



Solar Potential: Economic benefits for Northern Ireland

RenewableNI



October 2024

KPMG Ireland

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Foreword

Every solar panel connected helps to reduce electricity bills. The cost of panels has come down and this is good news for the industry and consumers alike. Unfortunately, a policy vacuum has meant that the solar industry in NI hasn't grown to its full potential. However the 80% by 2030 renewables target has changed that, and we are on the cusp of a solar resurgence. This report highlights the significant benefits that solar can bring to the NI economy, in addition to its environmental and social impacts. It's fair to say that in Northern Ireland, the sun generates more light than heat.



Steven Agnew
Director

RenewableNI

Increasing solar capacity is driven by the NI Climate Change Act Programme target to generate 80% of electricity from wind and solar power by 2030. This report assesses the economic contributions of the solar energy industry, finding that if these targets are met, the sector will contribute up to £426 million in additional Gross Value Added (GVA) to the Northern Ireland economy between 2025 and 2030, while supporting 1,500 to 1,800 jobs across the country. This represents a significant contribution to the economy, along with the environmental benefits. We hope that this report proves useful and informative to industry stakeholders, policymakers and other parties interested in the solar energy industry in Northern Ireland.



Russell Smyth
Partner
Head of Sustainable Futures

KPMG

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01. Executive summary



Economic benefits of achieving 900 MW of solar PV

Benefits	2030 annual impacts ^{[1] [3]}	2025 – 2030 cumulative impacts ^{[1] [2] [3]}
The total economic output across capital investment activities and operations	£185m - £217m	£693m - £815m
Additional Gross Value Added (GVA) ^[4] for the Northern Irish economy arising from the industry's activities	£97m - £114m	£363m - £426m
Annual jobs supported throughout the industry in NI	1,500 - 1,800 ^[5]	N/A
Total income earned by workers in the sector	£47m - £55m	£175m - £206m
Total employee's and employer's National Insurance and employee income tax paid to HM Revenue and Customs	£12m - £15m	£46m - £55m
Business rates	£3m - £4m	£11m - £13m

The solar energy industry has the potential to contribute up to £426m to the Northern Irish economy over the period 2025 - 2030 and to support up to 1,800 jobs annually by 2030.

The solar industry's economic contribution in 2030 will be equivalent to around 15% of the existing size of the electricity, gas, steam, and air conditioning supply sector in NI.

Contributions through income tax, National Insurance and business rates are estimated to be between £57m - £68m over the period 2025 - 2030.

- Note:**
- [1] Assuming the 900 MW solar PV capacity is reached by 2030.
 - [2] Values refer to the cumulative benefits accrued over the period 2025 - 2030.
 - [3] Installed capacity is end of year projection.
 - [4] GVA represents the contribution of individual sectors, industries, or firms to the economy by measuring the value of their output minus the value of intermediate goods and services used in production.
 - [5] The majority of jobs supported are derived from CAPEX activities; therefore, the number of jobs supported is expected to increase in line with additional capacity development.



Key findings

Gross Value Added (GVA), employment and income impacts



Gross Value Add (GVA), 2030

- The solar energy industry in Northern Ireland (NI) experienced a significant slowdown from 2018 to 2024, with no new installation of utility solar PV. This stagnation can be attributed to reduced government incentives, market uncertainties / routes to market, which have hindered investment and expansion in the sector. The Climate Change Act (Northern Ireland) 2022 set a target of reaching 80% renewable electricity by 2030. Along with this target the SONI Tomorrow's Energy Scenarios (TES) 2020 report include an "accelerated ambition" scenario, indicating the need for a large increase in solar generation. Our analysis is based on reaching 900 MW utility-scale solar PV capacity by 2030. The solar industry is expected to see significant growth in the coming years, if the target of 80% renewable electricity by 2030 is to be met.
- Through its operating and capital activities, the solar industry makes a valuable contribution to NI's economy. By 2030, the industry's contribution to GVA could be in the range of £97m - £114m. Of this, 90% would be generated from the industry's capital activities, with the remainder (10%) generated from its operational activities. This is equivalent to direct GVA of £69m - £81m and indirect GVA of £28m - £33m. This level of GVA reflects an aggregate multiplier on investment from the NI solar industry across operational and capital activities of 1.41.^[1]
- The solar energy industry can make a vital contribution to NI's economic performance over the coming years arising from direct and indirect impacts. The industry has a strong pipeline of development projects in planning, granted planning, and commencing construction from 2025 onwards. There is an opportunity to capture more of the value chain in NI, such as increasing the manufacturing of solar subcomponents or ancillary equipment in NI. Reaching a solar PV capacity of 900 MW by 2030 is expected to support GVA of approximately £362m - £426m over the period 2025 - 2030 across all operational and capital activities.

Note: [1] Multiplier impact measures the level of spending that leads to additional rounds of spending in the solar industry's supply chain.

Employment and incomes, 2030 and 2025 - 2030

- The solar energy industry supports a wide variety of jobs, both directly and indirectly, through its capital and operational activities in NI. These include project management, construction, and a range of infrastructure delivery roles. Additionally, the industry supports wider employment in the professional services sector such as roles in legal and financial services.
- By 2030, the solar energy industry could support between 1,500 - 1,800 jobs across NI. Of these jobs, 67% would be directly supported by the industry, with the remainder (33%) supported indirectly. Many of the industry's jobs are located outside the Belfast region, in rural communities where utility-scale solar farms and solar panel installers are located.
- The solar energy industry could contribute an estimated £47m - £55m in 2030 to labour income payments in NI. Labour income payments are estimated to be in the range £157m - £185m over the period 2025 - 2030 if NI's solar PV of 900 MW capacity is achieved.
- The slowdown in installation in the period 2018 - 2024 has resulted in a decrease employment across utility-scale solar in NI. Reskilling of labour in roles such as electrical engineers and welders within the solar industry will be required to reach the target of 80% renewable electricity by 2030.
- Across NI, the need for additional renewable generation capacity means that capital investment in solar PV will take place on an ongoing basis. Achieving the 900 MW capacity by 2030 will require sustained installation and deployment of approximately 40 MW to 183 MW of solar PV per annum. This deployment will support up to 1,800 jobs by 2030.
- As the majority of jobs are generated through the industry's capital activities, the total number of jobs supported will move in line with the level of installation and development of solar PV in any particular year.
- The NI solar industry could support up to £206m in labour income over the period 2025 - 2030.

Key findings

Tax, business rates and community contributions

Tax contributions and business rates

- The distribution of solar installers and solar farms across NI leads to significant investment, economic activity, and employment benefits outside of NI's major urban centres. Investment in local infrastructure related to solar energy can complement other rural economic growth initiatives and act as the basis to support long-term economic growth throughout the country.
- By 2030, the solar energy industry could generate up to £15m in employment related taxes annually to HMRC. Total payments through employer taxes are estimated to be £4m - £6m with employee taxes of approximately £2m - £3m.
- Over the period 2025 - 2030, the accumulated taxes through employees' and employers' NI and income tax is estimated to contribute up to £54m.
- By 2030, the industry could contribute approximately £1.6m - £1.9m in district business rates per annum. This would provide a stable source of revenue for many of the local authorities across NI. Solar energy companies provide local authorities with valuable revenue that can be reinvested into local communities, infrastructure and services. As the solar energy industry grows in scale in NI, the financial contribution to local authorities could reach a total of £7m over the period 2025 - 2030. On a regional level, the industry could contribute up to ~£5.9m to the NI Executive over the same period.
- In addition to the contribution made by the industry to the local authorities and to the NI Executive, a number of solar energy developers provide community benefit funds such as donations into local infrastructure and amenities.



02. The case for solar energy

02



Energy production trends and the 2030 solar ambition

As of 2024, solar represents one of the fastest-growing renewable energy sources in NI, with a capacity of 280 MW. Utility-scale solar projects of >5 MW in size will be key in reaching the 900 MW capacity by 2030.

Overview of NI's Solar Energy Industry

- In 2023, approximately 47% of NI's electricity was generated by renewable energy. The SONITES 2020 report includes an "accelerated ambition" scenario, indicating the need for a large increase in solar generation. Achieving this will help to achieve the Climate Change Act 2022 target of consuming at least 80% of electricity from renewable sources by 2030.
- The level of growth experienced in the solar energy industry offers an opportunity to deliver reliable, clean electricity, helping to decarbonise NI's electricity system. Since 2018, there has been a decrease in employment in the solar industry due to a slowdown in the development of utility-scale solar PV projects. To reach the 900 MW, investment in the retraining and reskilling of workers from the renewable energy sector is required across NI.
- To achieve its ambition by 2030, the NI Executive is actively supporting the industry through various initiatives, including the Energy Efficiency Capital Grant (EECG)^[b] and the Northern Ireland Sustainable Energy Programme (NISEP).^[c]



Note: [1] GWh stands for gigawatt hour, a unit of energy that represents one billion watt-hours.

[2] Renewable energy is composed of 'Wind' and 'Non-wind' generation.

[3] 'Other' includes Hydro and Combined Heat and Power (CHP)

Sources: [a] NISRA – Electricity Consumption and Renewable Generation in NI

[b] Invest NI Energy Efficiency Capital Grant Scheme

[c] Solar Power NI - NISEP

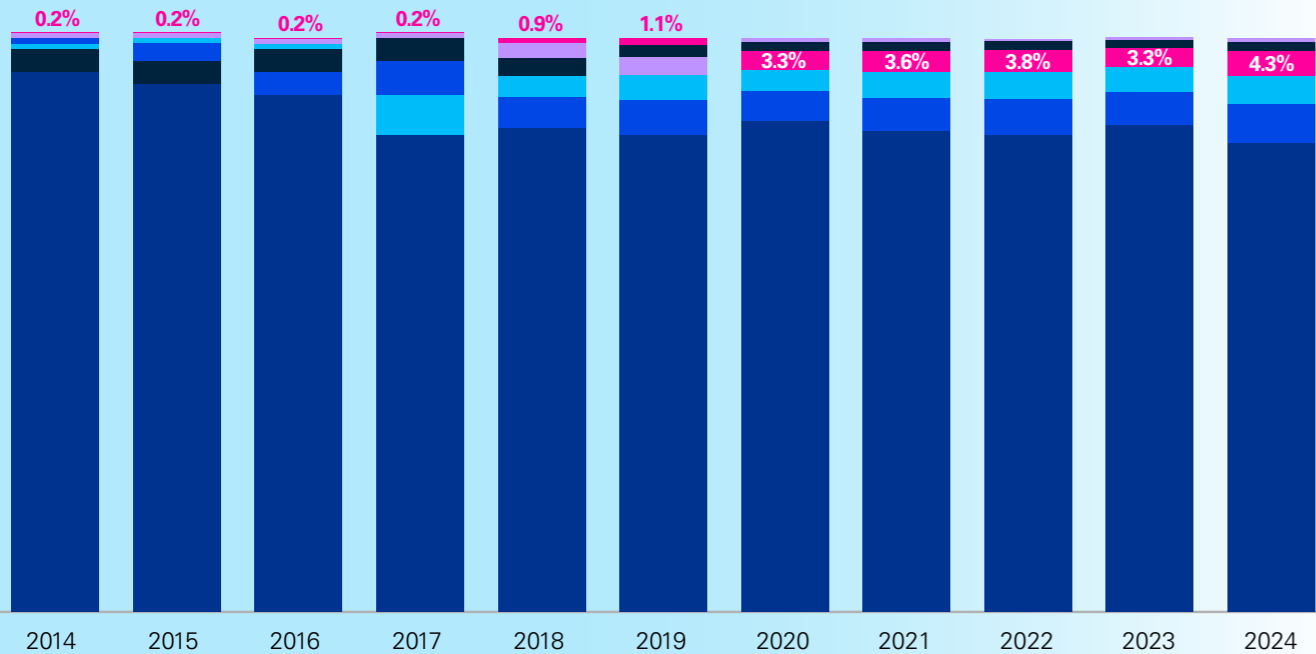
Solar Energy Industry Outlook

• Around 210 MW (or ~75%) of NI's solar capacity of 280 MW is generated from utility projects. This underscores the key role of utility-scale solar projects in meeting NI's renewable energy targets. To achieve the 900 MW capacity by 2030, an increased utility-scale solar PV projects will be key contributors.

• As of 2023, NI's solar PV project pipeline is ~563 MW. Of this, ~99% is planned for small and large utility-scale projects. The industry is facing high construction costs which is largely due to both existing and anticipated skilled labour shortages. A concerted effort on upskilling the workforce would contribute to addressing these challenges and accelerating the delivery of key solar PV projects across NI.

Renewable electricity generation by energy source in GWh, 2014-2024 [a] [3]

Key: Wind, Biogas, Solar PV, Landfill Gas, Biomass, Other



Since 2014, NI's solar PV generation capacity has grown to 4.3% of NI's total renewable electricity generation. As of June 2024, the sector generates -142 GWh of NI's total renewable electricity generation of -3,302 GWh.

Note: [1] GWh stands for gigawatt hour, a unit of energy that represents one billion watt-hours.
[2] Renewable energy is composed of 'Wind' and 'Non-wind' generation.
[3] 'Other' includes Hydro and Combined Heat and Power (CHP)

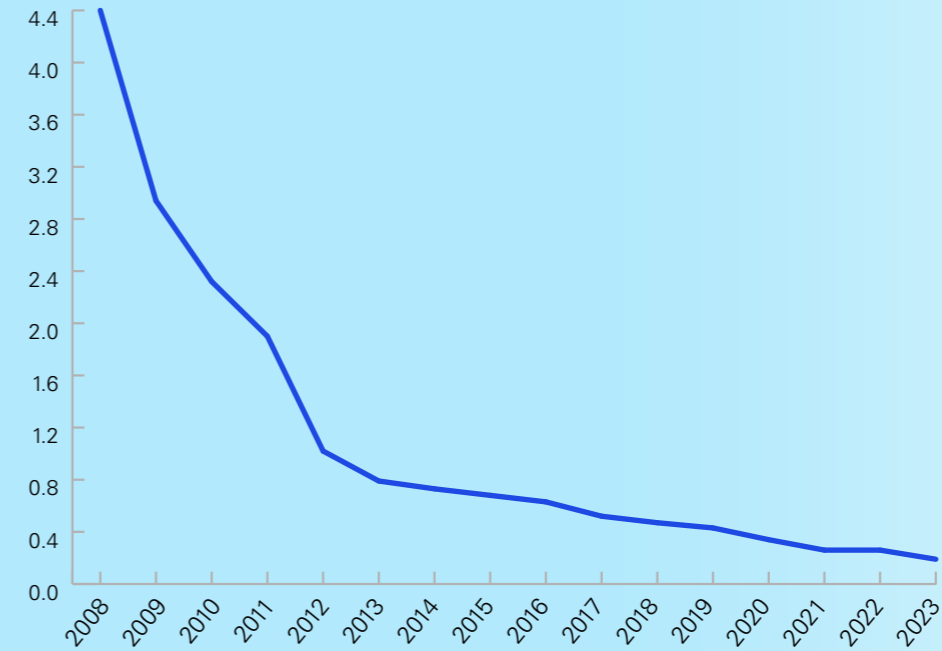
Sources: [a] NISRA – Electricity Consumption and Renewable Generation in NI
[b] Invest NI Energy Efficiency Capital Grant Scheme
[c] Solar Power NI - NISEP
[d] KPMG analysis



Solar PV global trends

Sustained solar energy cost reductions have resulted in rapid growth, with a 96% decrease in solar panel prices and a more than 2,000% increase in GW installations globally in the period 2008 - 2023. Solar energy is quickly becoming, or has already become, the lowest cost source of electricity for many consumers.

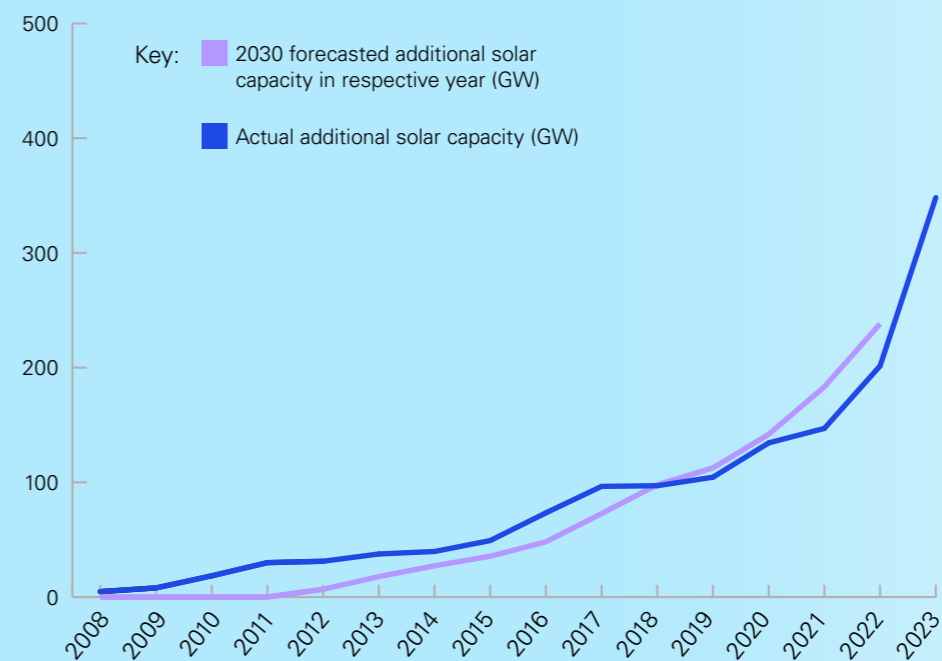
Global solar PV module price, US\$, 2008-2023 [a] [1]



The cost of solar PV modules, a significant component of the overall installation cost, has seen a price reduction of up to 90% since 2008. [b]

In the past ten years, the cost of solar panels plummeted by over 70%, with prices decreasing by approximately 20% each time global solar capacity doubled.

Additional annual solar PV capacity installed worldwide and 2030 forecasts, GW, 2008 - 2023 [c] [d]



New solar PV capacity installed has consistently outstripped projections with the new capacity levels projected to be achieved in 2030 consistently achieved many years earlier.

In recent years, solar PV has become one of the fastest-growing sources of renewable energy globally with 76% of renewable power installed in China in 2023 being solar PV. Countries like China, the United States, and India are leading the way in solar installations. [c]

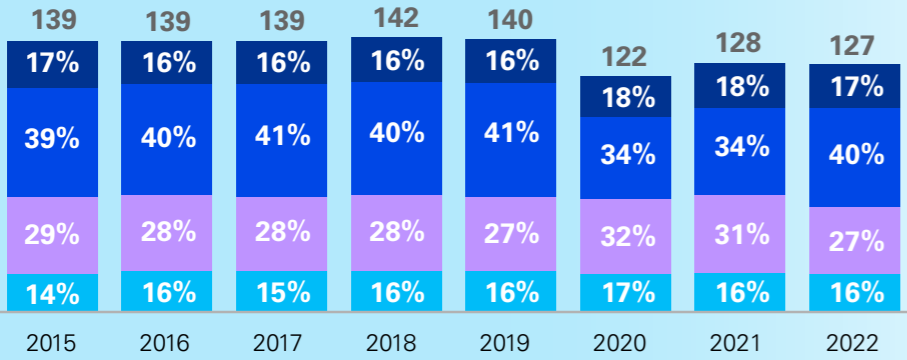
Note: In constant 2021 US\$ per Watt.
Sources: [a] IRENA [b] Our world in data [c] IEA - International Energy Agency [d] Bloomberg NEF

Energy usage trends in NI

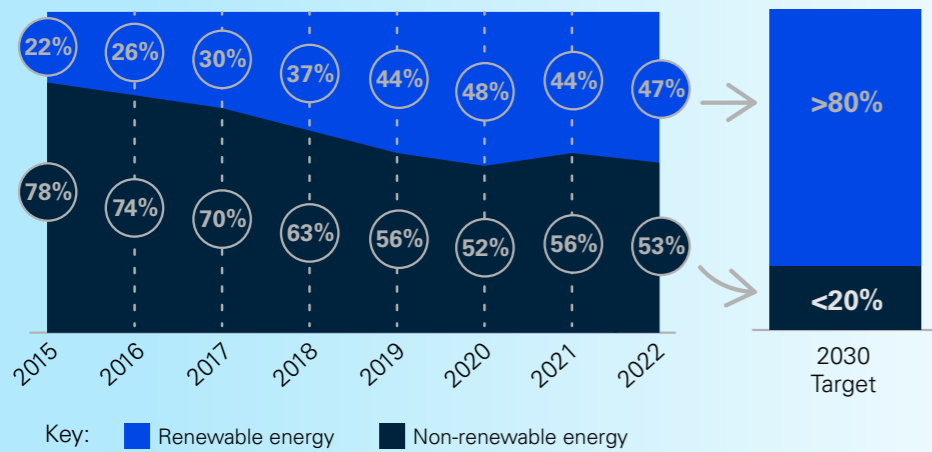
Reaching NI's 900 MW solar capacity by 2030 will require a 14% CAGR^[1] in electricity generated by solar, supporting the goal of 80% renewables penetration and meeting growing demand for power.

Energy consumption by sector in NI in ktoe, 2015-2022 ^{[a] [2]}

Key: Industry Transport Domestic Services



Renewable electricity generation (%), 2015-2022 ^{[a] [c]}



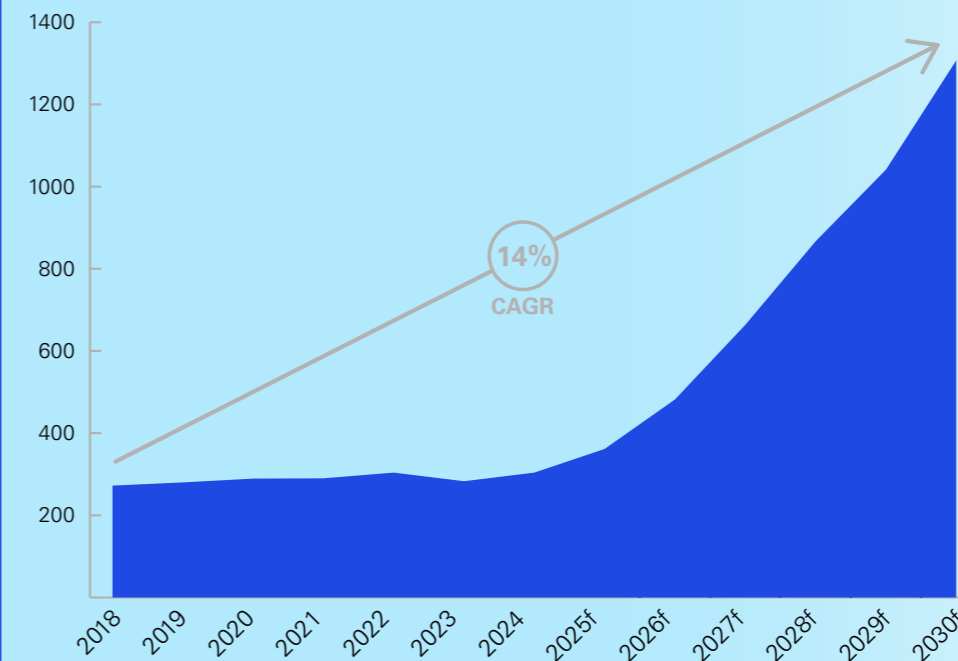
Key: Renewable energy Non-renewable energy

Note: [1] Compound Annual Growth Rate - the average yearly growth rate.
[2] Ktoe stands for 'thousands of tonnes of oil equivalent' and is used as a unit of energy measurement.

Sources: [a] Department for Energy Security and Net Zero (DESNZ)
[b] Department of Energy Security & Net Zero



Electricity generation in NI by solar PV (GWh), 2018-2030 ^{[b] [c]}



Solar PV can contribute to NI's energy decarbonisation targets and with strong forecasted generation growth out to 2030 it can help to satisfy any increase in demand for electricity.

Sources: [b] Department of Energy Security & Net Zero [c] KPMG analysis

03. Solar energy industry overview

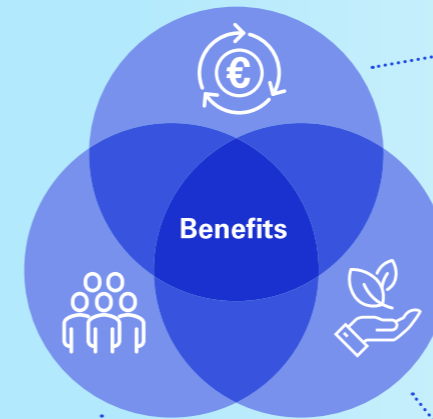
03

Benefits of the solar energy industry in NI

The solar energy industry in NI generates a wide range of benefits, both monetary and non-monetary. This study quantifies several of these within an NI context.

A key benefit of solar energy is its contribution to meeting NI's renewable energy target of 80% energy consumption from renewable sources by 2030.

Benefits of the solar energy industry in NI



These are the core focus of this study

Economic

- GVA growth
- High quality employment
- Commercial rates revenue
- Tax revenue
- Investment
- Improved energy efficiency
- Reduced energy costs for businesses
- Stable incomes for local communities and landowners
- Community Benefit Fund

Social

- Investment in rural NI
- Reduced energy costs for households
- Supporting local communities
- Mitigating climate impacts on current and future generations
- Skills and training

Environmental

- Lower GHG emissions
- Decarbonisation of the power system
- Improved air quality
- Reduced land and marine pollution



Overview of the local solar energy value chain and its benefits

The industry's value chain links a number of industries and sectors in NI. Domestic businesses operate alongside key global players, forming an intricate ecosystem of developers, suppliers and service providers.



01 - Project development

The solar asset lifecycle starts with project development activities that requires design, planning and environmental specialists. NI has established strong capabilities in these areas that support local and international portfolios of projects.



02 - Manufacturing

Solar panels deployed in NI are imported, however some components and ancillary equipment are fabricated and assembled locally.



03 - Installation

Installation is a labour-intensive activity. The process creates high-skilled construction employment, with the pipeline ensuring this continually rolls over to new sites, facilities and homes.



04 - Grid Connection

Connecting large-scale solar farms onto the power system requires specialised skills. Integrating very high levels of renewable generation onto NI's grid will develop world leading capabilities.



05 - Digitalisation

The future energy system will become increasingly decarbonised, decentralised and digitalised. The digitalisation element of these trends is a growth opportunity for NI given its strong digital technology capabilities and networks.



06 - Operation & Maintenance

Once operational, solar assets require regular maintenance and occasional repair. These activities provide employment for skilled workers across NI.



07 - Repowering & Recycling

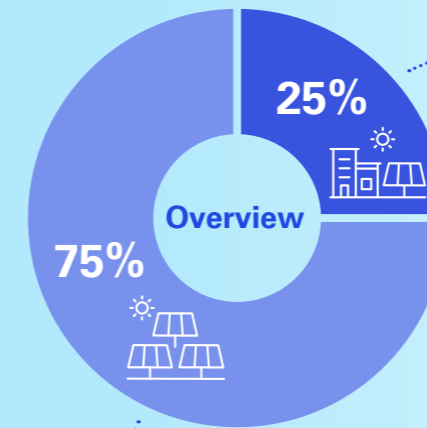
At the end of a solar asset's lifecycle, it can be repowered or recycled. Repowering ensures that investment in the industry continues while recycling supports a circular economy.

Overview of the solar energy industry

The solar energy industry can be split into two distinct categories, utility-scale and behind-the-meter residential and commercial solar projects. As of 2023, NI has a total solar capacity of 280 MW.

Current NI solar capacity ^[1]

280 MW total



Residential and Commercial ^{[a] [c] [d]}

- Residential and commercial solar installations assist businesses and households looking to reduce their carbon emissions and make the transition to clean energy.
- Residential and commercial solar energy is produced on site and is connected to the grid.
- Residential solar panels are typically smaller in size, generate less power and are less expensive than commercial solar panels. Residential and commercial solar panels are typically sized anywhere from 3 kW to 1 MW in size.

Residential and commercial solar capacity (MW)	70 MW In Census 2021, ~5% of homes reported using renewable energy systems such as solar panels
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Behind-the-Meter (BTM)

BTM solar energy solutions refer to energy generation, storage, and management systems located on the consumer's side (Residential and Commercial) of the utility meter.

Utility-scale ^{[a] [b] [c]}

- The largest of the solar projects, utility-scale solar projects, are typically sized anywhere from 1 MW and above.
- Utility-scale solar farms generate and distribute power to nearby homes and businesses at the grid scale.
- Split into 2 categories, large- and small-scale utilities, there are now 16 large-scale utility plants in NI. These projects will act as a key driving force to reach the 900 MW solar capacity milestone by 2030.

As of 2023, large- and small-scale utility projects are the core generators of solar power in NI

Large-scale utility	>5 MW	190 MW
Small-scale utility	1 MW – 5 MW	20 MW

Note: [1] This is the total solar capacity reported as of Q3 2023.

Sources: [a] [Northern Ireland Electricity Networks](#)

[b] [Renewable Energy Planning Database \(REPD\)](#)

[c] KPMG analysis

[d] [NISRA Census 2021](#)



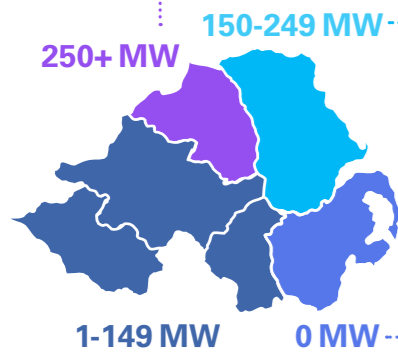
Spotlight on NI's utility-scale solar PV pipeline

In 2023, NI's utility solar capacity was ~209 MW. To contribute to achieving the 900 MW by 2030, a pipeline of 19 utility-scale solar projects (~563 MW) are planned, reaching a total capacity of ~772 MW across NI by 2030.

NI has committed to reducing its dependence on fossil fuels by increasing its renewable energy capacity. SONI's TES 2020's 'accelerated ambition' scenario calls for a large increase in solar generation. Our analysis is based on reaching 900 MW utility-scale solar capacity by 2030^[d] NI has developed

a pipeline of solar projects of different sizes to reach this milestone. In 2023, NI's utility-scale solar energy capacity was ~209 MW. A further 19 projects (~563 MW) are in the development pipeline from 2025 to 2030. The successful delivery of the proposed projects by 2030 would result in NI being within reach of the 900 MW milestone, contributing a total capacity of ~772 MW of solar energy provision across the country by 2030. An additional 128 MW would be required to reach 900 MW solar capacity by 2030.

Pipeline scale (MW)^{[1][2]}



Region	Capacity (MW)	Projects	Percentage of Total Pipeline
Derry/Londonderry	250+	7 utility-scale solar PV projects totalling approximately 271 MW.	48%
Antrim	150-249	6 utility-scale solar PV projects totalling approximately 150 MW.	27%
Down	1-149	0 utility-scale solar PV projects planned across the county.	0%
Armagh, Tyrone, Fermanagh	0	4 utility-scale solar PV projects totalling approximately 120 MW.	21%

Note: [1] The location of two projects in the pipeline (~21 MW or ~4% of the pipeline) are yet to be determined. Proposed locations include Antrim, Armagh, Derry and Tyrone. [2] 'MW' stands for Megawatts, a measurement of energy output. [3] 'Solar Photovoltaic (PV)' is a group of solar panels that produce electricity.

Sources: [a] Northern Ireland Electricity Networks [b] Renewable Energy Planning Database (REPD) [c] RenewableNI [d] SONI 2020

Policy and regulatory

Since 2023, the NI Executive has launched a number of key initiatives to promote and incentivise the development of solar energy projects across NI which will help reach the 900 MW solar capacity by 2030.

Since 2018, there has been relatively little investment in utility-scale solar PV projects in NI compared to countries like

the Republic of Ireland. This disparity is driven by a less developed policy environment and a lack of available routes to market that support solar investment in NI. Consequently, NI has seen less investment compared to other countries globally. To meet the respective NI and the UK solar ambitions, more needs to be done to encourage future investment in this sector.

Key initiatives to increase solar generation ^{[a][b][c][d]}		
Solar initiative	Initiative description	Solar development
July 2023 Shaping Our Electricity Future Roadmap (Version 1.1)	The roadmap's main objective is to outline how NI can make the grid ready so that 80% of its electricity can come from renewable sources (e.g. solar) by 2030. To reach this target, more renewable generation is needed in NI.	A range of solar projects will be required to reinforce the network infrastructure. In order to achieve the target, all aspects of the electricity ecosystem must be optimised.
April 2024 Energy Efficiency Capital Grant (EECG)	EECG was launched to help deliver on NI's renewable energy targets by supporting businesses reduce energy costs and develop onsite renewable energy generation such as solar panels between 2024 and 2029.	The EECG will provide a capital grant of up to £150,000. The level of grant support will depend on the business size (e.g., small, medium and large companies).
April 2024 Northern Ireland Sustainable Energy Programme (NISEP)	NISEP supports homes and businesses of all sizes in NI to become more energy efficient and reduce carbon emissions. The NISEP year runs from April 2024 to March 2025 or until all funds are exhausted.	The NISEP offers a Commercial Energy Saving Scheme (CESS) which provides financial support of 20% for the development of solar PV panels for businesses across NI.
Q1 2026 Renewable Electricity Support Scheme (RESS) Phase 1	Phase 1 of the proposed RESS in NI is forecast to run from Q1 2026 with design finalised from March 2025. It aims to incentivise sufficient renewable electricity generation through a wide range of renewable sources such as solar PV projects.	The RESS auctions in NI will be held every one to two years with a proposed contract term of 15 years, broadly in line with similar regimes in the UK and Ireland.

Sources: [a] Shaping Our Electricity Future Roadmap – EirGrid, SONI [b] Invest NI Energy Efficiency Capital Grant Scheme [c] Solar NI - NISEP [d] Department for the Economy - Renewable Electricity Support Scheme

04. Economic Impacts of the path to 2030

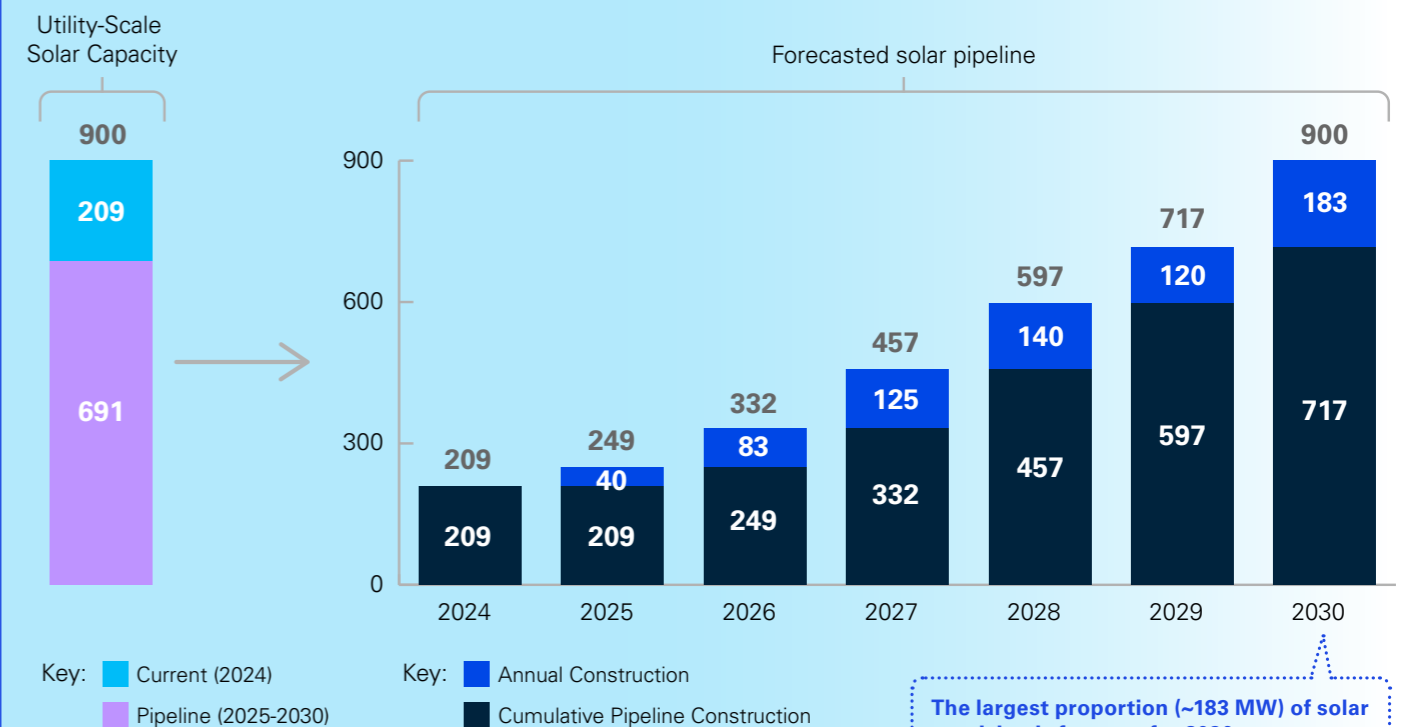


Estimated pipeline to 2030

Additional solar projects to the current known pipeline are needed to reach 900 MW by 2030. ^[1]

The analysis above highlights NI's existing solar capacity and pipeline of utility-scale solar PV projects over the period 2024 - 2030 in order to reach 900 MW by 2030.

Current utility-scale solar capacity and forecasted solar pipeline to achieve the required solar energy ambition, 2024 - 2030 (MW) ^[a]



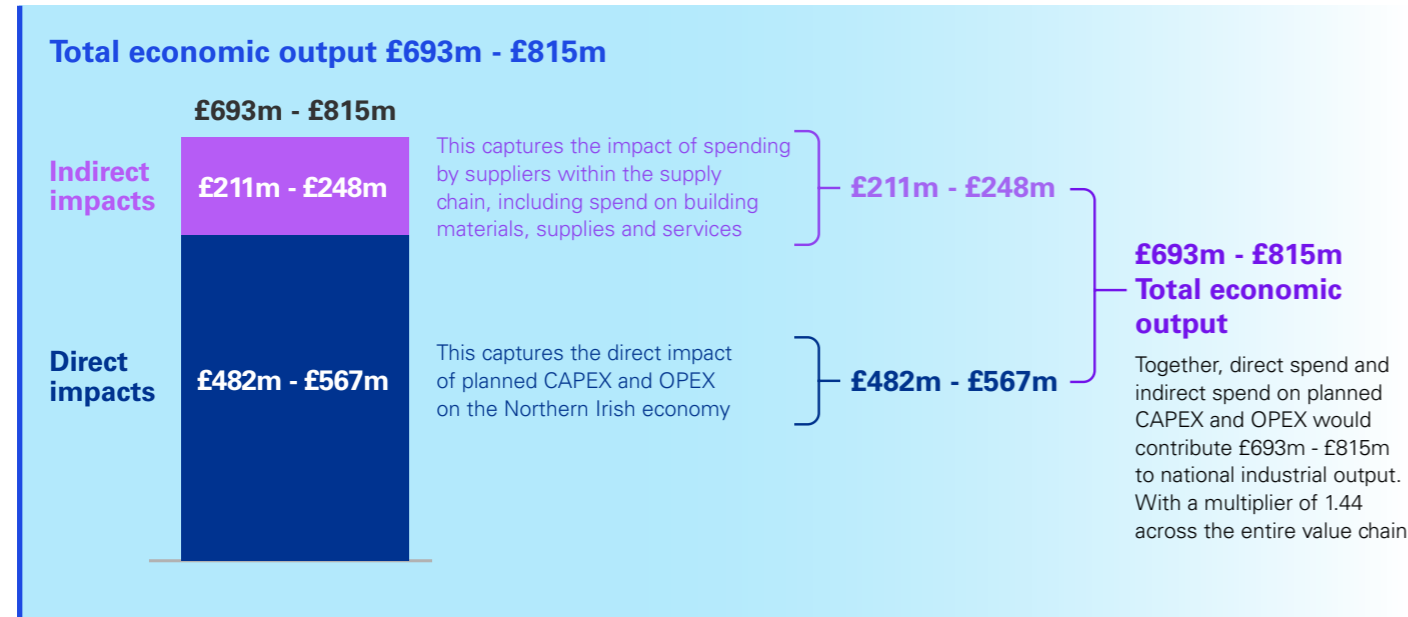
Note: [1] The current solar capacity and pipeline, as shown on page 17, will reach ~772 MW. The impact assessment analysis includes an additional 128 MW above the current pipeline to reach the 900 MW capacity. This pipeline is sourced from a mixture of RenewableNI member survey and planning applications.

Source: [a] KPMG analysis

Contribution to economic output 2025 - 2030

The solar energy industry in NI has the potential to contribute £693m - £815m from CAPEX and OPEX activity over the period 2025 - 2030. ^{[1] [a]}

The analysis below highlights the potential contribution of the solar energy industry to economic output in NI's economy over the period 2025 - 2030.



GVA in 2030 and in 2025 - 2030

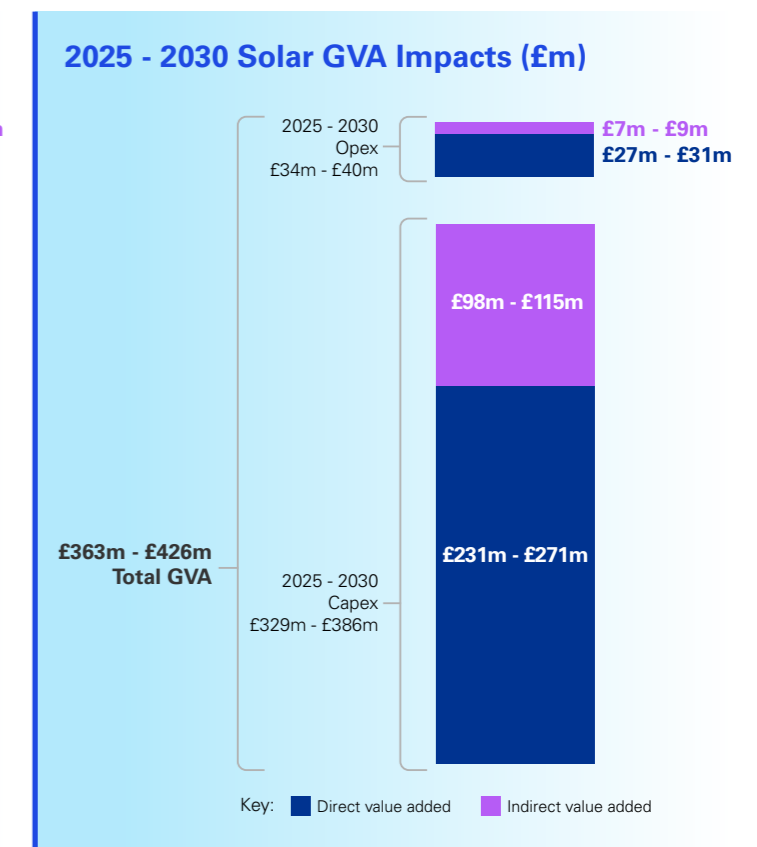
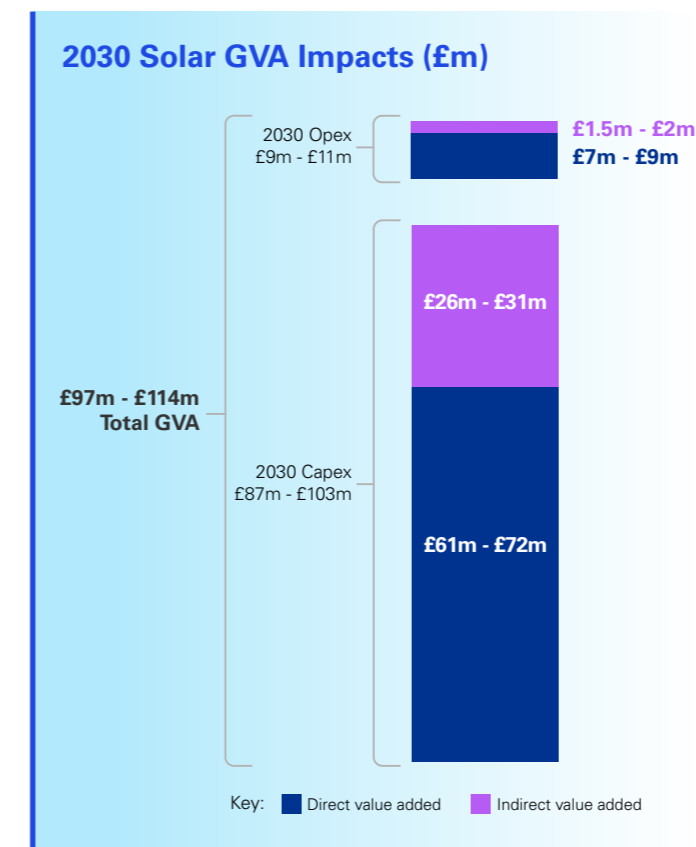
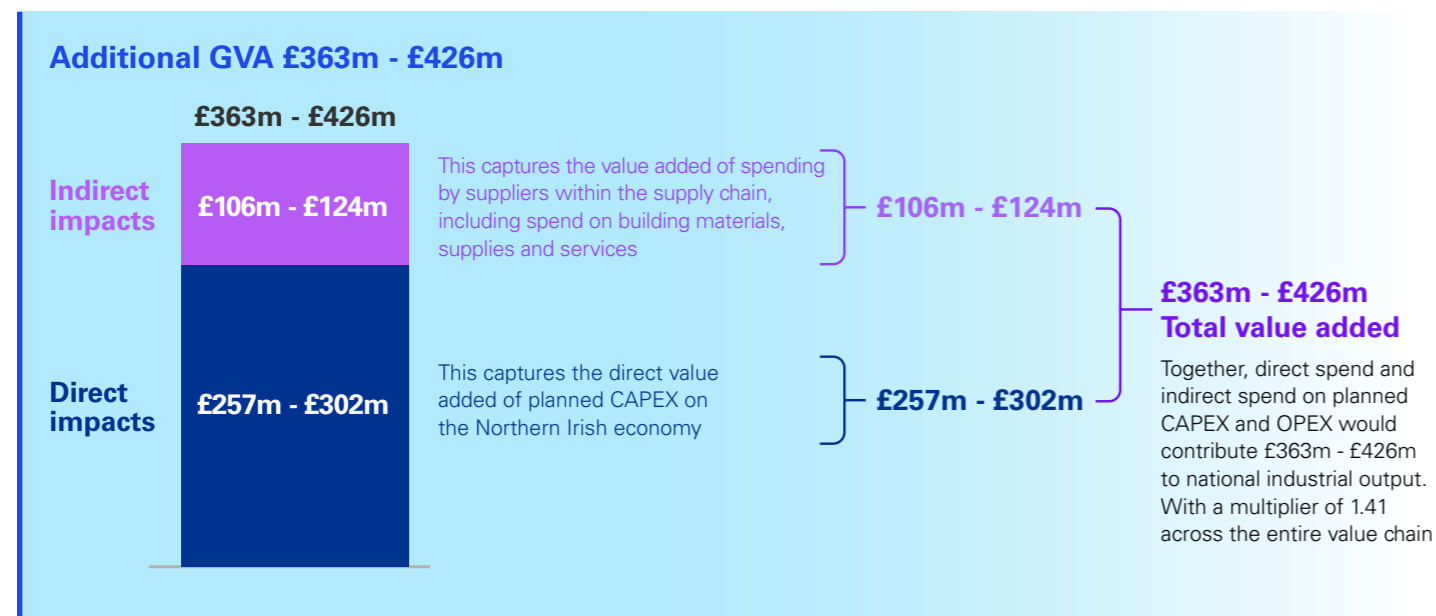
The solar energy industry is estimated to support between £68m - £81m in GVA directly to the Northern Irish economy in 2030 and to support £258m - £302m directly in the period 2025 - 2030. ^{[1] [a]}

The analysis below highlights the solar energy industry's potential GVA in the Northern Irish economy in 2030 and in the period 2025 - 2030. Most of the value added is generated from CAPEX through the installation of new solar PV projects.

Additional GVA in the Northern Irish economy 2025 - 2030

A GVA of £363m - £426m arising from both the capital and operational activities between 2025 to 2030 could be achieved if the solar industry to achieve 900 MW by 2030. ^{[1] [a]}

The analysis below highlights the potential contribution of the solar energy industry to GVA in NI's economy over the period 2025 - 2030.



Note: [1] 'GVA' stands for 'gross value added'.
Source: [a] KPMG impact model

Note: [1] 'GVA' stands for 'gross value added'.
Source: [a] KPMG impact model

Annual jobs and income

By 2030, the total number of jobs is estimated to be 1,500 - 1,800 as solar capacity increases across NI. In the period 2025 - 2030, the solar industry could generate £175m - £206m in employee incomes.

Total employment in 2030 [a] [1]

1,500 - 1,800



2030 Employment

Key: ■ Direct ■ Indirect

By 2030, the total number of full and part-time jobs supported by the solar industry can reach 1,500 and 300 jobs respectively

Total income in 2030 and 2025 - 2030 (£m) [a]

£47m - £55m



2030 Income

Key: ■ Direct ■ Indirect

£175m - £206m



2025 - 2030 Income

Observations

- Total employment in the solar energy industry in NI and in its supply chain is estimated to be greater during periods of higher levels of construction and development activity. The industry contributes to the payment of incomes directly to its own staff, and indirectly to staff in its wider supply chain.
- The solar energy industry is an important employer, creating sustainable jobs and opportunities across NI. The industry has a strong potential to grow the employment base in the period 2025 - 2030. Appropriate policies around grid and pipeline development can support wider employment growth in NI. These activities have high spillover effects, creating broad based employment opportunities on local authority levels. During periods of low activity, opportunities arise on smaller scale solar PV projects. By 2030, total employment is estimated to be ~1,500 - 1,800 assuming the 900 MW capacity is reached.
- By 2030, the total labour income generated through operating and construction activities, both direct and indirect, is estimated to be ~£47m - £55m. In the period 2025 - 2030, the total income generated is estimated to be ~£175m - £206m.

Note: [1] The above jobs represent value chain jobs as a result of expenditure by the sector, creating jobs in supplying sectors.

Source: [a] KPMG impact model.

Tax contributions and rates

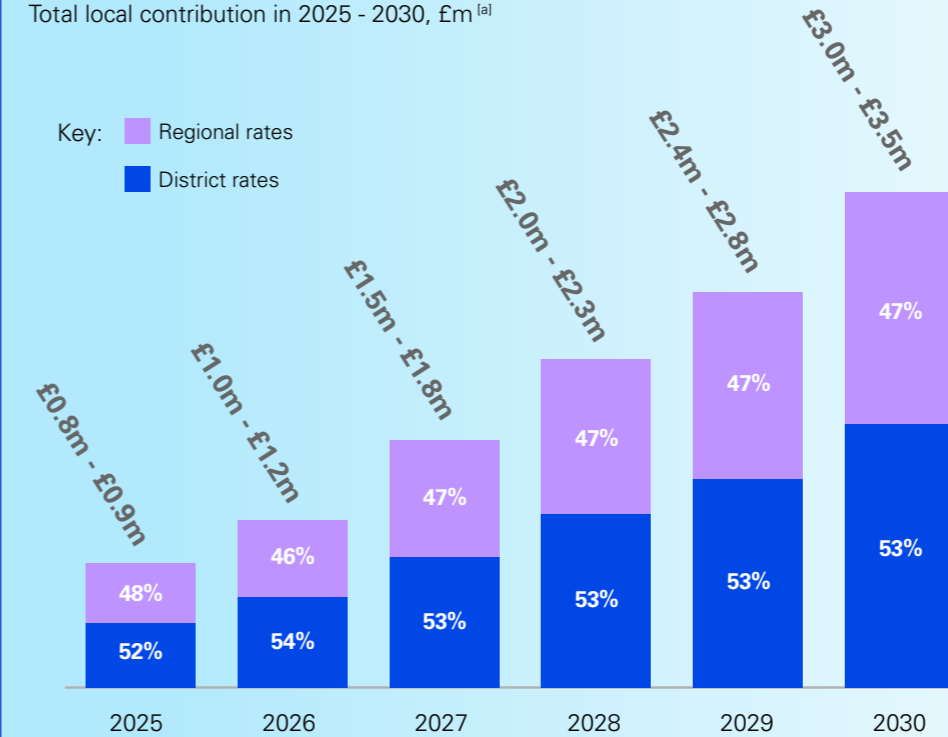
By 2030, the industry could generate ~£13m in district and regional rates. Employers' pay-related taxes and workers tax could contribute ~£20m and ~£10m, respectively.

The analysis below highlights the solar industry's economic impact and commitment to local authorities and HMRC.

Business rates

Total local contribution in 2025 - 2030, £m [a]

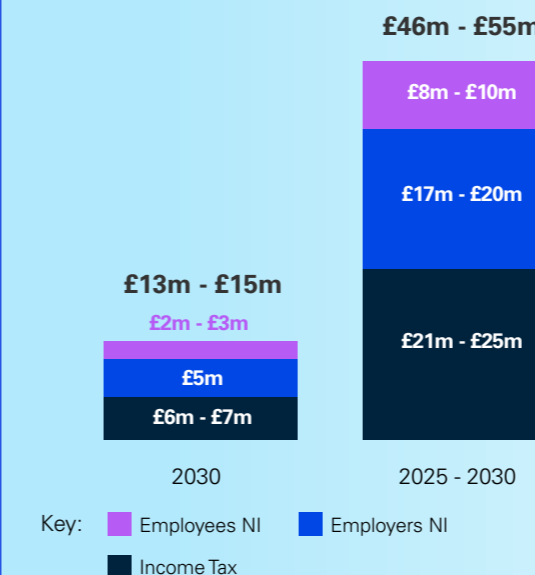
Key: ■ Regional rates ■ District rates



Across NI, the solar energy industry could contribute ~£13 million in revenue through local and regional business rates. This can contribute to the funding of public services including leisure facilities, roads, education and healthcare. The district rates are paid to local authorities while regional rate payments go to HMRC.

Income Tax contributions

Total tax contributions in 2025 - 2030 and in 2030, £m [a] [b]



Key: ■ Employees NI ■ Employers NI ■ Income Tax

In the period 2025 - 2030, contributions through employer NI and employee NI are estimated to sum to more than £20 million and £10 million, respectively. Income tax paid by direct employees and indirect employees is estimated to be greater than £24 million.

Source: [a] KPMG impact model [b] Tax calculators.

05. Industry insights

Case study 

Behind the meter (Commercial)



Dundonald Nurseries

Dundonald Nurseries' 47kW solar installation shows how businesses can contribute to NI's sustainability goals.

Solar PV offers numerous benefits for businesses. By generating electricity on-site, businesses like Dundonald Nurseries can reduce their operational costs. This not only leads to immediate savings, but adopting solar energy supports Northern Ireland's sustainability goals and demonstrates their commitment to environmental responsibility.

Overview

Project overview: Dundonald Nurseries roof solar installation

Location: Belfast

Building contractor: Everun

Energy capacity: 47kW of clean energy (peak capacity).^[1]

Completion date: July 2024

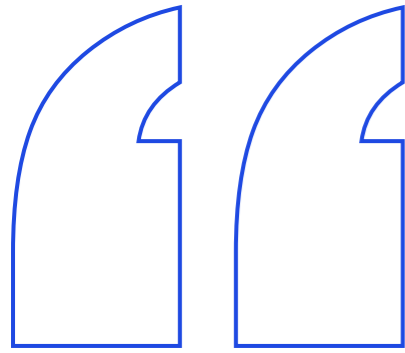
Benefits

- **Employment:** 3 full time employment over the construction period of the roof solar panels
- **Construction spend:** Payback is estimated to be 4.1 years
- **Electricity produced:** ~40 MWh annually, equivalent to the annual electricity demand of ~10 homes.^[2]
- **Carbon saving:** Potential saving of 7,770Kg of CO2 emissions each year or ~357 units of planted trees.^[3]



Note: [1] 'kW' stands for kilowatt, a metric unit of power.
[2] 'MWh' stands for megawatt hour, a unit of energy measurement.
[3] 'Kg' stands for kilogram.

Source: [a] Everun



Industry testimonials

Insights from developers and sector stakeholders in the solar energy industry.

There is clearly significant appetite from large energy users to develop solar installations to provide onsite generation for cost management and control as well as contributing to wider carbon reduction targets.

Commercial Director, BTM Solar Installation Firm

Despite the challenges, there is optimism about the potential for solar energy in Northern Ireland, with a focus on the need for a blend of renewable energy technologies to meet future energy demands.

Director of Development and Operations, Renewable Energy Company

The absence of a RESS equivalent scheme in Northern Ireland hinders investment due to the lack of a concrete bankable revenue stream.

Director of Operations, Renewable Energy Company

The speed of delivery must match the current demand with concerns around grid connectivity timeframes a particular challenge.

Commercial Director, BTM Solar Installation Firm

There's uncertainty around the route to market, with concerns on the timing of auctions and the availability of grid upgrades necessary for project development.

Renewable Energy Manager, Energy Network Developer

A major challenge is hiring qualified and experienced engineers on the island of Ireland for solar projects. We intend on rolling out a graduate program to build in-house engineering capabilities.

Commercial Director, BTM Solar Installation Firm

The three main challenges to reaching the 2030 solar target in Northern Ireland are planning, grid connection, and route to market.

Director of Development and Operations, Renewable Energy Company anager, Energy Network Operator

The duration to secure planning permissions and the impact of objections delay project timelines.

Director of Operations, Renewable Energy Company

We have a significant pipeline of projects in Northern Ireland that are ready to be developed.

Director of Development and Operations, Renewable Energy Company



Source: KPMG consultations with solar sector stakeholders.



Key recommendations

Industry insights from key developers and stakeholders provide valuable recommendations for the development of the solar energy industry moving forward.

The recommendations below provide suggestions to the concerns raised by various developers and stakeholders in the solar energy industry in NI.

On-time delivery of the NI RESS

- An on-time delivery of the RESS will help ensure that NI is on track to meet its environmental targets, and the 2030 solar energy capacity outlined in the SONI TES accelerated ambition scenario. The RESS will support employment, the growth of a greener economy, and benefit the consumer as renewables become more cost-effective. It will provide an official framework and timeline for the successful delivery of renewable projects.

Green skills action plan

- Due to the lack of utility-scale solar projects in NI in recent years, there is a shortage of skilled staff in the sector. A green skills action plan for solar and other renewables would support investment in green skills through; identifying any skills gap, provision of green skills training, access to upskilling and reskilling, policy support, promoting employment in the sector, etc.

Reduced planning consenting times

- Planning bottlenecks across NI are delaying green energy projects, threatening NI's ability to meet climate and energy targets. Delays in project delivery can negatively impact applications for subsidy support under the proposed RESS. Additional resources should be allocated to planning consenting administration.

Tax contributions and business rates

- The distribution of solar installers and solar farms across NI leads to significant investment, economic activity, and employment benefits outside of NI's major urban centres. Investment in local infrastructure related to solar energy can complement other rural economic growth initiatives and act as the basis to support long-term economic growth throughout the country.

Revised planning policy for renewables in NI

- In April 2023 the Department for Infrastructure consulted on a revised regional strategic planning policy for renewable and low carbon energy. The new policy must facilitate the increase in renewables necessary to achieve the 80 per cent by 2030 target.

Grid connections prior to 2030

- More efficient and streamlined grid connections prior to 2030 can contribute to the reaching 900 MW solar PV capacity by 2030. This can accelerate the rollout of solar energy projects across NI, ensuring continued growth of the solar energy industry. Across NI, current demand outweighs the connection speeds of solar projects, posing challenges and delays for project delivery and increasing the overall cost.

Source: KPMG consultations with solar sector stakeholders.

06. Appendix A

Overview of the approach taken in this study

This study uses an economic impact assessment model to estimate the economic impact of the solar energy industry in terms of economic output, value add, employment, and HMRC contributions.

What is an economic impact assessment?

Economic impact assessments consider the injection of income as a result of a specific event, policy choice or economic activity from a specific industry. The solar energy industry buys inputs that are produced in different industries within the economy. The purchase of production inputs then creates a flow of expenditure and a multiplier impact within the economy resulting in additional spend and employment.

An increase in solar PV capacity (MW) requires the industry to increase purchases of goods and services from suppliers to develop the related increase in energy capacity. In turn, suppliers to the solar energy industry increase their purchases of the goods and services they need to produce the products they supply to the solar energy industry. This creates additional rounds of expenditure in the value chain, also referred to as the multiplier impact, that leads to increased output and employment.

What metrics are reported on?

Economic impact results are primarily reported as economic output and Gross Value Added (GVA). Economic output refers to the total value of goods produced, and the total value of services delivered, as a result of the activity of Ireland's solar energy industry. Another way to phrase economic output is the total spend by either the industry or its value chain. GVA is a similar metric to GDP and represents the contribution of individual sectors, industries, or firms to the economy by measuring the value of their output minus the value of intermediate goods and services used in production. Other metrics reported on include the number of jobs supported by the industry and the industry's contribution to the HMRC in the form of taxes.

How are the results presented?

Overall economic impacts are typically categorised in terms of the following components:

- 1 Direct: impacts directly accruing from expenditure by solar energy firms in the industry (e.g. purchase of component inputs)
- 2 Indirect: impacts generated by spend by firms that support the industry

The results presented in this report reflect this approach, where the industry's direct and indirect contributions have been analysed and reported on.



Glossary

Glossary of terms and acronyms used throughout the report

£m	Millions of pounds	kW	Kilowatt
BTM	Behind the Meter	kWp	Kilowatt Peak
CAPEX	Capital Expenditure	MW	Megawatt
CAGR	Compound Annual Growth Rate	MWh	Megawatt Hour
CO2	Carbon Dioxide	MWp	Megawatt Peak
COD	Commercial Operations Date	NI	Northern Ireland
CPPA	Corporate Power Purchase Agreement	OPEX	Operational Expenditure
CSO	Central Statistics Office	PV	Photovoltaic
EIA	Economic Impact Assessment	RESS	Renewable Electricity Support Scheme
Employee NI	Employee National Insurance	RoI	Republic of Ireland
Employer NI	Employer National Insurance	UK	United Kingdom
FTE	Full-time equivalent	US\$	US dollars
GDP	Gross Domestic Product		
GHG	Green House Gases		
GVA	Gross Value Added		
GW	Gigawatt		
GWh	Gigawatt hour		
HMRC	HM Revenue and Customs		
Kg	Kilogram		
ktoe	Thousands of tonnes of oil equivalent		



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Produced by: KPMG's Creative Services. **Publication Date:** October 2024. (10819)