Electric Ireland update on drivers of retail prices in Ireland and a comparison with other European markets

February 2024

- Gas prices are the key component in setting electricity prices in Ireland. Ireland has a significant reliance on gas in its fuel mix and so the price of gas on international markets heavily influences electricity prices in Ireland – much more than in Europe.
- Electric Ireland locks in wholesale electricity and gas prices ahead of time through a process called hedging. This hedging has benefitted Electric Ireland's residential electricity customers over the period of the crisis and has shielded them from the very high gas prices experienced on wholesale markets.
- While wholesale gas prices have fallen back from the highs of October 2022, the 2023 prices were still in the region of three times higher those in 2020 prices. 2024 prices have dropped further but remain above pre crisis levels. Retail electricity prices doubled in the same period and have stated to reduce following recent price announcements.
- It is clear from comparators with other European markets, as gathered through the Household Energy Price Index produced by VaasaETT, that retail electricity prices in Ireland rose considerably slower at the outset of the crisis and reached lower absolute levels than other markets. As a corollary, prices are decreasing at a lower rate.
- Ireland has structural drivers which means its prices tend to be at the higher end of European league tables. These are down to a significant reliance on gas in Ireland's generation mix, higher networks costs from a more dispersed population and higher fixed costs associated with a small isolated system.
- Throughout the energy crisis Electric Ireland has typically offered the lowest Standard Variable electricity Tariff (SVT), has already announced two price reductions and keeps it prices under review.
- It is important to note that Electric Ireland is not permitted to subsidise its prices with revenues from other parts of the ESB Group.

This paper sets out four things:

1. The role played by *Hedging* in ensuring that electricity customers do not face the price volatility which wholesale markets create or the large price spikes inherent in wholesale markets and particularly evidenced during the crisis period.

2. Assesses how retail electricity prices in Ireland have compared with those in Europe over the crisis period.

3. Comments on the structural drivers of electricity costs in Ireland when compared to those in Europe.

4. A statement on Electric Ireland's Standard Variable Tariff (SVT).

1. The Role of Hedging in Electricity Retail Prices

Natural gas is a globally traded commodity whose price is determined by supply and demand minute by minute across interconnected wholesale markets including the wholesale gas market in Great Britain. It is the British market which invariably determines the wholesale gas price in Ireland and, given that c. 50% of Irish electricity is generated from gas, also determines the electricity price.

While it is possible for customers to choose to buy electricity and gas based on prevailing wholesale spot market rates, this would expose customers to large hourly and daily swings in the price of electricity and gas. Customers would be powerless to manage these swings, other than to reduce demand. In the absence of active monitoring of usage by customers prices paid would only become apparent as bills for usage arrive. Consequently, in general, it is accepted that customers have historically preferred to avail of a fixed unit price for energy rather than a price exposed to the swings and volatility of wholesale markets.

Electric Ireland, like other suppliers, offers its customers retail prices which are fixed across a prolonged period. This gives customers certainty on how much they will pay for the electricity they use for the period ahead. However, as wholesale electricity prices are volatile, changing every 30 minutes, impacted by a range of issues such as gas prices, available generation plant, the amount of wind generation available and customer demand, Electric Ireland remains exposed to very volatile prices on the purchase side and a fixed price to customers on the sales side.

Electric Ireland manages wholesale price volatility using *hedging* whereby the forward price of electricity and gas is locked in far in advance (up to two years). This means that at any point in time Electric Ireland is buying energy for delivery months or even years in advance. For example, the gas and electricity being delivered to customers today was purchased over the last year or more in multiple trades. All of this means that the daily or "spot" price on the wholesale markets has much less of an impact on Electricity Ireland customers than it would if no hedges had been in place.

In the absence of hedging Electric Ireland would need to change prices charged to customers on a much more frequent basis. These exposures to customers would have been much more amplified in recent times as wholesale gas prices have experienced unprecedented levels of volatility. Electric Ireland's hedging has provided significant certainty to customers who have avoided monthly / daily extreme swings in prices. As an example, in August 2022 spot gas prices in Great Britain were £3.60 per therm, up from less than £0.20 per therm pre crisis, while forward gas prices peaked at £8/therm. The benefit of hedging is illustrated in the graphic below which shows that forward wholesale gas prices (the key determinant of electricity prices) increased much faster than the increases in the retail tariff offered by Electric Ireland, as measured by Estimated Annual Bill (EAB).

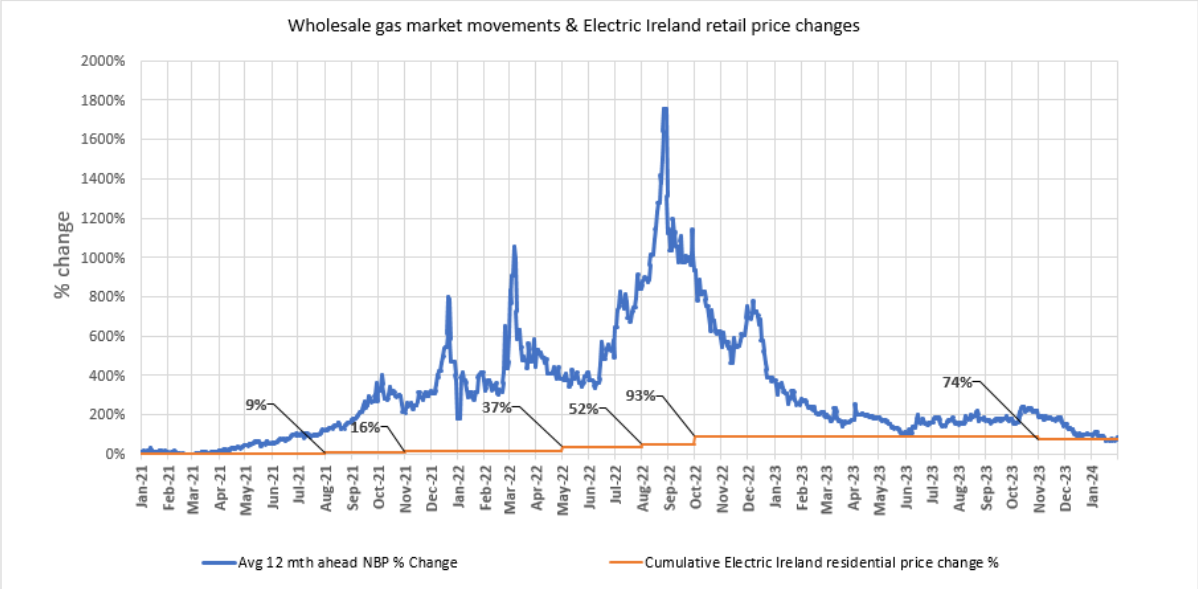

Figure 1 - Changes in forward gas prices compared to changes in Estimated Annual Bill (EAB)

Wholesale gas and electricity prices have reduced significantly since their peak in 2022. For example, the January 2024 spot gas price was circa £0.75 per therm down from nearly £3.64 per therm in August 2022. However, gas prices remain far in excess of pre-crisis levels with 2023 prices still circa three times pre crisis 2020 prices; 2024 prices have dropped further but remain above pre crisis levels. At the same time retail electricity prices have not increased past double their pre-crisis levels and Electric Ireland has already announced two price reductions.

It is important to note that the hedging carried out by Electric Ireland also means that retail prices will not drop at the same rate as wholesale prices in the same way that they did not increase at the same rate previously. A significant portion of the electricity and gas being delivered by Electricity Ireland to customers today was purchased before wholesale prices started to fall.

At any time, Electric Ireland sells electricity and gas which it purchased over the previous year or more. For example, the forward price for gas delivered in March 2024 is currently circa £0.62 per therm but this is not the price Electric Ireland bought its gas and electricity at.

- Back in September 2022, gas for delivery in March 2024 was trading at more than £4.00 per therm,
- In December 2022 it traded at circa £3.30 per therm,
- As recently as October 2023 it traded at circa £1.40 per therm.

In conclusion, to provide as much certainty and stability as possible for our customers, Electric Ireland purchases gas ahead of time for delivery through a process called hedging. This means that the spot price of gas and the retail tariff for Electric Ireland customers are decoupled from each other. This has shielded customers from the extremes of the very high spot prices during the energy crisis.

2. Comparison with other European markets

Retail prices in Ireland compared to other European markets have been publicly discussed in recent months. In particular, the pan *European Household Energy Price Index* has been quoted with reference to Ireland having the highest prices in Europe. Electric Ireland has analysed the broad drivers of

electricity price in Ireland as well as the data in the European Household Energy Price Index[1] and based on this analysis believes that considering prices in very recent months in isolation does not give a true reflection of prices here compared to other European peers.

The European Household Energy Price Index, see Fig 3, shows that in December 2023, Irish prices were amongst the highest domestic tariffs in that particular index, but this does not give a true picture of prices in Ireland compared to other European markets. It also does not take account of recent retail price reductions in Ireland.

Across the last 24 months (Jan22 – Dec23), using the same dataset, Ireland was the fifth most expensive in market in Europe. Electric Ireland's previous analysis of the data in August 2023 put Ireland as the eighth most expensive in Europe over the previous 24-month period.

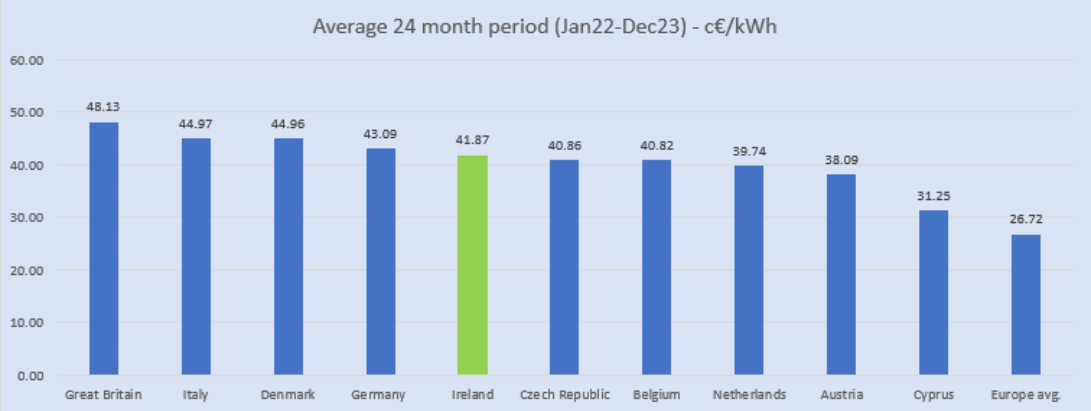

Figure 2 - Electric Ireland analysis of European Household Energy Price Index data

This data shows that Irish customers have been well served over the last two years. This is thanks to the hedging put in place. Retail prices for customers in Ireland have also been more stable than in comparable European markets. For example, Figure 3 below, shows that retail tariffs rose much quicker and to comparatively much higher levels in many other countries (Italy, Great Britain, Germany, Netherlands and Belgium) than in Ireland.

[1] Data available on the European Household Energy Price Index website is updated and changed retrospectively.

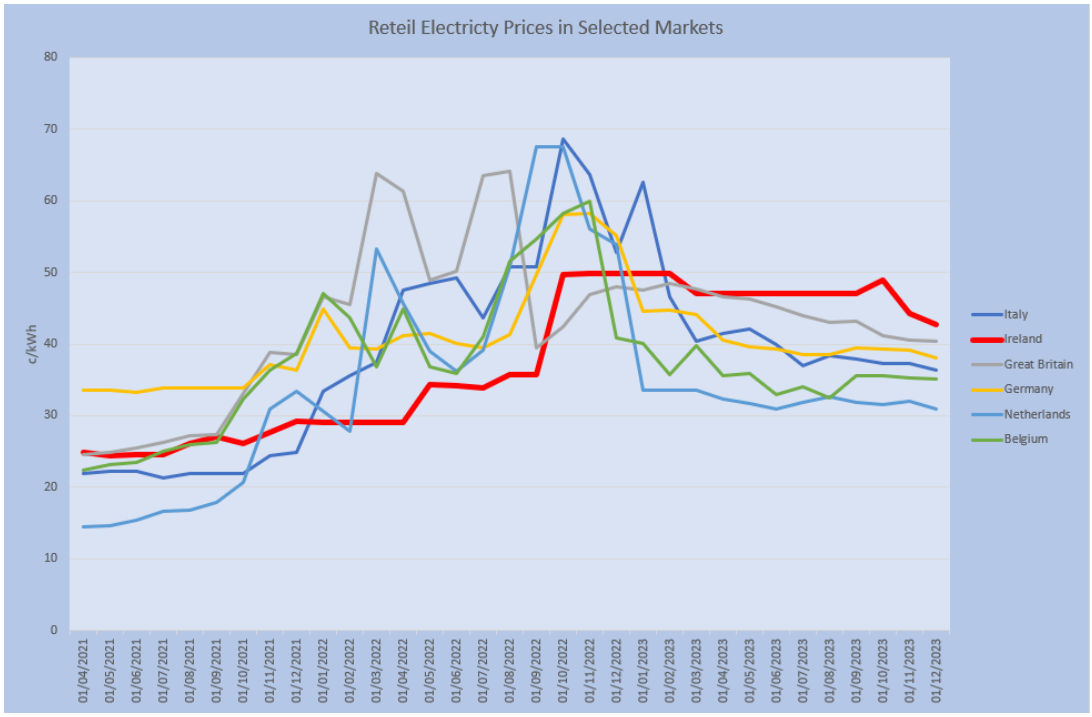

Figure 3 - Electric Ireland analysis of European Household Energy Price Index data (Apr 21 – Dec 23)

This analysis of the European Household Energy Price Index also shows that retail electricity prices in Ireland did not reach the comparative heights that many other markets saw and so has not seen the same recent more pronounced price drops experienced elsewhere. We also analysed the relationship in each European country between the retail tariffs in April 2021 and the maximum price reached during the energy crisis in the period since then. This is presented in Fig 4.

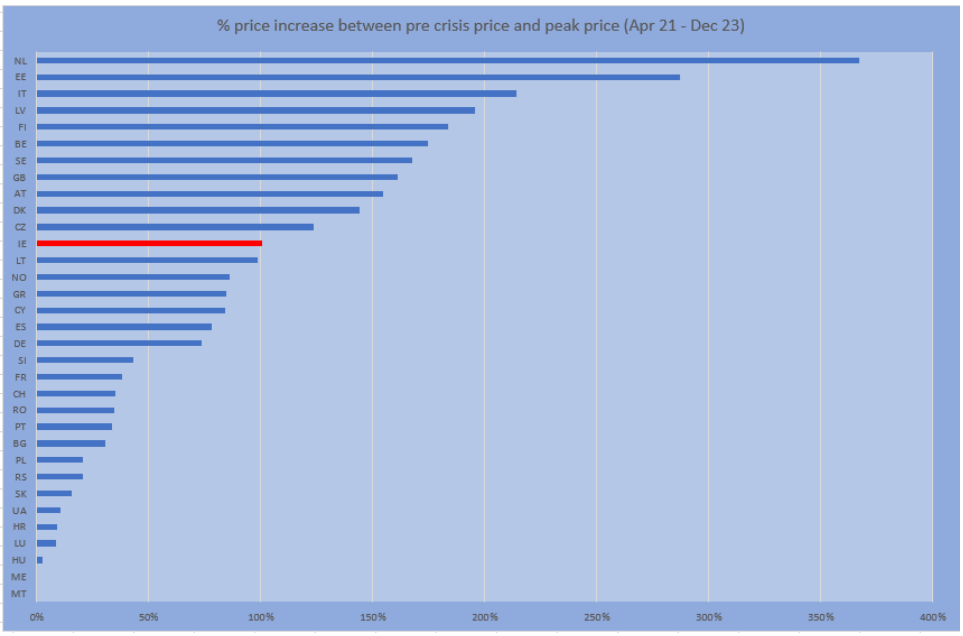

Figure 4 - Electric Ireland analysis of European Household Energy Price Index data

The data shows that at their highest, retail electricity tariffs in Ireland were c. 100% greater than they were in April 2021. Eleven countries saw higher percentage than Ireland with prices in the Netherlands 350% higher. This again would appear to illustrate that hedging processes in Ireland has protected customers from the very high wholesale prices seen in the last two and a half years.

3. Underlying Drivers of Price in Ireland compared to other markets

It should be noted the period prior to the energy crisis that electricity tariffs in Ireland have tended to be at the higher end of European pricing league table. In general, we are of the view that structural reasons in the Irish economy and society account for this.

These structural reasons include the significant reliance on natural gas in our fuel mix (and lower levels of nuclear, hydro and coal), the additional cost of infrastructure to serve a more dispersed population and the lack of economies of scale in the Irish electricity system as a relatively small and relatively isolated system in Europe.

Prominence of Gas in Ireland's Fuel Mix

Gas prices are a key component in setting electricity prices in Ireland and gas as a fuel has seen the most dramatic price increases since Russia's invasion of Ukraine. Ireland has a significant reliance on gas in its electricity generation fuel mix and so the price of gas on international markets feeds through to electricity prices in Ireland in a much more significant way. The European Union Agency for the Cooperation of Energy Regulators (ACER) has explicitly recognised Ireland as having a very high exposure to natural gas in our electricity prices.

Fig 5 illustrates Irelands 2022 electricity generation fuel mix compared to the European average.

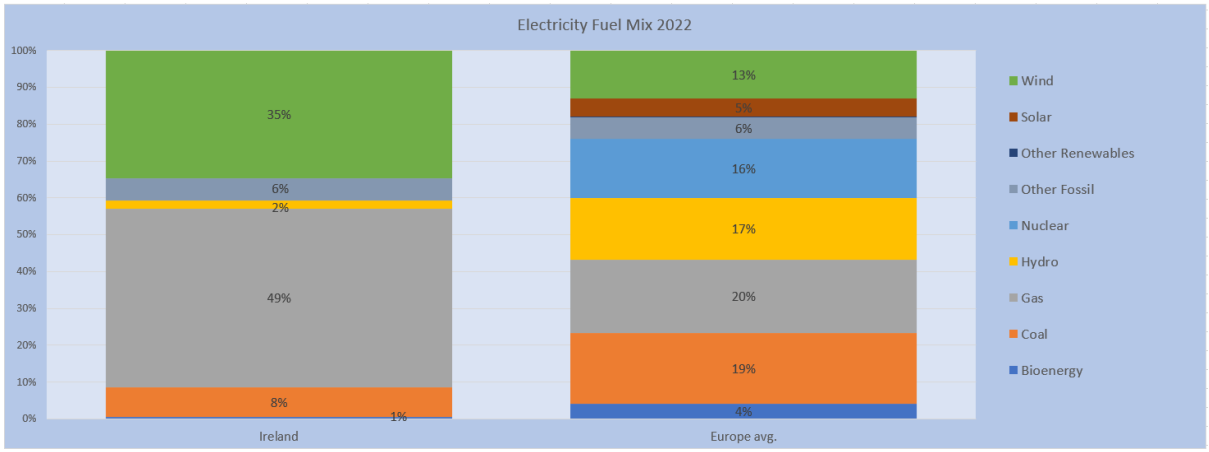

Figure 5 - Electric Ireland analysis of data published by Ember (https://ember-climate.org/)

This shows that Ireland relies on gas for 49% of its generation which is close to two and a half times greater reliance on gas than the European average of 20%. In addition, many European countries have legacy hydro and nuclear plants which have lessened the reliance on gas and by extension limited their role influencing electricity prices. Ireland does have significant renewable electricity, and this has greatly helped to mitigate the worst impacts of gas price increases. The impacts of these renewables will increase further as Ireland moves towards 80% renewable electricity by 2030 but for now the significant greater reliance on gas is a major factor.

Impact of a Dispersed Population on Network Costs

The length of electricity network and gas pipeline required to serve each customer in Ireland is among the highest in Europe. This is due to a more decentralised and dispersed population than many of our European peers. This directly increases the per customer cost of providing networks infrastructure when compared to peer western European markets and is reflected in the network price charged to suppliers per customer. Figure 6 below shows the length of network infrastructure per customer in selected, mainly western European, markets.

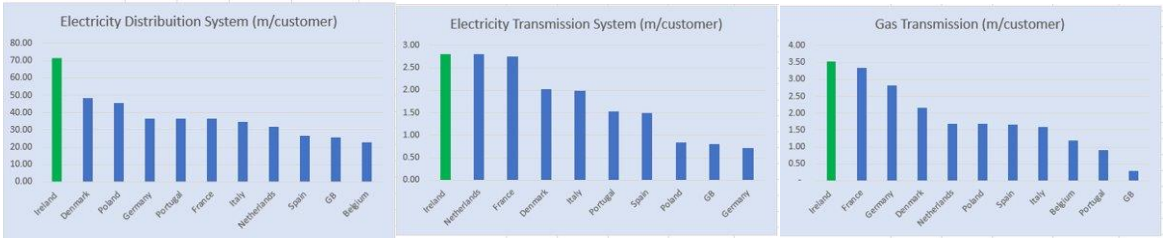

Figure 6 - Electric Ireland analysis of data published by the Council of European Energy Regulators

The data analysed by Electric Ireland and the figures above shows many examples of Ireland's higher lengths of networks.

- For electricity distribution, Ireland has circa three times the length of wires per customers that Belgium, Great Britain and Spain has.
- For gas transmission, Ireland has more than eleven times the length of pipes per customers that Great Britain has.
  For electricity transmission, Ireland has close to four times the length of wires per customers that Germany has.

Comparatively Small and Isolated Electricity System

The electricity system in Ireland is comparatively smaller than many of our peer markets. For example, the peak demand on the electricity system In Ireland is less than 6,000MWs; in Belgium it is 13,500MWs, in France it is over 46,000 MWs, in Great Britain it is 61,000 MWs and in Germany it is 74,000MWs. Ireland is also much less interconnected than other European countries, for example, mainland Europe has the Continental Synchronous Area which sees the power system from Portugal to Poland operate as a single block with multiple interconnection points between most markets. While the Irish systems benefits from two 500MW DC interconnections which are valuable from a capacity perspective, these do not result in a synchronised system.

The small and isolated system places additional costs on Ireland compared to mainland European countries. This means that the largest single generating unit which can be accommodated in Ireland is c. 400MW while units across Europe can be sized at 1000MW+. For example, the Gravelines Nuclear Power Station in France is 5,400MWs (6x900MWs units), the Hinkley Point C nuclear power station under construction in Great Britain is 3,200MWs (2x1600MW units). Even comparable combined cycle gas turbine technology (CCGT) as used in Ireland is much smaller than elsewhere. Units in other countries tend to be at least twice the size of Ireland's units - for example the Pembroke power plant CCGT in Great Britain is over 2000MWs in size. This generator unit size allows for lower construction costs and lower per unit generation costs due to being able to spread fixed costs over a larger capacity and a larger volume of electricity generated.

Economies of scale also have a bearing in the energy supply part of the value chain in Ireland when compared to European norms. Electric Ireland is the largest supplier in Ireland with 1.1m customers

across 1.3m accounts. By comparison supply companies in Great Britain and other EU countries serve much larger customer bases for example over 6m in Great Britain, 15m in Italy and 29m in France. Larger customer bases enable the fixed costs associated with IT systems to support billing and customer contact centres, sales and marketing etc. to be recovered across a larger customer base.

4. Comparison of Electric Ireland's Standard Variable Tariff (SVT) with the market

Throughout the energy crisis Electric Ireland has typically offered the lowest Standard Variable Electricity Tariff (SVT) (and by extension the lowest Estimated Annual Bill (EAB)) and continually keeps its prices under review.

It is important to note that Electric Ireland is not permitted to subsidise its retail prices with revenues earned across other parts of the ESB Group.

Electric Ireland is acutely aware of the impact of energy bills on families and businesses and will continue to keep its prices under review. Since winter 2020, Electric Ireland has committed over €63 million to support customers. This includes €55 million given back to customers by foregoing profits in 2022, as well as a €5 million 'Electric Ireland Hardship Fund', which will continue to help those customers having difficulties paying their energy bills again this winter. Information on all our supports is available on the Support Hub - Help & Support for our Customers | Electric Ireland