QBE

At the heart of it

Constructing Net Zero

Renewable energy drives trends in construction

Introduction

The demand for energy security – intensified by Russia's invasion of Ukraine – has prompted nations to accelerate investment in renewable energy.

This report examines how the expansion of renewable energy infrastructure will drive trends in the construction industry across several Western nations – and the challenges that lie ahead.

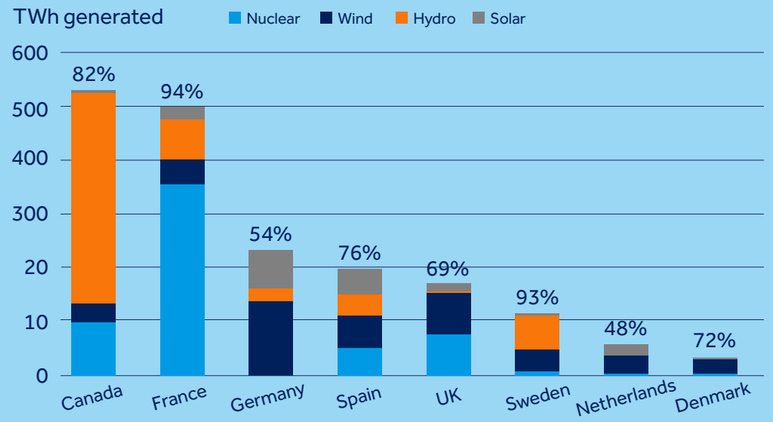
How reliant were countries on low carbon electricity in 2024?

In 2024, 94% of the electricity used in the UK was domestically generated.[1] Of the 285TWh produced in the UK, 90 TWh – or 31% – was generated using hydrocarbons and almost entirely from gas power stations.

The remaining 69% (195TWh) was supplied from low-carbon power sources (Fig 1). Wind was the largest contributor, generating 84TWh, or 29% of the domestic total. Nuclear and biomass followed, each accounting for 14% of the home-grown supply.

Several of the UK's peers generated a higher proportion of electricity from low-carbon fuel sources. France, Sweden, and Canada led the way, with 94%, 93%, and 82% respectively. In contrast, the Netherlands and Germany recorded the lowest shares at 48% and 54%, respectively. These differences reflect a mix of natural resource endowments and national energy policies, both past and present. For example, nuclear energy remains central to France's strategy, while neighbouring countries have phased it out or were planning to do so before Russia's invasion of Ukraine prompted a rethink.

Fig. 1 **The quantity and share of electricity generated by low-carbon fuels in 2024**



Source: Eurostat; DESNEZ; Oxford Economics

1 The remaining 6% was imported via interconnector cables from Europe.

2023 targets

At COP28, global goals were set for 2030 to accelerate progress towards climate objectives. These included tripling renewable power capacity, doubling energy efficiency improvements, and significantly reducing methane emissions.

In response, many governments set national targets for electricity generation from low-carbon or renewable sources. The European Union (EU), for example, revised its Renewable Energy Directive to raise the minimum share of energy consumption from renewables to 42.5%, up from the previous 32% target, with the aspirational target of 45%.

Fig 2 compares countries' 2030 targets for renewable electricity production with their most recent data on electricity generation from these sources. The data shows that most nations still have a considerable gap to close, with current renewable levels ranging from 22% to 72%. Achieving these targets will require substantial investment and a sharp rise in infrastructure construction activity by 2030.

Several governments have announced plans to boost renewables generating capacity, although the scale and timelines vary widely, some covering a single year and others planned over a decade, which impacts their size. For example, France has committed €1 billion over one year, whereas Germany plans to invest €58 billion over the next ten years.

Fig. 2 **Governments' renewables targets in 2030, current levels of generation, and investment commitments to achieve those goals**

Country	2030 target (GW)	Latest renewables installed capacity (GW) and year	Distance from target (GW)	Latest renewables generation as a percentage of the 2030 target	Public announcements about public sector investment
Australia	92	46 (2022)	46	50%	AUD 4.9bn (2023)
Canada	125	24 (2024)	101	35%	CAD 15bn (2023)
France	115	70 (2023)	45	56%	€1bn
Germany	374	82 (2023)	292	22%	€57.6bn (2025)
Italy	131	65 (2023)	66	50%	€23bn (over next 10 years)
Nordics	152	110 (2023)	42	72%	$38bn (2025)
Spain	163	76 (2023)	87	47%	€18.4bn
UK	119	59 (2024)	60	50%	£1.5bn (2024-2025)

Source: Government statistics from Canada, UK and EU; Oxford Economics

To meet the national renewable electricity generation targets, the predicted future growth in electricity demand and distribution models, significant investment is also required in the electricity grids which connect power generators to demand centres like cities and industrial areas.[2] This investment needs to encompass expansion to connect to new renewable resources in remote locations, increased flexibility to ensure electricity supply when there is no wind or sufficient sunshine for renewable power generators to function, increased digitalisation, and modernisation of sometimes aged infrastructure.

2 International Energy Agency: Electricity Grids and Secure Energy Transitions.

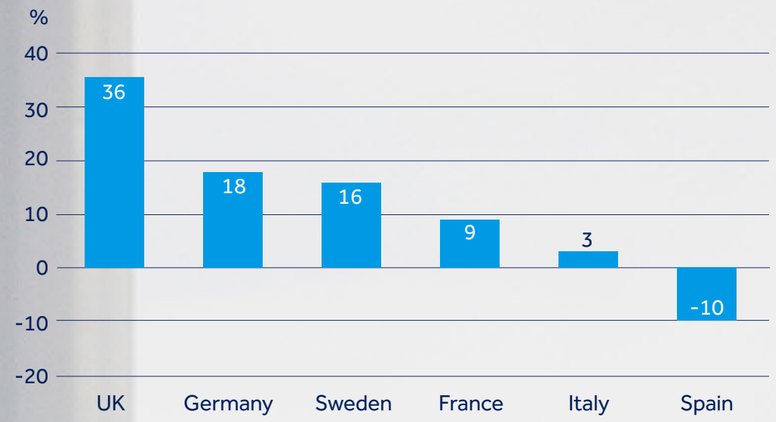
What does this mean for the construction sector?

Oxford Economics forecasts electricity utilities' expenditure on new construction work for six key countries.[3] The vast majority of this investment will go towards constructing renewable energy capacity. According to the projections, annual construction expenditure will increase 20% in real terms between 2024 and 2030. This would see spending grow from €26 billion in 2024 to €31 billion in 2030 (in 2024 prices) across the six countries. Germany, Sweden and the UK are projected to drive most of this increase, also showing the fastest growth rates in electricity utility-related construction activity (Fig 3).

The rise in renewable energy generation is set to stimulate further growth in the construction sector. Across the countries studied, it is projected to boost the annual volume of new construction work by 6% between 2024 and 2030.

The impact is expected to be especially marked in Sweden, the UK, and Germany, where construction for electricity utilities is forecast to boost the annual growth in total new construction work by 14%, 10%, and 9%, respectively. This stimulus could prove especially valuable amid heightened uncertainty in the wider global economy.

Fig 3 **Forecasts of growth (2024-30) in annual value of work done (in real terms) on new construction for electricity utilities and share of the projected growth in total construction activity**



Source: Oxford Economics

3 Oxford Economics Global Construction Service.

Challenges in renewable energy construction growth

There are several challenges to this construction impetus including:

- The US has again withdrawn from the Paris Agreement, a move that could undermine international climate efforts and reduce confidence in the renewable energy sector.
- Public finances in most Western economies are under strain. Sluggish economic growth and limited tax revenues are compounding fiscal pressures, while rising geopolitical tensions, trade uncertainty and demands for increased defence spending may limit resources for renewable energy investments.
- Without the required investment in power grids, grid infrastructure will remain a bottleneck for renewable energy deployment. In many countries challenges such as long wait times for grid connections, limited capacity and concerns over grid stability are deterring investment and slowing progress.

Conclusion

Many Western countries have set ambitious targets for the share of electricity and energy sourced from renewables, often with a 2030 target in mind. In response, several governments have announced investment plans to accelerate the expansion of renewable generation capacity. These initiatives are expected to stimulate construction activity, with forecasts indicating positive impacts in Germany, Sweden, and the UK among others.

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