



Sunrise: Economic Impacts of the Solar Energy Industry in Ireland

Irish Solar Energy Association (ISEA)



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KPMG Ireland

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Foreword

Solar energy is no longer just a future ambition. As Ireland accelerates its transition to renewable energy, solar power stands as a key pillar of our national strategy. This report highlights the critical role solar will play, not only in driving carbon reductions but in delivering real economic and social benefits. Solar energy offers an unparalleled opportunity to create sustainable jobs, strengthen rural communities, and ensure Ireland meets its climate commitments. I hope this report serves as a valuable resource for all interested in Ireland's energy future.



Conall Bolger
Chief Executive Officer



Increasing solar capacity is driven by the Climate Action Plan's target to generate 80% of electricity from wind and solar power by 2030. This report assesses the economic benefits of the solar energy industry, finding that if these targets are met, the sector will contribute over €2.3 billion in Gross Value Added (GVA) to the Irish economy between 2025 and 2030, while supporting 5,480 to 7,130 jobs across the country. This represents a significant contribution to the Irish 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 Ireland.



James Delahunt
Corporate Finance Partner
KPMG Sustainable Futures








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01. Executive summary

01

Economic benefits of the solar energy industry in Ireland

Capacity and benefits	1.4 GW in 2024	8 GW in 2030 ^[1]	2025-2030 ^{[1] [2]}
 The total economic output across capital investment activities and operations	€1.0bn - €1.2bn	€1.2bn - €1.4bn	€6.2bn - €7.3bn
 Additional Gross Value Added (GVA) ^[4] for the Irish economy arising from the industry's activities	€437m - €514m	€480m - €565m	€2.3bn - €2.7bn
 Total employment income earned by workers in the sector	€230m - €270m	€258m - €304m	€1.2bn - €1.4bn
 Total employee and employer PRSI and employee income tax paid to the Exchequer	€54m - €63m	€61m - €72m	€293m - €344m
 Commercial rates contributions	€4.6m - €5.4m	€43m - €51m	€164m - €193m
 Contribution to Community Benefit Funds	€1.3m - €1.6m	€12m - €15m	€49m - €58m

The solar energy industry has the potential to contribute up to €2.7bn to the Irish economy over the period 2025 - 2030

Contributions through tax contributions, commercial rates and Community Benefit Funds are estimated to sum to €506m-€595m over the period 2025 - 2030

Ireland's solar industry supported up to 6,440 jobs in 2024 and could reach 7,130 jobs supported in 2030 ^[5]

- Note:**
- [1] Assumes the Government target of 8 GW 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 the additional capacity development.



Key findings

Gross Value Add (GVA), employment and incomes impacts



Gross Value Add (GVA), 2024 and 2030

- Through its operating and capital activities, the solar industry makes a valuable contribution to Ireland's economy. The industry's baseline GVA is estimated to be in the range of approximately €437m - €514m in 2024, with a large proportion of this GVA, €430m - €505m arising from the industry's capital activities and a modest proportion, approximately €7.3m - €8.6m of the total GVA arising from the industry's operational activities. Direct GVA is estimated to be in the region of €335m - €394m with indirect GVA is estimated to be €102m - €120m in 2024. This level of GVA reflects an aggregate multiplier on investment across operational and capital activities of 1.31.^[1]
- Achieving Ireland's solar PV capacity target of 8 GW by 2030 is expected to deliver GVA of approximately €480m - €565m in that year across all operational and capital activities, reflecting a strong contribution to the Irish economy.
- Solar energy can make a vital contribution to Ireland's economic performance over the coming years arising from direct and indirect benefits. The industry has a strong pipeline of development projects in planning, granted planning, and commencing construction as of mid-2024. The delta between the GVA and economic output points to an opportunity to develop additional elements of the value chain in Ireland, such as the increased participation in the manufacturing supply chain for subcomponents or ancillary equipment. If the national target of 8 GW by 2030 is reached, total GVA arising from capital investments and operational activities could be in the range of €2.3bn - €2.7bn during the period 2025-2030.

Employment and incomes, 2024 and 2030

- Ireland's solar energy industry supports a wide variety of jobs, both directly and indirectly, through its capital activities. The types of local employment supported includes project management, construction, and a range of infrastructure delivery roles. Employment in Ireland's professional services sector including legal and financial services is also strongly supported.
- Capital investment expenditure should not be seen as a once-off event, rather the need for additional renewable generation capacity means capital investment will take place on an ongoing basis. Delivering the target of 8 GW by 2030 will require a sustained deployment of approximately 1 GW to 1.3 GW per annum resulting in the number of total direct and indirect jobs supported growing from approximately 6,440 in 2024 up to approximately 7,130 in 2030, representing approximately 11% increase on the baseline number of jobs supported.
- Solar energy is estimated to currently support between approximately 5,480 - 6,440 jobs distributed across the country. This number comprises of 4,270 - 5,000 directly supported jobs and 1,210 - 1,440 indirectly supported. Much of the employment supported is located outside of the Dublin region, often near or within the rural communities that host utility-scale solar farms. Installer jobs in particular are distributed throughout the country.
- The contribution to Ireland's labour incomes is currently estimated to be in the region of €230m - €270m, these payments of labour incomes has the potential to increase by 12% to between €258m - €304m by 2030 if national solar PV targets are achieved.
- Over the period 2025-2030 the number of jobs supported by the growth in solar energy is estimated to be in the range of 5,480 - 7,130. As the majority of jobs are generated as a result of capital activities, the number of jobs supported will move in line with the level of capacity development in any particular year.
- Total payments to labour in the Irish economy could reach up to €1.4bn over the period 2025 - 2030.

Note: [1] Multiplier impact refers to the ripple effect of spending that leads to more rounds of spending in an industry's supply chain.

Key findings

Community benefit funds, tax and commercial rates contributions



Tax contributions benefits

- The distribution of solar installers and solar farms across the country, leads to significant investment, economic activity, and employment benefits outside of Ireland'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.
- In 2024, solar energy is estimated to generate up to €63m of employment related taxes for the Exchequer. Total payments through employer taxes are estimated to be in the range of €25m - €30m with employee taxes of approximately €28m - €33m.
- The accumulated returns to the Exchequer through employee and employer PRSI, income tax and USC is estimated to reach up to €344m over the period 2025-2030.

Community benefit fund and commercial rates

- The industry provides an important and stable source of revenue for many local authorities, with total contributions estimated to be in the region of €4.3m - €5.4m in 2024. Solar energy companies provide local authorities with valuable revenue that can be reinvested into local communities, infrastructure and services. As the industry's scale grows over the coming years the financial contribution to local authorities has the potential to reach €51m per annum by 2030.
- RESS supported solar farms are expected to contribute up to €1.6m into Community Benefit Funds in 2024, this has the potential to increase to €15m per annum by 2030. Voluntary contributions from solar farms contracted to large energy users through bilateral corporate power purchase agreements (cPPAs) have the potential to increase further however little data is currently available on such contributions.
- Together, commercial rates and Community Benefit Fund payments could contribute €56m - €65m of investment into local communities and amenities in 2030.

02. The case for solar energy



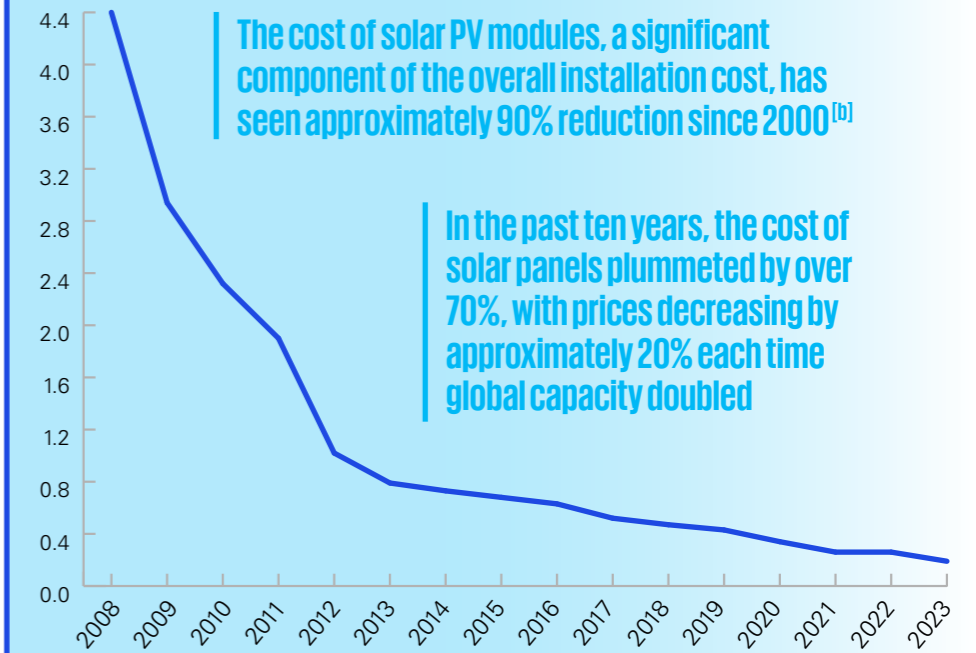
Solar PV global trends

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

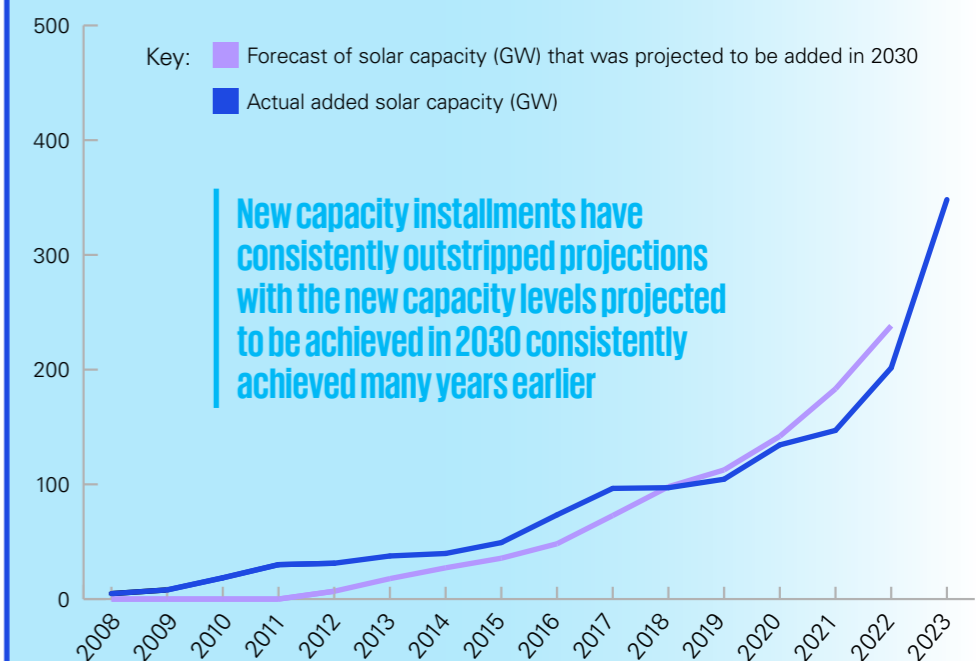
Solar PV is quickly becoming the lowest cost source of energy in most regions of the world due to rapid and sustained reductions in panel costs. The reduction in costs has been driven by a number of factors including innovation, economies of scale in manufacture, and more recently oversupply in the global market which has resulted in highly competitive pricing. It is worth noting that while the continual fall in panel prices have led to rapid deployment of solar PV capacity, other costs of other major components, grid connections and labour have not followed a similar trajectory and act as a floor on total cost. The cost of a number of items such as inverters, mounting systems etc experienced a 15-20% cost reduction over the decade to 2022, however high levels of inflation over recent years has resulted in cost escalation in recent years. Feedback from industry identified high grid costs and a lack of domestic EPC capability as key challenges facing utility-scale solar capacity in the Irish market.

The other most noteworthy trend in the global solar industry is how forecasts have consistently and significantly underestimated the scale of future solar capacity deployment, with projected capacity levels routinely being reached many years earlier than predicted.

Global solar PV module price, \$, 2008-2023 ^{[a][1]}



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



Note: [1] In constant 2021 US\$ per Watt.
Sources: [a] IRENA [b] Our world in data [c] IEA - International Energy Agency [d] Bloomberg NEF

Demand and generation trends in Ireland

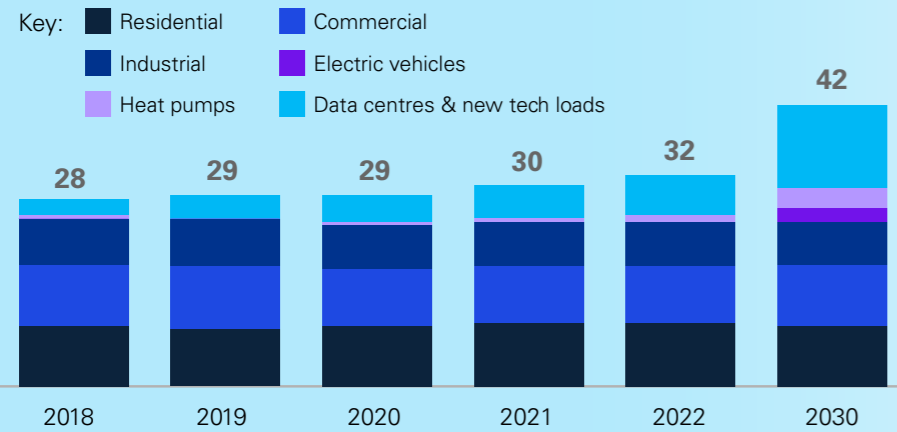
Key pillars of Ireland's ambition for a net zero economy by 2050 is the electrification of many aspects of the economy, including the electrification of heat and transport, while at the same time meeting 80% of electricity from renewable resources by 2030. Ireland stands out as one of the few developed

economies where electricity demand is growing and growing strongly, primarily due to the growth in data centre demand, and which is expected to continue to increase to 2030.

Solar energy has a key role to play in both addressing the decarbonisation

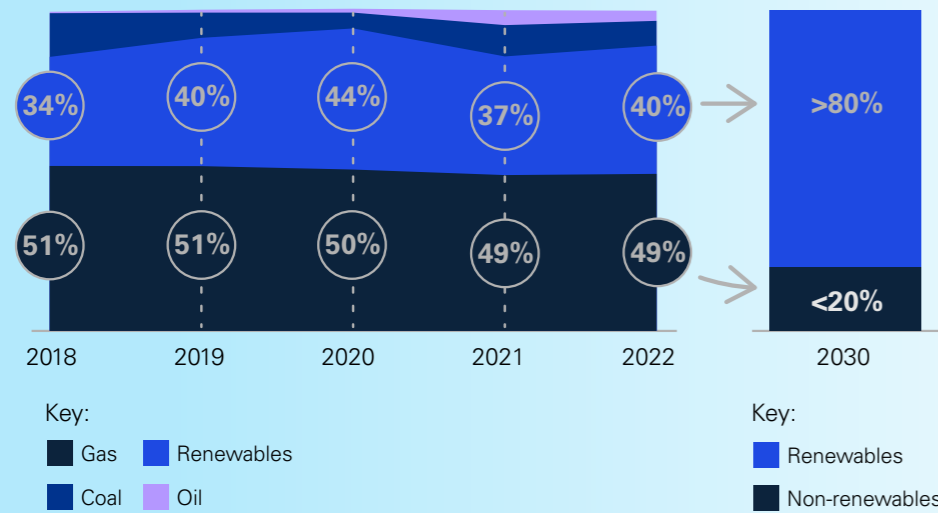
of Ireland's energy system and helping to meet the growing needs home and business energy consumers. The unique value of solar energy is its ability to benefit virtually every household, community and business in every corner of Ireland.

Electricity demand by usage type (TWh), 2018-2022, 2030 target ^[a]



Ireland is experiencing significant electricity demand growth driven primarily by data centre demand

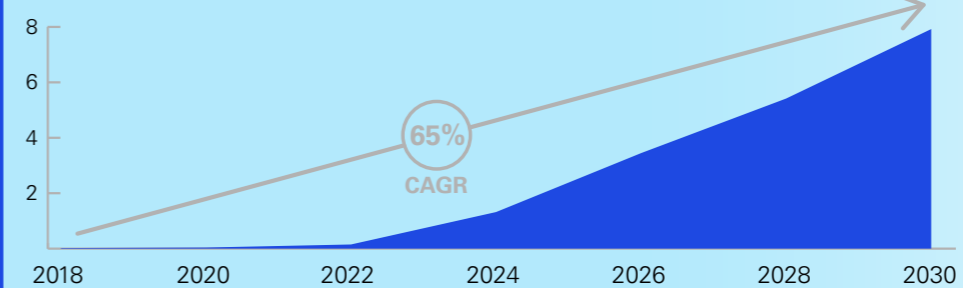
Electricity generated by fuel type (%), 2018-2022, 2030 target ^[b]



Solar PV can make a significant contribution to Ireland energy decarbonisation targets and demand growth



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



Reaching Ireland's 8 GW solar capacity 2030 target will present a 65% CAGR ^[1] in electricity generated by solar, supporting the goal of 80% electricity from renewables and meeting the growing demand for power

Note: [1] Compound Annual Growth Rate - the average yearly growth rate.

Sources: [a] CSO 2023, Environmental Indicators Ireland [b] International Energy Agency (IEA), Ireland – Energy breakdown

Sources: [b] International Energy Agency (IEA), Ireland – Energy breakdown [c] ISEA

03. Solar energy industry overview

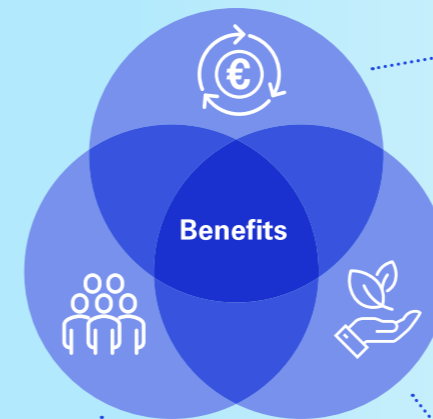


Benefits of the solar energy industry in Ireland

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

A key benefit of solar energy is its contribution to meeting Ireland's successive carbon budgets and 2050 net zero targets. If these targets are missed, Ireland could face substantial financial penalties, which, according to the Climate Change Advisory Council, could reach €8.2 billion per annum from 2030. ^[a]

Benefits of the solar energy industry in Ireland



Economic

These are the core focus of this study

- 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 Ireland
- 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

Sources: [a] Business Post, August 2024



Overview of the local solar energy value chain and its benefits

The solar energy industry can be broken into three, somewhat overlapping categories: utility-scale, large-scale commercial and small-scale rooftop.



01 - Project development

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



02 - Manufacturing

Solar panels deployed in Ireland 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 national power system requires specialised skills. Integrating very high levels of renewable generation onto Ireland's grid will develop world leading capabilities.



05 - Digitalisation

The future energy system will be increasingly decarbonised, decentralised and digitalised. The digitalisation element of these trends is a growth opportunity for Ireland 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 Ireland.



07 - Repowering & Recycling

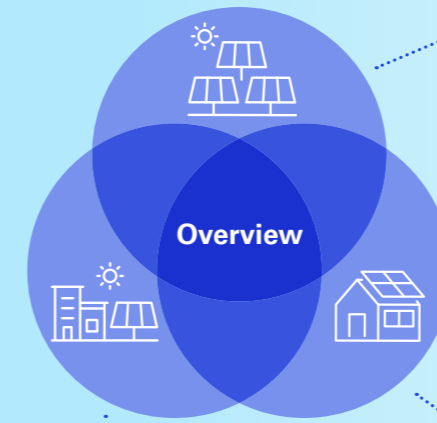
At the end of a solar asset lifecycle, it can be repowered or recycled. Repowering ensures that investment in the industry continues while recycling supports a circular economy.

Overview of the solar energy industry

The solar energy industry can be broken into three, somewhat overlapping categories: utility-scale, large-scale commercial and small-scale rooftop.

Installed solar capacity

1,364 MW total ^[a]



Utility-scale ^[a]

The largest scale of solar assets, utility-scale solar farms are typically greater than 4 MW in Ireland and can be much greater than 100 MW. These assets power businesses and homes connected to the national grid. As of September 2024, there are 14 projects above 5 MW and 13 projects between 1 and 5MW operating in Ireland and serve as the single largest driving force to deliver the 2030 target. Utility-scale solar projects earn revenue through RESS or cPPA contracts.

Large-scale utility is the core generator of solar energy in Ireland in 2024.

Large-scale utility	>5 MW	664 MW ^[a]
Small-scale utility	1 MW – 5 MW	58 MW ^[a]

Large-scale commercial ^[a]

The renewable electricity produced by large-scale commercial solar assets, which can be kW or MW scale, is primarily consumed on site behind the meter by businesses though some excess may be exported to the national grid. The business case for these assets usually centre on reducing the customers' energy bill and GHG emissions.

Large-scale commercial	139 MW ^[a]
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Small-scale rooftop ^[a]

Small-scale rooftop installations have become increasingly popular with businesses and homes looking to reduce high energy costs and their GHG emissions. This type of solar generation is generally consumed on site behind the meter with the export of excess generation beginning to become attractive due to increased government support.

Small-scale generation	50 kW - 1 MW	58 MW ^[a]
Micro-generation	3 kW – 50 kW	445 MW ^[a]



Source: ^[a] ISEA, as of September 2024

Spotlight on Ireland's utility-scale solar PV pipeline ^[1]

As of September 2024, Ireland's solar capacity was approximately 1.4 GW. Achieving the 8.0 GW target by 2030 will require accelerating capacity deployment across all categories. The current 9.5 GW ^[2] pipeline of 385 utility-scale projects under development is expected to have the single largest impact.

Leinster and Munster regions account for the majority of the utility-scale solar PV pipeline (93%). The development of these solar energy farms across various counties will create employment opportunities across Ireland.

Ulster

Ulster has a pipeline of 12 utility-scale solar PV projects totalling approximately 40 MW ^[3]. This represents 1% of the total utility-scale solar PV pipeline in Ireland.

The largest proportion, approximately 61% (or 24 MW), of Ulster's proposed utility-scale solar PV pipeline will be developed in County Cavan.

Leinster

Leinster has a pipeline of 201 utility-scale solar PV projects totalling approximately 6,037 MW ^[3]. This represents 59% of the total utility-scale solar PV pipeline in Ireland.

The largest proportion, approximately 27% (1,611 MW), of Leinster's proposed utility-scale solar PV pipeline will be developed in County Meath.

Connacht

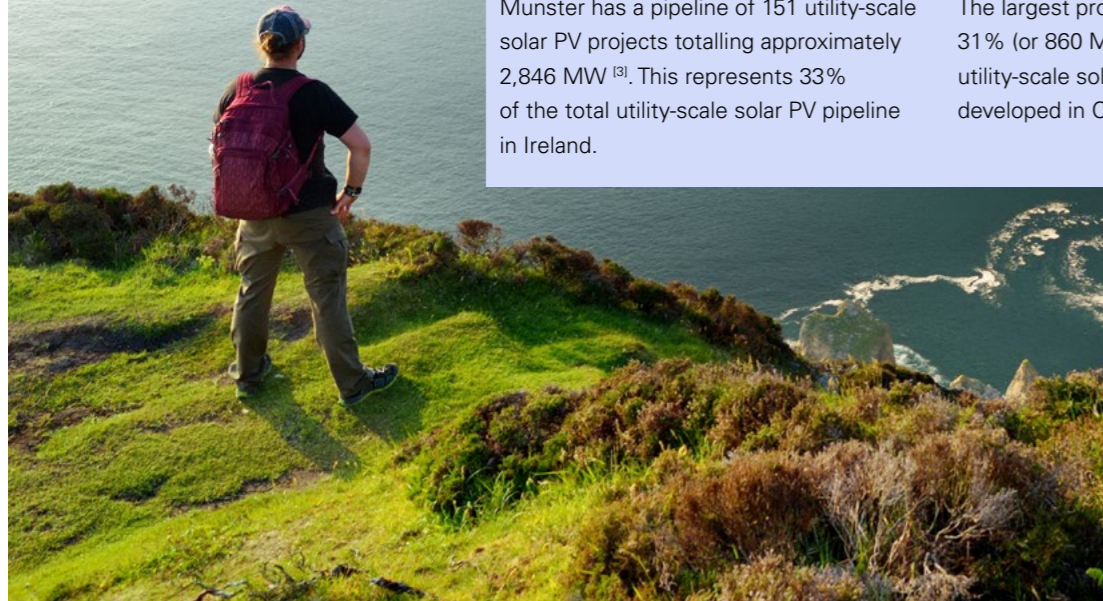
Connacht has a pipeline of 27 utility-scale solar PV projects totalling approximately 612 MW ^[3]. This represents 7% of the total utility-scale solar PV pipeline in Ireland.

The largest proportion, approximately 68% (or 419 MW), of Connacht's proposed utility-scale solar PV pipeline will be developed in County Galway.

Munster

Munster has a pipeline of 151 utility-scale solar PV projects totalling approximately 2,846 MW ^[3]. This represents 33% of the total utility-scale solar PV pipeline in Ireland.

The largest proportion, approximately 31% (or 860 MW), of Munster's proposed utility-scale solar PV pipeline will be developed in County Cork.



Note: [1] The pipeline is built on KPMG analysis, using data provided by ISEA.
 [2] 9.5 GW refers to pipeline from 2024 to 2030 and beyond. The impact assessment includes a conservative forecast of 8 GW solar PV capacity deployed.
 [3] The values represent the Maximum Export Capacity (MEC) in Megawatts (MW).
Sources: [a] ISEA [b] KPMG analysis.

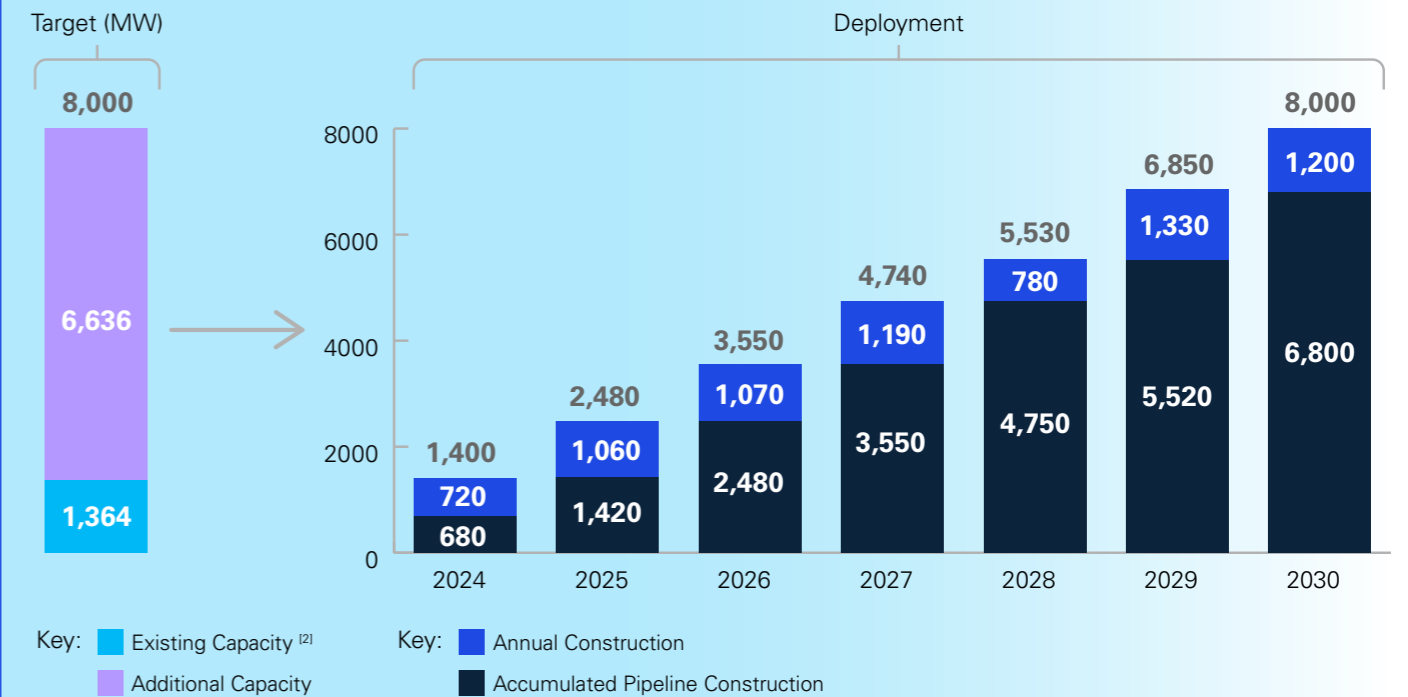
04. Quantifying the economic impacts



Estimated solar PV pipeline to 2030

In order for Ireland to meet its 8 GW by 2030 target, solar PV capacity will need to increase by approximately 780-1,330 MW each year. ^[1]

Deployment needed to achieve required target, 2024-2030 (MW)



Note: [1] The impact assessment analysis includes a conservative forecast of 8 GW and not a delivery of the full pipeline of approximately 9.5 GW.

[2] As of September 2024.

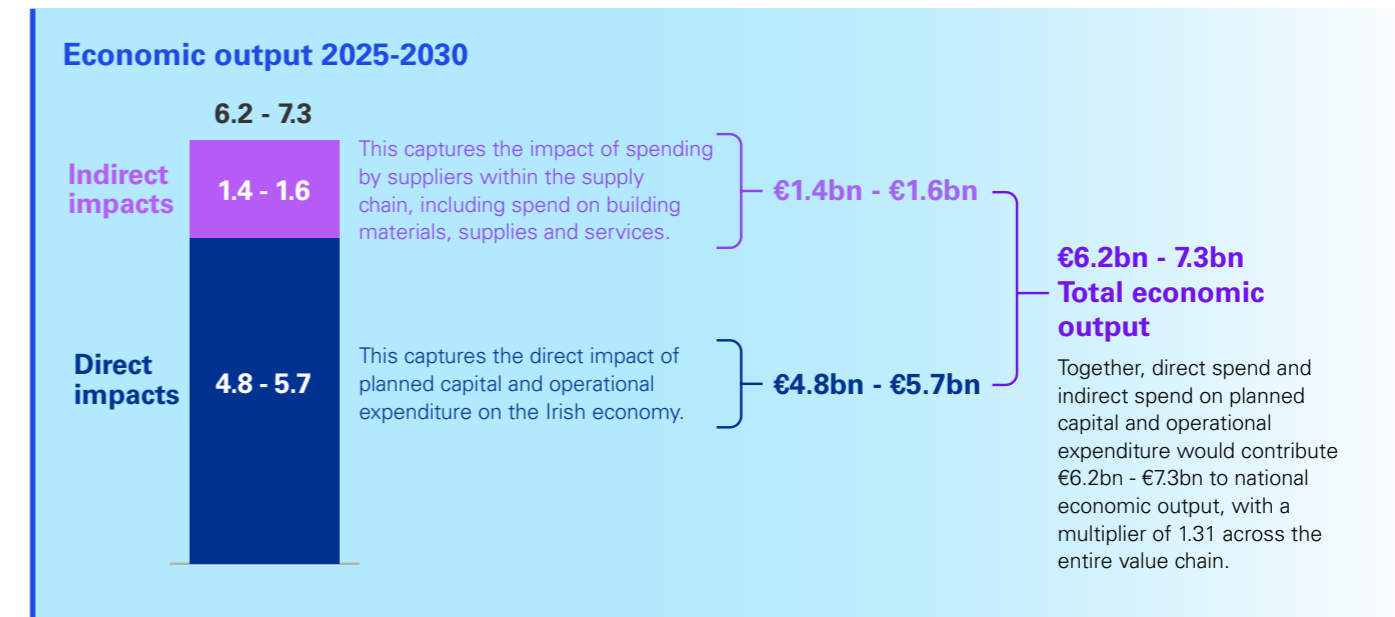
Source: [a] KPMG analysis.



Contribution to economic output 2025-2030

The Irish solar energy industry has the potential to contribute €6.2bn - €7.3bn to economic output as a result of capital and operational activity over the period 2025 - 2030.

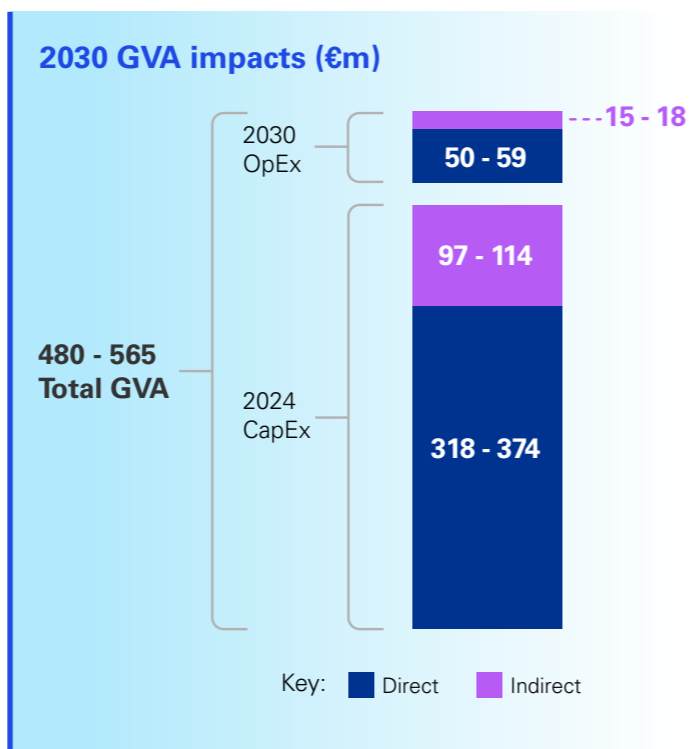
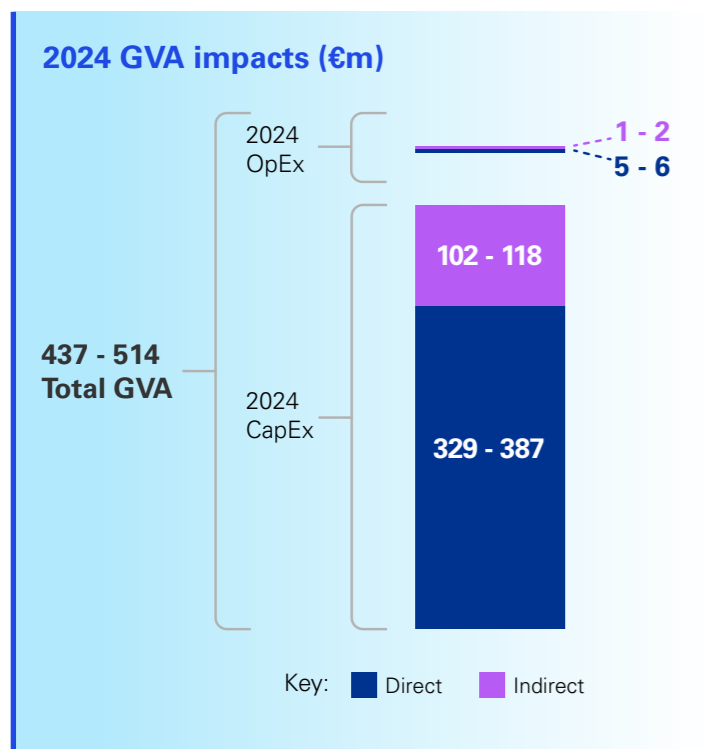
The analysis below highlights the Irish solar energy industry's potential contribution to economic output in the Irish economy over the period 2025 - 2030.



Annual GVA 2024 vs 2030

The solar energy industry is expected to contribute €437m - €514m in GVA to the Irish economy in 2024, increasing to €480m - €565m by 2030.

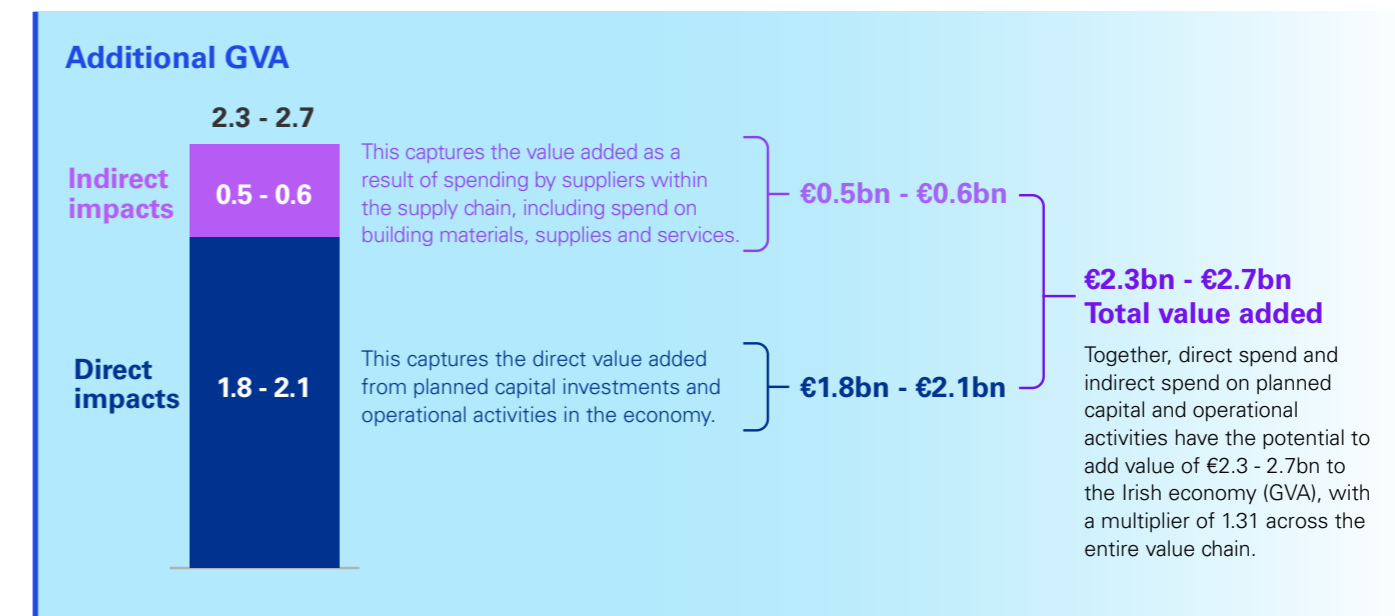
The analysis below highlights the Irish solar energy industry's GVA contribution to the Irish economy in 2024 and in 2030. The majority of the total GVA contribution will be generated from the deployment of additional solar PV capacity.



Additional GVA for the Irish economy 2025 - 2030

Arising from the industry's capital and operational activities over the period 2025 - 2030, the contribution to Ireland's GVA could be in the range of €2.3bn - €2.7bn.

The analysis below highlights the Irish solar energy industry's potential contribution to GVA in the Irish economy over the period 2025 - 2030. The delta between the GVA and economic output points to an opportunity to develop additional elements of the value chain in Ireland, such as the increased participation in the manufacturing supply chain for subcomponents or ancillary equipment.



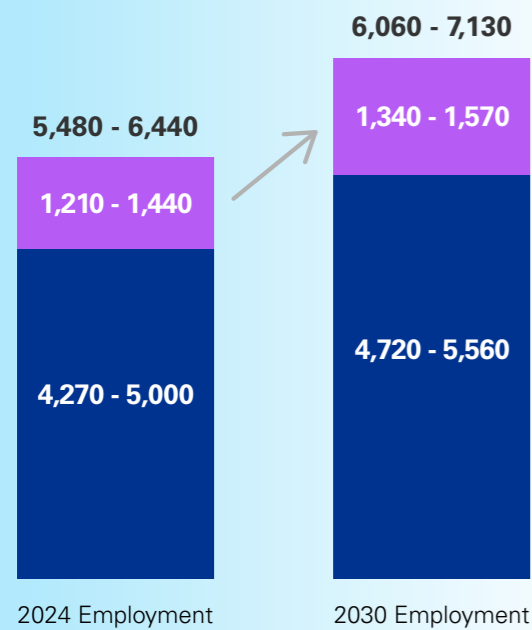
Sources: [a] KPMG impact model [b] CSO

Annual jobs and employment income

Total employment across the industry has the potential to grow as the development pipeline is delivered and renewed. This could see an increase in employment of approximately 580 – 690 jobs supported.

Growth in total employment, 2024 vs. 2030

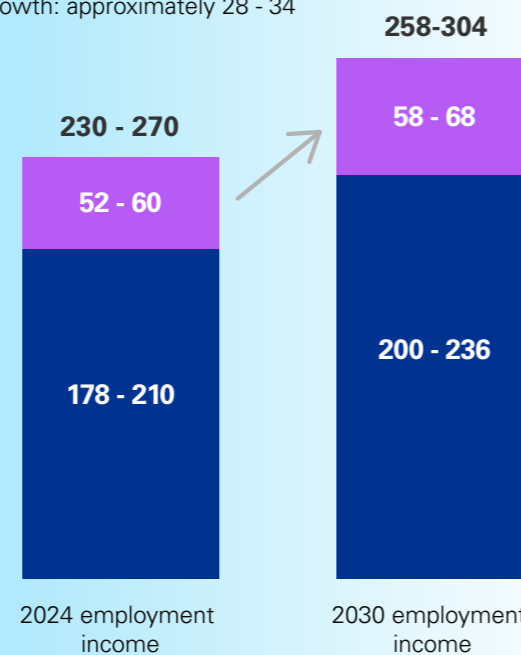
Growth: approximately 580 - 690



Key: ■ Direct ■ Indirect

Growth in total employment income, 2024 vs. 2030 (€m)

Growth: approximately 28 - 34



Key: ■ Direct ■ Indirect

Observations

- The solar energy industry in Ireland is estimated to support between 5,480 and 6,440 jobs in 2024. The industry generates high spillover effects, creating broad-based employment opportunities on regional levels. During periods of low activity, opportunities arise on smaller scale renewables projects and installations. By 2030, the number of jobs supported in that year could grow to approximately 6,060 - 7,130 (+690) assuming the national solar PV capacity target is reached.
- The industry contributes to the payment of incomes directly to its own staff and indirectly to staff supporting the industry.
- The current total quantum of labour income generated through operating and capital activities is estimated to be approximately €230m - €270m. By 2030, the total labour income generated through operating and development activities, both direct and indirect, is estimated to grow to approximately €258m - €304m.
- The industry is an important employer, creating and supporting high value sustainable jobs, opportunities outside major urban areas, and with a strong potential to grow the employment base in the period to 2030. Appropriate policies around grid and pipeline development can support wider employment growth.

Note: [1] The above jobs represent value chain jobs as a result of expenditure by the industry, creating jobs in supplying industry.
Source: [a] KPMG impact model.



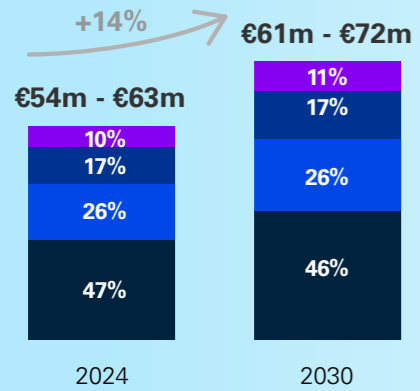
Tax contributions, commercial rates and Community Benefit Fund

Industry contributions to local authorities and to the Community Benefit Fund are expected to increase by 944% and 998% respectively between 2024 and 2030. Tax contributions are expected to increase by 14% between 2024 and 2030.

The analysis below highlights the Irish solar energy industry's potential to contribute to the Irish economy through tax contributions, commercial rates and the Community Benefit Fund scheme, a significant positive impact and commitment to community development.

Tax contributions

Total tax contributions in 2024 and 2030, €M



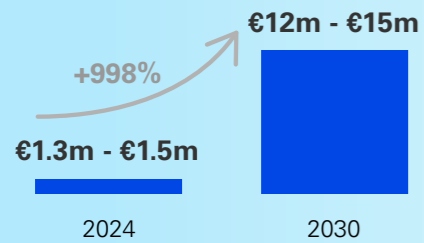
Key: ■ Employers PRSI ■ Employees PRSI
■ Income Tax ■ USC

Contributions through tax contributions is estimated to return €54m - €63m in 2024 and to €61m - €72m in 2030



Community Benefit Fund

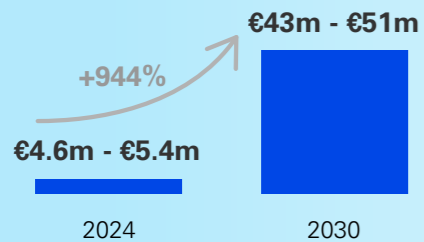
Total community benefit fund in 2024 and 2030, €M



The solar energy industry contributed c.€1.3m - €1.6m into the Community Benefit Fund scheme in 2024. This is expected to increase to €12m - €15m in 2030

Commercial rates contribution

Total commercial rates contribution in 2024 and 2030, €M



Across Ireland, the solar energy industry contributed approximately €4.6m - €5.4m to local authorities' tax take in 2024. This is expected to increase to €43m - €51m in 2030



05. Industry insights and case studies



Policy and regulatory development timeline

The Irish government has launched a number of key initiatives to promote and incentivise the development of solar energy projects across the country in order to reach a target of 8 GW by 2030.

These initiatives point to Ireland's commitment to contributing to the EU solar strategy target of 700 GW of solar PV capacity provision by 2030.

Key government initiatives to increase solar energy growth in Ireland for the coming years ^[a] ^[b] ^[c] ^[d]		
Government solar energy initiative	Initiative description	Level of support
2020-2024 Renewable Electricity Support Scheme (RESS) Auctions	RESS 4 is the fourth of a minimum of five envisaged onshore auctions to occur between 2020 and 2025 to deliver on the 2030 targets. ^[1] These auctions provide pathways for utility-scale solar projects.	The RESS 4 auctions provisional results provides support for the development of an additional 960 MW of utility-scale solar PV around the country.
July 2023 Small-Scale Renewable Electricity Support Scheme (SRESS) Phase 1	Launched to help deliver on Ireland's renewable energy targets by supporting larger non-domestic renewables self-consumers such as farms, public buildings, commercial and industrial entities between 2023 and 2025.	The SRESS provides a route to market for Renewable Energy Communities and other small-scale solar PV developments of 50 kW to 1 MW installed capacity during Phase 1.
November 2023 Solar for Schools Programme	The programme aims to provide eligible schools across Ireland with approximately 16 solar panels per eligible school between 2023 and 2024 to self-generate renewable electricity and reduce the schools' energy costs.	The programme aims to fund up to 6 kWp of roof-mounted solar PV systems for all eligible schools including an energy monitoring and display system.
May 2024 SRESS Phase 2	Launched to provide market supports for Renewable Energy Communities and Small-Medium Sized Enterprises (SMEs) to generate and consume their own renewable electricity.	Phase 2 of the SRESS aims to provide 15-year tariff supports for solar PV projects between 50 kW and 6 MW to complement microgeneration supports and auctions.

Note: [1] The RESS 1 process ran from Q4 2019 until Q4 2020 and the RESS 2 process ran from Q4 2021 until Q2 2022.

Source: [a] ISEA 2024 Report – Scale of Solar
 [b] Department of Environment, climate and Communications
 [c] EirGrid RESS 1, RESS 2 and RESS 3 Final Auction Results
 [d] RESS 4 Provisional Auction Results



Industry insight on successes and challenges to address

Opportunities and challenges: insights from stakeholders active in the solar industry.

With streamlined processes and the increasing commitment from solar installers and customers, we are likely to see a rapid rise of smaller scale solar installations.

 **Small-Scale Generation Manager, Energy Network Operator**

Our staff dedicated to supporting rooftop solar projects has tripled over the last 3 years.

 **Small-Scale Generation Manager, Energy Network Operator**


A target of 8 GW target is achievable, but planning, grid readiness and deployment challenges may delay the target past 2030.

 **Director of Development and Operations, Renewable Energy Company**

Small solar farms face challenges having the finance to lease land and to build the solar farms.

 **Solar Development Manager, Small-Scale Solar Developer**

Work is being actively undertaken to accelerate the grid offer process in order to help achieve the 8 GW target by 2030.

 **Renewable Energy Manager, Energy Network Operator**

The three main challenges are:

- Planning and approval / appeal process
- Grid infrastructure and associated costs (RoL)^[1]
- Dispatch down / curtailment & constraints

 **Director of Delivery, Utility Solar Developer**


Securing route to market and grid connection are key issues in the solar energy industry.

 **Energy Policy and Modelling PhD Student, Irish University**

Current grid capacity is very constrained. Increasing grid capacity is essential in ensuring targets can be met. Constraints and curtailment / dispatch down policy challenges make the sub 5 MW solar projects financially challenging.

 **Solar Development Manager, Small-Scale Solar Developer**

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

 **Commercial Operations Director, BTM Solar Installation Firm**

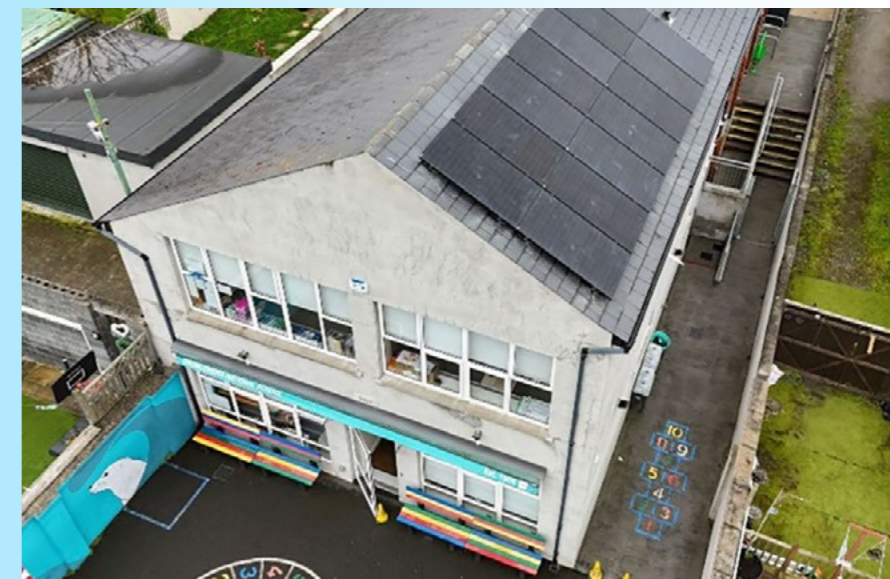


Source: [a] KPMG consultations with solar industry stakeholders.

Case study

The schools solar PV programme

SolarSmart[®]



Drumcondra National School

Drumcondra National School in Dublin installed a 6 kWp solar system in 2024, reducing the energy bill by 33 - 50%, becoming a net exporter of renewable electricity, and fostering environmental awareness among the students.

Overview of the solar PV system

Location: Drumcondra National School, Co. Dublin

Capacity: 6 kWp

Commission date: 2024

About the system: The system is comprised of 14 panels in a single South-East facing array.

Build and operate contractor: SolarSmart

Overview of the system's benefits

- **Economic benefit:** Saving between a third and a half on previous electricity bills.
- **Electricity produced:** The school consumes 65% of the energy generated and exports the remainder to the national grid.
- **Carbon reduction:** Avoiding 1.7 tonnes of CO2 equivalent each year, which equates to 324 trees planted over the system's lifetime.
- **Educational benefits:** The monitoring system and display screen allows the students to actively engage and analyse the school's renewable energy production and energy usage.



Source: [a] SolarSmart.

Large-scale commercial solar PV



Musgrave Distribution Centre

Activ8 Solar Energies is a solar installation company in Ireland with over 18,500 installations, specialising in residential and commercial rooftop installations.

Overview of the solar PV system

Company: Kilcock Musgraves

Location: Kilcock Co. Kildare

Capacity: 909 kWp

Commission date: 2024

Site area: 3.04 Acres

Build and operate contractor: Activ8 Solar Energies



Source: [a] Activ8 Solar Energies

Overview of the system's benefits

- **Employment:** 12 staff including an installation crew on site for eight weeks, a design engineer and construction manager before and during installation. Support also provided by the Activ8 procurement and finance teams.
- **Electricity production:** The system will generate 756,000 kWh and offset the customers daytime demand by 39%. The capacity is equivalent to the annual electricity demand of c.200 homes.
- **Carbon impact:** 195 tonnes of CO2 equivalent per annum, equivalent to planting 4,573 trees.

Utility-scale solar farm



Painestown Solar PV

Power Capital's 9.6 MW Painestown solar farm generates clean energy to support a more sustainable future.

Overview of solar farm

Location: Kilbrev, Co. Meath

Capacity: 9.6 MW export capacity

Commission date: December 2023

Land area: 27 Acres

Build and operate contractor: Voltaia



Source: [a] Power Capital.

Overview of benefits from solar farm

- **Carbon & Energy Impact:** Painestown powers 2,300 homes annually and will reduce Ireland's annual carbon emissions by 3,200 tonnes of CO2 equivalent.
- **Biodiversity & Conservation:**
 - The solar farm enhances biodiversity by creating an undisturbed habitat following years of intensive agricultural use. There are four sites of ecological importance within 10 km of the solar farm.
 - Painestown supports 5 protected species within 2 km of the site, such as the Eurasian badger, bats and Indian balsam plants.
 - Bird and bat boxes are installed for native species such as robins, wrens, goldcrests and pipistrelle bats.
- **Pollinator & Habitat Enhancement:** An additional 800 metre of new native hedgerows have been planted, including the management and enhancement of a further 254 metre of reinforced existing native hedgerow, providing a vital pollinator and wildlife corridor. 300 metre of additional strategic hedgerow planted of which 40% is native hawthorn, the most valuable food source for pollinators.

Small utility-scale solar farms



Coolroe, Blusheens and Curraghmartin solar farms

EDF energised three of Ireland's first utility-scale solar farms in 2023 and has plans for six onshore wind farms across the island, with a total development pipeline of nearly 1 GW.

Overview of the solar farms:

Location: Wexford (Coolroe and Blusheens solar farms) and Kilkenny (Curraghmartin solar farm)

Capacity: 17 MW export capacity

Commission date: 2021

Land area: 82 Acres

Build and operate contractor: EDF Renewables



Overview of benefits from solar farms

- **Employment:** 40 - 60 FTEs over the construction period.
- **Community benefits:** c.€45,000 - €50,000 paid annually to the community.
- **Electricity production:** Equivalent to annual electricity demand of 6,600 homes.
- **Carbon reduction:** 9,000 tonnes of CO2 equivalent per year across the three solar farms.

Source: [a] EDF renewables



06. Appendix

06

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 Exchequer 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 Exchequer 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.



Model assumptions

Category	Assumption	Value	Source
• Capacity annual growth	• Utility-scale • Behind the Meter (BTM)	• Per ECP • 11%	• KPMG analysis based on ECP status • KPMG analysis based on international benchmark ^[1]
• Attrition rates	• Contracted projects • Current ECP projects • Future ECP	• 20% • 40% • 70%	• Industry consultations
• Timing	• No. of years between route to market secured and COD	• 3 years	• Industry consultations
• Efficiency	• Energy yield	• 11-12%	• KPMG analysis
• Commercial rates	• € per MW, per annum	• €7,500 / MW	• KPMG analysis, based on a proprietary dataset
• Community benefit fund	• € per MWh, per annum	• €2 / MWh (>5 MW) • €1.75 / MWh (< 5MW)	• SEAI
• CapEx costs	• Per MW	• Confidential	• KPMG analysis, based on a proprietary dataset
• OpEx costs	• Per MW	• Confidential	• KPMG analysis, based on a proprietary dataset

Glossary

Glossary of terms and acronyms used throughout the report			
CAGR	Compound Annual Growth Rate	ISEA	Irish Solar Energy Association
CAP24	Climate Action Plan 2024	kW	Kilowatt
CapEx	Capital Expenditure	kWp	Kilowatt Peak
COD	Commercial Operations Date	MW	Megawatt
CPPA	Corporate Power Purchase Agreement	MWh	Megawatt Hour
CSO	Central Statistics Office	MWp	Megawatt Peak
EIA	Economic Impact Assessment	OpEx	Operational Expenditure
FTE	Full-time equivalent	PV	Photovoltaic
GDP	Gross Domestic Product	RESS	Renewable Electricity Support Scheme
GHG	Green House Gases	SEAI	Solar Energy Association of Ireland
GVA	Gross Value Added	SRESS	Small-Scale Renewable Electricity Generation
GW	Gigawatt	USC	Universal Social Charge
GWh	Gigawatt hour		

Note: [1] Assumed that after a period of rapid growth, the annual growth rates will revert to the international norm.



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