Pinergy

Energy Transition Outlook Ireland

Powering energy transition

This report was prepared by

Wood Mackenzie

on behalf of Pinergy

Powering a Just and Fair Energy Transition for Ireland

A Foreword from Pinergy CEO, Enda Gunnell

Ireland stands at a critical juncture in its energy evolution. This report, produced by energy transition specialists, Wood Mackenzie in collaboration with Pinergy, offers a comprehensive perspective on Ireland's energy transition, and the critical role that electricity and renewables must now play in our country's energy transformation.

The past few years have been marked by unprecedented turbulence in the energy market, a stark reminder of the urgent need to establish a resilient, secure and sustainable energy future. While we have seen some welcome moderation in wholesale energy costs, they remain considerably higher than the levels we experienced before the recent energy crisis, leaving Irish consumers and businesses in a position of continued vulnerability. This situation demands a proactive and comprehensive strategy to safeguard energy security and affordability at levels of Government, Industry and Households.

Our Energy Transition Outlook report outlines where Ireland has made progress in recent years but also shines a light on the investment and delivery gaps between the State's energy commitments and demand forecasts and where we are today on the energy transition journey. Importantly the report benchmarks Ireland's performance to date with other countries and identifies specific actions that can be taken to accelerate Ireland's energy transition mission.

"The time for action is now."

While Ireland has demonstrated leadership in setting ambitious targets and outlining comprehensive strategies for the energy transition, to date these have been largely aspirational plans, and this report makes it clear that we must now urgently translate these plans into tangible action. The time for deliberation is now over.

Quick wins can be made if we can change the gears when it comes to the adoption of EVs and heat pumps in domestic and commercial dwellings. Today, for example, our EV adoption rates are falling short of our 2030 target by 35%. More could be done in the immediate term to change consumer behaviour and adoption rates through effective national awareness and grant incentive campaigns.

Recognising the inevitable shift as a society towards electrification, it is important that we ensure a just and equitable transition for all. Recognising that different sectors and regions are progressing at varying speeds, policy must proactively address potential disparities, ensuring that no segment of society is disproportionately burdened or left behind.

One of the most pressing issues is the need to improve and streamline the current planning process. The current system is riddled with complexities and delays, significantly hindering the deployment of vital renewable energy projects, particularly offshore wind. Pinergy welcomes the creation of the Infrastructure Division in the Department of Public Expenditure with its taskforce of external experts.

A modern, agile electricity grid will be the very foundation of a successful energy transition. Without a robust and adaptable grid, we cannot grow our economy and effectively integrate the increasing volumes of renewable energy that will power our future. Our domestic economy is vulnerable due to issues with the national grid, as demand continues to grow for electricity. Home building, heating systems, transport, commercial property development, data centre infrastructure and microgeneration projects all require electricity connections. However, our electricity grid is ageing and needs significant resources and investment. This requires strategic investment in infrastructure upgrades, smart grid technologies, and enhanced interconnection capabilities. We very much welcome the €3.5bn investment committed for Ireland's electricity infrastructure, as announced in the revised National Development Plan.

At Pinergy, we are committed to playing our part in this critical mission. The time for action is now.

Enda Gunnell
CEO, Pinergy

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Ireland's Energy Transition Is **Unstoppable**
But Now Must Shift Gears

Section 01

> "Ireland's energy transition is at a crossroads and we must invest in our future!"
>
> **Enda Gunnell,** CEO at Pinergy

Executive Summary - Ireland's Energy Transition: The Key Points

Net Zero Targets Fall Short Despite Flagship Commitments

Ireland has committed to a legally binding net zero target by 2050. While the country is making reasonable progress, Wood Mackenzie's energy transition outlook indicates immediate action is necessary to achieve this objective and interim goals.

No sector is on track to meet its emissions objective, as energy related emissions are projected to fall by unfortunately only 35% by 2030, compared to 2018 levels. For context, the Climate Action Plan sets a target of 51% reduction in total national net emissions by 2030.

Compared to other advanced economies, Ireland ranks 11th place for renewable share of electricity by 2030, up from 20th today. Without delays in offshore wind projects, Ireland would have claimed 8th place by 2030.

To get back on track, the country must:

- accelerate grid infrastructure upgrades and energy storage deployment to unlock renewables development
- eliminate barriers to continued electric vehicle adoption
- enhance support for heat pumps and building electrification

Recent policy updates include:

- National energy and climate plan, 2024
- Climate Action Plan, 2025
- National Development Plan Review 2025

Grid Upgrades and Energy Storage are Key to Unlocking Renewables Potential

Electrification is key to decarbonising sectors and displacing fossil fuels. Estimates indicate electricity demand will reach **39 TWh by 2030** and **59 TWh by 2050.**

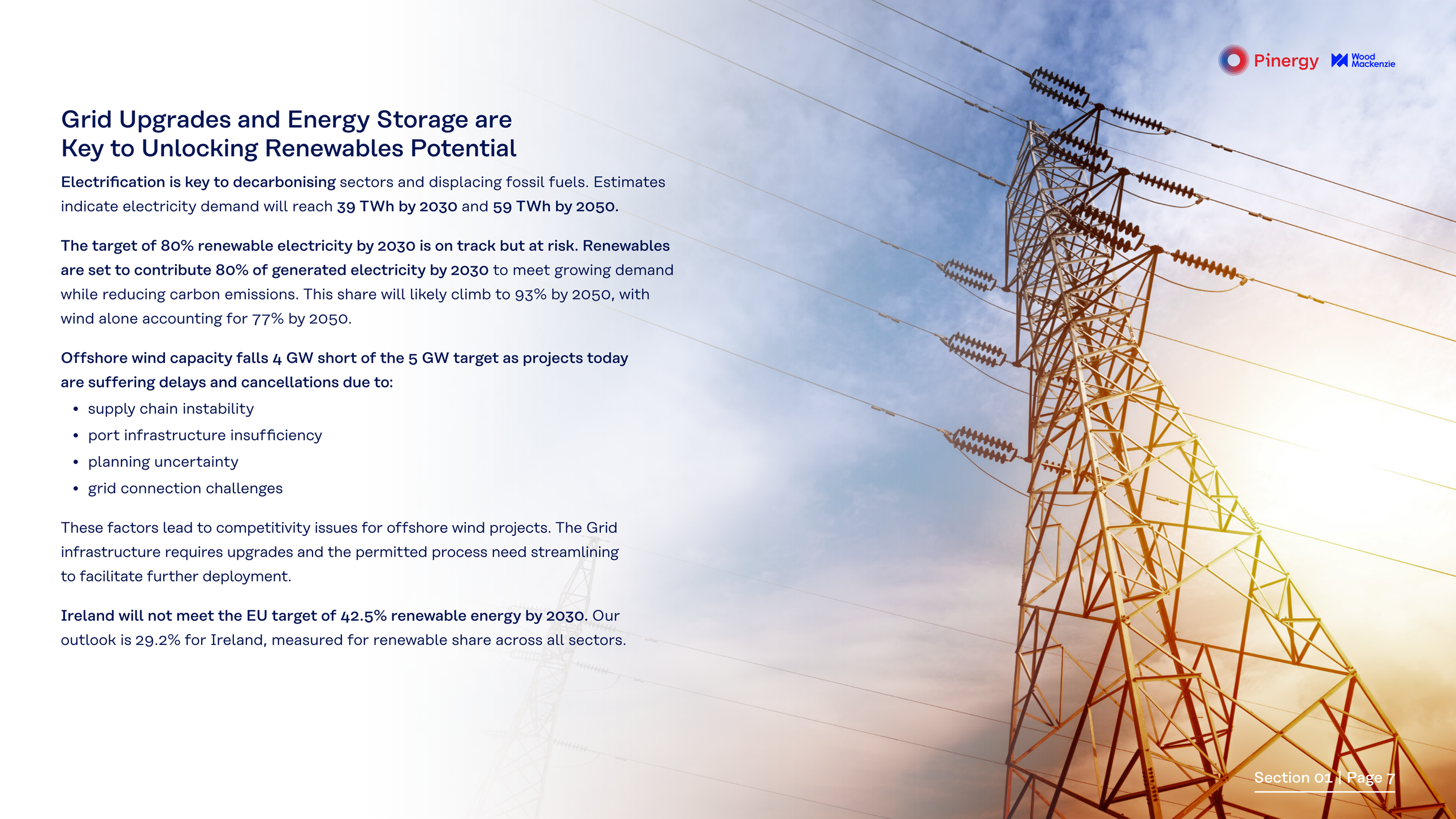
The target of 80% renewable electricity by 2030 is on track but at risk. Renewables are set to contribute 80% of generated electricity by 2030 to meet growing demand while reducing carbon emissions. This share will likely climb to 93% by 2050, with wind alone accounting for 77% by 2050.

Offshore wind capacity falls 4 GW short of the 5 GW target as projects today are suffering delays and cancellations due to:

- supply chain instability
- port infrastructure insufficiency
- planning uncertainty
- grid connection challenges

These factors lead to competitivity issues for offshore wind projects. The Grid infrastructure requires upgrades and the permitted process need streamlining to facilitate further deployment.

Ireland will not meet the EU target of 42.5% renewable energy by 2030. Our outlook is 29.2% for Ireland, measured for renewable share across all sectors.



Data Centres Drive Short-Term Electricity Demand While Evs and Heat Pumps are Lagging

Data centres drive short-term electricity demand, accounting for 23% of demand by 2027. This growth, accelerated by AI development, has large tech companies urgently seeking clean energy sources for these facilities. While data centres could catalyse the energy transition or increase demand, they might distort markets but also optimise energy use and encourage new technologies.

Changing consumer behaviour will propel long-term electricity demand, particularly through EV adoption and electrification of residential and commercial sectors (RCA):

- Ireland's EV adoption aligns with European heating trends, meeting the 175,000 vehicles 2025 target but requiring 54% faster adoption to achieve the 2030 objective.
- Heat pump adoption currently trails the 2030 heating target by 461,000 units and lags other European countries.

Both sectors need expanded policy and financial support to boost consumer investment.

Electrification and efficiency gains enable overall end-use energy demand to fall 27% by 2050, despite growing GDP and population.

Section 02

Background A Global Imperative: The Energy Transition

The energy transition represents a fundamental shift in how the world produces, distributes and consumes energy. This complex, multi-faceted transformation moves the global energy system from one dominated by fossil fuels to one powered predominantly by low-carbon energy sources. The urgent need to address climate change, enhance energy security and meet the growing energy demands of a rapidly developing world **is driving this transition.**

The Paris Agreement, signed in 2015, set the ambitious goal of limiting global temperature rise to well below 2°C above pre-industrial levels, with efforts to limit the increase to 1.5°C. Achieving this target requires nothing short of a revolution in our energy systems.

The scale and pace of change required is unprecedented. Bold and ambitious policies over the last two decades have driven innovation in renewables and electric vehicles. But Wood Mackenzie's analysis reveals that the world is currently on a 2.5°C warming pathway. In the middle of a decade pivotal in accelerating the energy transition, no major country is on track to meet 2030 climate goals. Progress towards a low-carbon energy system is stumbling on multiple fronts.

Six Key Dimensions Reshaping Global Energy Systems

Shifting away from fossil fuels towards low-carbon sources like wind, solar and nuclear

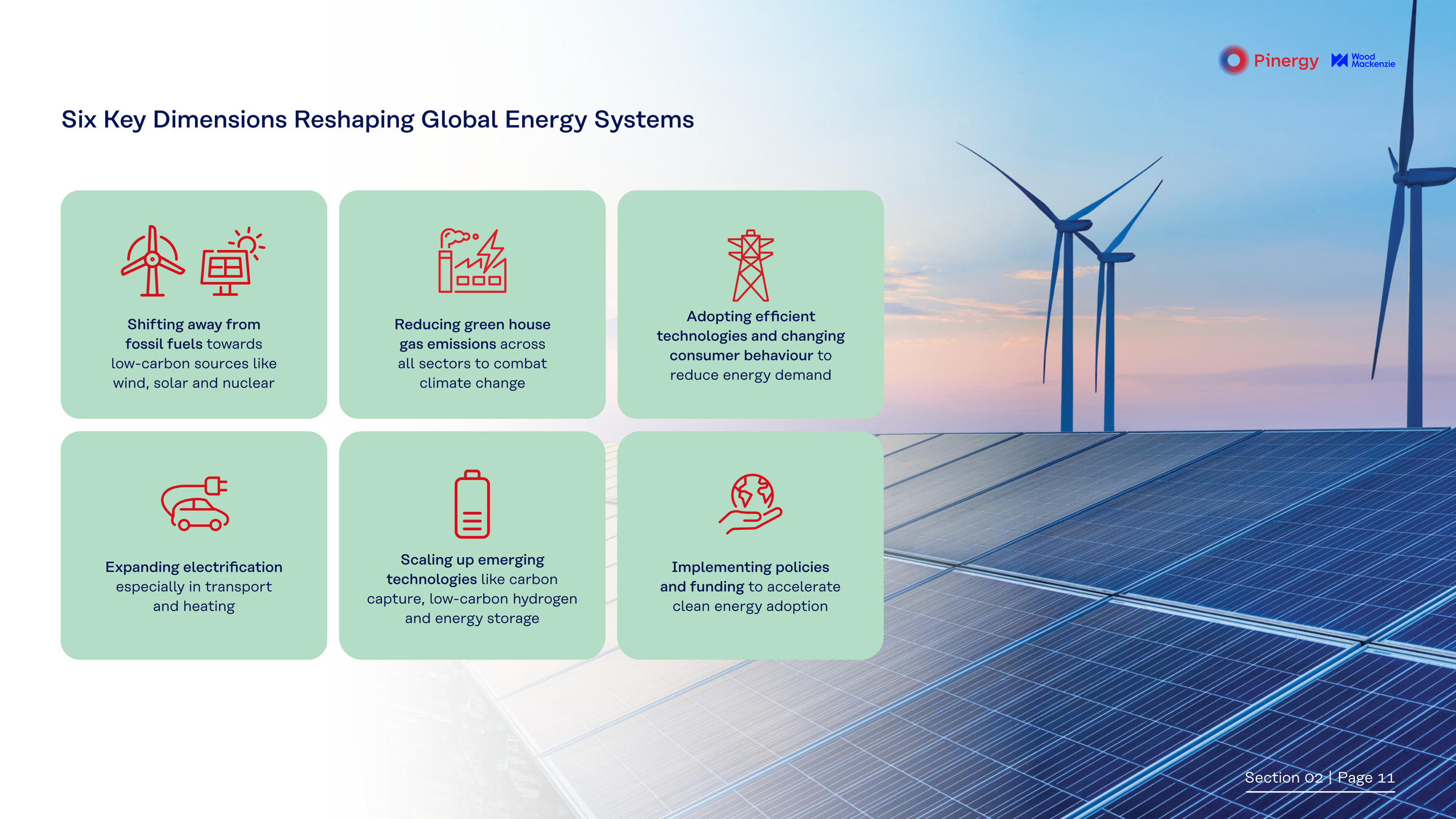
Reducing green house gas emissions across all sectors to combat climate change

Adopting efficient technologies and changing consumer behaviour to reduce energy demand

Expanding electrification especially in transport and heating

Scaling up emerging technologies like carbon capture, low-carbon hydrogen and energy storage

Implementing policies and funding to accelerate clean energy adoption



Section 03

Mind The Gaps: Ireland's Energy Transition So Far

Ireland's Energy Transition Hinges on Renewables, Electrification

2025 Values

2030 Targets, colours indicate progress towards target (%)

Less than 50% | 50% - 75% | 75% - 99% | 100% or more

Electricity

2025
50%
Renewable electricity

2025
-26% in CO_2
emissions vs. 2018

2025
5 GW
Offshore + Onshore

2025
4 GW
Solar PV

2030 Targets
80%
Renewable electricity

2030 Targets
-75% in CO_2
emissions vs. 2018

2030 Targets
14 GW
Offshore + Onshore

2030 Targets
8 GW
Solar PV

Demand

2025
115,700
heat pumps

2025
-6% Industrial
emissions vs. 2018

2025
197,600
Passenger EV's on roads

2030 Targets
680,000
heat pumps

2030 Targets
-35% Industrial
emissions vs. 2018

2030 Targets
845,000
Passenger EV's on roads

2025 Values

2030 Targets, colours indicate progress towards target (%)

Less than 50% | 50% - 75% | 75% - 99% | 100% or more

Emissions

2025

-17% CO_2 emissions vs. 2018

2030 Targets

-51% CO_2 emissions vs. 2018

2050 Targets

Net Zero emissions

Emerging Technology

2025

0 GW Hydrogen production

2030 Targets

2 GW Hydrogen production

2030 Targets

5% Sustainable Aviation Fuel use

Source: Wood Mackenzie Energy Transition Service
Note: Sustainable Aviation Fuel (SAF)

Section 04

Down But Not Out: Net Zero 2050 Pledge

Energy Related Emissions Expected to Drop by 35% by 2030 Compared to 2018 Levels, Missing 51% Target

Ireland has committed to a legally binding net zero target by 2050. The government submitted an updated draft National Energy and Climate Plan to the European Commission in 2024 to align with EU's Fit for 55 package. Despite good progress over the last decade, these targets remain out of reach if the status quo is maintained. The Climate Change Advisory Council have warned of fines between €8 bn to €26 bn if EU agreed climate targets are missed.

Strategies to improve the emissions outlook can broadly be split into two categories: short term (2030 target) and long term (2050 target).

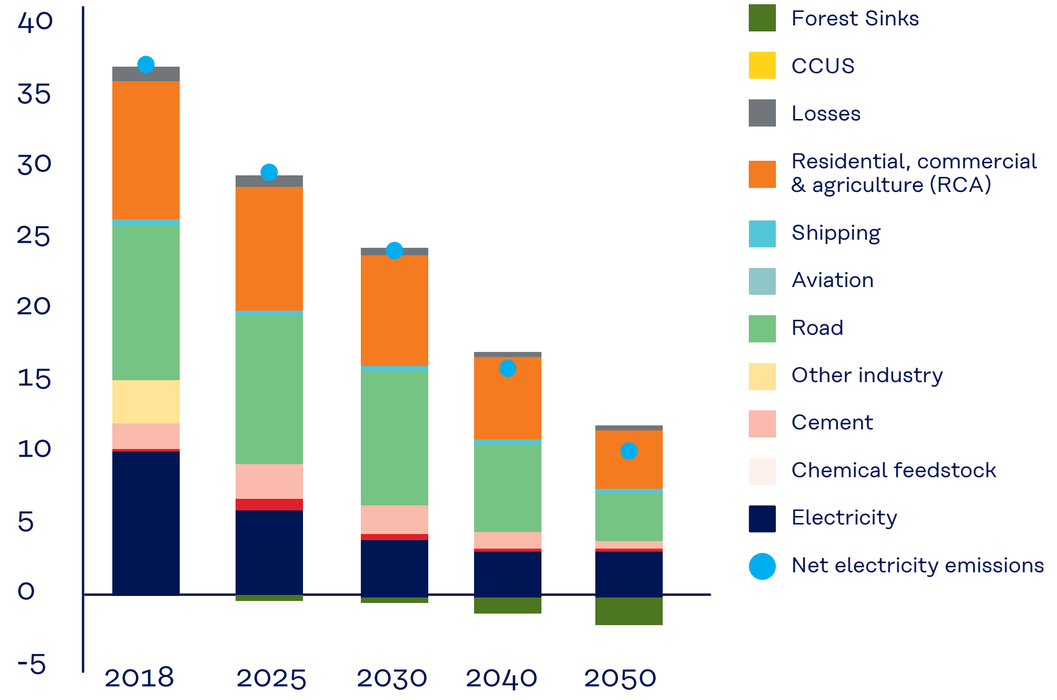
- **Short term:** accelerate grid infrastructure upgrades and streamline the planning process to support renewables and electrification; boost EV adoption before 2030.
- **Long term:** target energy storage for flexible electricity supply, reducing reliance on gas-fired generation; ramp up support for heat pumps and building efficiencies; enhance carbon capture through nature-based and engineered solutions.

Policy Framework	Metric	Target	Outlook
Paris Agreement and Climate Action and Low Carbon Development Act	Net emissions by 2050	Net zero	9.7 Mtpa*
Climate Action Plan (2030 targets from 2018)	Net Emissions	-51%	-35%*
	Electricity	-75%	-62%
	Transport	-50%	-14.7%

*Energy (Electricity, Gas and other forms of energy) related emissions only

Net CO_2 emissions from Ireland, Mt CO_2

Wood Mackenzie's energy transition outlook maps energy demand and supply and associated emissions.



Source: Wood Mackenzie Energy Transition Service
Note, non-energy related emissions are excluded from this outlook.
For example, non-energy agricultural or waste processing emissions.

Section 05

> "We've set ambitious goals, but this report makes it clear we must move from aspiration to urgent, tangible action. The time for deliberation is over."
>
> **Enda Gunnell**, CEO at Pinergy

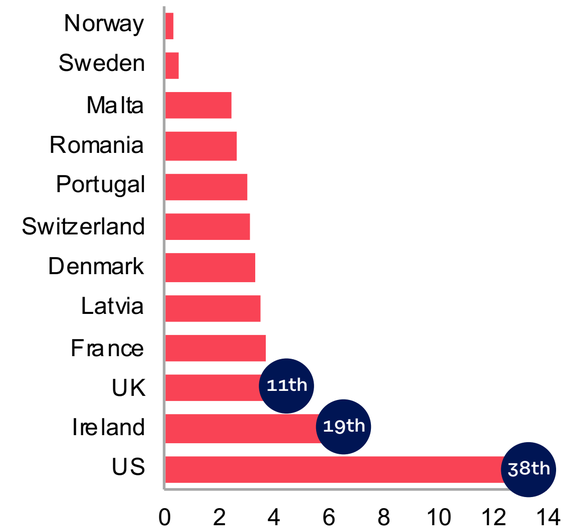
How Ireland Stacks Up: **The Green Race**

Leaderboard: **Net Energy Sector Emissions Per Capita**

Ireland ranks mid-level in per capita emissions in 2025, with little projected change by 2030

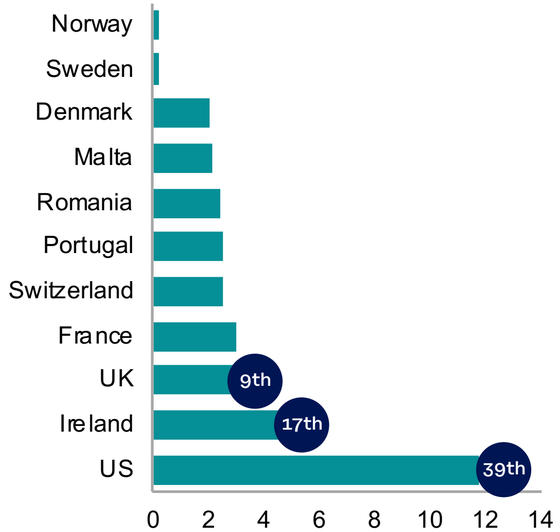
Net emissions per capita, 2025

Mt CO2 per million people



Net emissions forecast per capita, 2030

Mt CO2 per million people



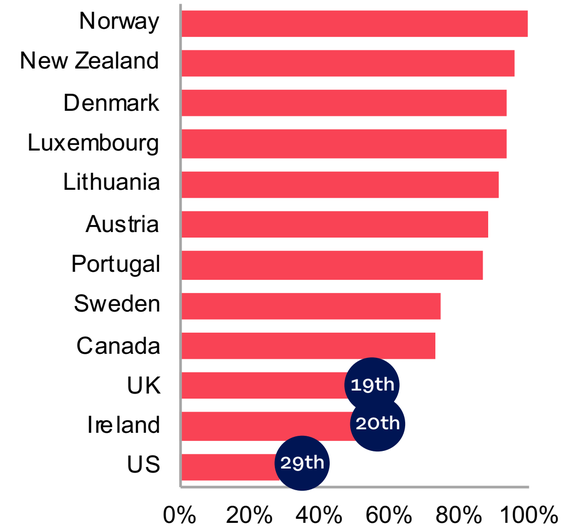
- Ireland ranks at mid-level in terms of net emissions per capita due to a large reliance on fossil fuels for all sectors even by 2030.
- The sluggish adoption of electric vehicles and heat pumps hinders Ireland's progress compared to European peers, with Denmark projected to reach 40% EV adoption by 2030, while Ireland lags behind at 22%.
- The country's high data centre electricity demand creates additional challenges, potentially bottlenecking Ireland's renewable energy expansion efforts.

Source: Wood Mackenzie Energy Transition Service
EU27 + 12 advanced economies were used to establish the leaderboard. Agriculture is only accounted for in terms of energy consumption.

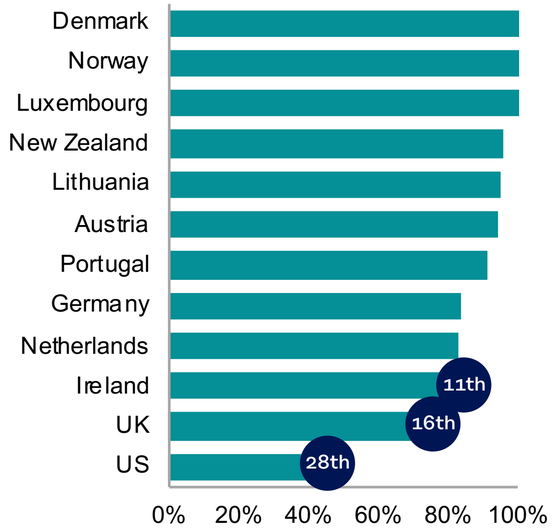
Leaderboard: **Share of Renewable Electricity**

While Ireland's share is moderate in 2025, rapid progress can propel it to 8th place globally by 2030

Share of renewables in electricity supply, 2025 %



Forecast share of renewables in electricity supply, 2030 %



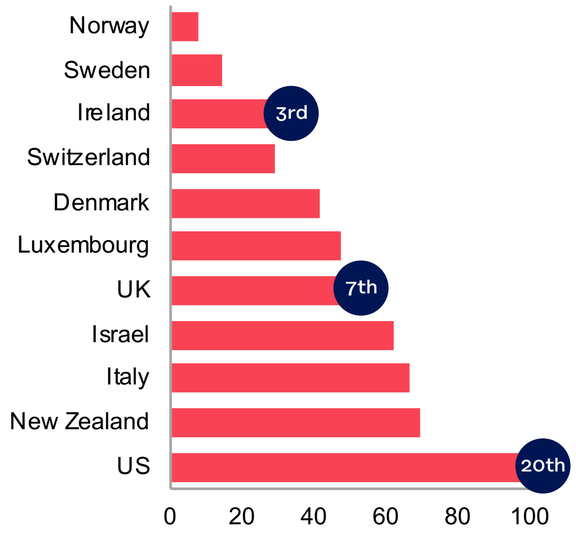
Source: Wood Mackenzie Energy Transition Service
EU27 + 12 advanced economies were used to establish the leaderboard; Renewable electricity includes bioenergy, hydropower, hydrogen, solar, wind and fuel cells and geothermal and other renewables.

Leaderboard: **Energy Intensity**

Ireland ranks highly in both 2025 and 2030, indicating efficient energy use relative to economic output

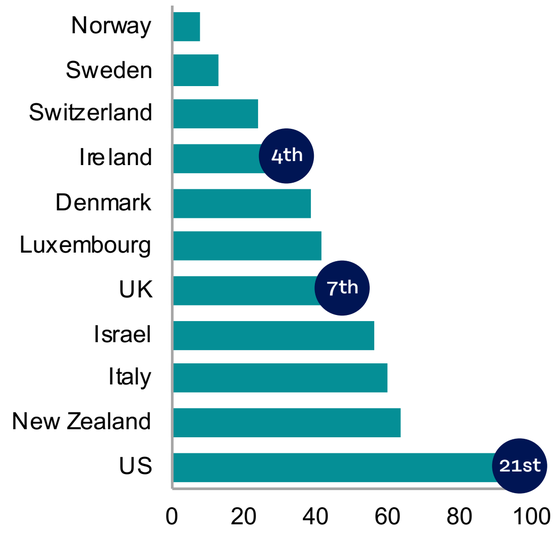
Energy intensity, 2025

ktoe per US$ billion (constant prices (2015)



Forecast energy intensity, 2030

ktoe per US$ billion (constant prices (2015)



- Energy intensity = $\frac{\text{energy demand}}{\text{GDP}}$
- Ireland ranks high for 2025 and 2030, boasting strong economic performance with the 2nd highest global GDP per capita in 2025 and 2030.
- Ireland's economy has a low energy intensity due to its shift from agriculture to a knowledge-based economy, which requires less energy input for economic output.
- Switzerland progresses to 3rd position due to significant decoupling between its economic growth and energy use.

Source: Wood Mackenzie Energy Transition Service
EU27 + 12 advanced economies were used to establish the leaderboard. Ktoe stands for kilotonne of oil equivalent and is a standardized unit of energy. It represents the amount of energy released by burning 1,000 tonnes of crude oil, and is used to compare different energy sources on a common basis.

Section 06

A Cloudy Forecast?: Ireland's Energy Future

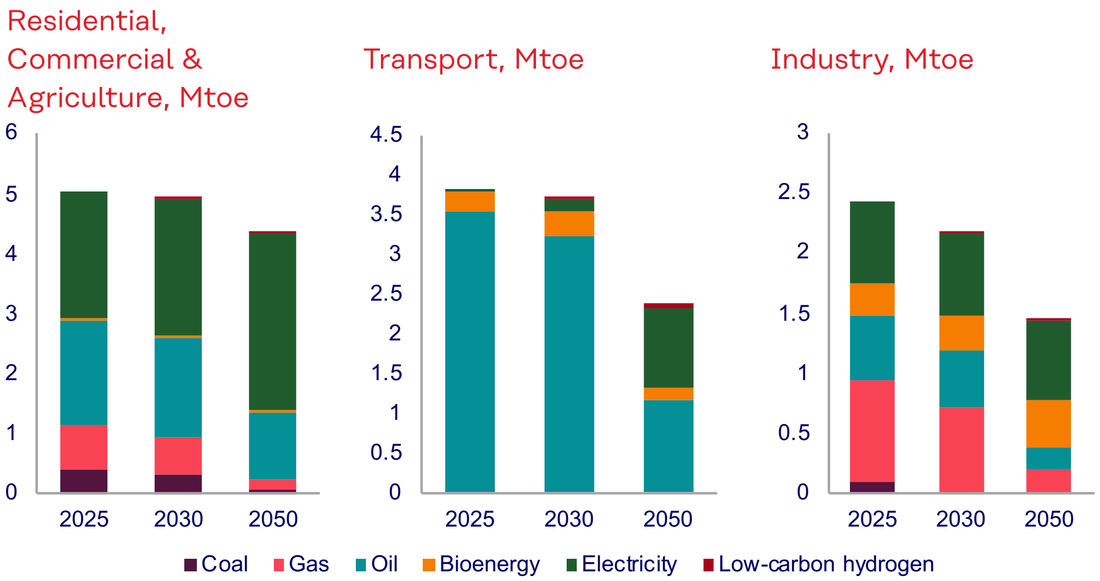
Electrification Drives Sector Decarbonisation and Fossil Fuel Displacement

Hard-to-abate industrial processes rely on sustainable fuels despite demand declining 41% by 2050

Energy efficiency directive, final energy consumption by 2030

Target: **10.45 Mtoe**

Outlook: **10.78 Mtoe**



Ireland is targeting 175,000 passenger EVs, including plug-in hybrids, on the road by 2025, rising to 845,000 by 2030. Grants of up to €3,500 are available for new battery electric vehicles purchased privately and up to €600 for charging units. However, passenger EV sales growth slowed in 2024, dropping 9% compared to a 16% increase in 2023. Factors include a €1,500 grant reduction and insufficient charging infrastructure, lagging behind most European countries.

Ireland aims to reduce energy demand in residential and commercial buildings by 40% and 45% respectively. The Climate Action Plan intends to connect 200,000 buildings to district heating and retrofit 500,000 homes to BER B2 standard. However, our outlook indicates only a 20% reduction in Residential, Commercial & Agriculture (RCA) energy demand.

Ireland targets 680,000 homes with heat pumps by 2030, offering €6,500 grants per installation. However, projections indicate only 219,000 adoptions, falling short due to low awareness, weak appeal and insufficient policy support. Higher grants may be necessary to overcome financial barriers and boost adoption rates.

Source: Wood Mackenzie Energy Transition Service
Note: international bunkers are excluded but are available at a regional level in our Energy Transition Tool

Passenger EV Adoption Meets 2025 Goals but Falls Short of 2030 Targets by 35%

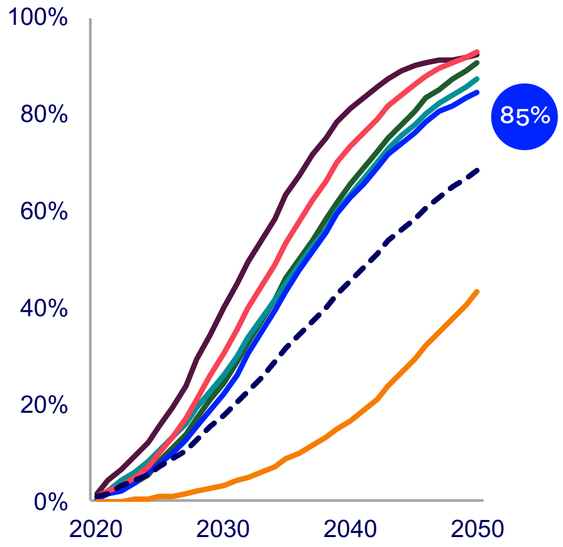
Heat pump adoption lags but data centres jump to 23% of on-grid power demand by 2027, and 22% by 2030

Ireland Denmark United Kingdom Germany Poland France EU27 (population weighted)

EV* share of passenger fleet

Ireland Passenger EV fleet	Target	Outlook
2025	175,000	179,600
2030	845,000	547,300
Annual growth	133,100	73,500

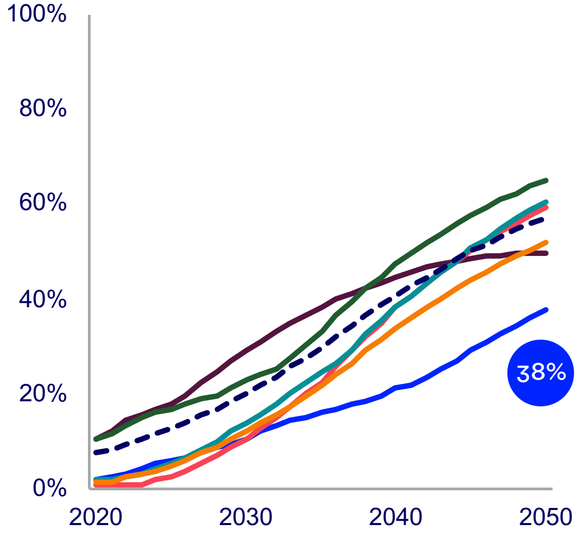
Values shown to the nearest hundred



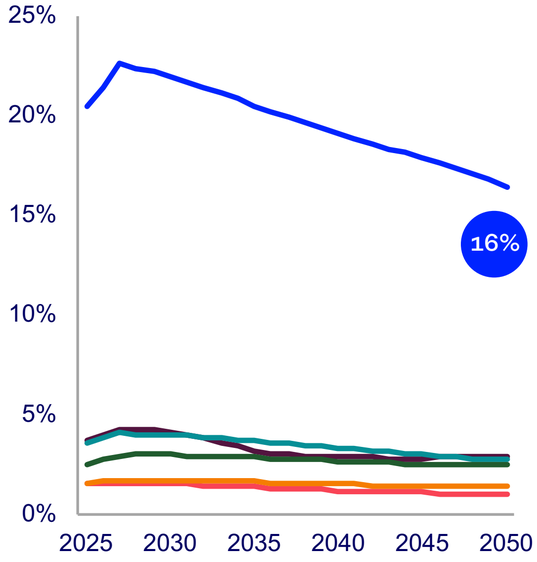
Residential heat pump share

Ireland residential heat pumps	Target	Outlook
2025	215,000	115,700
2030	680,000	219,300
Annual growth	112,900	20,700

Values shown to the nearest hundred



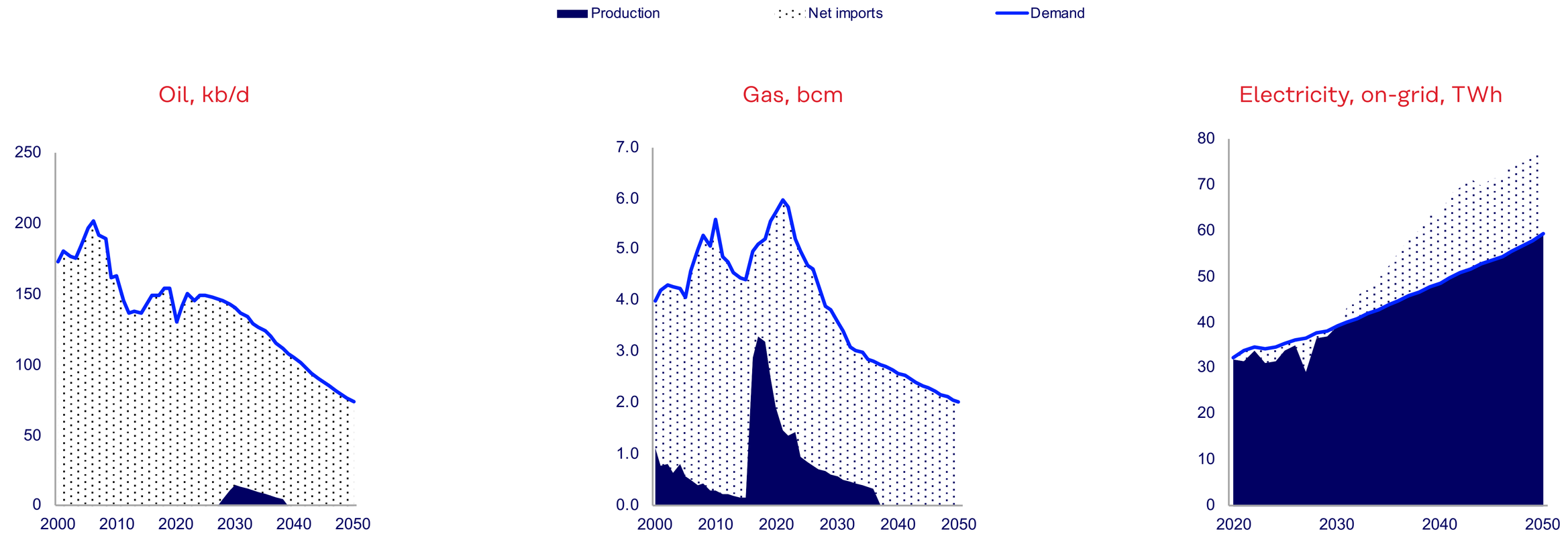
Ireland data centres as a share of total electricity demand



Source: Wood Mackenzie Energy Transition Service, EVBSC, Europe Electricity Service *Note EV includes battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV)

Oil Demand Dips 6% by 2030 but Gas Plunges 24%, Displaced by Renewable Electricity

Ireland becomes net electricity exporter by 2030, demand climbs to 39 TWh by 2030



Source: Wood Mackenzie Energy Transition Service
Note: total primary energy demand is shown for oil and gas; all demand values include international aviation and marine bunkers.

Electricity Demand Will Grow to 39 TWh by 2030, 10% Higher Than 2025

Data centres consume 8.6 TWh of electricity from the grid by 2030, equivalent to two million homes*

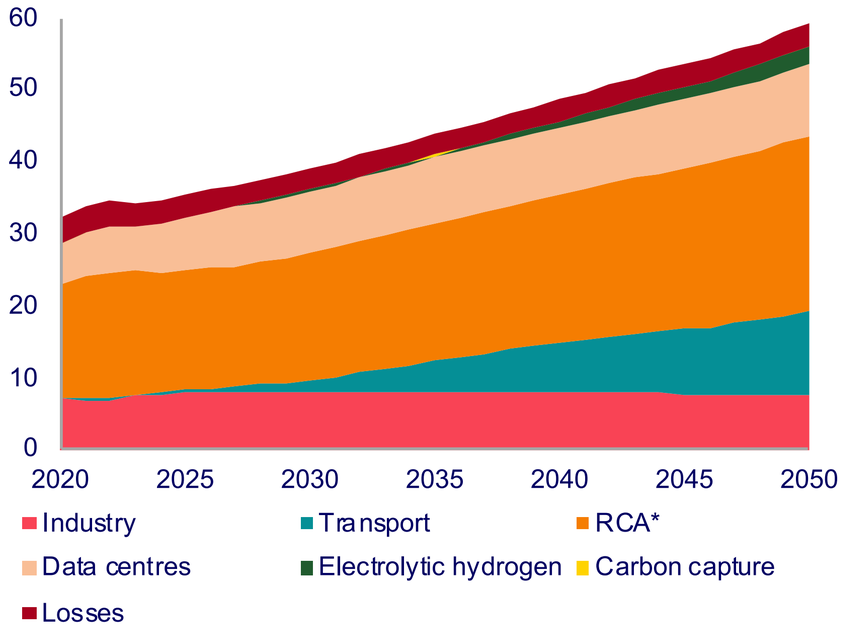
Short term demand growth is driven by data centres, accounting for over half of additional demand between early 2024 and 2030. Government concerns over grid and supply constraints led to a temporary halt on approving new data centre connections in affected regions. The opportunity is for data centre companies to drive innovation in low-carbon electricity solutions and fast-track adoption of emerging grid edge technologies such as dynamic line rating, vehicle-to-grid, demand side management, distributed energy resources and microgrids to manage the constraints.

Long term demand growth is fuelled by low-carbon consumer choices. Transport and RCA (not including data centres) drive 49% and 33% of additional demand between 2030 and 2050, as EVs become mainstream, the population expands and homes shift to electric appliances. Cost of living increases pose a risk to affordability of EVs and heat pumps, requiring deep grant reform to accelerate the pace of adoption. Efficiency improvements keep losses steady over the coming decades, despite significant demand growth.

Emerging sectors such as low-carbon hydrogen add uncertainty to electricity demand outlooks, making long-term planning difficult. Electrolytic hydrogen is forecast to draw 4% of electricity from the grid by 2050. But the sector is heavily dependent on global and domestic policy and economic uncertainty.

*based on mean electricity consumption of 4185 kWh for a mid-terrace house in 2023, as reported by the Central Statistics Office

On-grid electricity demand, TWh



2030	2050
39 TWh	59 TWh
7%	5%
0%	0%
1%	4%
22%	17%
45%	41%
5%	20%
20%	13%

Source: Wood Mackenzie Energy Transition Service
† RCA: residential, commercial and agricultural sectors, usually including data centres. In this instance data centre demand is displayed as a separate category.

On-grid Electricity Generation Climbs 16% by 2030 and Doubles by 2050

Offshore wind contributes 65% of additional supply by 2050 but immediate challenges must be addressed

Renewables contribute 80% of on-grid electricity generation by 2030, revised down from our previous Q3 2024 estimate of 84% due to ongoing offshore wind challenges and a sluggish macroeconomic environment. Long-term the impact of these challenges is expected to be resolved, enabling 93% renewables by 2050 with offshore wind alone at 37%.

Gas-fired generation halves between 2025 and 2030 but remains critical to support peak demand, as interconnectors and energy storage prove insufficient to support variable renewables.

Grid upgrades face lengthy lead times, hindering renewables development. The government plans to streamline permitting and grid connection processes.

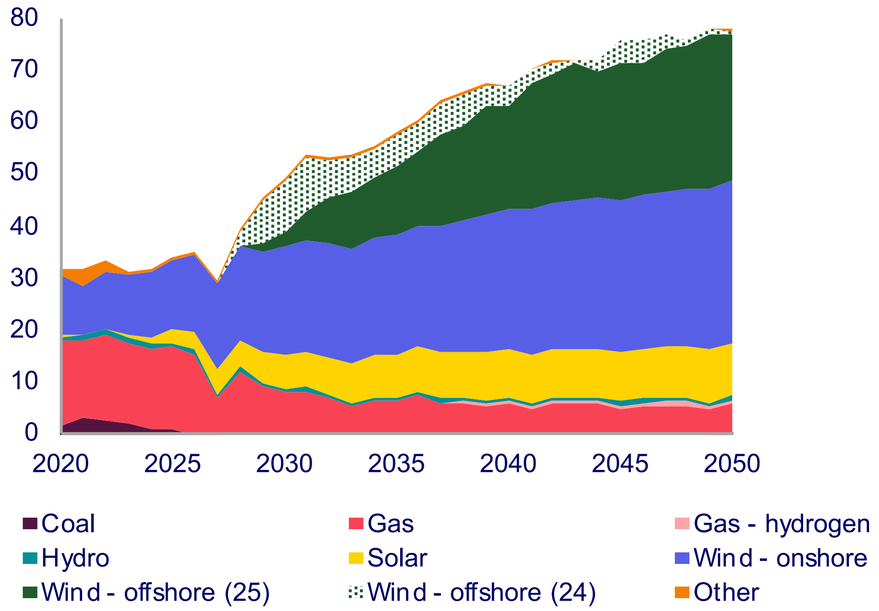
Long-term economics of onshore renewables remain competitive. However, offshore wind profitability is becoming challenging with LCOE of US$145/MWh.

Economic curtailment is expected to climb from 2% in 2030 to 13% by 2050, in the I-SEM, despite storage growth.

Flexible capacity is a priority as wind and solar shares grow. The ESPF provides a road map to integration and the 700 MW Celtic interconnector with France begins operation in 2027, enhancing cross-border electricity trade.

Ireland becomes a net exporter of electricity by 2030, enabled by offshore wind and new interconnectors, as electricity generation reaches 77 TWh by 2050.

On-grid electricity generation, TWh



Source: Wood Mackenzie Energy Transition Service
I-SEM: Integrated Single Electricity Market; LCOE: levelised cost of electricity; ESPF: Electricity Storage Policy Framework

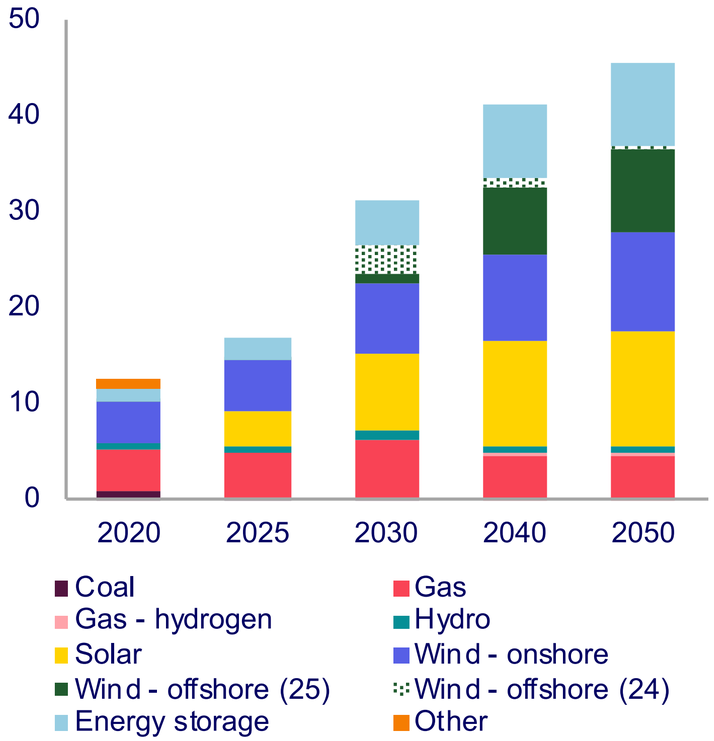
Ireland's 80% Renewable Electricity Target at Risk Following Delays to Capacity Buildout

Solar and wind are vital to decarbonise the grid, challenges persist to offshore wind project development

	2030 targets	Outlook
Share of renewable electricity	80%	80%
Onshore wind capacity	9 GW	7.5 GW
Solar capacity	8 GW	8 GW
Offshore wind capacity	5 GW	824 MW

Source: Wood Mackenzie Energy Transition Service

On-grid generation capacity, GW



*Wind - offshore delayed or cancelled since 2024

Grid generation capacity grows two thirds by 2030. The share of solar, wind and energy storage, already at two thirds of capacity in 2025, reach 74% by 2030 and 83% by 2050.

Offshore wind is critical to Ireland's renewable electricity ambitions but project delays and cancellations push capacity buildout beyond the 2030 target. Despite 2.6 GW of contracted projects, and many more announced, the sector is plagued by challenges:

- **Existing ports** cannot support operations without billions of euros in upgrades to specialist infrastructure.
- **Supply chains** are suffering higher costs and interest rates, leading companies to pull out of the sector and risking projects even where a Contract for Difference has been awarded.
- **Grid connections and upgrades** must accelerate. The Irish government has committed to a €3.5bn investment in the nation's electricity grid infrastructure (2026-2030), as part of the National Development Plan. Budget requests by EirGrid and ESB Networks reportedly total €20 bn for the next five years.
- **Permitting and planning** suffer from delays and uncertainties.
- **Extreme weather and engineering,** cited in Sceirde Rocks cancellation, are a fundamental obstacle.

Energy storage must be deployed at scale to support variable renewables. We project 4.7 GW installed by 2030, more than doubling capacity in the next five years, from 2.2 GW expected by the end of 2025.

Section 07

Can Ireland Catch Up?: Peer Benchmarks

Ireland Outpaces Denmark and New Zealand in GDP Growth, Driven by Services

Population grows 12% by 2050 but end-use demand falls due to electrification and efficiency gains

Ireland	Target	Outlook
Net zero	2050	
Share of renewable energy by 2030	42.5%	
Reduction in greenhouse gas emissions by 2030	51% vs. 2018	
Share of renewable electricity by 2030	80%	
Carbon capture or storage by 2030	No target	
Hydrogen poduction by 2030	2 GW	
Peak demand*: oil / gas	2025 / 2024	

Denmark	Target	Outlook
Net zero	2045**	
Share of renewable energy by 2030	55%	
Reduction in greenhouse gas emissions by 2030	70% vs. 1990	
Share of renewable electricity by 2030	100%	
Carbon capture or storage by 2030	Funds aim for 3.3 Mtpa	
Hydrogen poduction by 2030	4 to 6 GW	
Peak demand*: oil / gas	2024 / 2025	

New Zealand	Target	Outlook
Net zero	2050	
Share of renewable energy by 2030	50%	
Reduction in greenhouse gas emissions by 2030	50% vs. 2005	
Share of renewable electricity by 2030	100%	
Carbon capture or storage by 2030	No target	
Hydrogen poduction by 2030	1.5 GW (by 2035)	
Peak demand*: oil / gas	2027 / 2024	

Source: Wood Mackenzie Energy Transition Service
*Peak is calculated after 2024. The dashboards represent the percentage progression of each country towards each target.
The targets in bold are the most ambitious for the category; **2050 in the Danish Climate Act

Section 08

> "A successful energy transition will not only reduce our carbon emissions and protect our environment, but it will also create new jobs, boost our economy, and enhance our energy security."
>
> **Enda Gunnell,** CEO at Pinergy

Game Changers:
How Technologies are Shaping Ireland's Energy Future

Ireland's Rich History of Innovation in Low-Carbon Technology Continues to Evolve

Renewables

Proposals for an **offshore renewable energy target of 37 GW by 2050** are ambitious but Ireland has vast offshore resources. The DIFOWT project and a proposed offshore renewable energy innovation park supports floating offshore wind and marine energy.

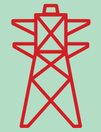
Geothermal: the GEMINI project assesses geothermal resources and evaluates the integration of heating and cooling systems.

Advanced energy storage

Ireland has proposed **Europe's first multi-day energy storage project.** The initiative involves a large-scale iron-air battery system capable of storing 1 GWh of energy for up to 100 hours.

Long duration energy storage is critical to providing flexible supply as variable renewables become the primary source of electricity. Ireland hosts many grid-scale energy storage projects.

Smart grid infrastructure



The **Grid Implementation Plan** aims to invest billions in transmission network upgrades and interconnection before 2030.

Laois' Midlands Microgrid Project has a planned capacity of 300 MW.

Sustainable fuels

Ireland's **National Hydrogen Strategy** sets a2 GW target for electrolytic hydrogen production linked to offshore wind. Increasing production costs suggest hydrogen may play a limited role in the country's transition but its potential remains.

The government aims to deliver 5.7 TWh of **biomethane** from domestic supply by 2030.

Sustainable Airline Fuel targets a share of 5% by 2030.

Data centres' electricity supply

Long term renewables electricity purchase agreements, Europe's first solid oxide fuel cell powered datacentre, and other direct low-carbon supply are being developed as companies seek solutions to grid constraints.

Advanced nuclear options remain unexplored due to existing bans, even as many countries are seeing direct investment linked with data centres.

Carbon capture

Ireland's energy transition strategy does not rely heavily on **carbon capture.** However, with projected net emissions of 9.7 Mtpa by 2050, investing in this area could help the country achieve net zero.

Ireland's climate strategy includes natural carbon sinks, which will play a key role in offsetting emissions from agriculture and hard-to-abate sectors.

Section 09

Ireland's Energy Transition is Unstoppable but Must Now Shift Gears

This decade is pivotal to the energy transition and results rather than ambition alone will be the measure of success. On the leaderboard of advanced economies in 2025, Ireland currently ranks third for energy per unit GDP but just 20th for renewables' share of electricity supply. Ireland's position is expected to improve to 11th by 2030 but remains behind the Nordics and other similar economies. With abundant renewable resource, more can be done.

Globally, geopolitical turmoil is creating headwinds for the energy transition. Costs have risen and uncertainty has increased across energy supply chains. Domestically, the sluggish adoption of critical technologies such as electric vehicles and heat pumps over the next decade risks delaying the transition. The AI boom is driving unprecedented electricity demand from data centres, coinciding with bottlenecks in grid infrastructure and flexible capacity constraining wind and solar expansion.

Ireland boasts a robust innovation landscape, strong policy ambition and world-class renewable resources. The groundwork has been laid but the country must now match its ambition with tangible results.

About Pinergy - Powering energy transition

Pinergy is an energy transition company which is supplying, analysing and transforming with sustainable energy. We're helping our customers make data-informed choices today, to take control of their energy tomorrows.

Our goal is to translate our deep understanding of the energy sector into practical, tailored advice for our customers — helping them to optimise their energy use, reduce waste and treat energy as a resource, not a commodity.

Pinergy is a fully regulated electricity supplier and provider of energy solutions such as Solar PV, Energy Storage, Utility measurement solutions and EV charging.

About Wood Mackenzie - Driven by data. Powered by people.

Wood Mackenzie is the global insight business for renewables, energy and natural resources. Driven by data. Powered by people. In the middle of an energy revolution, businesses and governments need reliable and actionable insight to lead the transition to a sustainable future. That's why we cover the entire supply chain with unparalleled breadth and depth, backed by over 50 years' experience in natural resources. Today, our team of over 2,000 experts operate across 30 global locations, inspiring customers' decisions through real-time analytics, consultancy, events and thought leadership. Together, we deliver the insight they need to separate risk from opportunity and make bold decisions when it matters most. For more information, visit woodmac.com.

Authors

Lindsey Entwistle
Senior Analyst, Scenarios and Technologies at Wood Mackenzie

Lindsey joined Wood Mackenzie in 2023 and is based in Edinburgh. As a Senior Analyst in our global Energy Transition team, she provides analysis and insights into cross-sector energy policy, regulations and disruptive technologies and their impact on the global energy transition. She leads Wood Mackenzie's integrated scenario modelling for European markets, contributing to our global energy transition outlook and scenarios. Before joining Wood Mackenzie, Lindsey spent eight years in strategic engineering and procurement roles in renewable energy and automotive sectors. She holds a Masters in Engineering Science from the University of Oxford.

Zoé Sulmont
Research Associate, Scenarios and Technologies at Wood Mackenzie

Zoé joined Wood Mackenzie in 2024 and is based in London. As a Research Associate in the Energy Transition team, she plays a crucial role in integrated scenario modelling at both country and regional levels, covering all major energy commodities and emerging technologies. She is an expert in advanced nuclear energy, with a particular focus on small modular reactors. Prior to joining Wood Mackenzie, Zoé completed her degree in Environmental Geoscience at the University of Edinburgh, where she conducted her research project on the environmental impacts of wind farms on peatlands.

Powering energy transition

Act on your energy now
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Pinergy Wood Mackenzie

pinergy.ie

Report queries: marketing@pinergy.ie
Media queries: pressoffice@pinergy.ie