to support £1 in every £50 of regional economic output.[4]

At present, nuclear jobs are heavily concentrated in parliamentary constituencies currently held by the Conservative party; all the remaining nuclear power plants in England are now in Conservative-held seats, as are 64% of all nuclear jobs. Of the 11 constituencies with 1,000 or more nuclear workers, accounting for 60% of all nuclear jobs, 8 are currently held by the Conservatives, 3 by Labour. The relatively high average salaries paid to nuclear workers means that local expenditure by nuclear workers makes an important contribution to these local economies.[5]

Constituencies with 1000+ nuclear workers	MP	Party	No. of nuclear workers	Estimated annual contribution of nuclear workers to local economy
Copeland	Trudy Harrison	Conservative	13045	£141,114,836
Bridgwater & West Somerset	Ian Liddell-Grainger	Conservative	6442	£69,686,606
Warrington North	Charlotte Nichols	Labour	3521	£38,088,566
Derby South	Margaret Beckett	Labour	3082	£33,339,665
Henley	John Howell	Conservative	1466	£15,858,517
Bristol West	Thangam Debbonaire	Labour	1318	£14,257,520
Morecambe & Lunesdale	David Morris	Conservative	1298	£14,041,170
Gloucester	Richard Graham	Conservative	1208	£13,067,591
Fylde	Mark Menzies	Conservative	1120	£12,115,647
Suffolk Coastal	Therese Coffey	Conservative	1101	£11,910,114
Folkestone & Hythe	Damian Collins	Conservative	1030	£11,142,068

Economic & jobs benefits of the new build programme

If fully realised, the nuclear new build programme has the potential to deliver a further wave of high value job creation and create billions in new local economic value. The Hinkley Point C and Sizewell C projects, which are very similar in design and are both being led by EDF, are each estimated to add between £3.4 billion and £4 billion to their respective regional economies (the South West of England and East Anglia) during the construction phase. Each will support around 25,000 jobs on site, and over 70,000 jobs in total during construction, with more than 1-in-3 jobs filled by workers from the local area.[6]

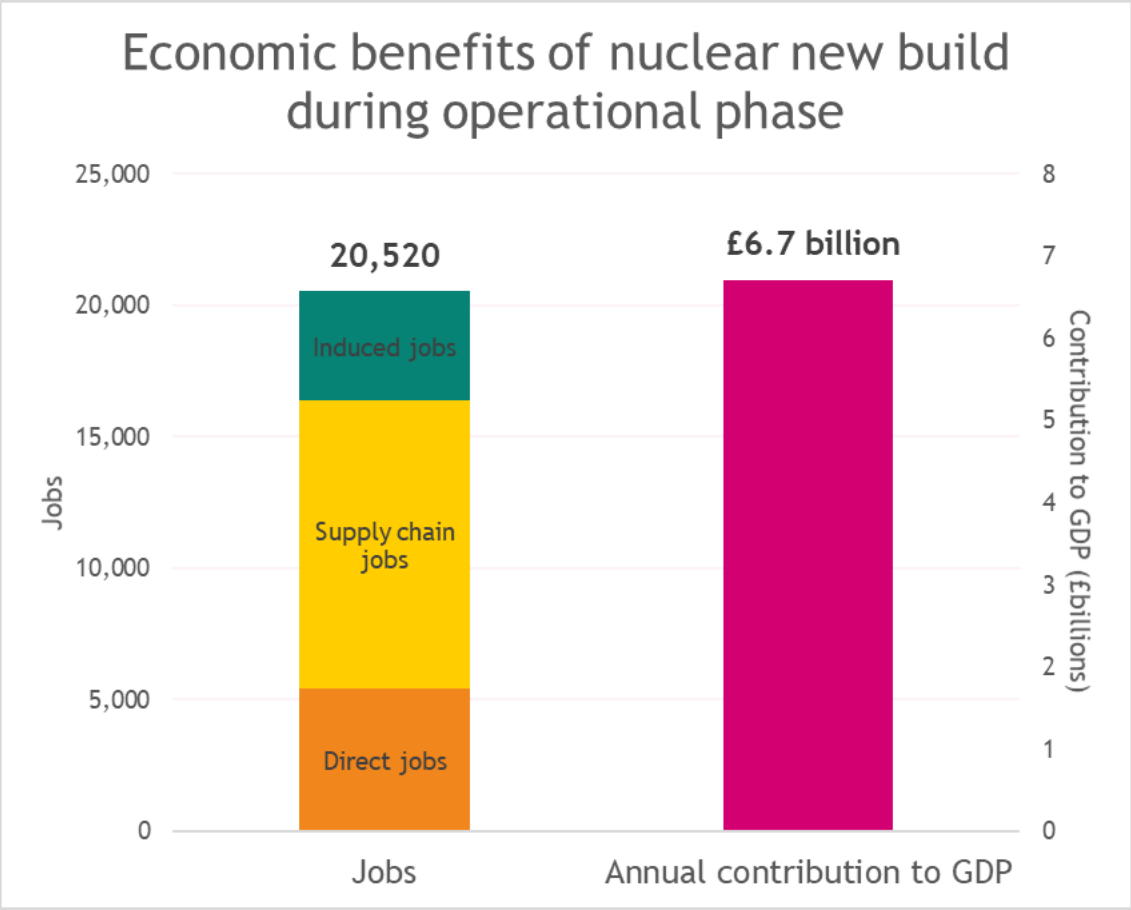
[4] NIA (2020) Jobs Map UK 2020 (https://www.niauk.org/resources/jobs-map-2020/)

[5] Estimates of local economic contribution of nuclear workers' wage spending are extrapolated from methodology used by Clockwork City in their 2016 Socioeconomic Review of Westinghouse/Springfields Fuels, updated with more recent earnings data.

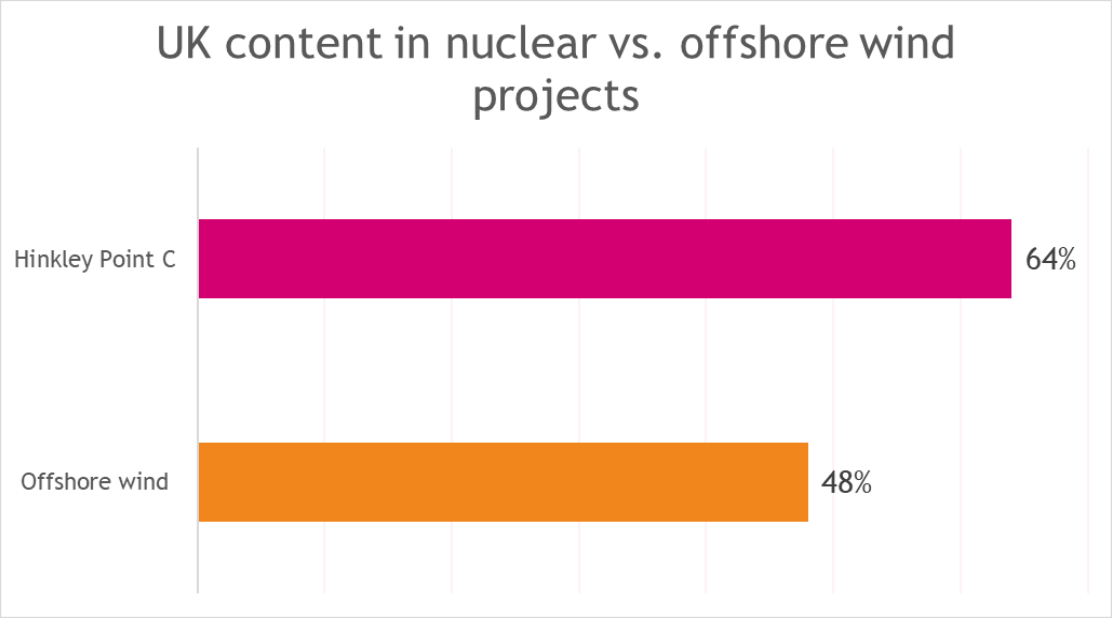
[6] Data from EDF for Hinkley Point C (https://www.edfenergy.com/sites/default/files/2021_hpc_socio_economic_brochure_-_web.pdf) & Sizewell C (https://www.edfenergy.com/energy/nuclear-new-build-projects/sizewell-c/benefits)

Economic Impact of Hinkley Point C and Sizewell C (figures are for each project)	
Contribution to regional economy of construction project	£3.2-£4 billion
Jobs created on-site during construction	~25,000
Jobs filled by local workers	36%
Total jobs supported during construction phase	~70,000
Permanent jobs created during operational phase	~900
Estimated annual economic contribution to local area during operational phase	£40 million

The full new build programme, which as originally conceived would deliver almost 18GW of new nuclear, has the potential to sustain around 20,000 jobs over the sixty year operational lives of the plants, and could contribute more than £6.7 billion to UK GDP.[7]

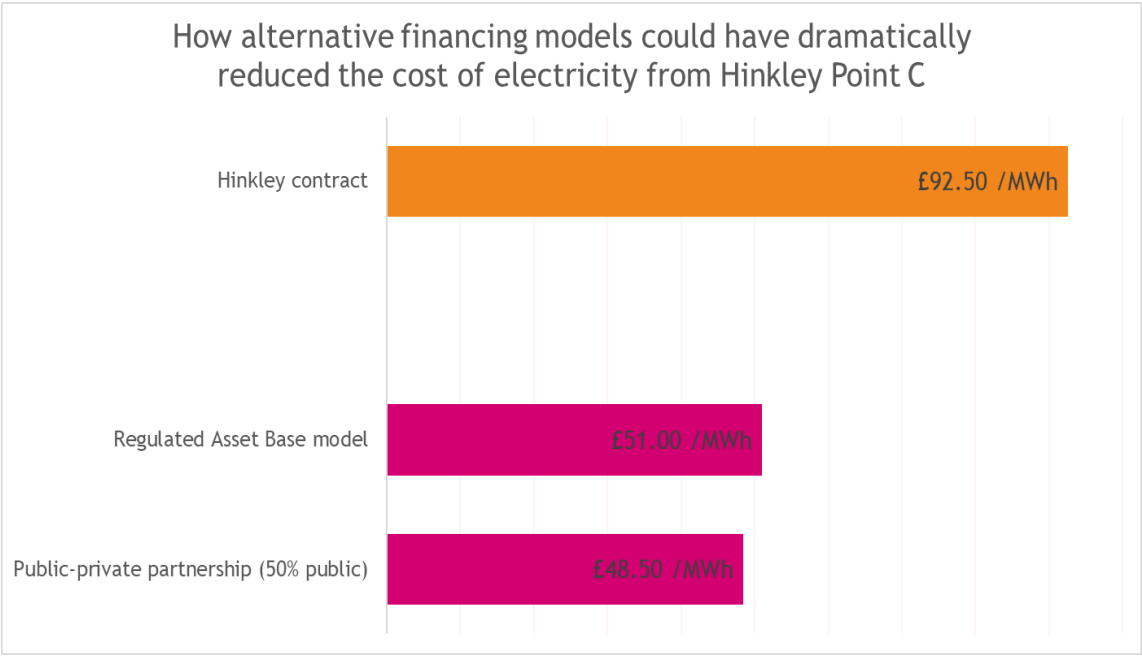


[7] Prospect calculations for jobs based on reported figures for direct operational jobs with employment multipliers drawn from the ONS and Oxford Economics; GDP contribution estimated from methodology cited in IPPR (2012) 'Benefits from Infrastructure Investment: A case study in Nuclear energy' (https://namrc.co.uk/wp-content/uploads/2012/06/EDF-infrastructure-investment.pdf), updated to 2020 prices.



Another key benefit that nuclear brings is the much higher level of UK content in nuclear projects relative to other low carbon technologies. Almost two-thirds of the value of contracts for Hinkley Point C have gone to UK companies, compared with less than half for offshore windfarms built in UK waters. This means a greater proportion of the value of nuclear new build projects will feed through into economic and employment gains for the UK.[8]

A perennial concern raised about new nuclear projects is their cost, with the relatively high cost of electricity agreed for Hinkley Point C often cited as an example. But, the cost of Hinkley's electricity is in part the result of a political choice to rely solely on private sector financing for the project and to leave a private developer to assume all the project risk. Given that a major component of the overall cost of new nuclear plants is the cost of financing, this approach inevitably led to high prices for consumers.



[8] Local content for HPC as reported by EDF; figure for offshore wind is as reported by trade body RenewableUK (see https://guidetoanoffshorewindfarm.com/uk-content)

But, as the National Audit Office (NAO) pointed out, alternative approaches where risks were shared and cheap public financing was used could have dramatically reduced the cost of electricity, potentially by close to 50%. A Regulated Asset Base model, where the developer is allowed to raise revenue from consumers during construction via a small surcharge on energy bills, or a public-private partnership approach where the government takes a substantial equity stake in the project, could both have lowered costs.[9]

In summary, the existing nuclear industry supports tens of thousands of high-quality jobs across the UK, and creates billions in economic value for UK Plc. A nuclear new build programme could drive even greater economic benefits, creating tens of thousands of new high-quality jobs in regional economies. And, with the right financing model, new nuclear can be delivered at costs comparable with other low carbon technologies.

[9] NAO (2017) Hinkley Point C (https://www.nao.org.uk/report/hinkley-point-c/)