

The economic impact of solar and battery storage

April 2025



Executive summary

The deployment of solar and battery storage across utility scale projects, domestic and commercial installations support economic activity and jobs.

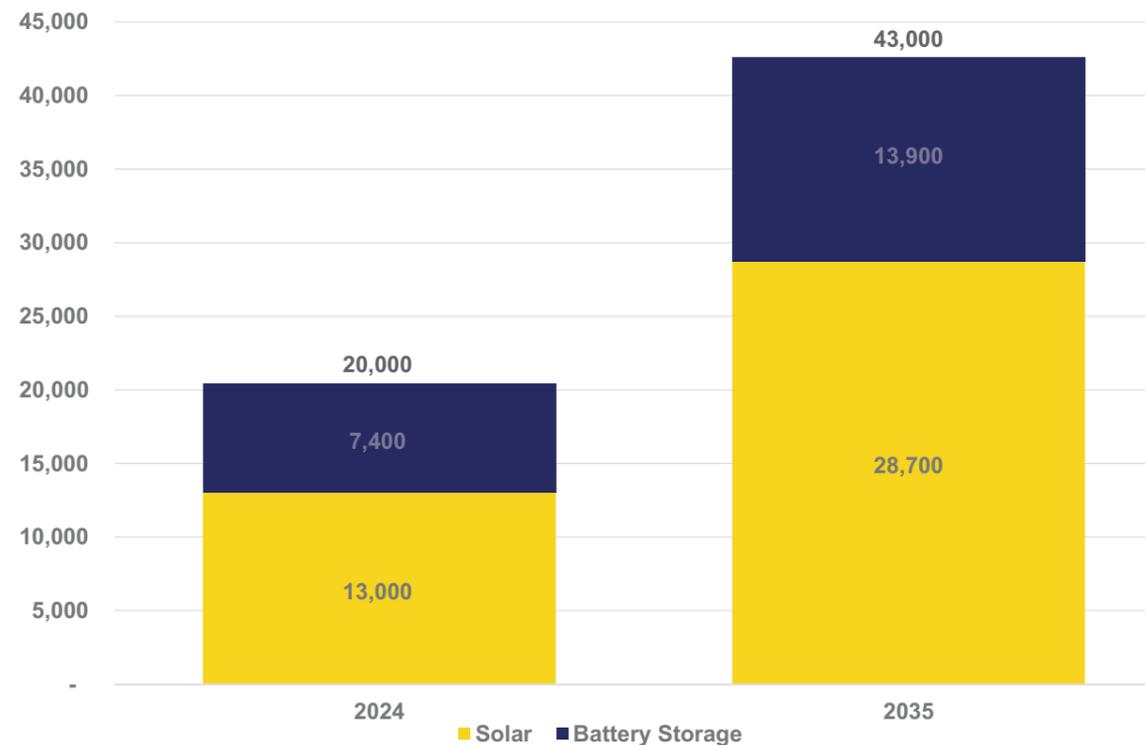
In 2024 solar and battery storage generated almost £1.9 billion Gross Value Added (GVA) and supported over 20,000 jobs across the UK economy, including:

2024
£1.3 billion GVA and **13,000 jobs** from solar; and
£0.6 billion GVA and **7,400 jobs** from battery storage.

As the sector grows towards 50 GW of battery storage and up to 90 GW of solar, its contribution could increase to £5.0 billion GVA and almost 43,000 jobs by 2035, including:

2035
£3.5 billion GVA and **28,700 jobs** from solar; and
£1.6 billion GVA and **13,900 jobs** from battery storage.

Solar and Battery Storage Employment 2024-2035



Solar and battery storage also contributed at least £321 million in fiscal benefits¹ in 2024 and are projected to generate £698 million in 2035.

Solar energy and battery storage support employment in good quality and high productivity jobs, with an average GVA per job of £88,800 in 2024, over 40% larger than the UK average.

¹The analysis considered the impact associated with Income Tax, National Insurance Contributions, Corporation Tax, Non-Domestic Rates and VAT

Introduction

Solar energy and battery storage contribute to economic activity across the UK while supporting the energy transition.

Study Objectives

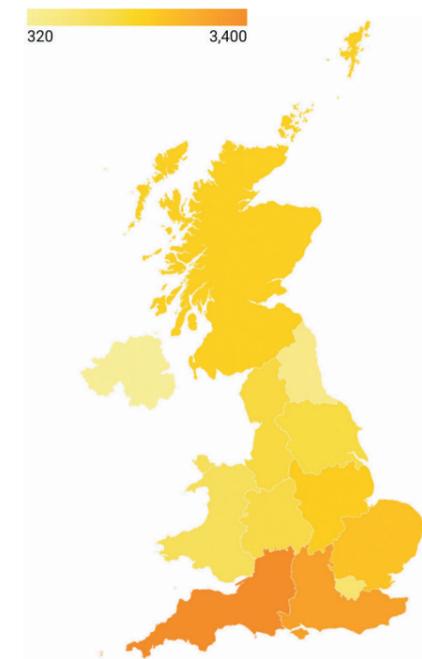
This study provides an initial estimate of the overall economic contribution made by solar and battery storage deployment across the UK. In doing so, it considers the activity from utility scale, commercial and residential installations.

The analysis seeks to:

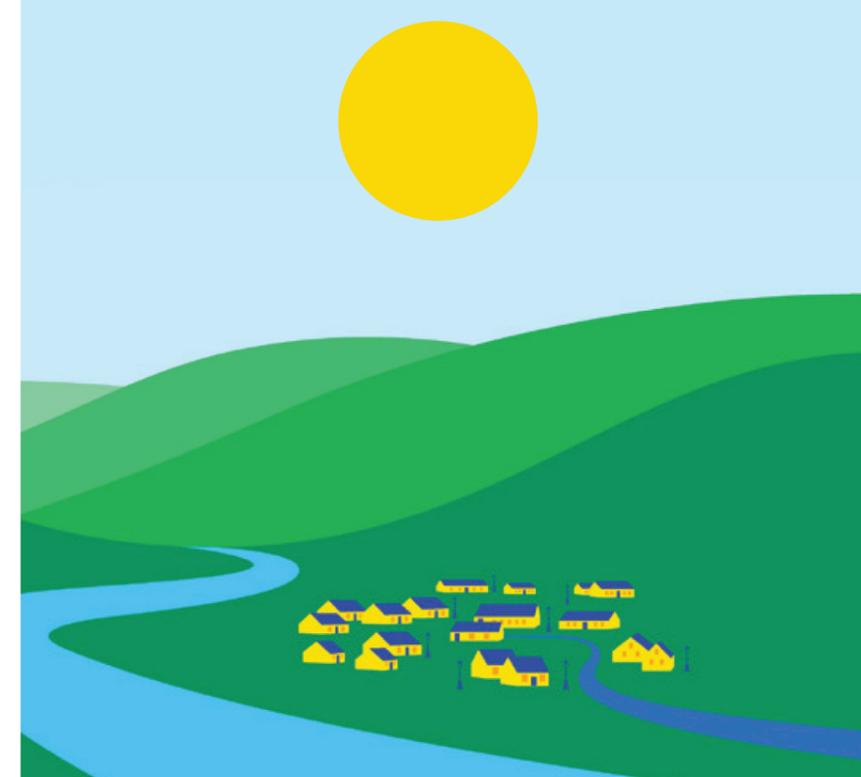
- provide policy-makers with evidence on the current economic contribution from the solar and battery storage sectors; and
- consider opportunities resulting from future expansion out to 2035.

The findings presented in this report are a summary of the analysis completed by BIGGAR Economics. The full report, including the methodologies applied, is available on Solar Energy UK's website.

Total Employment Distribution 2024



Total Employment Distribution 2035



Strategic contribution

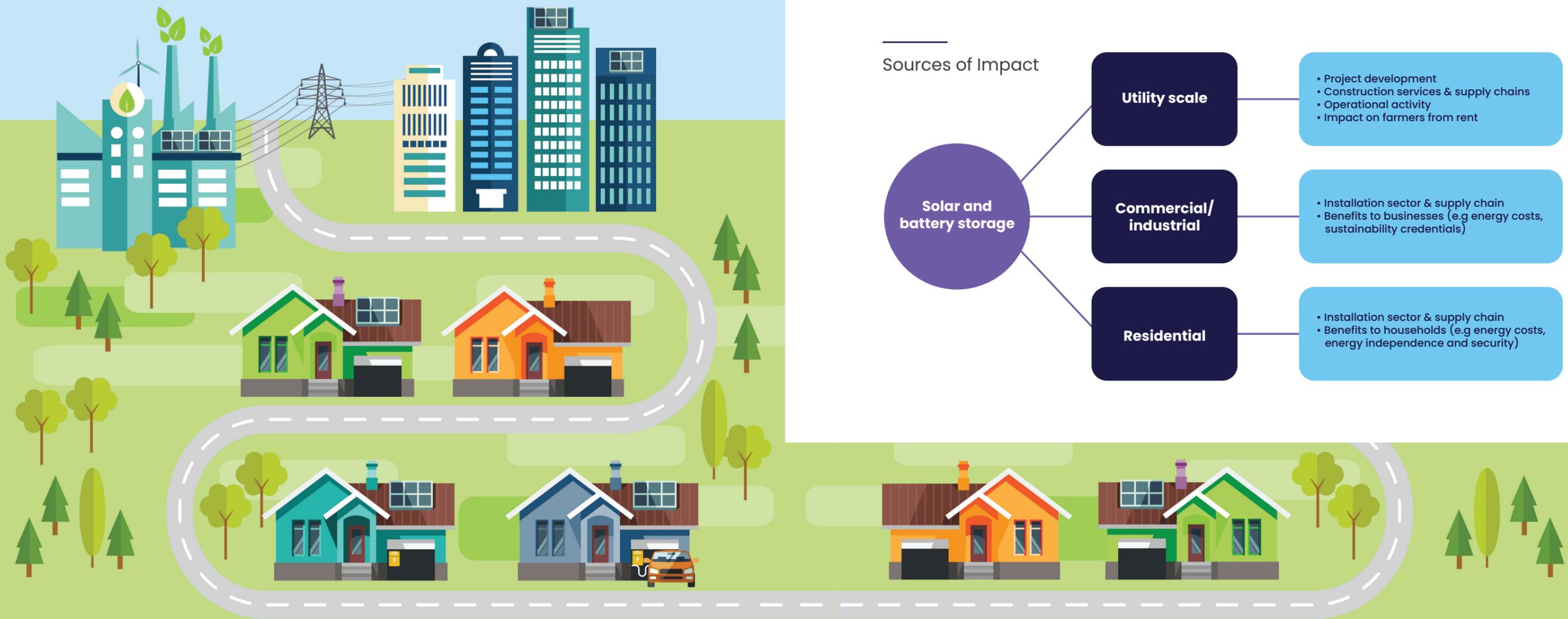
Increasing the UK's solar and battery storage capacity are key to transitioning away from fossil fuels and the achievement of a clean energy system.

Greater use of solar and battery storage will be needed for the Government to meet its clean power objectives by 2030, and for the UK to meet its statutory net-zero targets by 2050.

Solar energy is the cheapest source of energy. Solar is also the renewable energy technology with the highest levels of public support across the UK. It is also easily scalable, suitable for residential, commercial, and large, utility scale applications, and can be deployed more quickly than other renewable technologies. These features make solar an attractive way of supporting the electrification of the UK's energy system.

Battery storage is also important for the energy transition. As the UK energy system decarbonises and becomes predominantly powered by renewables, battery systems will increasingly be used to store excess energy generated in high production periods (e.g. during the day, in the case of solar) for use during low production times (such as in the evening). Battery storage therefore helps to balance the flow of power onto the electricity grid, ensuring a stable and reliable power supply.

Like solar, battery storage is a modular technology, which makes it suitable for utility scale, commercial and residential installations.



Key measures and sources of economic impact

The quantifiable economic impacts have been assessed using two widely accepted economic measures:

- **Gross Value Added (GVA): which measures the monetary contribution that a sector makes to the economy through its operations; and**
- **Employment: which is measured in terms of full-time equivalent jobs supported.**

There are three significant types of economic impact:

- **direct impact: direct employment and economic output generated;**
- **indirect impact: associated with spending across the supply chain; and**
- **induced impact: associated with staff spending their wages in the economy.**

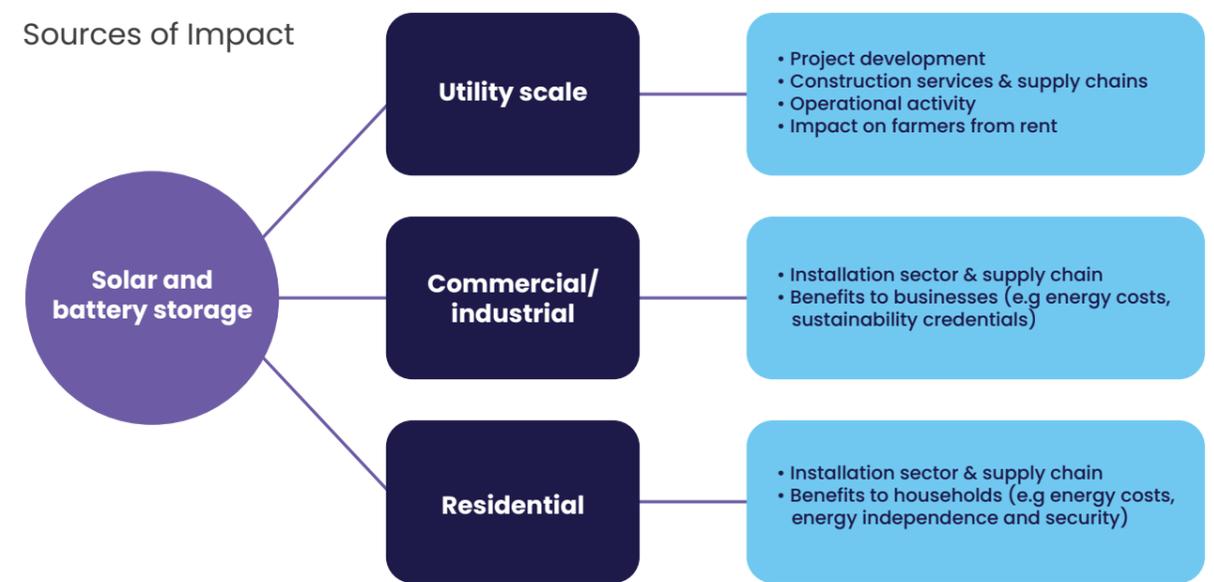
The analysis has considered all the activity associated with the installation of utility scale, residential and commercial solar and battery storage. This comprises of all those involved within the supply chain of these two technologies, including any supporting professional services jobs.

The assessment has considered the economic impact of solar and battery storage across:

- **the UK;**
- **England, Scotland, Wales, Northern Ireland and the nine English regions.**

Solar energy and battery storage support economic activity in several ways, as shown below.

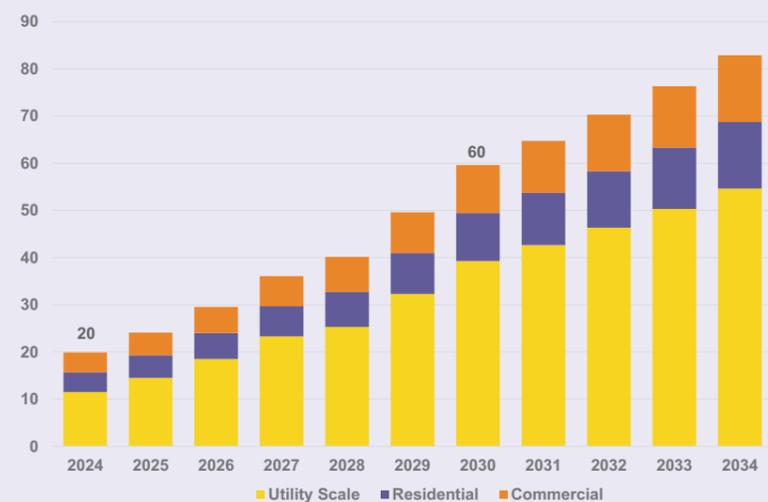
Sources of Impact



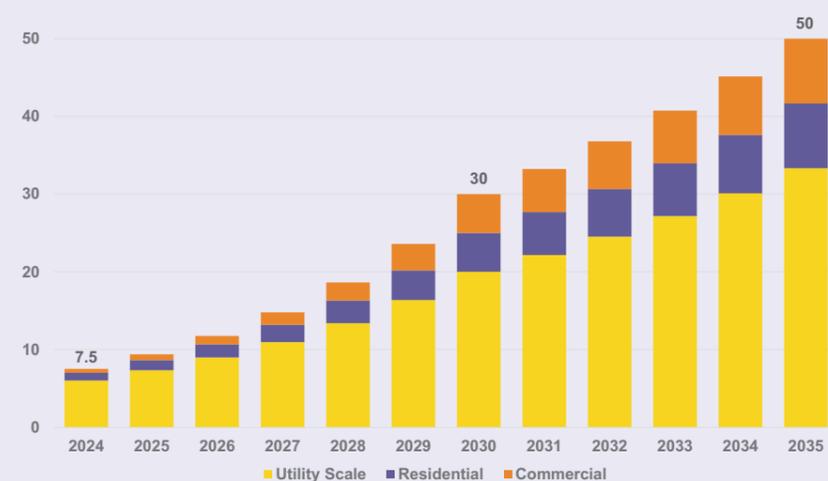
Existing and future capacity

At the end of 2024 the UK had a total 20 GW of solar capacity and 7.5 GW of battery storage capacity. Over the period to 2035, activity across both technologies could expand significantly.

Solar Energy Capacity 2024-2035 (GW)



Battery Storage Capacity 2024-2035 (GW)



90 GW
solar energy capacity by 2035

50 GW
battery storage capacity by 2035

Overall generating capacity from solar (utility scale, commercial and residential) could increase to around 60 GW by 2030 and 90 GW by 2035. Battery storage capacity could reach 30 GW by 2030 and 50 GW by 2035.

Around two-thirds of the generating capacity across both technologies could come from utility scale installations, with the remainder likely to come from an expansion in residential and commercial installations.

Like solar, battery storage is a modular technology, which makes it suitable for utility scale, commercial and residential installations.

The following section looks at the economic impact of solar and battery storage development, at utility scale, commercial scale and residential scale, first in 2024, and then looking ahead to 2035.

Economic impact from utility scale projects in 2024



Utility scale solar and battery storage projects support economic activity through their spending on development, construction and operations and maintenance activity.

Development and construction expenditure results in temporary impacts, whereas operations and maintenance spending supports economic activity throughout a project's operations.

Adding all these impacts, in 2024 the spending on utility scale projects supported a total £1.2 billion GVA and 12,070 jobs including:

- £1.2B** utility scale GVA in 2024
- 12,070** utility scale jobs in 2024
- £61M** lease income to farming businesses in 2024

2024

£869 million GVA and **8,710 jobs** from solar; and

£354 million GVA and **3,360 jobs** from battery storage.

Through land leases utility scale projects provide a source of income diversification for farming businesses. Over the past few years, diversification has become increasingly important for the sector, because of changes in agricultural subsidy schemes, demand for low food prices, and the occurrence of extreme weather events, such as flooding.

In a recent survey by the NFU¹, renewable energy, energy efficiency and diversifications were the only investments towards which farmers showed appetite.

By leasing some of their land to solar and battery storage developments, farmers are guaranteed an index-linked rental income over the life of the project (often a 30-40 year period). In 2024, these payments were worth around £61 million, providing income diversification for those farming businesses receiving them.

Farming businesses can also benefit from renewable activity on their land by providing pre-construction services and through receipt of an initial payment on agreement to lease the land (known as a land option). In addition to supporting income diversification, farmers have increasingly relied on the generation of renewable energy to support their activity.



¹NFU (2024), 'Collapse' in farmer confidence, NFU survey results reveal. Available at: <https://www.nfuonline.com/updates-and-information/nfu-farmer-confidence-survey-results/#:~:text=Farmer%20confidence%20has%20reached%20record,since%20records%20began%20in%202010>

Economic impact from commercial projects in 2024



Commercial solar and battery storage installations support economic activity through:

- the savings from the installation of these technologies;
- the activity associated with installation and its supply chain; and
- the activity associated with installation and its supply chain; and
- the overall improvement in the competitiveness of businesses adopting similar technologies.

The economic benefits during the installation phase are short term, however it is expected the significant growth in capacity to 2035 will create a stable pipeline of this work. The savings net of the initial costs of investment lead to increased profits and business investment. These are based on historical installations reaching the end of their pay-back period.

Across these sources of impact, in 2024 commercial installations of solar and battery storage supported a total £320 million GVA and 3,350 jobs, including:

£204 million GVA and **1,630 jobs** from solar installations; and

£115 million GVA and **1,720 jobs** from battery storage.



Economic impact from residential projects in 2024



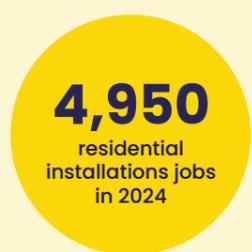
Residential installations of solar and battery storage result in the following economic benefits:

- economic activity from annual installations;
- the economic impact associated with savings from domestic users; and
- reducing fuel poverty and energy security from lower exposure to price changes.

Overall, in 2024 residential installations of solar and battery storage supported a total £333 million GVA and 4,950 jobs, including:

£178 million GVA and **2,650 jobs** from solar installations and

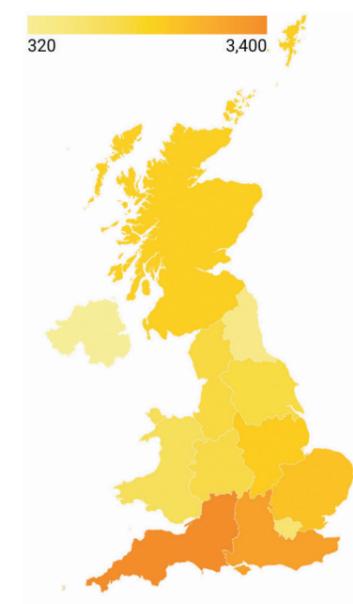
£155 million GVA and **2,300 jobs** from battery storage.



Total GVA Distribution 2024



Total Employment Distribution 2024



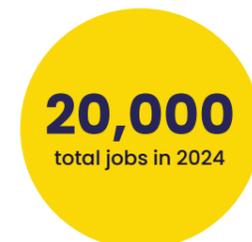
Total economic impact in 2024

In 2024, solar and battery storage contributed a total **£1.9 billion GVA** and supported **over 20,000 (20,400) jobs** across the UK, including:



£1.3 billion GVA and **13,000 jobs** from solar; and

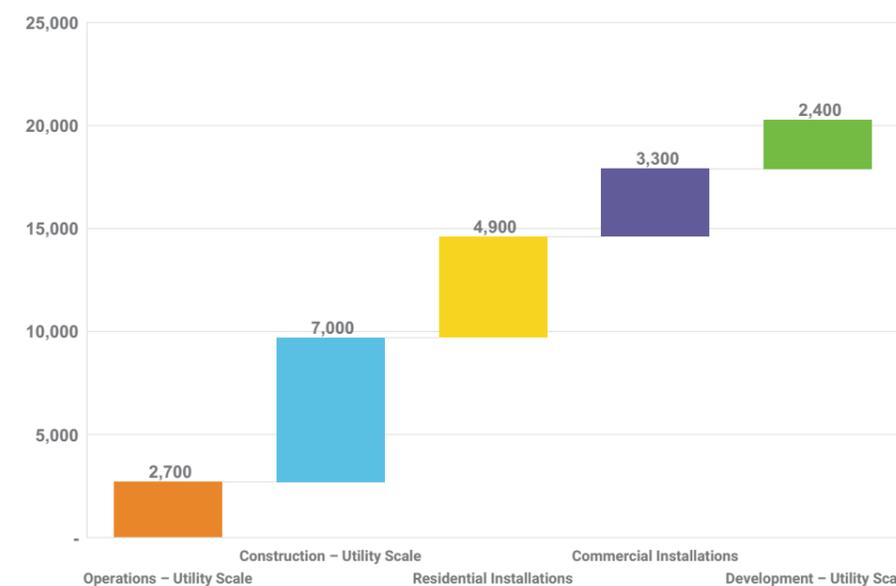
£0.6 billion GVA and **7,400 jobs** from battery storage.



The main source of economic impact came from the construction of utility scale projects, and annual residential and commercial installations.

Solar and battery storage contribute to employment in relatively high productivity jobs. In 2024, the average direct and supply chain GVA per job was £88,800, compared to an average of £62,300 across the UK economy. High productivity jobs, such as those supported by solar and battery storage, are the main source of improved economic performance and living standards across advanced economies.

Number of Jobs by Source of Impact 2024



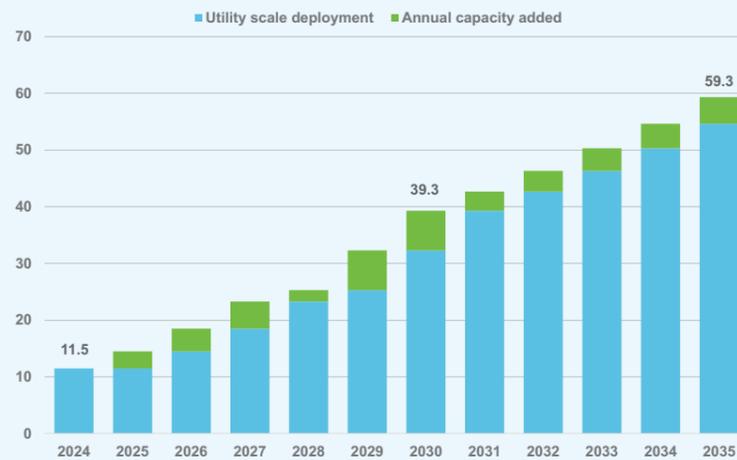
Economic impact from utility scale projects in 2035



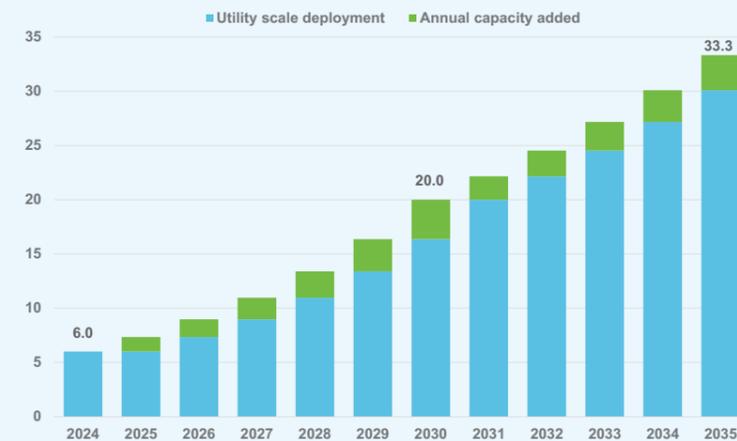
The expansion in activity could result in 39 GW of utility scale solar and 20 GW of utility scale battery storage by 2030 and overall deployment to 2035 of 59 GW of utility scale solar and 33 GW of battery storage.

£321M
annual payments to farming businesses

Utility Scale Activity over Time Solar (GW)



Utility Scale Activity over Time Battery Storage (GW)



£2.8B
utility scale GVA in 2035

28,540
utility scale jobs in 2035

To achieve this, over the period 2025-2035 a total investment from utility scale projects of £66.3 billion is required, including £42.7 billion on solar projects and £23.7 billion on battery storage projects.

Adding together the activity from project spending, in 2035 solar and battery storage utility scale developments could contribute a total: £2.8 billion GVA and 28,540 jobs, including:

£1.8 billion GVA and **19,850 jobs** from solar; and

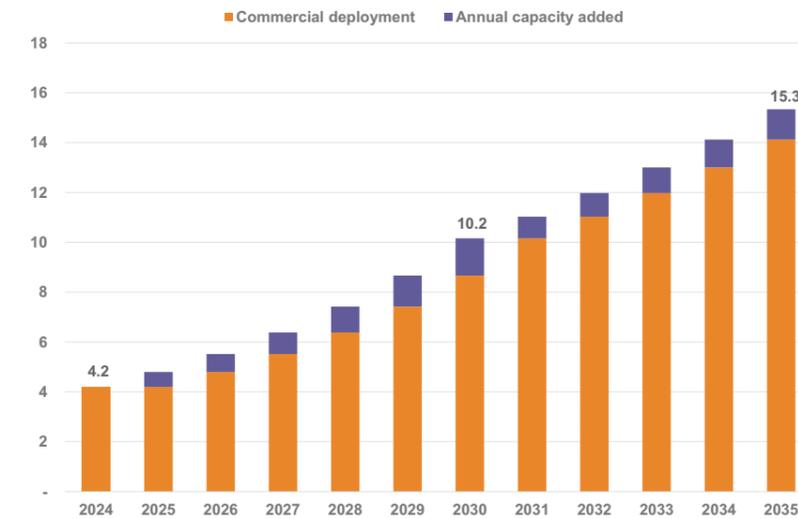
£1.0 billion GVA and **8,690 jobs** from battery storage

Based on total installed capacity in 2035, the deployment of solar and battery storage could support farmers with over £321 million in payments.

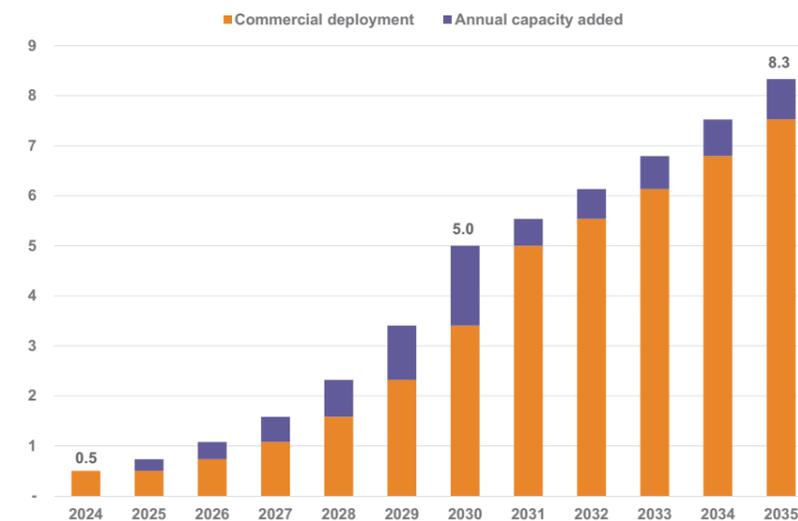
Economic impact from commercial projects in 2035



Commercial Activity over Time Solar (GW)



Commercial Activity over Time Battery Storage (GW)



By 2035 commercial solar and battery storage could account respectively for a total capacity of 15 GW and 8 GW. Annual installations could reach 1.2 GW of solar and 0.8 GW of battery capacity.

Based on this, in 2035 commercial solar and battery storage installations could result in a total impact of £1.6 billion GVA and 6,070 jobs, including:

£1.2 billion GVA and **3,640 jobs** from solar installations; and

£0.4 billion GVA and **2,430 jobs** from battery storage installations.

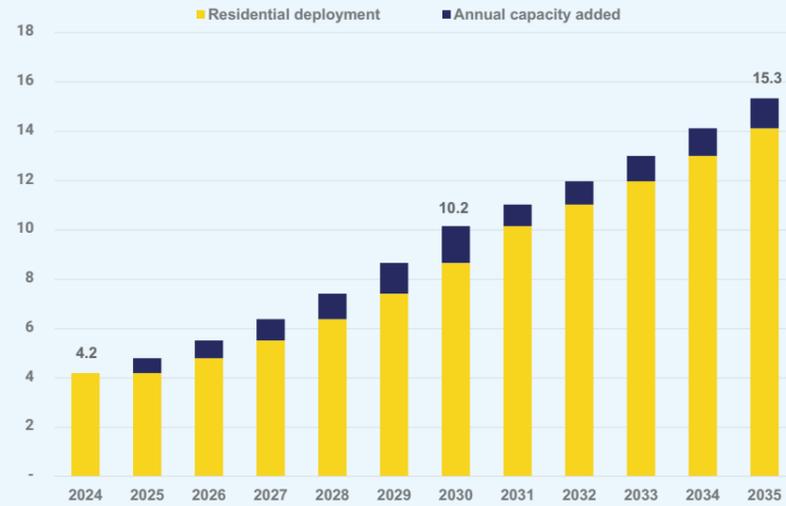
6,070
commercial installations jobs in 2035

£1.6B
commercial installations GVA in 2035

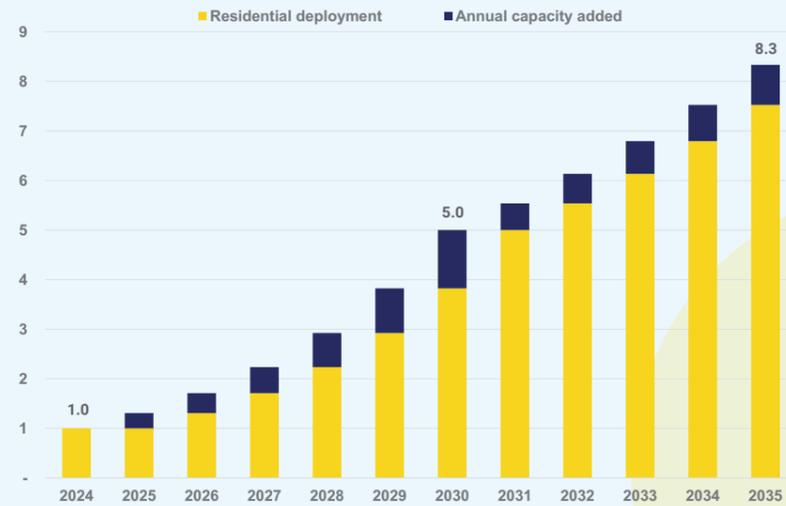
Economic impact from residential projects in 2035



Residential Activity over Time Solar (GW)



Residential Activity over Time Battery Storage (GW)



Based on increased deployment, in 2035 overall installed capacity could reach **15 GW of residential solar and 8 GW of residential battery storage.**

In 2035 alone there could be the installation of 1.2 GW of residential solar and 0.8 GW of residential battery storage.

Adding together the impact from residential installations and savings, in 2035 the residential sector could support 537 million GVA and 7,960 jobs, including:

£352 million GVA and **5,210 jobs** from solar installations;

£185 million GVA and **2,750 jobs** from battery installations.

£537M
residential installations GVA in 2035

7,960
residential installations jobs in 2035

Total GVA Distribution 2035



Total Employment Distribution 2035



Total economic impact in 2035

Based on sectoral ambitions and capabilities, by 2035 there could be a total 90 GW of solar installed capacity and 50 GW in battery capacity.

This expansion in activity could more than double the economic contribution from the sector to £5.0 billion GVA and almost 43,000 (42,600) jobs, including:

£3.5 billion GVA and **28,700 jobs** from solar; and

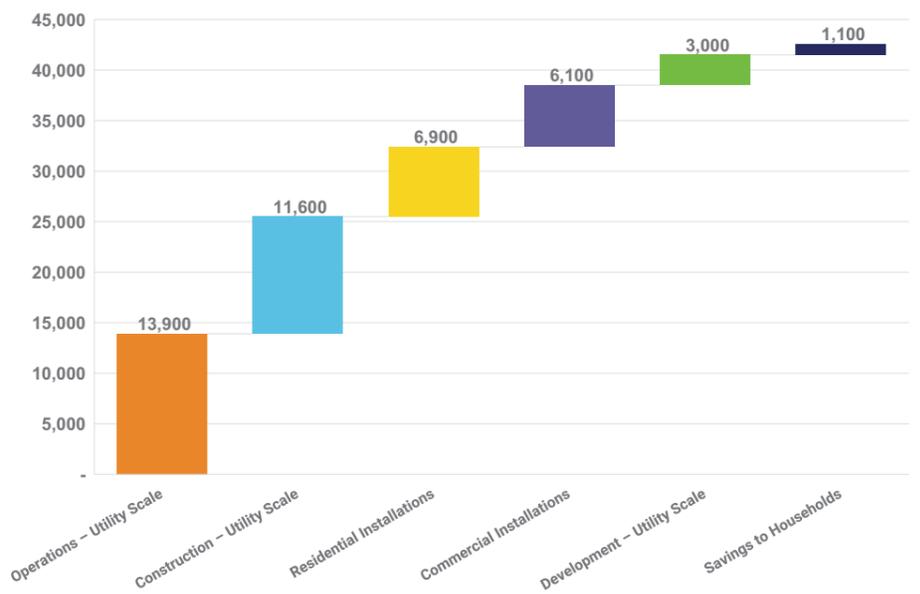
£1.6 billion GVA and **13,900 jobs** from battery storage.

Economic impacts through savings, and ongoing maintenance are expected to become increasingly important as a source of relative GVA and employment in 2035.

£5.0B
total GVA in 2035

43,000
total jobs in 2035

Number of Jobs by Source of Impact 2035



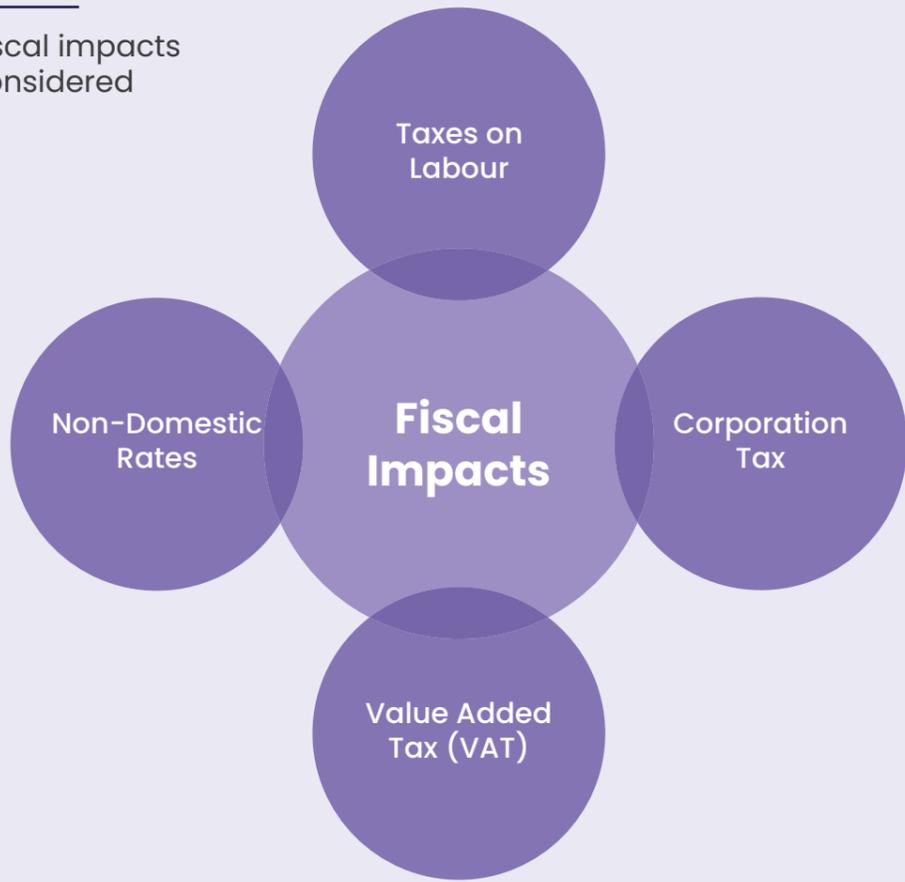
Fiscal impacts

Solar and battery storage through their activity also contribute to the Exchequer.

Through the payment of Income Tax, National Insurance, VAT from employees spend, Corporation Tax and non-domestic rates in 2024, the sector contributed a total £321 million to public finances². As the sector expands its fiscal contribution could increase to up to £698 million by 2035.

The fiscal activity associated with non-domestic rates has more localised impacts and especially contributes to the revenue of local authorities with concentrations of utility scale projects.

Fiscal impacts considered



²Solar and battery storage contribute towards the Exchequer also through other taxes (e.g., tariffs on manufactured components); as such fiscal impacts are likely an underestimate.

£321M
fiscal contribution
in 2024

£698M
fiscal contribution
in 2035

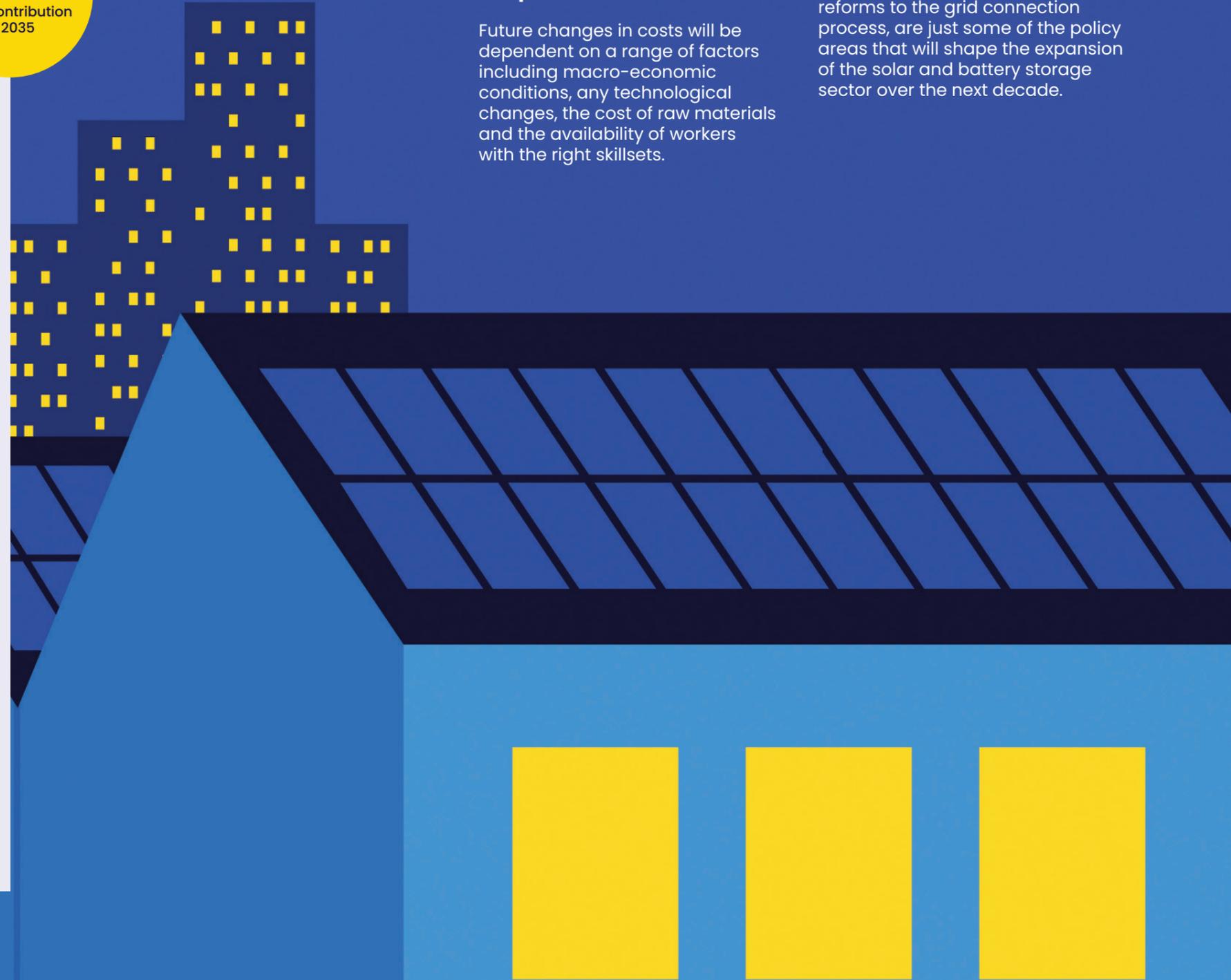
Key trends and challenges



Reductions in the costs of solar and battery storage projects have supported the deployment of these two technologies over the past decade.

Future changes in costs will be dependent on a range of factors including macro-economic conditions, any technological changes, the cost of raw materials and the availability of workers with the right skillsets.

The policy and regulatory framework for energy infrastructure continues to evolve and will also affect the development of solar and battery storage. Changes to the electricity market, plans for the strategic location of grid infrastructure, and reforms to the grid connection process, are just some of the policy areas that will shape the expansion of the solar and battery storage sector over the next decade.



Contact

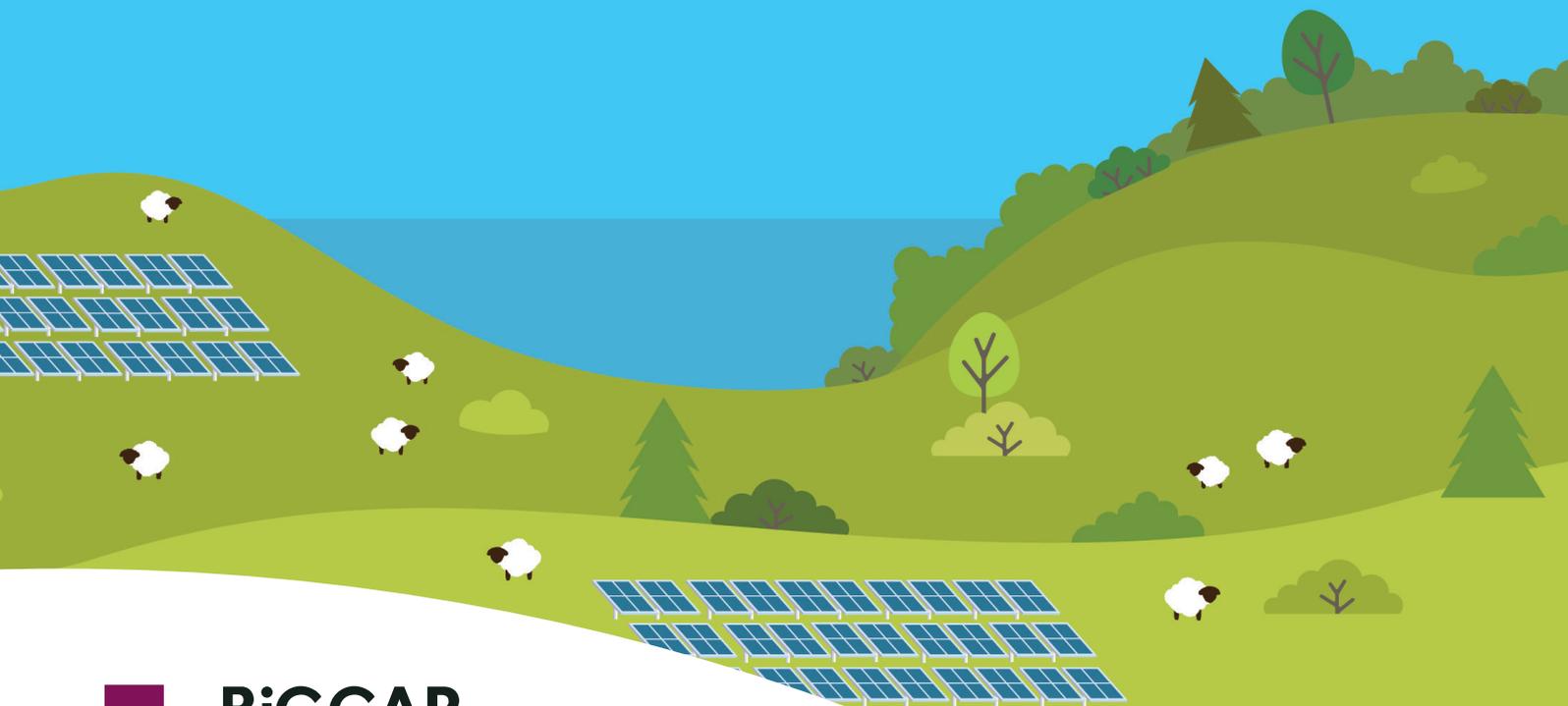
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