

Methodology for Supply Market Indicators

Methodology

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Overview:

The Supply Market Indicators are regular publications which examine the differences between wholesale costs and standard tariff bills for an average customer. This allows us to produce an estimated net margin figure that an energy company may expect to make from an average customer in a year.

This is a methodology report outlining the approach we have taken to produce the estimates. This report also discusses hedging which is an important part of how firms reduce risk against volatile wholesale prices.



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1. Data and methodology

Chapter Summary

This section outlines the methodology and sources used in the Supply Market Indicators. The report introduces the SMI, retail bills, wholesale prices, other costs and margin levels. This section also outlines consumption levels used, which are important to the net margin calculation.

Introduction to the Supply Market Indicators

- 1.1. This document provides a description of the methodology and data we use in our Supply Market Indicators (SMI).
- 1.2. The data and metrics covered in the SMI include:
 - consumption levels;
 - average customer bill;
 - wholesale energy costs;
 - other supply costs (including network charges, environmental supplier obligations and meter costs);
 - gross margin (average customer bill minus wholesale energy costs and other supply costs); and
 - net margin.

Consumption levels

- 1.3. Prices and costs are calculated at an average annual domestic consumption of 3,800 kWh of electricity¹ and 15,300 kWh of gas². These consumption values are for 2012 and we will review them annually, as new consumption data becomes available.

¹ This reflects data from Table 2 in the Department for Energy and Climate Change's (DECC) [Special feature – Domestic energy bills in 2012](#), March 2013 publication.

² This reflects data from Table 3.07 in the Department for Energy and Climate Change's (DECC) [Energy Consumption in the UK \(ECUK\), Domestic data tables, 2013 update](#), July 2013 publication.

Average customer bill

1.4. The average customer bill is an estimate of the average cost paid by retail energy customers on standard tariffs in GB. Any price increases or decreases announced by the Big 6 energy suppliers are incorporated into our latest analysis. A price change announced by a firm, effective two months from the publication of the indicators, will not affect the net margin figure for two months.

1.5. The average customer bill is constructed using monthly prices charged by the Big 6 companies. Each supplier's standard regional tariffs are averaged to give a national average price for each payment method. These national averages are weighted by the proportion of customers on each payment method and by the market share of each company.

1.6. It is important to note that we have not taken into account the impact of discounted and fixed price tariffs as we are carrying out the analysis for a customer on standard tariffs, which remain the most popular tariff form. We are not trying to model supply business profits.

Wholesale energy costs

1.7. The proportion of a customer's final energy bill which is accounted for by wholesale costs varies between suppliers and over time with changing wholesale costs and other costs.

1.8. Wholesale prices can be volatile. Suppliers therefore buy much of their energy requirement over a period of time (hedging) to reduce the effect of large changes in wholesale prices. This helps suppliers to smooth costs and provides them with more certainty over future costs. Wholesale prices on any given day are therefore not a good indicator of suppliers' wholesale costs, nor are short term products such as within-day or day-ahead products.

1.9. We estimate the relationship between wholesale prices and suppliers' wholesale energy costs. Our analysis is based on forward looking wholesale costs. It estimates the expected cost of supplying energy to a customer for the next 12 months at each point in time, based on pricing information available at that time. Costs are based on buying seasonal and quarterly products in electricity and gas, respectively.

1.10. We have estimated costs based on a range of different hedging strategies. These strategies draw on information provided to us as part of the Energy Supply Probe. Our model shows what we believe to be generally representative of wholesale costs across the industry. However, it is important to note that hedging strategies may vary between suppliers and suppliers may change their strategies over time in reaction to market conditions.

1.11. Firms operate a range of trading strategies, including purchasing energy internally and on long-term contracts. By using market-based prices to estimate

wholesale costs, we are pricing energy at the price which firms are able to sell the energy on the wholesale market³.

1.12. The actual weighted average cost of electricity and gas could be different from this if companies purchase energy internally from their upstream generation business at a price different from the prevailing market price. Any margin made on energy bought below market prices would mean an equivalently lower margin in the generation business.

1.13. In Chapter 2 we present costs based on our 12, 18 and 24 month hedging strategies. In the publication we choose a central hedging strategy where costs are based on firms starting to purchase energy 18 months ahead of time t . Figure 2.1 in Chapter 2 show how wholesale costs vary with alternative hedging strategies for electricity. The alternative hedging strategies shown are:

- Firms start to purchase energy 12 months ahead of time t ;
- Firms start to purchase energy 18 months ahead of time t ; and
- Firms start to purchase energy 24 months ahead of time t .

1.14. Prices are weighted to take account of seasonal consumption trends (by quarter for gas and by season for electricity). For electricity, wholesale costs include both losses and our proxy for shaping costs. Wholesale energy cost is calculated by averaging forward electricity and gas product prices over the buying period, assuming a constant rate of purchase.

1.15. The wholesale cost model calculates wholesale costs on a quarterly basis. We convert these values into a monthly series by taking a straight line average between quarterly points.

Other supply costs

1.16. The components of other supply costs are network charges (transmission and distribution), balancing costs, meter costs, RBD costs, environmental and social supplier obligations (Energy Companies Obligation - ECO, Renewables Obligation Certificates - ROCs, Feed in Tariffs - FiTs and the Warm Homes Discount scheme⁴), other direct costs and VAT. Note that electrical losses and shaping costs are included within the wholesale cost of electricity, as is the cost of the EU Emission Trading Scheme (EU ETS), which is borne by electricity generators and will be reflected in the wholesale cost of the electricity generators sell.

1.17. 'Other costs' are the expected costs over the next 12 months. The estimates incorporate new costs and obligations affecting energy suppliers. Changes in environmental or emissions obligations are incorporated into our estimate as soon as they become effective.

³ Formally this is known as an opportunity cost methodology.

⁴ Warm Homes Discount scheme is replacing social tariffs as a means of assisting priority customers with their energy bills.

Gross margin

1.18. Gross margin is calculated as the difference between the average customer bill and the sum of wholesale costs and other supply costs.

Net margin

1.19. The net margin is calculated as the difference between gross margin and operating costs. Operating costs include customer service staffing, IT, sales and marketing, billing and bad debt costs.

1.20. Detailed operating cost data was collected from the Big 6 as part of the Energy Supply Probe for the period 2005 to 2007. We updated our operating costs based on information provided to us by the Big 6 in connection with our Retail Market Review. We produce weighted average operating costs for electricity and gas based on the market shares of the Big 6 (on a customer numbers basis) to represent the operating costs of a representative supplier. This is consistent with our method of calculating the average retail bill.

Rolling average

1.21. Net margin figures are prone to fluctuations and can vary significantly in a twelve month period. This is due to a number of factors, including changes in wholesale prices or environmental costs. To smooth out the effect of large increases or decreases and provide an alternative metric to a snapshot net margin level, over an extended period, the SMI uses a rolling average figure.

1.22. The rolling average figure used in the SMI takes the average net margin figure over a thirteen month period. For any given month, the rolling average figure is calculated based on the average of the previous six months, the current month and the following six months. If you are calculating the rolling average for January 2013, this is based on the average of July 2012 to July 2013 inclusive.

1.24. The advantage of this method is that it reflects general trends in the net margin, but smoothes out volatile fluctuations in the figure that can be seen when looking at data for a specific date.

2. Hedging Strategies

Chapter Summary

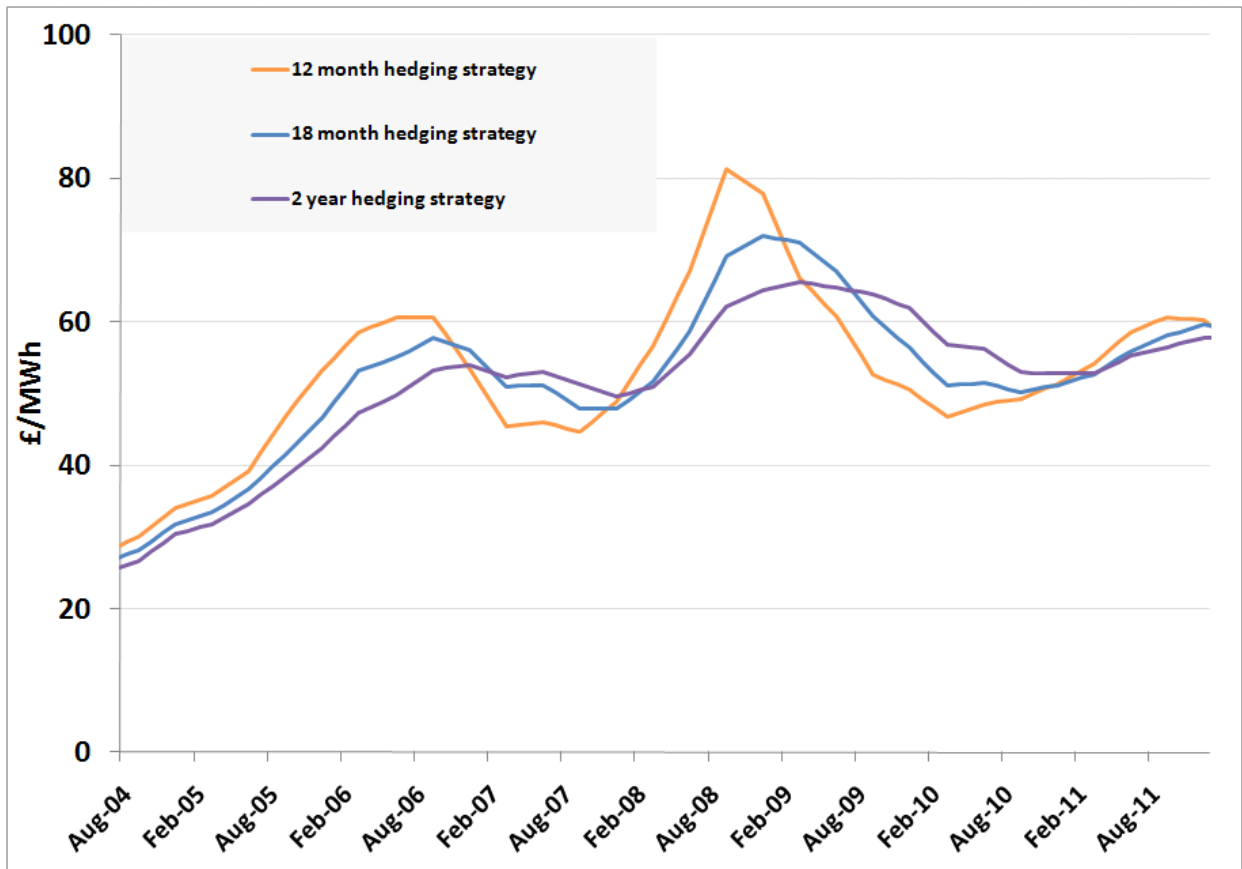
This section provides additional information on the hedging strategies used in our estimates.

Analysis of hedging Strategies

2.1. Suppliers buy much of their energy requirement over a period of time to reduce the effect of large changes in wholesale prices. This practice is known as hedging.

2.2. Hedging helps suppliers to smooth their costs and provides suppliers with more certainty over future costs. This allows firms to manage risk against large increases in the spot price of energy. As a result the price they can charge customers is less volatile than if they did not hedge. Hedging strategies may vary from supplier to supplier according to their business objectives. Suppliers may also change their hedging strategies over time in reaction to market conditions or for other business reasons.

2.3. The charts below depict the costs to suppliers of adopting hedging strategies over 12, 18 and 24 months for both electricity and gas. These hedging strategies were designed based on information collected in the Energy Supply Probe and are intended to represent the industry as a whole rather than any particular firm.

Figure 2.1: Electricity hedging strategies

2.4. Figure 2.1 shows that wholesale electricity costs can vary significantly based on the hedging strategy employed. The 12 month hedging strategy is more volatile than the other two strategies. Prices in 2007 were lower with this strategy than the alternative options. However, prices were much higher in 2008 and part of 2009, in reaction to rising wholesale costs.

2.5. The 2 year strategy is much more stable, but in times of falling prices can often be the most expensive strategy to use. This method is much slower to pick up price changes, which at times of rising bills can be positive, but will be slow to react to falling wholesale prices.

2.6. The method employed in our work is the 18 month strategy, which is less volatile than the 12 month strategy. Based on our work for the probe, we feel this is the most appropriate hedging strategy to use.

2.7. The analysis would show a similar pattern for gas.