

# A Preliminary Analysis on the Future Energy Component of Electricity Bills in Ireland

June 2025

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# Analysis

This analysis is based on electricity market modelling of four potential renewable energy outcomes for the 2030 Irish power system. It is based on the *SEM-25-010 SEM PLEXOS Model Validation 2024-2032* model which contains projections for electricity demand, renewables capacity, thermal generation, interconnection capacity, embedded generation, and generator outages to 2032. This model was used to estimate the wholesale electricity price component of electricity bills in 2030 for the Republic of Ireland.

The energy supply component of electricity accounts for approximately 40% of a typical electricity bill and is significantly influenced by gas prices, reflecting the strong role of natural gas in electricity generation in Ireland. As renewables displace electricity production from natural gas in the Irish power system, the price-setting influence of natural gas will diminish, and the price formation of renewables and the associated market structure will become more prominent.

The renewable capacities in these scenarios are detailed in Table 1 and include: Full Delivery of Climate Action Plan (CAP) renewable capacities, With Existing Measures (WEM), With Additional Measures (WAM) and At-Risk Scenario.

Parameter / Variable	Year	CAP24	WEM	WAM	Risk
RES-E (%)	2025	50%	46.4%	47.5%	46%
Onshore Wind Capacity (GW)	2025	6	5.6	5.8	5.2
Offshore Wind Capacity (GW)	2025	n/a	0.03	0.03	0.03
Solar PV Capacity (GW)	2025	5	2.2	2.2	2.2
RES-E (%)	2030	80%	68.9%	80.1%	54.7%
Onshore Wind Capacity (GW)	2030	9	6.8	7.2	6.2
Offshore Wind Capacity (GW)	2030	5	2.7	4.0	0.03
Solar PV Capacity (GW)	2030	8	5.7	6.5	5.1

**Table 1: Scenarios Examined for the year 2030**

To determine the impact of renewables on 2030 wholesale electricity prices, **gas and commodity prices are held constant at 2024 levels**, while electricity demand grows in line with EirGrid’s median projections. Fixing gas and commodity prices allows us to isolate and identify the impact of increasing renewables on wholesale prices. The role of the PSO (Public Service Obligation) is also estimated in a simple fashion which represents the ‘Top Up’ required between the wholesale price of electricity and the Reference price of the renewable generation. This is presented in Table 2.

2024 Commodity Prices for all scenarios	2024	2030-Risk Scenario	2030-WEM	2030-WAM	2030-CAP
Annual Wholesale System Price (€/MWh) (A)	108	105	81	68	54
Estimated Top requirement (€/MWh) (B)	-	4	18	30	45
<b>Resulting Energy Supply Price (€/MWh) (A+B)</b>	108	109	99	98	99

**Table 2: Annual Results Presented**

There is clear evidence that increased volumes of renewables will reduce average wholesale electricity prices for a given fixed gas price. There is also a clear inverse relationship between increasing PSO volumes and decreasing wholesale prices.

At this stage, there is no evidence to suggest that the combined wholesale and PSO costs will be significantly lower than the 2024 average wholesale price of €108/MWh.

Over the next decade, the strike price of renewable energy auctions will have an increasing impact on household electricity bills, because it effectively creates a ‘floor’ and ‘ceiling’ for the energy component of electricity bills.

In recent renewable energy auction average bid prices were typically €85–€100/MWh (known as the reference or strike price). When renewable generation pushes the wholesale electricity price below the strike price, consumers must pay the difference via the PSO levy.

The reverse also applies: if EU gas prices drive the wholesale electricity price above the strike price, the renewable producer pays back the difference to consumers.

This two-way contract for difference does not significantly reduce the energy component of electricity prices, but it can reduce price volatility and essentially acts as a fixed-price hedge for Irish consumers

While electricity markets are complex, this natural floor-and-ceiling effect means the energy component of electricity bills in 2030 will likely fall within the range of recent renewable energy strike prices—€80–€110/MWh.

#### **Weaknesses of the Analysis:**

- Based on a 2025 version of a SEM-validated electricity model, which will be updated with new capacities, costs, and technical data over coming years.
- The analysis focuses on the Republic of Ireland only; Northern Ireland renewable capacities are scaled to ROI levels.

#### **Strengths of the Analysis:**

Effectively captures key market fundamentals and core principles of PSO in a simplified fashion.