

NI Energy Prices: Background Briefing

This is the first of an occasional series of briefing notes from the Utility Regulator. These are intended to provide background information on energy and water issues, in a broader framework than our usual papers which consult specifically on regulatory changes.

Northern Ireland's energy consumers, like consumers across the UK and Europe, are currently experiencing sharp price rises. This briefing note answers some key questions about the drivers of energy costs here, and provides background briefing. It covers the drivers of energy costs, and actions NI can take to insulate ourselves from escalating global energy costs in future years.

DRIVERS OF NI ENERGY PRICES

Historic factors

Northern Ireland has long had higher energy costs than GB. To some extent this is a consequence of our geographical position, at the end of long supply chains, our market size which limits economies of scale, and our lack of indigenous fossil fuels.

Another historically important reason is that long-term contracts put in place to facilitate the privatisation of electricity in 1992 fixed part of the cost of generation, which turned out to be expensive over time. This cost has been reclaimed by customers through a levy, known as the Public Service Obligation levy.

NI domestic electricity prices in 2007 were nevertheless not among the highest in Europe, but around the middle (18th out of 29, including the EU 25 plus accession countries and NI) – see figure 1.

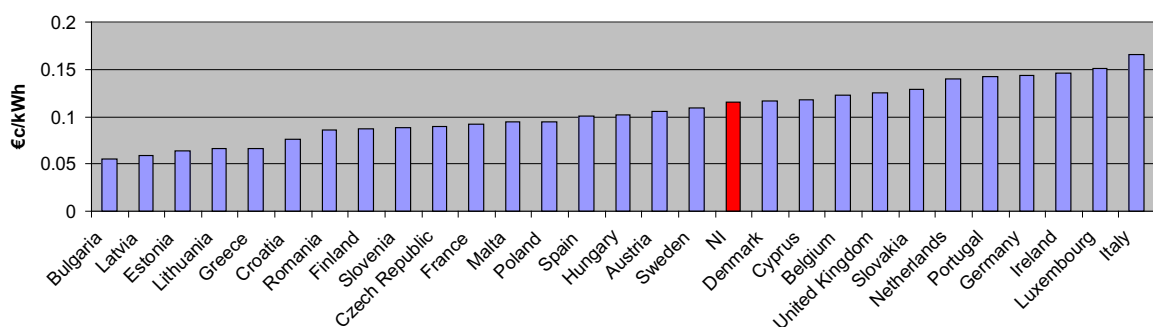


Figure 1 - 2007 domestic electricity prices
 Source: Eurostat

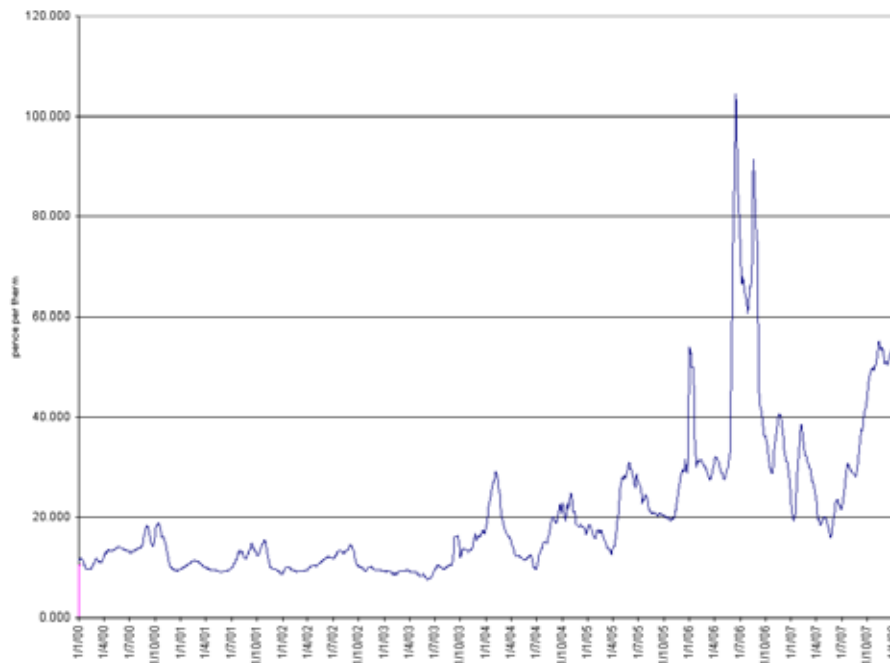
Reliance on gas

The last decade has seen substantial change in Northern Ireland's energy scene. In electricity, the closure of oil-powered station and construction of new generation has largely removed oil from our generation fuel mix, but boosted the importance of gas. Today, gas powers around two-thirds of generation, with coal representing a quarter and oil and renewables making up the rest.

The price of traded gas therefore affects NI consumers both directly (if they are customers of Phoenix or firmus) and indirectly, by affecting electricity prices.

The use of gas as a generation fuel was enabled by the opening of the Scotland-Northern Ireland Interconnector (SNIP) in 1996. The construction of SNIP also enabled the creation of a retail gas market. All of NI's gas is currently imported through SNIP, so that we are exposed to the British wholesale gas market (called the National Balancing Point or NBP).

High exposure to traded gas prices served Northern Ireland well for a number of years as prices remained relatively low throughout the 1990s. However, as figure 2 shows, after the opening of the interconnector between GB and Belgium in 1998 greater volatility entered into NBP prices as Britain and Ireland became the marginal unit of demand in Western Europe. Because Continental markets were dominated by long-term contracts, short-term fluctuations in supply or demand had limited impact on prices elsewhere, but their effects were concentrated into the NBP since that was the main source of liquidity.



*Figure 2 - National Balancing Point wholesale gas prices 1996-2008
 Source: Platts Note: Day-ahead nominal prices.*

Although liquidity has now increased in several European countries (with greater trading at hubs in Belgium, the Netherlands and Germany), recent years have seen higher NBP prices. This is because a new factor has entered the equation: North Sea production has begun to decline sharply. This means that the interconnector not only plays its traditional role of allowing trading between GB and continental prices, but also provides a key source of bulk gas.

Because significant volumes of gas are now being imported to GB from continental markets, we are increasingly affected by how gas is priced across Europe. Continental gas companies typically buy gas through long-term contracts which usually set the price of gas not by reference to gas trading hubs, but by reference to a basket of competing commodities. These baskets are generally dominated by crude oil or by other oil products. There is therefore a direct link between oil prices and NBP gas prices. Since oil is currently trading at historic highs, this is tending to drive up gas prices.

Recent years have also seen the opening of a number of terminals to import liquefied natural gas (LNG) by tanker into GB. This has strengthened security of supply, but has been of limited value in reducing prices since tankers (unlike pipelines) can be re-routed to the highest-price destination. Moreover, the transport costs of LNG are inherently higher than the cost of pipelines. Uncertainty about LNG imports has contributed to volatility, particularly as some terminal construction projects have been delayed. Another important infrastructure factor is that GB has less storage than many other gas markets, which could be used to reduce winter prices and volatility. Northern Ireland does not yet have any gas storage.

These developments have necessarily had an impact in Northern Ireland. Given the importance of gas as a fuel for electricity, rising gas prices lead directly to higher power bills. At the retail level, Phoenix Gas bought its gas for a number of years under a long-term contract with Centrica. However, the fixed-price aspect of this contract expired in 2005, which has led to significant volatility since then. Phoenix seeks to protect its customers from the most extreme volatility by hedging prices up to a year ahead, but they are nevertheless now substantially exposed to high NBP prices.

Looking to the future, gas prices will be influenced by domestic production, the availability and cost of import infrastructure, and the availability and price of gas for import. Substantial infrastructure investments are under way in the GB market, and indeed the construction of LNG and storage projects on the island of Ireland is also under consideration. The Utility Regulator is working with our counterpart in the Republic of Ireland, the Commission for Energy Regulation, to ensure that market rules allow indigenous gas supplies in the Republic to be used in Northern Ireland if this is economic.



As regards the availability of gas, there is no doubt that UK production of gas is in rapid decline. However, Europe as a whole is well-placed to import gas, being centrally placed amid global gas stocks in Siberia, Norway, the Caucasus, the Middle East, North and West Africa, and the Caribbean. It seems likely that these stocks will suffice to ensure security of supply over a timescale of several decades. However, since Western Europe will be competing with other potential destinations for this gas, availability of supplies will not guarantee low prices.

Other fuels

As noted, coal is the second electricity generation fuel and so have some impact on electricity prices (particularly where coal generators are the marginal unit of production and so set the system-wide price). Solid fuels are also an important domestic heat source.

Coal prices have recently risen to historically high levels in the last year. A metric tonne of coal has been traded at over £70/tonne during January-February 2008 while, as figure 3 shows, the average price over 2007 was over £41. These prices compare to a range of £28-£38/tonne during 1996-2006, although coal prices were also high during the early 1990s.

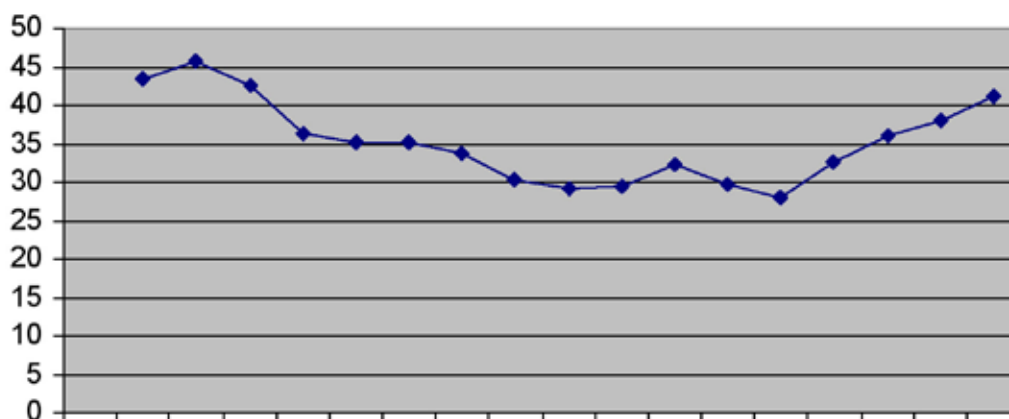


Figure 3 - Average prices of coal purchased by the major UK power Producers (absolute values) £/metric T
 Source: BERR

The main cause of high coal prices seems to be a number of supply-chain bottlenecks which have prevented the coal industry responding rapidly to a very speedy increase in demand. For instance, international shipping prices are also very high at present, and Chinese exports of coal have been low in early 2008 as a result of severe weather at home. However, industry consensus is that substantial reserves of coal exist (allowing continued consumption for many decades at current levels). Moreover, these stocks are to be found in a wide variety of countries, many of them politically stable and reliable producers.



As noted above, oil prices are currently trading at historically record prices, and heating oil prices are also volatile and currently high. As shown by figure 4, domestic fuel oil cost between 1 and 2.5 pence per kWh during 1997-2004, while current prices are around 5p. Although oil is a relatively unimportant fuel for electricity generation in NI today, it is the main domestic heat source.

Rolling Oil Retail Price

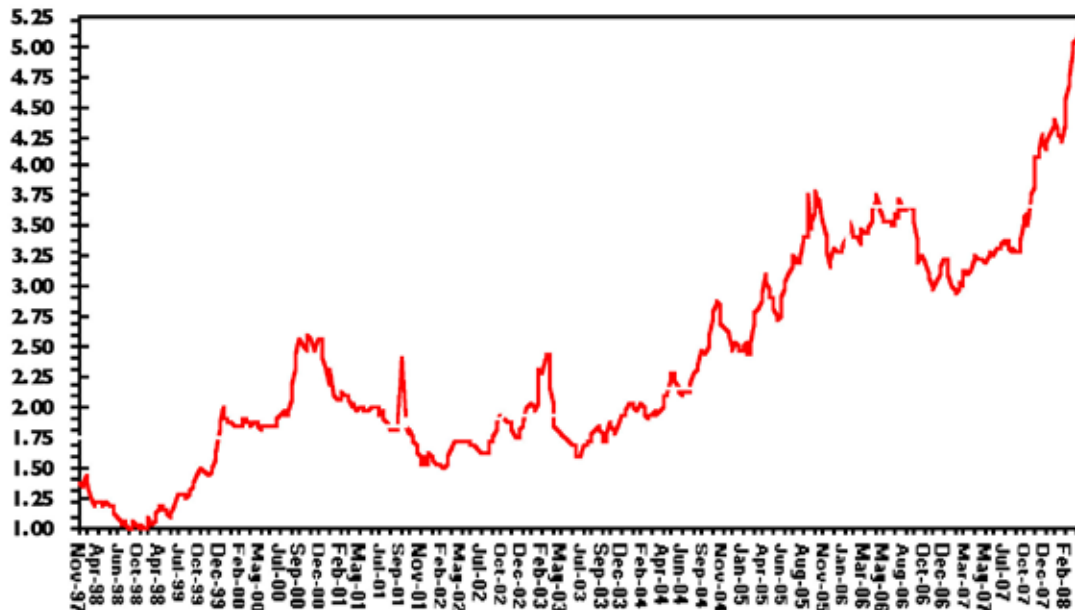


Figure 4 - Domestic fuel oil prices
 Source: Phoenix Natural Gas

The relatively benign long-term outlook for coal production contrasts with oil. Experts hold varying opinions about how long oil production can continue to grow, but few consider that a down-turn in production will be more than a few decades away. This will have a sharper impact on prices because oil products are currently an essential transport fuel, so demand may be relatively inelastic. Moreover, continued production growth seems likely to require high prices as it will come from harder-to-reach reserves. Our limited confidence in the durability of oil production arises partly because oil production is concentrated in less stable or transparent countries.

ENVIRONMENTAL FACTORS

In addition to availability, environmental factors are likely to present a major constraint on NI's consumption of fossil fuels. Northern Ireland's ecological footprint is higher than any other region in the UK, and as noted above, we are heavily reliant on imports of fossil fuels.

Government at EU, UK and NI levels accepts the need for action to prevent dangerous climate change. A fundamental part of this programme is to ensure that consumers pay all of the costs of energy consumption, including the cost of carbon.

A price of carbon is already being passed into the price of electricity in the all-island Single Electricity Market, and some proportion of this cost is being paid directly by NI consumers. The effect is mitigated, however, by the fact that the value of related emissions permits is used to off-set prices here. NI consumers will therefore only pay a proportion of the cost of carbon unless or until existing long-term electricity contracts are cancelled.

The price of carbon is set under the European Union Emissions Trading Scheme (EUETS) and is a function of the number of permits issued and the level of cap imposed. Under the first phase of the scheme, the price was very low owing to a high number of permits being issued. However, carbon prices have been significantly higher under phase two which began in January 2008. Figure 5 shows the increase in electricity prices that was associated

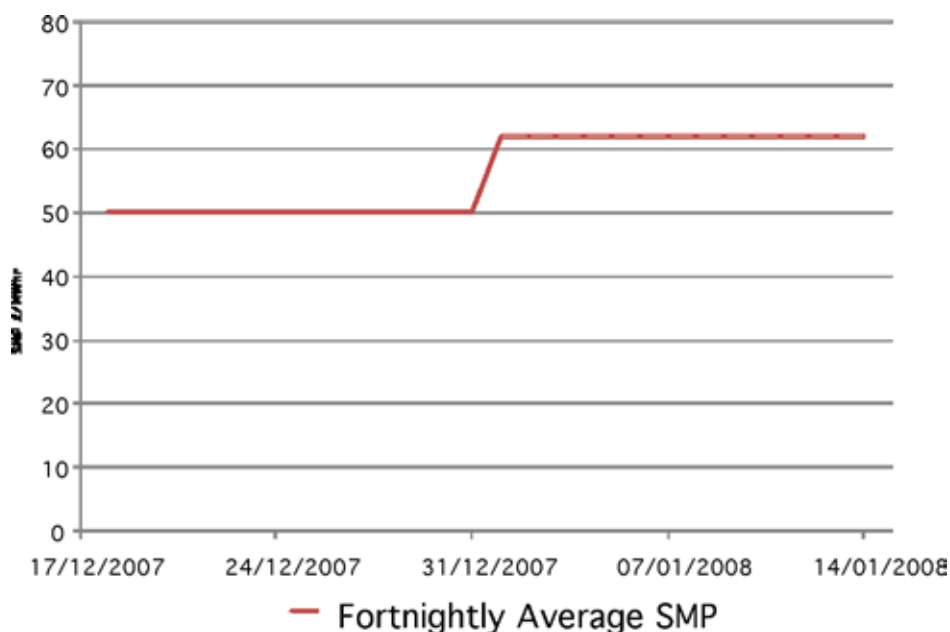


Figure 5 - Increase in electricity (system marginal) price with increase in carbon price
 Source: Utility Regulator market monitoring

with this higher carbon price. The average system marginal price in the two weeks after the introduction of Phase II carbon prices was approximately 20% greater than in the preceding two weeks. (While the majority of this increase can be attributed to the carbon increases, over this period the average gas and coal prices both increased by around 2% and the average system demand increased by 8%.)

IMPACT ON BILLS

Electricity and gas bills include a number of costs: the cost of maintaining the networks of pipes and wires; the cost of the commodity itself; and also the operating costs and margin of the supply business. As shown in figure 6, the largest cost element is the cost of the commodity.

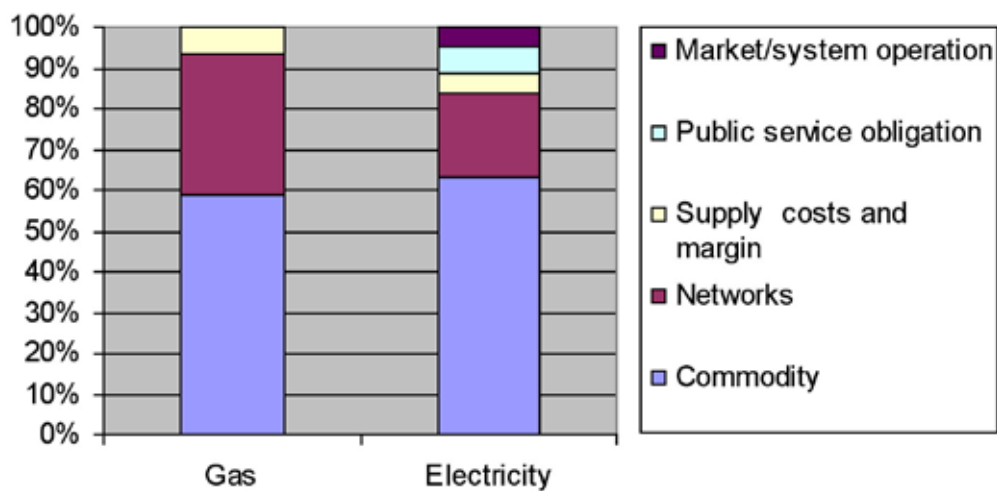


Figure 6 - Make-up of gas and electricity bills
 Source: Phoenix Supply Limited, NIE Energy

The current sharp increases in these commodity costs are leading to unavoidable increases in overall consumer bills. As regulator, we scrutinise carefully proposals by the incumbent energy suppliers to consumer bills, to ensure that prices are as low as they can be. We also ensure that the companies consult effectively with the Consumer Council, to maintain transparency.



NORTHERN IRELAND'S RESPONSE

Although NI policy makers cannot control a number of the factors described above, in a number of ways we can influence our energy future.

While network costs are not the largest element of bills, they are significant. The Utility Regulator therefore continues to hold our local network monopolies to account to operate efficiently. In the last two years we have saved customers around £85m (on a net present value basis):

- In 2006 we negotiated a reduction in the Phoenix rate of return, saving customers around £25m;
- The 2008 mutualisation of Phoenix's transmission assets has saved customers an additional £26m;
- The 2007 Phoenix network price control has removed an annual £6m from consumer bills, worth around £27m; and
- The 2008 price controls on NIE's businesses have reduced costs to consumers by around £7m.

The most significant step in this direction of recent years is the creation of the all-island market for electricity trading. This Single Electricity Market (SEM) is expected to deliver substantial benefits to consumers, lay the foundations for a fully competitive energy market, and facilitate construction of low-carbon generation to improve the sustainability of our energy industry. This innovative project has put Northern Ireland in a European lead: although cross-border market integration is a priority of European energy policy, the island of Ireland is first to have implemented cross-border arrangements for trading of electricity, technical operations and regulation.

The benefits of the SEM are delivered by enabling more efficient network operations and encouraging the entry of more efficient (cheaper) new generation capacity. The benefits from new entry over time will be much larger than the immediate efficiency benefits to consumers, which have been estimated as around £100m over 10 years. Consumers will therefore see the main benefit of SEM over a number of years as new generators enter the market.

Northern Ireland can also reduce its exposure to international fossil fuel prices and to rising carbon prices by reducing our reliance on such fuels, and investing in renewable generation. The share of renewables in NI electricity consumption has increased rapidly over recent years, with on-shore wind turbines being the main technology.



We can expect the renewable sector to expand further. The current target contained in the Department for Enterprise Trade and Investment's Strategic Energy Framework is for 12% of electricity to be generated from indigenous renewable sources by 2010. A large number of new wind projects are currently seeking planning permission to serve Northern Ireland. These could take the percentage of NI demand served by renewables to around 30% within a few years, if it could all be connected and accommodated on the grid.

However, our existing grid is not sufficient to connect all of this capacity, and its connection would create system operation problems to which technical solutions do not so far exist. The results of recent research sponsored by DETI and the Department of Communications, Energy and Natural Resources in the Republic of Ireland suggested that the costs of expanding renewables to 16% of production or more will be at least £2.5bn each year across the whole all-island market. A major expansion of renewables might, therefore, insulate Northern Ireland from fossil fuel volatility, and give us more control over energy costs; but that might mean lower-than-otherwise increases, not energy bills lower than current levels.

The most certain means by which we can reduce energy bills is energy efficiency. Energy efficiency initiatives reduce the overall demand for both electricity and natural gas and therefore reduce costs and also CO₂ emissions from any non renewable energy source. Substantial effort is under way to promote energy efficiency. Some of this is funded directly by government, while as regulator, we require NIE to undertake a number of measures and have set up the Energy Efficiency Levy Scheme. This achieves energy savings of around 430 GWh (NPV total life time savings of measures installed) each year. We have recently announced a review of the Levy Scheme, which will consider if the Scheme could be larger or more effective.

Gas roll-out is generally associated with improvements in energy efficiency: a modern gas boiler and controls can be up to 40% more efficient than an old oil boiler.

In addition, new and challenging EU targets will provide a further impetus for NI to take action to increase its use of renewables and improve energy efficiency.



CONCLUSION

International energy prices are the main reasons for increasing prices in Northern Ireland. Moreover, these markets can give no confidence that energy prices will fall in the near future.

Given this outlook, it is important that NI acts to reduce costs where we can. The main ways of doing this described in this note are:

- Regulatory action to reduce network costs and ensure that, where possible, competitive forces are driving efficiency;
- Reduce our energy consumption; and
- Invest in renewables to insulate us from the high and volatile prices of fossil fuels.

The Utility Regulator will continue to work with government, industry and consumer stakeholders to achieve these goals and ensure that Northern Ireland is building a sustainable energy future.

