

What is in my Electricity Bill? An Explainer of Individual Residential Electricity Bill Elements in Ireland from 2020 to 2026

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Summary

This paper explains the structure of a representative annual residential electricity bill and discusses the main drivers of change over the past six years. Domestic electricity bills in Ireland comprise 15 core cost components that electricity suppliers seek to recover across their customer portfolios over the course of a year and over longer periods. Each component is described, together with an overview of how it has evolved in recent years. The paper is intended for interested readers seeking a better understanding of electricity bills rather than for subject-matter experts. For the representative household examined in this paper, the main drivers of the change in annual electricity costs between 2019 and 2025, measured in absolute euro terms, were:

- Wholesale Electricity Costs: +€270
- Demand System Services Charges: +€85
- Imperfection Charges: +€40
- Supplier Capacity Charges: +€30

Together, these components account for the largest increases in the archetype annual residential electricity bill over the period examined. A shortform general audience version of this piece is also available [here](#)¹.

Introduction

Domestic electricity bills in Ireland are composed of 15 core cost elements that electricity suppliers aim to recover across their full portfolio of offerings to customers over a year and longer.

¹ [Up, up and away? How electricity suppliers calculate your bill](#)

There is no ‘standard electricity bill,’ and electricity suppliers must charge different costs and tariffs across different locations (urban vs. rural), different offerings (Fixed, Day/Night, Time of Use), and consumption (small to very large energy users).

Most of an annual residential electricity bill is not decided by the energy suppliers but is determined by international fuel prices, the energy regulator ([CRU](#)) and the electricity grid operators ([EirGrid](#) and [ESB Networks](#)), who charge costs to make sure there is enough electricity and infrastructure available to keep the ‘lights on’ and that it can get to where it is needed in a reliable way. Note that system tariffs and cost do not follow ‘Calendar Years’ but instead follow ‘Tariff Years’ which run from the first day in October to the last day in September in the following year.

The archetype bill presented below is based on an estimated annual volume of electricity consumption of 4,200 kWh. In practice, household electricity usage will vary depending on factors such as occupancy levels, dwelling size, the use of electric heating, ownership of an electric vehicle (EV), and the presence of solar PV systems. Using a standard annual consumption of 4,200 kWh provides a consistent basis for comparison across all components of a residential electricity bill, enabling like-for-like assessment of costs between suppliers and tariff structures

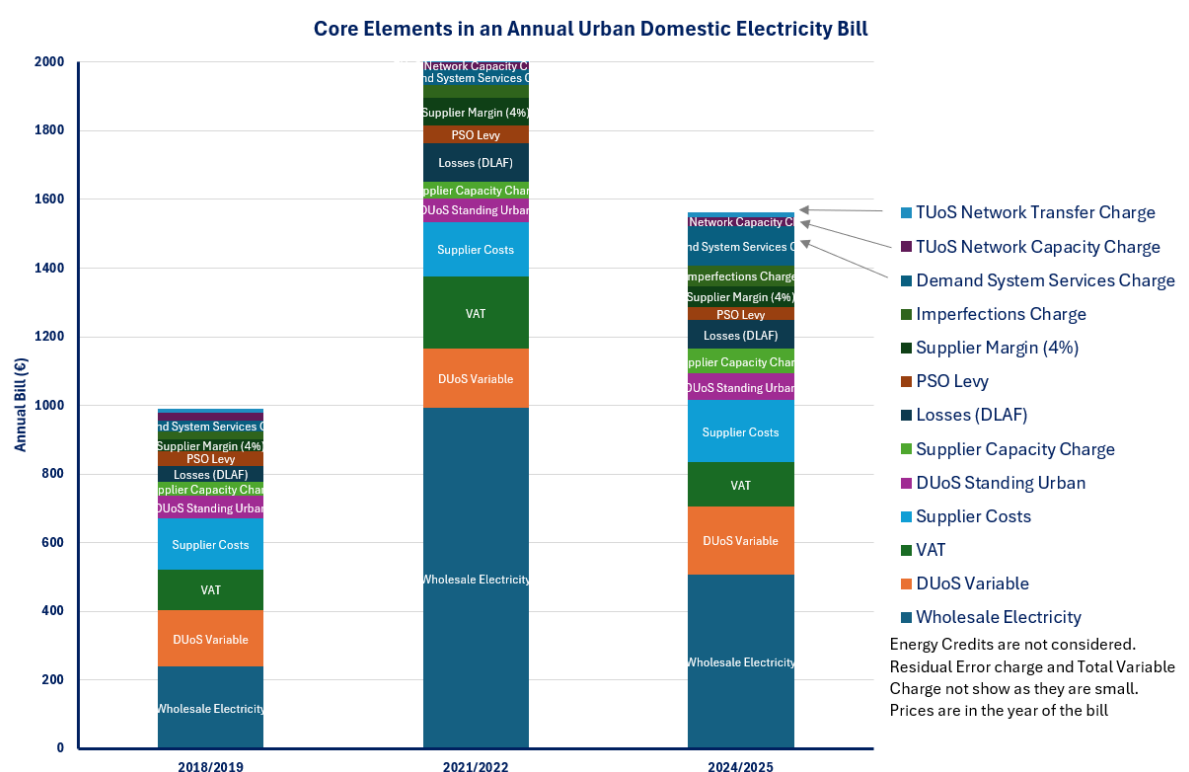


Figure 1: Core elements in an annual urban electricity bill in Ireland-Detailed breakdown.

Figure 1 shows how these cores elements have evolved since the 2018/2019 tariff year (Oct to Sept) for an annual bill of an urban archetype of 4,200 kWh.

For clarity only 3 years are shown in the chart but data for all components and years is shown in a table in the appendix and the accompanying excel file. All prices are presented in nominal terms are not adjusted for inflation as energy prices themselves are a core driver of inflation while the table below gives a short description of each element.

Table 1: Short Description of individual core element in residential electricity bill

Non-Charge Parameters	Short Description
Distribution Loss Adjustment Factors (DLAF) (%)	Accounts for electricity losses in Distribution System- suppliers must pay for energy measured at the customer meter and the losses. The relevant Distribution Loss Factor will depend on the Users' connection voltage and on the time of day (day/night).
Value Added Tax (%)	Value Added Tax levied by government. The rate was reduced to 9% in May 2022.
Fixed Cost Components	
Public Service Obligation Levy (€)	Charge or payment made to all electricity final customers to fund schemes designed to support of national policy objectives on renewables
Distribution Use of System Charge (€)	Fixed cost element for maintaining and building the electricity distribution system (lower voltage)- it can be an urban or rural charge.
Variable Cost Components	
Distribution Use of System Charge- (€/MWh)	Variable cost element for maintaining and building the electricity distribution system (lower voltage)- it can be an urban or rural charge.
Transmissions Use of System Charge-Capacity Charge (€/MWh)	Variable cost element for maintaining the building the higher voltage electricity system -this is a daytime charge (8am to 11pm)
Transmissions Use of System Charge-Transfer Charge (€/MWh)	Variable cost element for maintaining and building the higher voltage electricity system
Demand System Services Charge (€/MWh)	For the recovery of costs arising from the security operation of the transmission system
Supplier Capacity Charge (€/MWh)	Charge to incentivise firm capacity in the market to maintain security and adequacy. This is a daytime charge (8am to 11pm)
Residual Error Charge (€/MWh)	An error correction charge related to small differences in market settlement
Imperfections Charge (€/MWh)	Relates directly to the management of the power grid by the transmission system operators across the All-Island system (EirGrid and SONI).
Currency Cost Price (€/MWh)	Variations can occur in incoming and outgoing currency amounts in the market over the year
AOLR Fee (Agent of Last Resort Charges) (€/MWh)	Agent of Last Resort Charges acts as a market access facilitator, ensuring that smaller generators can trade energy
Total Variable Charge (€/MWh)	Cost related to running the market system.
Wholesale Electricity AVG. (€/MWh)	Wholesale price of electricity.

In this analysis it is assumed that electricity is purchased at the wholesale price within the tariff year, and no hedging strategy is employed. This is an imperfect assumption but is required because of lack of public information on hedging strategies which is generally confidential.

Supplier costs and supplier margin (4%) are the authors own view, noting these have significant economies of scale. Supplier margins will be higher on standard plans and lower on discount plans, while supplier costs will be higher for smaller suppliers.

The main drivers of annual change in absolute Euro terms for this archetype between 2019 and 2025 are: Wholesale electricity price increased by €270 (see Section 1 for more detail), Demand System Services Charges increased by €85 (see Section 4), Imperfection charges increased by €40 (see Section 2), Supplier Capacity charges increased by €30 (see Section 5)

These 15 core elements in a residential electricity bill can be bundled into 5 broad categories below, noting that this is the same information as figure 1 but in a simplified manner.

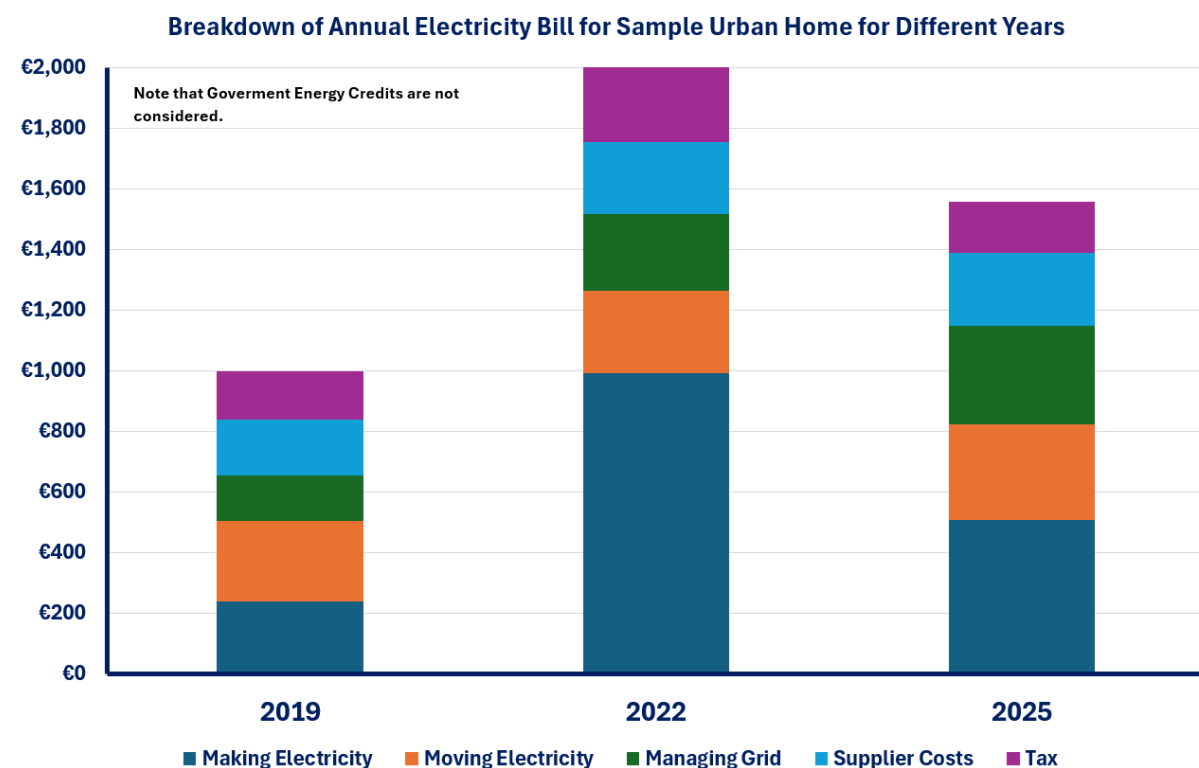


Figure 2: Elements in an annual urban electricity bill in Ireland-Simplified breakdown.

-The Cost of Making Electricity: Determined by the Wholesale costs of electricity and strongly influenced by international gas and transit prices. This represents approximately 35% of a bill.

-The Cost of Moving Electricity: Determined by the CRU/ESB Networks/EirGrid and composed of DUoS Standing and Variable charges, TUoS Network Charge, and TUoS Network Transfer Charge. This represents approximately 20% of a bill.

-The Cost of Managing and Operating the Grid: Determined by the CRU, EirGrid, and the Market Operator and includes Demand System Services Charge, Supplier Capacity Charge, Residual Error Charge, Imperfections Charge, Total Variable Charge, and Losses. This represents approximately 25% of a bill.

-The Cost from Suppliers and Supplier Margins: Determined by individual suppliers and influenced by costs of doing business, wages, advertising, retention, digital platforms, debt, and volume of customers. This represents approximately 10% of a bill.

-The Final Element: Determined by government policy, including Public Service Obligation and VAT. This represents approximately 10% of a bill.

Each of these main components is discussed individually in the next sections.

1.0 The Wholesale Price of electricity

The wholesale electricity price can be understood as the market cleared price equal to the marginal cost of the last unit of electricity required to meet demand for electricity in each hour.

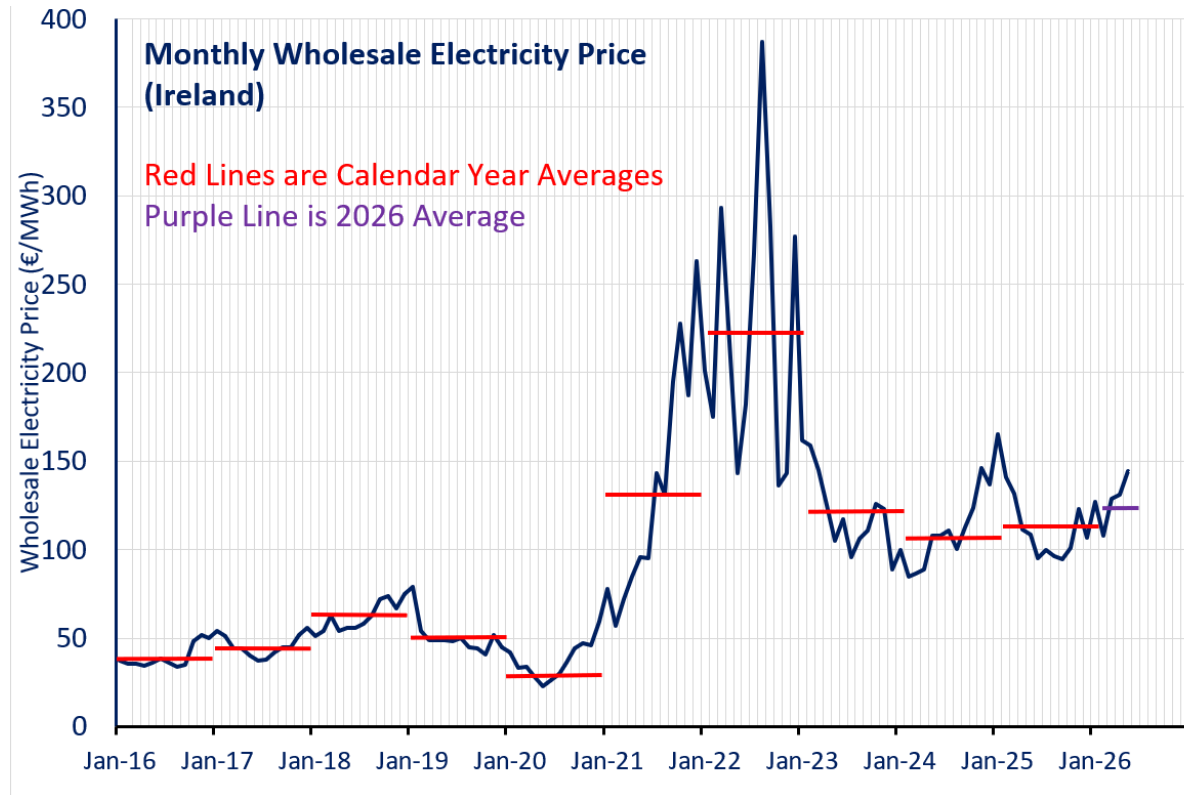


Figure 3: Monthly Wholesale Electricity Price (€/MWh) in All Island System

Figure 3 shows the trend of monthly averaged wholesale electricity prices in Ireland contracts since January 2016

The price of wholesale electricity prices began to increase in 2021, as Russia curtailed gas supplies to the EU. In February 2022, European gas prices soared and subsequently wholesale price contracts experienced an increase in levels and volatility, because of Russia's invasion of Ukraine. Prices peaked to unprecedented levels in August 2022 and have since followed a generally downward, yet highly volatile trend.

Ireland is unusual in North-West Europe because we have one of the highest levels of reliance on natural gas for electricity generation, and it is an important determinant of prices. On a monthly level, wholesale electricity prices in Ireland are strongly correlated to European and British natural gas prices.

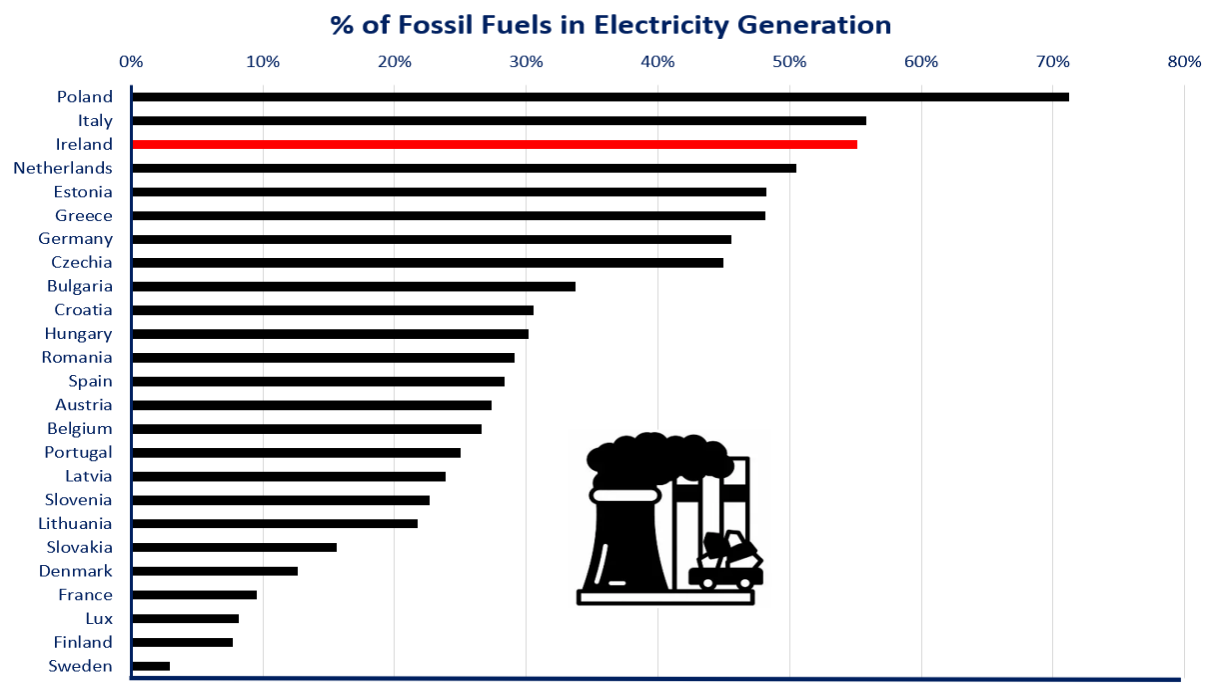


Figure 4: Percentage of Fossil Fuel in Electricity Mix sourced from Eurostat.(data 2023)

The average wholesale electricity price for the month of May 2026 was €144/MWh. For the past year, the monthly average fluctuated between €95 and €131/MWh, with a 12-month rolling average of €112/MWh.

Monthly snapshots of wholesale prices are helpful for understanding what has happened in the market, but future gas prices are a better determinant of what might happen.

Energy Suppliers use ‘hedging strategies’ to purchase electricity or gas in advance of when it is needed. Suppliers will have different approaches to buying electricity, depending on what they expect will happen with prices.

[This report](#) by the CRU² gives an overview of different hedging options used in Ireland, but ultimately it is helpful to appreciate that hedging strategies used by electricity suppliers tend to delay increases seen in final bill, rather than avoid them, and the elevated prices in future gas markets will eventually feed into bills via increased wholesale costs.

The current energy crisis (at time of writing in June 2026) has seen very high volatility in oil markets (and subsequent petrol and diesel prices) but has had a more subdued, though not inconsequential, impact on international gas markets. This is not like the Russian gas crisis, where gas prices (and subsequent electricity prices) were extreme, but future gas prices in Europe are now more elevated relative to pre-war levels, as

² [CRU202667 - Interim Review of the Electricity and Gas Retail Markets.pdf](#)

markets reprice Europe's gas storage refill obligation and possible increased competition for natural gas supply internationally.

2.0 Imperfection Charges

Imperfection Charges are a cost embedded in our electricity bills that relate directly to the management of the power grid by the transmission system operators (EirGrid and SONI). In some other countries, these are known as 'Balancing Costs'.

In very simple terms, Imperfection Charges capture the cost difference between operating an ideal power system and operating a real power system.

In an ideal system, power flows are optimised, outages of generators and power lines are known in advance, and wind patterns are perfectly predictable. In the actual power system, this is not the case, and this leads to "imperfection" costs.

Imperfection Charges are, by their nature and name, difficult to forecast. As a result, a correction is applied each year to account for forecast errors from the previous year.

In a typical annual residential electricity bill, Imperfection Charges account for approximately €85 per year in 2025. Imperfection Charges have been increasing since 2021 (when they were approximately €40 for the year).

Their cost is influenced by natural gas prices, while their volume is influenced by operational security constraints, generator and transmission line outages, and levels of renewable generation.

In the All-Island system, the main subcomponents of Imperfection Charges are known as Dispatch and Balancing Costs and Fixed Cost Payments. These costs are strongly concentrated in the Northern Ireland system, reflecting the technical challenges of operating a secure power system in a much smaller part of the grid that requires two to three large thermal generators to run for system security, alongside high levels of renewable generation and significant imports into the region.

An extended outage of the Coolkeeragh power plant during the year put significant upward pressure on these costs in 2025.

All Island Imperfection Costs| Market Share per Generator for Select Imperfection Payments for 2025

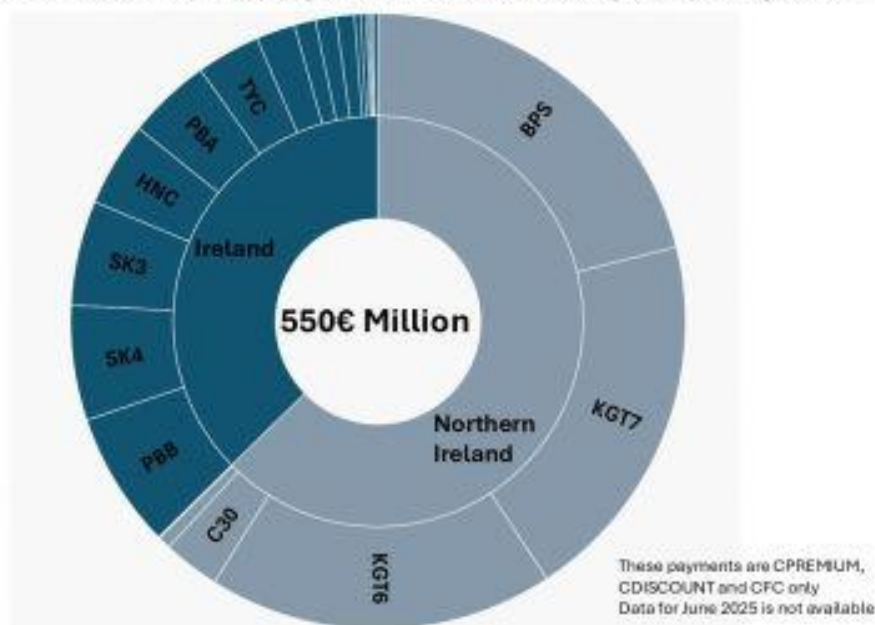


Figure 5: All Island Imperfection Costs for 2025

The chart above is derived from monthly published information from the [SEM Market Monitoring Unit](#)³ and illustrates the distribution of selected dispatch and balancing payments ([CPREMIUM](#), [CDISCOUNT](#), [CFC](#)) to specific power plants across the All-Island system.

Over €550 million was paid to generators over the calendar year 2025, with 60% of this going to generators in Northern Ireland. Note that no data was available for June 2025, so this total is incomplete.

This concentration and magnitude of Imperfection Charges points to the need for investment in the Northern Ireland system in infrastructure and better physical connection to the wider All Island system, but it also highlights the need for improvements in system operational policies across the full system.

3.0 Distribution Use of System (DUoS) charges

Distribution Use of System (DUoS) charges are a component charge in your electricity bill levied by the Energy Regulator and determined with ESB Networks to recover the cost of maintaining and developing the electricity distribution system (note that transmission is treated separately).

³ [Market Monitoring | The Single Electricity Market Committee](#)

For a residential urban customer in 2026, the charge has an annual fixed component of €86 per customer and a volumetric charge of approximately 5 cents per unit of electricity imported from the grid.

This results in an annual combined charge of about €300/yr out of a total annual electricity bill of €1,700 for a typical urban user. This has increased from €260 in 2021.

The distribution system is the network of wires, substations, poles, cables, and transformers that move electricity around the country to our homes and businesses, typically from 110 kV voltage down.

While Ireland's power system is small, our distribution system is long in comparison and would wrap around the planet four times.

This length reflects our dispersed population settlements and, consequentially the annual fixed component charge for rural households is €40/yr higher than for an urban home because it costs more to connect dispersed homes to the grid (about 2–3 times more per dwelling, costed in 2024).

Distribution charges are primarily driven by the need to serve current and future electricity demand, but an enduring and persistent challenge in Ireland is the age of our distribution grid and the need to catch up on some grid investment that was delayed after the financial crash. Weather-related events have also had a significant impact on electricity supply in recent years, as shown below.

A significant proportion of the electricity network in Ireland was built between the 1950s and 1980s, and of particular focus for investment over the next 5 years is the 110 kV and 38 kV system.

Figure 5: Major Weather Events 1974-2025 Peak No. Customers Off Supply

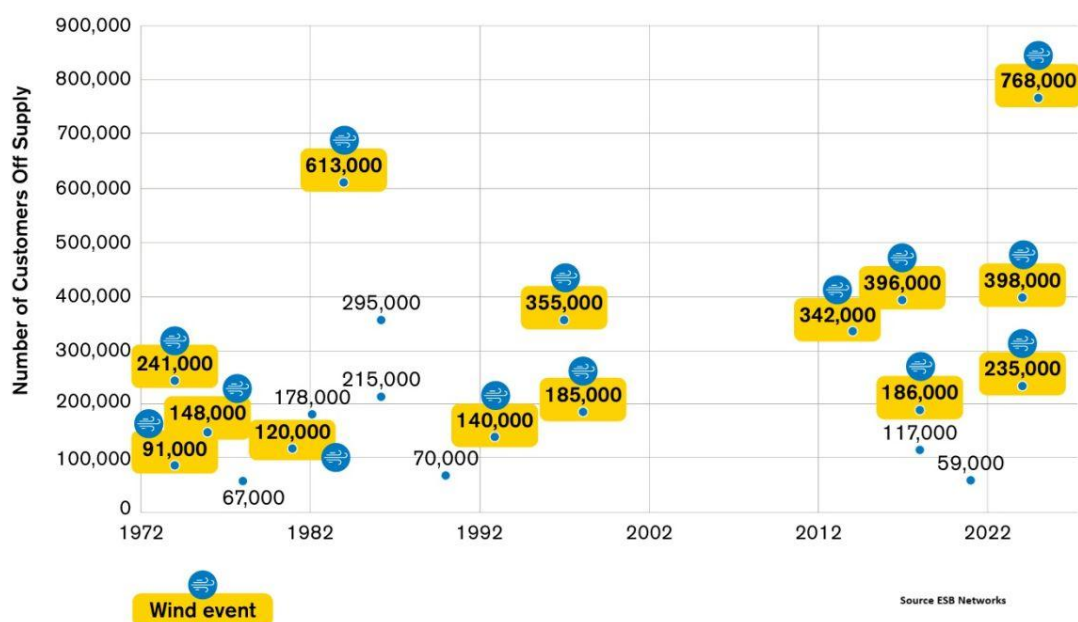


Figure 6: Major Weather events and Peak Customers off Supplied. Sourced from [ESB Networks](#)

Currently, [61 substations across](#) the 110 kV and 38 kV⁴ system are classified as having reached full capacity, and mitigation measures are required. Just under half of 38 kV and 110 kV substations are over 50 years old.

Compounding the need for these investments is the cost of components. The [IEA reports](#)⁵ that cable costs have nearly doubled since 2019, while power transformer prices have increased by around 75%.

Overall, the full range of investments required across the whole distribution system (including asset renewal) is expected to increase the DUoS component of our annual residential electricity bill by about €20 for each year over the next 4 years

4.0 Transmission Use of System (TUoS)

Transmission Use of System (TUoS) charges are a component charge in your electricity bill, levied by the Energy Regulator and determined with EirGrid to recover costs related to the high-voltage transmission network. In Ireland, TUoS is better understood as the

⁴ [ESB Networks Price Review 6 Business Plan Business Plan](#)

⁵ [Building the Future Transmission Grid](#)

mechanism for financial recovery of monies related to EirGrid (and ESBN, to a lesser extent) operations. I am discussing TUoS in isolation and not considering interaction with other bill elements or future TUoS costs.

For the residential sector, the TUoS charge includes 3 distinct elements related to: 1) a Capacity Charge based on daytime use of electricity, 2) a full-day volume charge, and 3) a separate Demand System Services Charge, but for simplicity, I will treat these as one combined tariff.

For a residential urban customer in 2026, the full annual TUoS charge is €156 out of a total annual electricity bill of approximately €1,700, and this has increased from €56 in 2021. The primary increases in TUoS are not specifically related to building new power lines, but rather to maintaining security of supply, legal issues, and enabling flexible technologies.

In relation to security of supply, in 2022 EirGrid was directed to build Temporary Emergency Generation (653 MW) and take remedial measures, such as retaining older conventional thermal units, to mitigate a generation capacity shortage in the context of unsuccessful capacity auction delivery, rising demand, and reducing firm supply.

To date, [over €1,100 million](#)⁶ has been allocated to the Security of Supply Programme, and these costs are recovered via TUoS on your bill. In 2026, the annual portion of a residential bill attributed to these security of supply measures was approximately €36.

The Demand System Services Charge in TUoS was set up to encourage the deployment of fast-acting and flexible technologies to enable the power system to operate with high levels of variable renewable generation.

Since 2021, this element of TUoS has increased as more batteries and other technologies delivered to the system avail of the tariff (batteries could not earn revenue on the wholesale market until recently), and an increase in imports from the UK has escalated the price received by providers.

Increased imports from the UK mean higher levels of system non-synchronous penetration (SNSP) are reached with lower levels of renewables, and this triggers higher tariff payments at these times. In 2026, the annual portion of a bill attributed to Demand System Services Charges was approximately €31.

Lastly, in 2026, a placeholder cost was included to cover a potential payment for

⁶ Information Note on Electricity Security of Supply Programme of Work Update -May 2025

compensation for renewable generators related to curtailment. This is an ongoing legal issue (Article 13.7 of Regulation 2019/943⁷), and €137 million has been ring-fenced this year in case of payment. In 2026, the annual portion of a bill attributed to this measure was approximately €16.

5.0 Capacity Charges

The Supplier Capacity Charge Price is a component of your electricity bill. It is levied by the Energy Regulator and determined in with the Transmission System Operator and the Market Operator to recover costs related to the secure and adequate operation of the power system. It is commonly known as the '*Capacity Price*'.

In a typical annual urban residential electricity bill in Ireland, Capacity Prices account for approximately €60 per year in 2026, out of a total bill of €1,700, up from €50 in 2021.

The Capacity Price is determined via the Capacity Remuneration Mechanism, which tries to ensure that sufficient firm generation is incentivised in the market to meet future electricity demand by offering a stable financial income to qualifying generators.

Thermal generators will typically not earn a sufficient financial return in an energy-only market (including ancillary services). Without a capacity market, this can give rise to generation shortfalls during periods of low renewable generation and high electricity demand.

Through the Capacity Remuneration Mechanism, generators (including gas, demand-side, and storage providers) receive a capacity payment that helps fund generation capacity. In return, they have an obligation to generate when the system is under stress. This payment is funded through your electricity bill.

There are two key technical elements to the mechanism. The first is the cost (in €/MW) of a notional new generator entering the Irish market, which provides an economic benchmark to assess the competitiveness of generators applying for payment. The second is the future demand for electricity (including peak) that this generator must meet over its lifetime.

Both elements require significant judgement about an uncertain future, including capital costs and long-term electricity demand, and the competent authorities must strike a balance between cost and risk in determining the final price and capacity volume.

In recent years, challenges related to planning permissions, permitting, and the late or non-delivery of generation have introduced significant uncertainty into the process of determining capacity requirements.

⁷ [Regulation - 2019/943 - EN - EUR-Lex](#)

Over the past five years, the Capacity Mechanism has primarily supported enhancing and retaining existing capacity, while more recent auctions are expected to deliver higher levels of new firm capacity beyond 2027/28.

However, while the delivery of this capacity is uncertain, it will likely come at a high cost. As a result, this portion of your electricity bill is likely to rise over the next four years. Drivers of these costs include increased costs for new power plants, higher peak demand, and wider inflationary pressures.

6.0 Public Service Obligation

The Public Service Obligation (commonly known as the PSO) is one of the 15 components in your electricity bill. It is determined by Government policy and calculated by the Energy Regulator to financially support over 5,000 MW of renewable energy capacity in Ireland today. In the past, it also supported indigenous peat power stations and thermal power plants for security-of-supply reasons.

In a typical annual urban residential electricity bill, the PSO accounts for approximately €17 per year in 2026, out of a total annual bill of €1,700, down from €34 in 2020.

PSO payments are calculated for the year ahead, and judgements must be made regarding future gas prices, demand, and renewable output by the energy regulator. The difference between anticipated outcomes and actual outturns is corrected through a 'reconciliation' factor each year, which can be substantial during periods of high natural gas price volatility.

The PSO is a fixed charge per residential customer, based on cumulative residential peak demand (approximately 33% of national peak demand), irrespective of the volume of electricity used by a household.

The within-year PSO levy generally has an inverse correlation with the wholesale price of electricity, meaning that when wholesale prices increase, the PSO decreases (and vice versa).

This gives rise to a "waterbed effect" in our electricity bills, where pushing down on one component of the final bill causes another component to rise. This is partly due to the nature of the Two-Way Contract for Difference arrangements with newer renewable generators.

Recent renewable capacity that has been successful in government-supported schemes is awarded a fixed Auction Price. If the wholesale price of electricity is below

the Auction Price during any trading period, the shortfall is recovered through the PSO and paid to generators.

Conversely, if the wholesale price is above the Auction Price, the renewable generator pays the difference back into the PSO and back to the customer.

The interaction between wholesale prices, the PSO, and auction prices is important.

As Ireland adds more renewable energy, the auction price for that renewable capacity will have an increasing impact on electricity bills, essentially setting a floor and ceiling of €90–100/MWh for the energy element of bills.

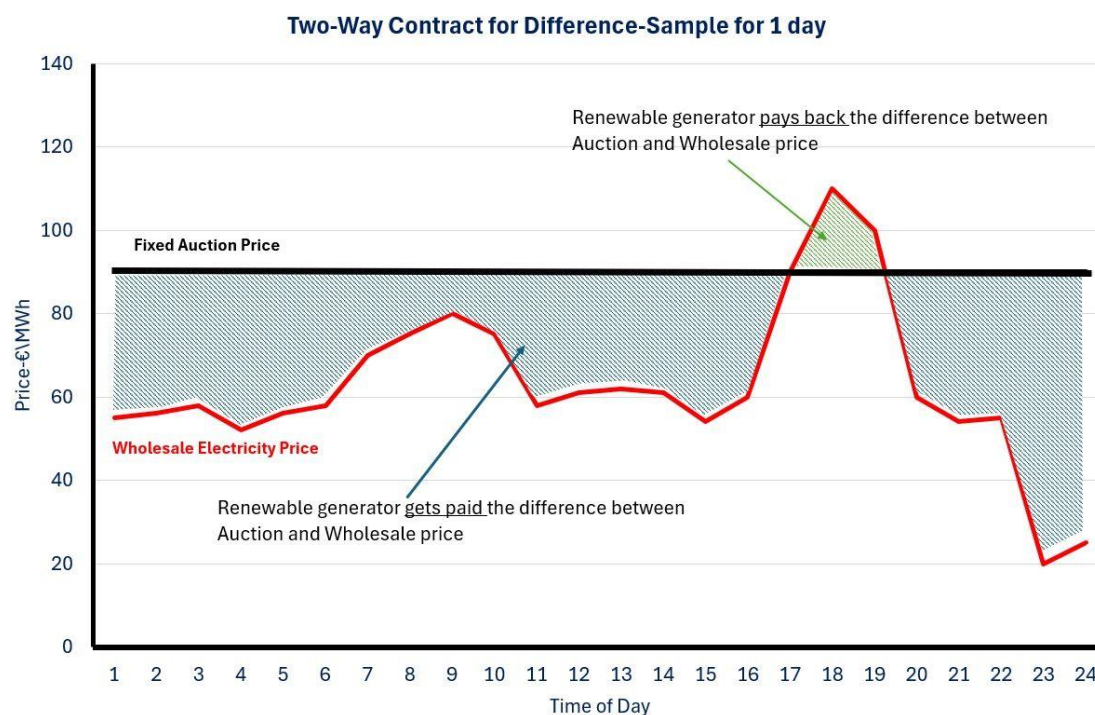


Figure 7: Sample of Two-Way Contract for Difference

Lower wholesale electricity prices provide incentives to use electricity at the most efficient times and can reduce some investment costs. However, lower auction prices are ultimately key to reducing overall electricity bills and needs to be a key priority for government.

7.0 Residual Error Volume Price

The wholesale market is settled in each half-hour period and in a complex markets small residual errors can emerge due to difference in the settlement. This is a minor charge typically less than 8€/yr.

8.0 Currency Cost Price and Currency Adjustment Cost Factor

In the Single Electricity Market there are two currencies and variation can occur in incoming and outgoing amounts in the market over the year. This variation is covered through the Currency Adjustment Charge. This is a minor charge less than 1€/yr

9.0 Market Operator Charges

This is a fee collected by the Single Electricity Market Operator (SEMO) to fund the operation of the SEM's trading, settlement, and administrative systems. This is a minor charge less than 3€/yr

10.0 Agent of Last Resort Charges

The Agent of Last Resort (AOLR) acts as a market access facilitator, ensuring that smaller generators can trade energy even if they lack the systems, staffing, or expertise. This is a minor charge less than 1€/yr

Acknowledgements

This 'Explainer' Piece is based on a series of posts on [LinkedIn](#) from February 2026. I wish to thank the people who provided comments, feedback and corrections. I would also like to acknowledge to the contributions, assistance and feedback from of my colleague, Dr Duncan Mathews.

Appendix A

Combined Estimated Annual Bill (EAB) Components (4200 kWh)	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	Change
PSO Levy	41.76	34.08	78.24	51.60	-89.10	0.00	38.74	17.52	4.66
DUoS Standing Urban	65.53	66.55	74.28	68.78	67.22	65.02	78.24	86.04	11.69
DUoS Variable	164.56	167.12	186.52	172.70	168.80	163.30	196.48	216.05	29.36
TUoS Network Capacity Charge	22.56	23.63	14.98	19.84	21.82	23.63	24.82	31.07	1.19
TUoS Network Transfer Charge	13.40	14.16	14.89	11.68	12.80	14.05	14.68	17.18	0.51
Demand System Services Charge	31.52	27.30	26.73	45.81	80.02	79.23	115.65	112.09	88.36
Supplier Capacity Charge	41.83	44.65	50.10	47.07	40.22	54.33	71.33	60.72	26.68
Residual Error Charge	5.46	5.25	6.76	2.94	-2.81	7.39	-7.69	1.93	-12.94
Imperfections Charge	21.92	43.68	37.63	38.60	91.77	48.38	61.40	83.71	17.72
Total Variable Charge	2.09	1.63	1.96	2.30	1.77	2.52	2.69	2.42	1.06
Wholesale Electricity	238.74	152.91	388.80	992.16	589.70	433.06	508.01	NA	355.10
Losses (DLAF)	46.51	41.21	62.49	114.11	84.34	69.38	82.94	NA	41.73
Supplier Costs	148.21	148.52	149.63	160.02	171.80	176.96	181.59	183.00	33.06
Supplier Margin (4%)	36.04	32.28	47.42	78.55	55.15	49.61	59.59	32.47	27.31
VAT	118.82	108.40	153.96	209.97	124.69	106.82	129.25	?	20.85
Total Typical EAB	998.95	911.38	1294.39	2016.14	1418.18	1293.68	1557.74	?	646.35