

## Industrial energy prices

### Introduction

In June 2012, final estimates of industrial energy prices in 2011 are published in Section 3 of DECC's *Quarterly Energy Prices* publication.

This article provides background to industrial energy prices and analysis of price movements both within the last year and over the past few years. It also contains details of the different industrial price tables published in *Quarterly Energy Prices* and explanations of their strengths and weaknesses, which may help users to determine which table (or tables) is best suited for their particular needs (please see summary at end of article).

### Background

UK energy prices are influenced by a number of factors, both local and global. Prices of primary fuels (gas, coal, oil) will obviously affect the price of secondary fuels (electricity, road fuels), but can also themselves be affected by the price of the other primary fuels. In particular, coal and gas can act as substitutes in electricity generation.

The price of crude oil is the main driver of energy prices. The cost of petroleum products will clearly reflect the price of oil; however, gas prices have also historically been linked to oil, and as initially oil and then gas have formed a major input to electricity generation, the price of electricity has in the past also been driven by oil prices.

In a competitive energy market, prices tend to vary by consumption, reflecting the bargaining position of larger users and factors such as length of contracts and the relative impact of crude prices on fuel prices. Larger consumers can negotiate lower prices, but may be more dependent on wholesale spot prices, and therefore more vulnerable to price spikes, whereas smaller consumers tend to be on more stable contracts with generally higher unit prices.

### Wholesale prices post-2000

#### Oil prices

The price of crude oil has been on an upward trend since the early years of this century. The start of the Iraq War in 2003, hurricane damage to US refineries in 2005, conflict in Lebanon in 2006, and increased demand from emerging economies, geopolitical tensions, and the weak dollar in 2008 all led to price increases. Crude oil prices peaked in real terms in 2008, reaching over \$140 per barrel in cash terms in July (10 per cent higher than the real terms peaks reached in the late 1970's), before dropping sharply into December 2008 as the world economy slowed. Prices increased from January 2009 on, with prices in 2011 staying above \$100/barrel. In the first quarter of 2012, prices were in the range of \$120 - \$125/barrel, due to concerns over potential Iranian supply disruption, but in April the crisis in the Eurozone caused prices to fall. By early June, prices had fallen below \$100/barrel on several days.

#### Gas prices

Since 2000, UK Continental Shelf gas production has been declining. In 2004, the UK became a net importer of gas for the first time since 1996. The UK imports gas from Europe via pipelines, and from further afield via tankers of Liquid Natural Gas (LNG), and so gas prices in the UK are affected by both local and global price effects. Gas prices in Europe are commonly linked to oil prices, so oil price fluctuations can have significant impacts on European gas prices which feed through to UK wholesale gas prices, and hence to prices paid by UK industry.

#### Electricity and coal prices

Electricity prices in the UK are strongly linked to gas prices as gas has been a significant generation fuel since the 1990's and has been the majority generation fuel since 2008. Coal is also an important generation fuel, and coal prices are indirectly affected by oil prices, though less so than gas, as the cost of oil impacts on the cost of coal production and transport. Since 2000, coal

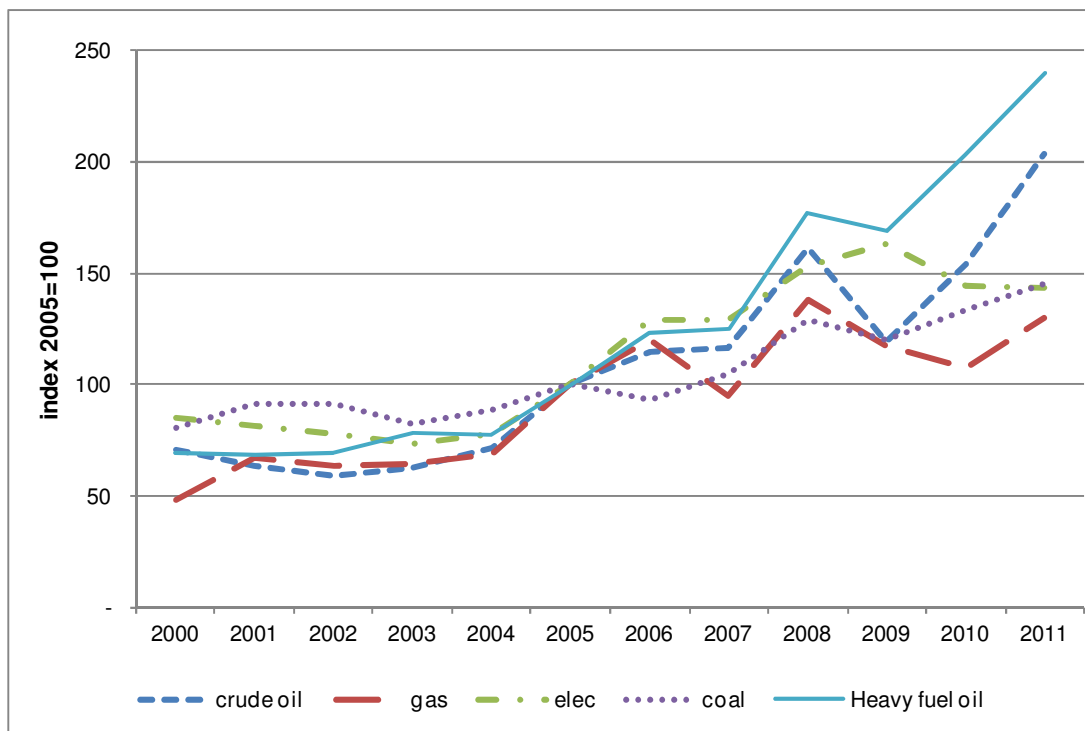
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prices have increased above the highs in the early 1980's, and in the past few years the price of coal has increased sharply due to demand from China and India.

### Petroleum product prices

Products refined from crude oil, such as road fuels, gas oil and fuel oil, are obviously closely linked to the price of crude oil and follow oil price fluctuations. Other factors affecting petroleum product prices are the rates of hydrocarbon oil duty and VAT.

**Chart 1: Industrial fuel price indices, 2000 – 2011, real terms**



Source: Tables 3.3.1, 4.1.1

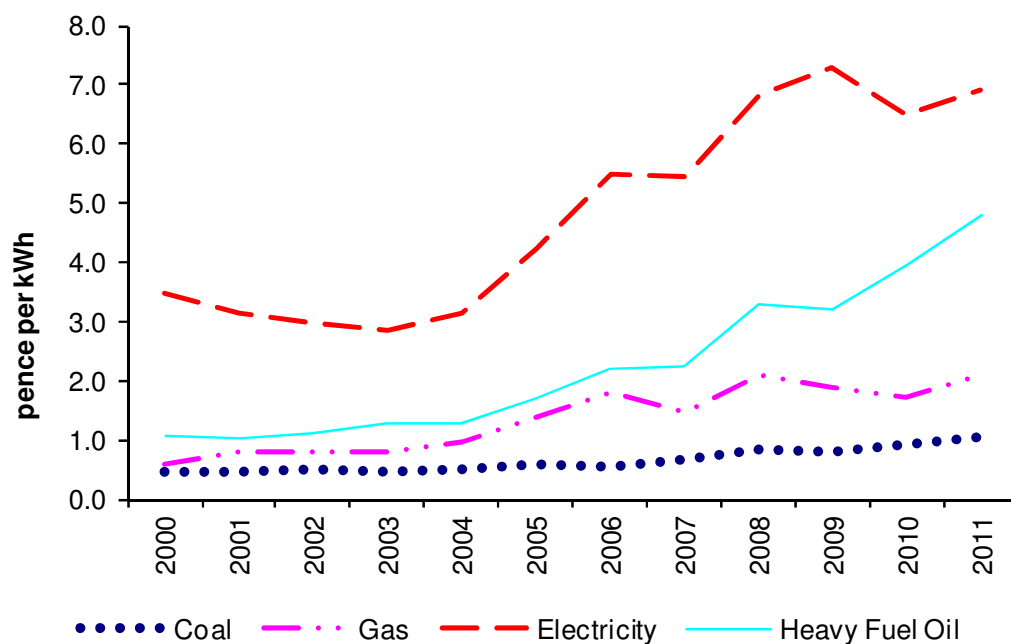
Chart 1 above shows how average industrial gas, electricity, coal and fuel oil prices compare to crude oil prices. The indices for the 4 fuels closely follow the pattern of the crude oil index. The crude oil price spike in 2008 and the fall that followed in 2009 are clearly shown in the crude price index, and reflected in the indices of the other fuels, especially fuel oil.

There is a lag between the change in the price of oil and that of other fuels. The lag is shortest for oil products, like fuel oil. For electricity the lag is delayed, as the prices of coal and gas, the major generating fuels, have to change before being passed through to the price of electricity.

### **Prices in 2011**

Average 2011 prices for fuels have increased over 2010 prices in cash terms. Electricity prices increased by 6 per cent, coal prices by 11 per cent, and gas and heavy fuel oil prices by 21 per cent. In comparison, crude oil prices increased by around 40 per cent.

Over the past five years (2006 to 2011), in cash terms gas prices have increased by 17 per cent, electricity prices by 26 per cent, coal prices by 83 per cent and heavy fuel oil prices by 120 per cent. Crude oil prices increased by around 80 per cent.

**Chart 2: Fuel prices for manufacturing industry, 2000 – 2011, cash terms**

Source: Table 3.1.4

### Quarterly Energy Prices industrial price tables

There are 4 main sets of industrial energy price tables:

- Tables 3.1.1 – 3.1.4
- Table 3.2.1
- Tables 3.3.1 – 3.3.2
- Tables 3.4.1 and 3.4.2

Between them, the tables provide price data and price indices for different sectors and different consumptions, in current and real terms, including and excluding the Climate Change Levy (CCL). As the tables have different coverage, prices in different tables may move to a different degree, or even in a different direction, depending on factors such as the sector coverage, consumption sizeband, inclusion or exclusion of CCL, and whether the data is in current or real terms. Each set of tables has its own uses, strengths and weaknesses.

#### Tables 3.1.1 – 3.1.4

These 4 tables show price data for manufacturing industry<sup>1</sup> for 5 common fuels – coal, heavy fuel oil, gas oil, electricity and gas – by sizeband, quarterly and annually, in original units and pence per kilowatt-hour (p/kWh), quarterly from Q1 1989 and annually from 1990. The tables use data taken from a quarterly survey of manufacturing industries. The lengthy series of actual prices by consumption sizeband is a considerable strength – data from the series is known to be used as an escalation factor in contracts worth millions of pounds. Factors for users to be aware of include the reducing sample size for the minority fuels, especially coal, which reflects less use in manufacturing industry; and the restriction of the survey coverage to manufacturing industry – although the prices can be used as a proxy for all industry, smaller commercial consumers purchasing low volumes of fuel may find that the price data is not entirely reflective of their experience. To maximise the coverage of each fuel type and minimise the burden on business, larger users are surveyed proportionally more than smaller users. The sample

<sup>1</sup> Manufacturing industry defined as Section C Divisions 10 to 33 inclusive in SIC 2007.

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error from the survey is shown in the methodology notes, available on the DECC website at: [www.decc.gov.uk/media/viewfile.ashx?filetype=4&filepath=Statistics/source/prices/369-industrial-price-statistics-methodology.pdf&minwidth=true](http://www.decc.gov.uk/media/viewfile.ashx?filetype=4&filepath=Statistics/source/prices/369-industrial-price-statistics-methodology.pdf&minwidth=true)

### Table 3.2.1

This table shows average prices of the 3 major fossil fuels purchased by power generators for the purpose of generating electricity – coal, gas and oil. Data are available quarterly and annually back to 1990 and are collected via a quarterly survey of major power generators. Whilst the data does not show prices paid by industrial consumers, it can be used in conjunction with other industrial price tables to indicate potential price levels for very large purchasers of some fuels.

### Tables 3.3.1 – 3.3.2

These 4 tables show quarterly and annual industrial energy price indices for coal, gas, electricity and heavy fuel oil back to 1970, in current and real terms, including and excluding CCL. The tables are not derived from one survey but use a variety of data sources. The strength of the series is that data is available back to 1970. It is also the only industrial table published by DECC to show data in both current and real terms. The limitations are that the data are indices, not actual prices, and do not factor in consumption – the indices will tend to follow the price movements of larger users.

### Tables 3.4.1 and 3.4.2

These tables show quarterly and annual price data, by sizeband, for all non-domestic consumers of gas and electricity since Q1 2004, including and excluding CCL. The tables use data provided by gas and electricity suppliers. As the survey used to construct the tables covers all non-domestic users, commercial and small business users are included, and such users may find the prices in the smaller sizebands more reflective of their experience than the data in Table 3.1.1. The limitations are mainly the relatively short time span of the data compared to the other tables, and the lack of data on coal and oil.

## Summary

In general, all data tables have their positive points but each suffers from downsides. Sample sizes and coverage vary between tables, with Table 3.3.1 having the greatest coverage, followed by Table 3.4.1, and then Table 3.1.1. For electricity and gas, headline growth figures are taken from Table 3.3.1 including CCL, and this table should be used if constant price data are required. For price levels, users are recommended to use Table 3.4.1, though if the object of interest is specifically manufacturing, or if a longer time series is required, then Table 3.1.1 should be used. For heavy fuel oil, gas oil and coal, Table 3.1.1 should be used.

DECC Table	Coverage	Sizebands	Fuels	CCL	Prices/Index
3.1.1 – 3.1.4	Manufacturing industry	Y	Coal, Heavy Fuel Oil, Gas Oil, Gas, Electricity	N	Prices (original units & p/kWh)
3.3.1 – 3.3.2	Manufacturing industry	N	Coal, Oil, Gas, Electricity	Y	Index
3.4.1 – 3.4.2	Non-domestic	Y	Gas, Electricity	Y	Prices (p/kWh)

## User feedback

Please send any comments or queries about this article to:

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