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TRADE AND INDUSTRY**

**GAS AND ELECTRICITY
PRICE PROJECTIONS**

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Executive Summary

This report presents analysis of retail energy price projections for industrial and domestic customers in the UK, together with an assessment of potential changes in the relative price competitiveness of the UK against the EU and G7 comparator group, as defined in the public service agreement (PSA) energy-competitiveness target.¹

The UK price projections cover the period up to 2008/09, and focus on likely trends in the most important cost components of a customer's bill:

- wholesale energy purchase costs;
- network charges (transmission and distribution);
- retail charges and supply margins.

A definitive analysis of future energy prices throughout the EU and G7 countries lay outside the scope of this project; thus, the focus has centred on the likely price drivers, examining their relative effects in each country.

UK electricity price scenarios

The electricity price scenarios are derived by combining the cost scenarios for each component of prices according to the weighting of the component in the bill for that type of consumer (industrial and commercial (I&C) or domestic). Typically, the I&C bill is driven by changes in the wholesale purchase costs (which account for approximately 60% of the total bill), whereas domestic bills involve much higher supply and network costs.

Table 1 below shows, for each scenario, the projected movement in each of the major cost elements. The future wholesale costs exhibit the widest range of potential cost movement, between 20% and 66% higher by 2008/09 than in 2003/04. This range of potential costs arises due to assumptions on a combination of factors, of which the most important are:

- the introduction of the EU Emissions Trading Scheme (EU ETS);
- the introduction of the Large Combustion Plants Directive;
- input fuel prices;
- generator entry and exit decisions.

¹ The PSA target is to 'ensure the UK ranks in the top 3 most competitive energy markets in the EU and G7 in each year'.

Table 1: Scenarios for movements in cost components (2003/04 = 100)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Wholesale cost change (including BSUOS, losses and RO)						
High	100.0	133.2	143.9	149.1	150.3	166.0
Medium	100.0	133.2	133.5	141.0	138.5	144.8
Low	100.0	133.2	120.9	124.2	114.5	119.6
Transmission cost						
High	100.0	97.8	97.1	97.5	95.2	96.8
Medium	100.0	97.8	97.1	97.5	94.1	93.5
Low	100.0	97.6	96.0	94.3	89.2	87.7
Distribution cost						
High	100.0	95.3	101.9	103.5	104.8	106.5
Medium	100.0	96.5	98.5	99.2	99.7	100.5
Low	100.0	97.8	95.1	94.9	94.6	94.4
Supply cost¹						
All scenarios	100.0	100.0	100.0	100.0	100.0	100.0

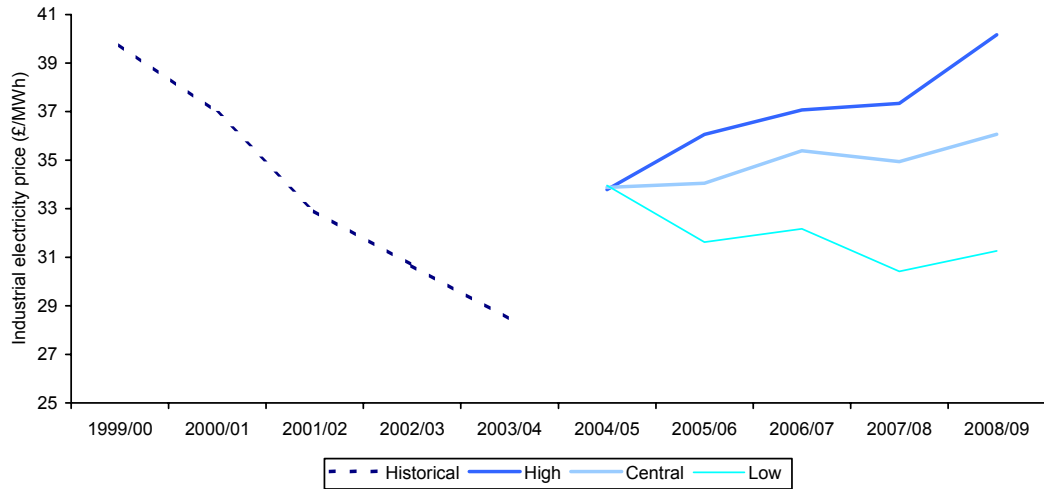
Notes: ¹ Only refers to actual supplier costs; changes in supplier margin are dealt with separately.
BSUOS, balancing services use of system. RO, Renewables Obligation.

Source: OXERA.

Projections of absolute end-use prices have been generated by applying the scenarios in Table 1 to the historical 2003/04 figures for I&C and domestic electricity prices, as quoted in the Department of Trade and Industry's (DTI's) quarterly energy price statistics. These projections are shown in Figures 1 and 2 below.² In the I&C market, the different scenarios predict price rises of between 10% and 41% up to 2008/09, with a lower range of increases in the domestic market of between 9% and 32%, reflecting the lower impact of wholesale generation costs on the overall bill.

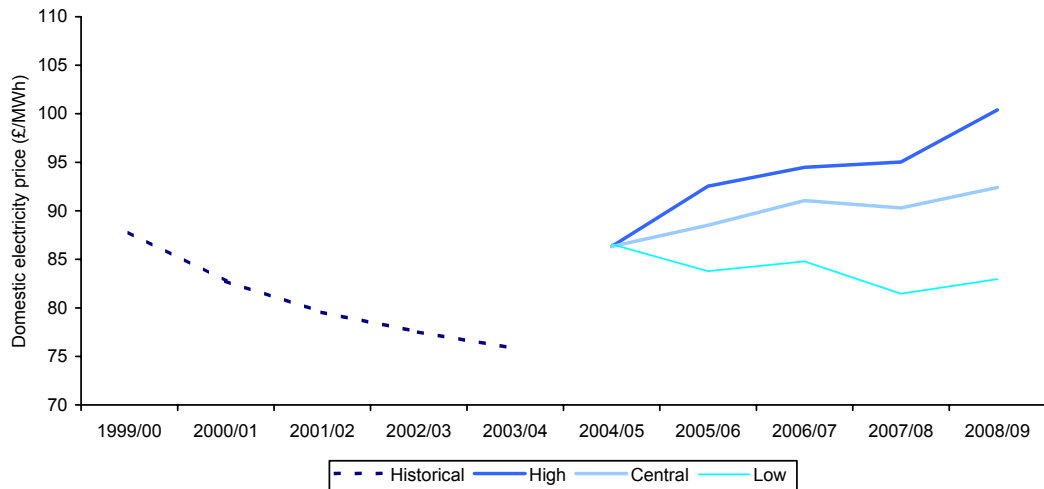
² The jumps in prices from the 2003/04 base year, shown in Figures 1 and 2, reflect the full impact of the changes in cost components of bills (as shown in Table 1) being passed through in tariffs in the year that they occur.

Figure 1: I&C electricity price projections (£/MWh)



Note: Historical prices are derived from Table 3.1.1 of the DTI’s quarterly electricity prices statistics, adjusted to 2003/04 real prices.
 Source: OXERA.

Figure 2: Domestic electricity price projections (£/MWh)



Note: Historical prices are derived from Table 2.2.3 of the DTI’s quarterly electricity prices statistics, adjusted to 2003/04 real prices.
 Source: OXERA.

UK gas price scenarios

A similar analysis to that carried out for the electricity prices was undertaken for the gas market. However, as the price controls for the network businesses are set until at least 2006/07, scenarios were produced solely for the wholesale gas purchase costs, as shown in Table 2.

Table 2: Scenarios for movements in cost components (2003/04 = 100)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Gas purchase cost						
High	100	138	138	128	128	128
Medium	100	138	128	123	119	114
Low	100	138	119	109	95	95
Network charges						
Transmission (all scenarios)	100	96	94	90	87	85
Distribution (all scenarios)	100	97	95	90	88	85
Supply cost						
All scenarios	100	100	100	100	100	100

Source: OXERA analysis.

The wholesale price scenarios are shown in Table 3 below, and represent various views of the evolution of the key drivers of the wholesale price:

- the broad supply–demand balance;
- the identity of the marginal supply source;
- the strength of the link with mainland Europe prices;
- the likely speed of development of gas-on-gas competition in the European market as liberalisation progresses.

Table 3: Wholesale gas price projections, 2003 prices (pence/therm)

	Gas price		
	Low	Central	High
2004/05	29	29	29
2005/06	25	27	29
2006/07	23	26	27
2007/08	20	25	27
2008/09	20	24	27

Source: OXERA analysis.

The scenarios take account not only of the current market sentiment in the forward curve, but also of broader changes in the key drivers affecting price formation set out above. In particular, the scenarios differ according to the nature of the competitive constraints on gas prices in the UK market. Essentially, the existence of the Bacton–Zeebrugge interconnector implies that there is a relationship between UK and continental European prices such that, if prices are high in mainland Europe, it is likely that prices will be high in the UK. Going forward, the speed of liberalisation in mainland Europe markets will affect the extent to which gas-on-gas competition develops, and therefore the transition towards a cost-based price for gas in European wholesale markets.

Applying these costs scenarios to appropriate end-user bill weightings results in the price projections shown in Table 4. Unlike for electricity, it is not obvious that price rises will emerge for gas, assuming the high current price of gas is already reflected in customer bills.

Table 4: Scenarios for movements in end-user gas bills (pence/therm)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
I&C						
High	23.82	29.97	29.84	27.96	27.79	27.64
Central	23.82	29.97	28.23	27.15	26.18	25.23
Low	23.82	29.97	26.62	24.75	22.17	22.02
Domestic						
High	54.26	63.53	63.13	59.82	59.30	58.86
Central	54.26	63.53	60.63	58.57	56.81	55.12
Low	54.26	63.53	58.13	54.82	50.56	50.12

Source: OXERA analysis.

Comparison with EU and G7 prices

An indicative assessment of how these price scenarios would impact on the relative price competitiveness of the UK against the EU and G7 countries has also been performed. For both electricity and gas, the assessment considered whether the same cost drivers were present for the other countries and how strong the impact was likely to be relative to the impact in the UK. From this qualitative position some implications for the vulnerability of the UK's price ranking could be ascertained.

Electricity comparison

Table 5 below summarises the effect of various electricity price drivers in each country relative to the UK. In interpreting the table, a 'positive' effect will encourage prices to rise relative to the UK, while a 'negative' effect will encourage them to fall.

Table 5: Summary of price drivers relative to the UK

	Fuel costs	EU ETS	Supplier costs	Supplier margins
Austria	Negative	–	Neutral	Neutral
Belgium	Weak negative	–	Positive	Positive
Canada	–	n/a	Weak negative	Weak negative
Denmark	Negative	Weak positive	Weak positive	Weak positive
Finland	Negative	Weak positive	Weak positive	Weak positive
France	Negative	Positive	Positive	Positive
Germany	Negative	Positive	Positive	Positive
Greece	–	–	Positive	Positive
Ireland	Positive	Neutral	Positive	Positive
Italy	Positive	Positive	Positive	Positive
Japan	–	n/a	Weak negative	Weak negative
Luxembourg	Neutral	–	Positive	Positive
The Netherlands	Weak negative	Positive	Weak positive	Weak positive
Portugal	Negative	–	Positive	Positive
Spain	Negative	Neutral	Positive	Positive
Sweden	Negative	Weak positive	Neutral	Neutral
The USA	–	n/a	Weak negative	Weak negative

Note: n/a = driver not applicable; – = no data available for driver.

Source: OXERA.

In general:

- fuel costs are expected to exert larger pressures on prices in the UK than in most other countries, with the exception of Italy and Ireland, which, like the UK, have a high reliance on natural gas for electricity generation;
- supplier costs and margins in the UK already reflect supplier competition, while these costs are expected to rise in most other markets as competition is introduced.

Considering the range of potential prices for the UK, the impact of the drivers in Table 5 above, and the current price ranking in both the I&C and domestic markets of eighth and sixth respectively, it is likely that the UK's ranking will drop slightly to ninth and eighth in the I&C and domestic markets.

Gas comparison

Table 6 presents the same qualitative assessment for the drivers on gas costs and prices. On the wholesale side, given that the UK has a relatively competitive wholesale market that is linked to mainland Europe, it is to be expected that the UK price will reflect the prices being charged in the rest of Europe (whether these are determined by cost of gas or alternative fuels); hence, the difference is likely to be in transportation costs linked to the marginal gas sources. For example, the UK will be better off than Ireland because it is closer to the gas markets; however, countries such as Germany

and Austria, which are close to the main transit routes for Russian gas, for example, will see less severe price changes than the UK.

On the retail side, the supply margins and costs in other countries may be expected to increase relative to the UK, as liberalisation increases the riskiness of the businesses and raises costs associated with activities such as advertising and marketing of new tariffs.

Table 6: Indicative impact on competitiveness of key gas price drivers relative to the UK

	Wholesale costs	Supplier costs	Supplier margins
Austria	Negative	Neutral	Weak positive
Belgium	Weak negative	Weak positive	Positive
Canada	–	–	–
Denmark	Neutral	Weak positive	Positive
Finland	–	–	–
France	Weak negative	Weak positive	Strong positive
Germany	Negative	Neutral	Neutral
Greece	–	–	–
Ireland	Positive	Positive	Positive
Italy	Neutral	Weak positive	Positive
Japan	–	–	–
Luxembourg	–	Positive	Positive
The Netherlands	Weak negative	Positive	Weak positive
Portugal	–	–	–
Spain	Neutral	Neutral	Positive
Sweden	Positive	Neutral	Positive
The USA	–	Weak negative	Weak negative

Note: Finland, Portugal and Greece have very immature gas markets where standard market drivers are less important to price. – = no data available for driver

Source: OXERA analysis.

Currently, the UK is ranked second and fifth in international price comparisons for I&C and domestic gas tariffs respectively. Given the likely impact of the drivers, as presented in Table 6, it is likely that these rankings will slip to fourth and sixth.

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1. Introduction

This report has been produced as part of the project, 'Methodology to Determine the Relative Extent of Energy Market Competition in Europe and the G7', that OXERA is undertaking for the Department of Trade and Industry (DTI). In addition to an analysis of the performance of the UK's energy market against the public service agreement (PSA) energy-competitiveness target in both 2002 and 2003, a price projection was requested, covering:

- future industrial and domestic electricity and gas prices in the UK;
- potential changes in the relative price competitiveness of the UK against the EU and G7 comparator group, taking account of the range of price drivers identified in the UK market projections.

The UK price projections cover the period up to 2008/09, and focus on the likely trends in the most important cost components of a customer's bill:

- wholesale energy purchase costs;
- network charges (transmission and distribution);
- retail charges and supply margins.

The projections for electricity and gas differ in terms of the level of detail, since OXERA was able to draw on existing analysis of electricity-market drivers undertaken earlier in the year, to provide more detail on the main cost drivers, without affecting the overall budget for the project.

A definitive analysis of future energy prices throughout the EU and G7 countries would entail detailed modelling of the wholesale and retail markets within each country. As this level of analysis lies outside of the scope of this project, OXERA has focused on the likely price drivers, examining the relative effect of these in each country. Hence, the price competitiveness of the UK is assessed by combining the analysis of price drivers with current price levels in each of the comparator countries.

The report is structured as follows:

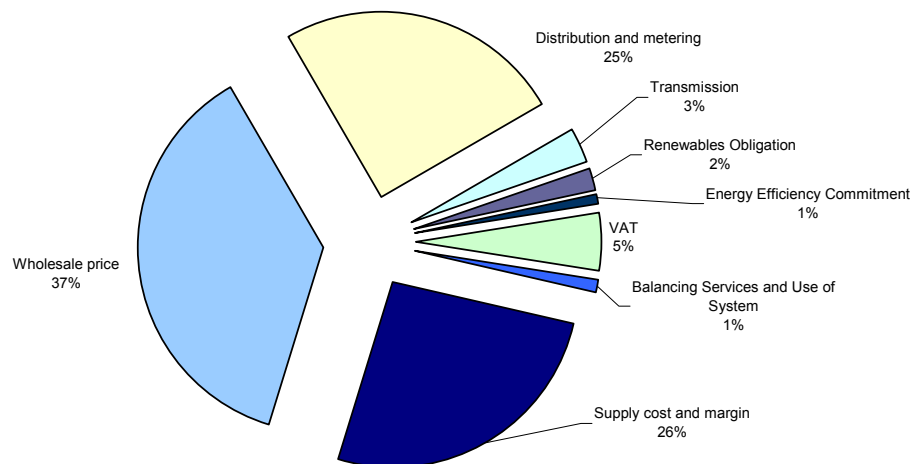
- section 2 presents the UK electricity price projections, describing the most important price drivers for each component;
- section 3 assesses the relative price competitiveness of UK electricity prices through an analysis of the relative strength of the identified drivers on the comparator countries;
- sections 4 and 5 repeat the analysis for gas prices.

2. UK Electricity Price Projections

This section investigates the likely trends in UK industrial and domestic electricity tariffs for the period up to 2008/09. In recent years, there has been a steady decline in real electricity prices. However, current expectations are that electricity prices will begin to increase again over the next few years, as a result of changes in several of the fundamental drivers of electricity prices.

A number of elements make up the cost of electricity purchased by end-use customers. Figure 2.1, taken from Ofgem's review of domestic competition in April 2004, provides a breakdown of the average bill for a domestic direct-debit electricity customer.³ The figure illustrates that most of the cost to domestic customers is made up of three elements: the wholesale cost of electricity, distribution and metering costs, and supplier cost and margin.

Figure 2.1: Breakdown of a domestic direct-debit electricity bill



Source: Ofgem (2004), 'Domestic Competitive Market Review', April.

For I&C customers, it is more difficult to make an accurate assessment of the cost breakdown, due to the broad range of customer size and required level of service. For example, supply contracts may include distribution charges, while some larger customers may purchase electricity directly from the wholesale market. Cost-breakdown assumptions for industrial and commercial (I&C) customers were based on the European Commission's benchmarking report,⁴ which estimates the price breakdown for a customer using 24GWh/year.⁵

³ Ofgem (2004), 'Domestic Competitive Market Review', April.

⁴ European Commission (2004), 'Third Benchmarking Report on the Implementation of the Internal Electricity and Gas Market', DG TREN Draft Working Paper, March.

⁵ The European Commission data does not distinguish between transmission and distribution costs; therefore, it has been assumed that transmission costs for I&C customers are the same in absolute terms as those used for domestic customers.

OXERA analysed the likely evolution of the main cost categories, together with the estimated proportion of a customer's bill that each category represents, to estimate the likely changes in end-use prices for both domestic and I&C customers. The weightings assumed for each cost element are shown in Table 2.1, while the analysis of how each cost element might change over time is outlined in more detail in the following sub-sections.

Table 2.1: Indicative cost breakdown for domestic and I&C customers (% of total bill)

	Domestic	I&C
Wholesale (incl. Balancing Services and Use of System, losses and the RO)	40	60
Transmission	3	5
Distribution	25	24
Supply	26	11
Other	6	–
Total	100	100

Sources: National Audit Office (2003), 'The New Electricity Trading Arrangements in England and Wales', May; and OXERA calculations.

2.1 Wholesale electricity prices

The primary drivers of wholesale electricity prices are the fundamental economics of supply and demand, influenced by factors such as input fuel costs, generation capacity, and electricity demand patterns. However, over the next few years, the introduction of environmental legislation such as the Large Combustion Plants Directive (LCPD) and the EU Emissions Trading Scheme (EU ETS) will have an impact on the operational flexibility and costs of electricity generators, which, in turn, is likely to result in upward pressure on wholesale prices.

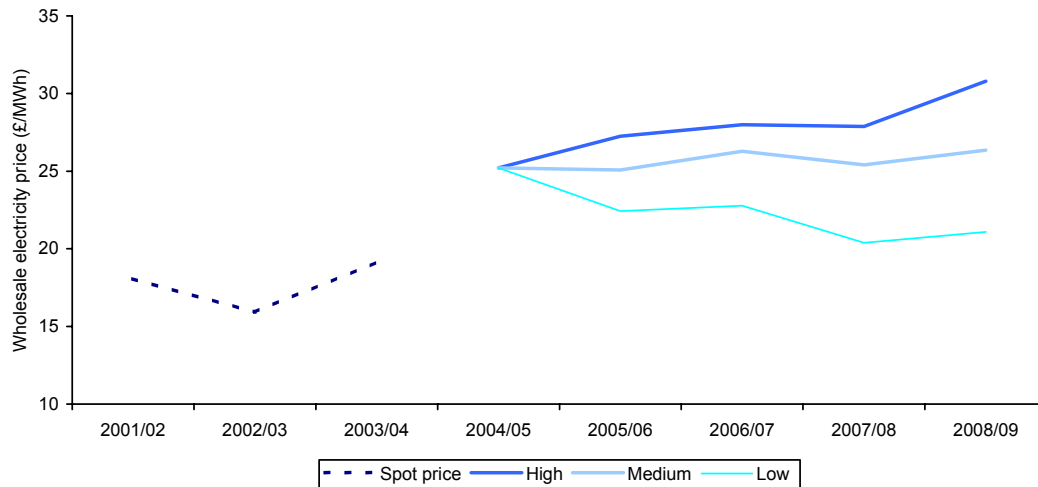
Analysis of GB wholesale electricity prices is based on OXERA's established Wholesale Electricity Market Model. This model uses a comprehensive dataset of GB-generating assets and takes into account expected developments in demand growth, input fuel price movements, environmental constraints, and carbon trading. The model has been used to develop three scenarios of the potential movement in wholesale electricity prices up to 2008/09. For each scenario, a consistent set of market entry, exit and mothballing decisions have been modelled, to represent the interactions between market prices and generators' investment decisions. The fuel and carbon price assumptions used in each scenario are shown in Table 2.2.

Table 2.2: Scenario assumptions for wholesale market modelling

	Coal price (£/tonne)			Gas price (pence/therm)			Carbon allowances (£/tonne CO ₂)		
	Low	Central	High	Low	Central	High	Low	Central	High
2004/05	37.8	37.8	37.8	29	29	29	–	–	–
2005/06	29.8	33.2	35.2	25	27	29	5	8	10
2006/07	24.5	28.8	32.6	23	26	27	5	8	10
2007/08	19.9	24.9	29.9	20	25	27	5	8	10
2008/09	19.8	24.8	29.7	20	24	27	5	10	15

Source: OXERA.

The results of OXERA's wholesale market modelling are presented in Figure 2.2, together with historical wholesale market prices.⁶ Projected prices for 2004/05 show a significant increase over 2003/04 levels, principally due to a large increase in expected fuel prices. These increases are consistent with current forward market prices. The differences in the projected prices between the three scenarios are due to differing fuel and carbon price assumptions. Furthermore, environmental factors such as the EU ETS and the LCPD provide upwards pressure on prices across all scenarios in 2005/06 and 2008/09.

Figure 2.2: Historical and projected wholesale market prices, 2003/04 real (£/MWh)

Source: UKPX and OXERA calculations.

⁶ Historical prices are based on average UKPX spot prices, adjusted to real 2003/04 levels.

Table 2.3: Wholesale market price projections, 2003/04 real (£/MWh)

	Low	Central	High
2004/05	25.20	25.20	25.20
2005/06	22.43	25.08	27.25
2006/07	22.78	26.29	27.99
2007/08	20.38	25.39	27.88
2008/09	21.08	26.36	30.79

Source: OXERA.

For the purposes of this analysis, the costs of the Renewables Obligation (RO), Balancing Services and Use of System (BSUOS) charges, and transmission losses have been included with the wholesale market price projections to reach an overall cost for purchasing wholesale electricity. OXERA has assumed that BSUOS charges and transmission losses will remain constant in real terms; however, the cost of meeting the RO has been assumed to rise, in line with changes in its size. However, the impact of the RO on electricity consumers will be limited through suppliers being able to 'buy out' of their obligation at an administered price, currently £30.51/MWh.⁷ As such, the impact of the RO on end-use prices can be estimated by multiplying the buy-out price by the proportion of suppliers' volumes to be met from renewable sources. These calculations and the levels assumed for transmission losses and BSUOS charges are shown in Table 2.4.

Table 2.4: Additional wholesale cost assumptions

			RO	
	Transmission losses (%)	Impact of BSUOS (£/MWh) ¹	Obligation size (%)	Cost (£/MWh)
2003/04	1.445	1.20	4.3	1.31
2004/05	1.445	1.20	4.9	1.49
2005/06	1.445	1.20	5.5	1.68
2006/07	1.445	1.20	6.7	2.04
2007/08	1.445	1.20	7.9	2.41
2008/09	1.445	1.20	9.1	2.78

Notes: ¹ The average BSUOS charge for 2003/04 was £0.6/MWh; however, as the BSUOS is levied on generation and consumption volumes, the overall impact on end-use prices is £1.2/MWh

Sources: ELEXON, the National Grid Company (NGC) and OXERA.

2.2 Transmission costs

The three transmission companies in Great Britain are each subject to RPI – X price-control regulation. For the two Scottish transmission companies (SP Transmission Limited, SPTL, and Scottish Hydro-Electric Transmission Limited, SHETL), the current price controls were originally set to expire on March 31st 2005. The National Grid Company's (NGC) price control was intended to cover the five-year period up to March 31st 2006. However, Ofgem is currently working towards rolling forward all three price

⁷ The buy-out price is increased each year in line with inflation.

controls until March 31st 2007, to provide greater continuity throughout the planned introduction of the British Electricity Trading and Transmission Arrangements and to align with Transco's price control for the gas transmission system.

A major driver on the future level of transmission costs is the expectation that transmission companies will need to undertake significant infrastructure investment up to 2010 and beyond, to accommodate the projected growth in renewable generation. In June 2003, the DTI published estimates from the three transmission companies of the additional cumulative costs of accommodating different levels of renewable generation.⁸ A recent consultation by Ofgem also investigated the issue of transmission investment for renewable generation, and included the transmission companies' estimated renewables-related infrastructure expenditure over the next three years, as shown in Table 2.5.⁹

Table 2.5: Estimated infrastructure expenditure relating to renewables over the next three years (£m)

	SHETL	SPTL	NGC	Total
2004/05	–	7	10	17
2005/06	80	64	48	192
2006/07	100	72	79	251

Sources: Ofgem from figures provided by NGC, SPTL and SHETL.

OXERA has created three scenarios of the future development of transmission charges. These scenarios are based on the assumption that the current price controls will be rolled forward to March 31st 2007, but adjusted to account for the additional expenditure shown in Table 2.5. From April 2007, the scenarios are based on OXERA's calculation of the possible price-control outcomes, weighted across the three transmission companies according to revenue. The 'low' scenario broadly represents a repetition of the outcomes seen at DPCR3. However, OXERA considers that smaller price reductions or even price rises are more likely, if other building-block components do not exhibit major changes. The 'central' scenario takes account of the incremental cost impact of connecting 2 GW of wind generation in Scotland and up to 4.7 GW in England and Wales, without reinforcement in the upper north-west. Finally, the 'high' scenario reflects the costs associated with 6 GW of wind generation connecting to the system in Scotland. The cost estimates in both the central and high scenarios were based on the data published in the DTI's June report.¹⁰ Transmission-revenue allowances could lie outside the range presented here, if other elements such as operating expenditure (OPEX) and efficiency analysis of the next price review suggest more or less scope for price reductions than at the last review.

⁸ DTI (2003), 'The Transmission Issues Working Group: Final Report', June.

⁹ Ofgem (2004), 'Transmission Investment for Renewable Generation', May.

¹⁰ DTI (2003), 'The Transmission Issues Working Group: Final Report', June.

Table 2.6: Transmission price-control revenue scenarios (£m)

	Low	Central	High
2004/05	874	875	875
2005/06	864	874	874
2006/07	853	882	882
2007/08	812	856	866
2008/09	802	855	885

Source: OXERA.

2.3 Distribution costs

There are 14 distribution network operators (DNOs) in Great Britain, each responsible for electricity distribution in a distinct geographical area. Due to the natural monopoly nature of electricity distribution, Ofgem imposes a price control on each DNO, limiting the prices they are allowed to charge customers. The current price controls expire in April 2005, and Ofgem is currently undertaking a review for the next five-year price-control period, which will set out the revenue levels that the distribution companies can earn.

Previous price controls have been typified by reductions in distribution charges in real terms, as companies were forced to become more efficient. However, there are a number of large cost drivers that suggest that the next price control could result in constant or rising real distribution charges. Factors that are likely to influence distribution costs include:

- increased capital expenditure to deal with asset replacement and maintaining security of supply;
- investment required to accommodate distributed generation;
- reduced scope for continuing efficiency improvements in OPEX;
- potential changes to depreciation allowances as pre-Vesting assets approach the end of their assumed asset lives.

Price-control figures for the next control period have not yet been finalised; however, as part of Ofgem's review, the DNOs have been asked to provide forecasts of their future costs and price-control revenues.¹¹ Ofgem subsequently produced its own initial proposals for the allowed price-control revenues.¹² Although the final price-control revenues have not yet been agreed, it is reasonable to assume that the final allowed revenues will fall within the range of the DNOs' forecasts and Ofgem's initial proposals. This range was used as the basis for OXERA's assumptions for the potential change in GB-wide distribution costs, as shown in Table 2.7.¹³

¹¹ Ofgem (2004), 'Electricity Distribution Price Control Review: Policy Document—Summary of DNO Forecasts Appendix', March.

¹² Ofgem (2004), 'Electricity Distribution Price Control Review: Initial Proposals', June.

¹³ Forecasts vary significantly across individual DNOs; therefore, customers in different regions could face different price changes. In addition, the profile of revenues varies between scenarios such that the Low scenario has the highest revenue allowance in the first year of the analysis 2004/05 but the lowest overall revenue allowance across the price-control period.

Table 2.7: Historical and forecast total DNO price-control revenues (£m)

		Low (based on Ofgem initial proposals)	Central	High (based on DNO forecasts)
2000/01	Actual	3,018	3,018	3,018
2001/02	Actual	3,032	3,032	3,032
2002/03	Actual	3,048	3,048	3,048
2003/04	Forecast	3,004	3,004	3,004
2004/05	Forecast	2,952	2,915	2,879
2005/06	Forecast	2,878	2,982	3,086
2006/07	Forecast	2,880	3,010	3,141
2007/08	Forecast	2,880	3,035	3,190
2008/09	Forecast	2,881	3,065	3,250
2009/10	Forecast	2,880	3,091	3,302

Note: Figures are in real 2002/03 prices.

Source: OXERA calculations from data published by Ofgem.

2.4 Supplier costs

The supply component of electricity bills reflects the costs incurred by suppliers, such as marketing and invoicing/billing costs, along with a margin reflecting supplier profit. Although there is no evidence to suggest that, over the next few years, there will be any changes to the real cost of undertaking supply activities, there is the potential for variation in supplier profit margins.¹⁴

In its report on the new electricity trading arrangements (NETA), the National Audit Office identified that reductions in the wholesale price of electricity following the introduction of NETA did not appear to be fully passed through to domestic consumers, which, in turn, has led to increased supplier margins.¹⁵ One explanation given for this phenomenon is that suppliers may smooth the impact on end-users of fluctuations in wholesale costs by accepting fluctuations in their margins over time. If this is the case, part of the projected increase in wholesale costs may be absorbed through a reduction in supplier margins. Ofgem's review of competition in the domestic electricity and gas markets suggested that electricity supply businesses might currently be earning profit margins of 5–8%.¹⁶ OXERA has assumed that higher wholesale prices and competitive pressures will reduce margins to the low end of this range from 2004/05 onwards.

In the I&C sector, there is no evidence to suggest that there will be any significant changes to supplier costs or margins. In a 2003 review of competition in the I&C supply market, Ofgem concluded that I&C supply markets appear broadly competitive.¹⁷ However, the regulator did find that the risks inherent in supplying large customers are such that only certain suppliers may be willing to assume them, thereby limiting entry in

¹⁴ OXERA has assumed that relevant taxes, such as the Climate Change Levy, remain at current levels.

¹⁵ National Audit Office (2003), 'The New Electricity Trading Arrangements', May.

¹⁶ Ofgem (2004), 'Domestic Competitive Market Review 2004: A Review Document', April.

¹⁷ Ofgem (2003), 'Review of Competition in the Non-domestic Gas and Electricity Supply Sectors: Initial Findings', July.

this segment of the market. Consequently, the large I&C market is highly concentrated, with all customers supplied by the top six suppliers, and with a Hirschmann–Herfindahl index (HHI) of 3,353.¹⁸ However, Ofgem concluded that high concentration does not necessarily indicate low levels of competition, as significant levels of buyer power in a large market can counteract supplier power.

2.5 Overall impact on electricity prices

Table 2.8 shows, for each scenario, the projected movement in each of the major cost elements. These movements have been used, in conjunction with the weighting factors shown in Table 2.1, to model the potential movements in overall I&C and domestic prices. Finally, projections of absolute end-use prices have been made by applying the overall movements in prices to the historical 2003/04 figures for I&C and domestic electricity prices, as quoted in the DTI's quarterly energy price statistics. These projections are shown in Table 2.9, and illustrated in Figures 2.3 and 2.4.

Table 2.8: Scenarios for movements in cost components (2003/04 = 100)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Wholesale cost change (including BSUOS, losses and RO)						
High	100.0	133.2	143.9	149.1	150.3	166.0
Medium	100.0	133.2	133.5	141.0	138.5	144.8
Low	100.0	133.2	120.9	124.2	114.5	119.6
Transmission cost						
High	100.0	97.8	97.1	97.5	95.2	96.8
Medium	100.0	97.8	97.1	97.5	94.1	93.5
Low	100.0	97.6	96.0	94.3	89.2	87.7
Distribution cost						
High	100.0	95.3	101.9	103.5	104.8	106.5
Medium	100.0	96.5	98.5	99.2	99.7	100.5
Low	100.0	97.8	95.1	94.9	94.6	94.4
Supply cost¹						
All scenarios	100.0	100.0	100.0	100.0	100.0	100.0

Note: ¹ Only refers to actual supplier costs; changes in supplier margin are dealt with separately.

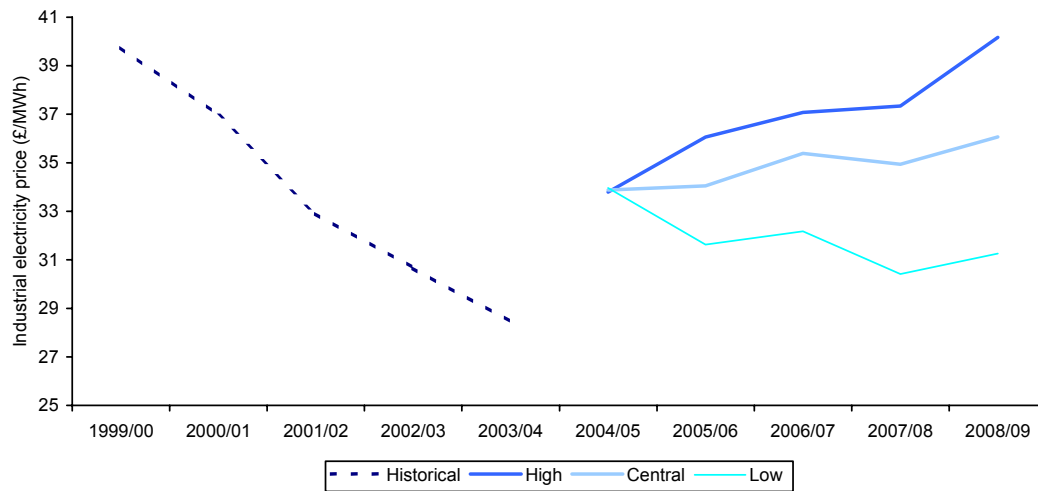
Source: OXERA.

¹⁸ The HHI is calculated by summing the square of each company's market share. It is commonly used to measure the degree of concentration in an industry or sector. A market with an HHI of above 1,800 is generally regarded as highly concentrated.

Table 2.9: Projected electricity prices (£/MWh)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Domestic						
High		86.32	92.53	94.48	95.03	100.40
Central	75.80	86.32	88.52	91.06	90.29	92.39
Low		86.54	83.80	84.80	81.45	82.97
I&C						
High		33.79	36.06	37.07	37.34	40.16
Central	28.44	33.88	34.05	35.39	34.94	36.07
Low		33.96	31.63	32.17	30.42	31.26

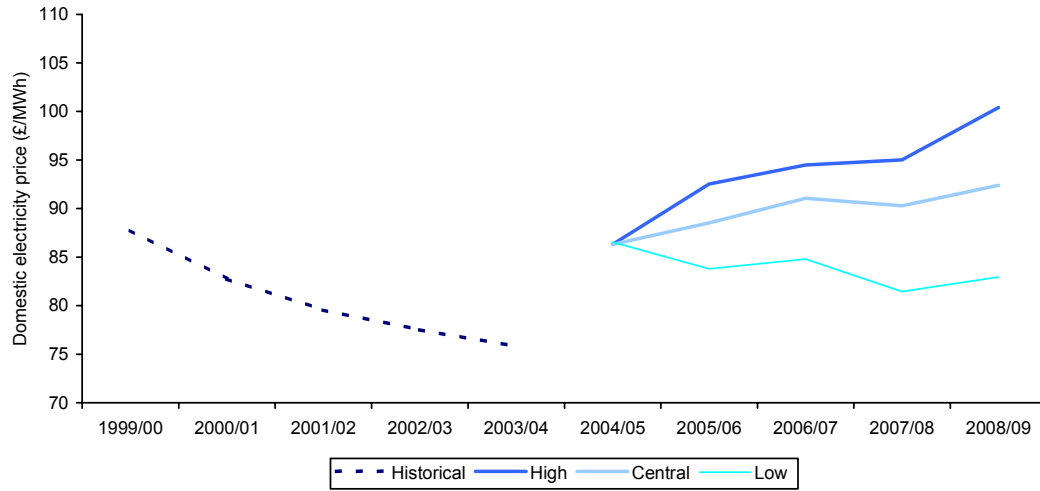
Source: OXERA.

Figure 2.3: I&C electricity price projections (£/MWh)

Note: Historical prices are derived from Table 3.1.1 of the DTI's quarterly electricity prices statistics, adjusted to 2003/04 real prices.

Source: OXERA.

Figure 2.4: Domestic electricity price projections (£/MWh)



Note: Historical prices are derived from Table 2.2.3 of the DTI’s quarterly electricity prices statistics, adjusted to 2003/04 real prices.

Source: OXERA.

3. Electricity Prices in EU and G7 Countries

A definitive analysis of future electricity prices throughout the EU and G7 countries would entail detailed modelling of the wholesale and retail markets within each country. Since this level of analysis lies outside of the scope of this project, OXERA has focused on the likely price drivers, examining the relative effect of these in each country. The price competitiveness of the UK can be assessed by combining the analysis of price drivers with current price levels in each of the comparator countries.

Electricity prices for industrial and household consumers in EU and G7 countries, based on data from the International Energy Agency (IEA), are presented in Tables 3.1 and 3.2. These show that, of the countries where data was available, the UK had the eighth lowest prices for I&C consumers and sixth lowest for domestic customers. This compares with 2002 when the UK was ranked tenth and fourth respectively. The IEA price data differs slightly from the DTI UK energy price statistics used as a basis for the price projections in section 2. The DTI's March 2004 quarterly energy prices indicated I&C prices of £28.44/MWh (compared with the IEA price of £31.72/MWh) and domestic prices of £75.8/MWh (compared with £70.76/MWh).

Table 3.1: I&C electricity prices (£/MWh)

Rank ¹	Country	2000	2001	2002	2003
1	Austria	25.12	26.37	25.35	23.18
2	Spain	28.42	28.45	27.35	25.01
3	Germany	27.10	30.54	29.35	26.84
4	France	23.80	24.29	24.68	27.45
5	Greece	27.76	29.84	30.68	28.06
6	Belgium	31.73	33.31	32.02	29.28
7	The USA ²	30.41	34.70	32.02	30.50
8	The UK	36.36	35.39	34.68	31.72
9	The Netherlands	37.68	40.95	39.35	35.99
10	Finland	25.78	26.37	28.68	39.65
11	Portugal	24.46	31.23	32.68	50.63
12	Denmark	38.34	41.64	46.69	55.51
13	Ireland	32.39	41.64	50.03	57.34
14	Italy	58.83	74.26	75.37	68.93
15	Japan	94.52	88.14	76.71	70.15
Unranked	Canada	n/a	n/a	n/a	n/a
Unranked	Luxembourg	n/a	n/a	n/a	n/a
Unranked	Sweden	n/a	n/a	n/a	n/a

Notes: n/a = data not available. Shaded figures relate to individual years where data is not available; in such cases, the figure used is the most recent available year (eg, 2000 for Austria), but adjusted for changes in exchange rates. ¹ Rank refers to 2003 prices. ² Prices exclude tax for the USA.

Source: IEA (2004), 'Energy Prices and Taxes: First Quarter 2004'.

Table 3.2: Domestic electricity prices (£/MWh)

Rank ¹	Country	2000	2001	2002	2003
1	Greece	46.93	48.58	51.36	46.97
2	The USA ²	54.20	58.99	56.03	53.07
3	Spain	77.34	75.65	72.70	66.49
4	Finland	51.56	53.44	56.70	68.32
5	Luxembourg	65.44	68.01	74.70	68.32
6	The UK	70.73	70.09	70.04	70.76
7	Germany	79.98	86.06	82.71	75.64
8	France	67.42	68.01	70.04	77.47
9	Belgium	87.25	91.61	88.04	80.52
10	Ireland	66.76	65.24	71.37	89.06
11	Austria	78.00	82.59	86.71	92.72
12	Italy	89.24	102.71	104.05	95.16
13	Portugal	79.32	81.89	84.71	95.16
14	Japan	141.45	130.47	116.06	106.14
15	The Netherlands	86.59	106.88	103.39	117.73
16	Denmark	130.22	135.33	139.40	156.16
Unranked	Canada	n/a	n/a	n/a	n/a
Unranked	Sweden	n/a	n/a	n/a	n/a

Notes: n/a = data not available. Shaded figures relate to individual years where data is not available; in such cases, the figure used is the most recent available year (eg, 2001 for Spain), but adjusted for changes in exchange rates. ¹ Rank refers to 2003 prices. ² Prices exclude tax for the USA.

Source: IEA (2004), 'Energy Prices and Taxes: First Quarter 2004'.

Future UK price competitiveness will be determined by the way in which UK prices move relative to other countries. OXERA's UK electricity price projections suggest that, by 2008/09, real UK electricity prices could be between £32/MWh and £40/MWh for industrial consumers, and from £85/MWh to £100/MWh for domestic customers. As a result, the UK could fall to tenth and 13th place respectively for industrial and domestic consumers, if prices in other countries remain at 2003 levels. However, as prices are likely to change in other countries, it is important to consider how prices elsewhere are likely to move relative to those in the UK, in particular, countries with the most similar prices to those in the UK or with current prices close to the level projected for the UK by 2008. The relevant countries for the I&C market are the Netherlands and Finland, while the important comparators for household prices are Germany, France, Belgium, Ireland, Austria, Italy and Portugal.

3.1 Drivers of future electricity prices

Electricity prices in many of the other countries in this study are likely to be influenced to varying degrees by the same drivers as those in the UK—ie, changes in fuel costs, environmental legislation, competition and network investment. These drivers fall into three main categories:

- wholesale production or purchasing costs;
- network costs;
- supplier costs and margins.

The most significant drivers are those that have an impact on wholesale prices, and supplier costs and margins. Drivers of network costs will also affect the electricity prices in each country; however, since much of this part of the industry is regulated, changes are expected to be less significant and more difficult to predict than those in the other two areas. Furthermore, little information is available at present on the potential for future changes in country-specific network costs.

3.1.1 Wholesale costs

The most important drivers of UK wholesale costs up to 2008 relate to changes in input fuel prices, the introduction of emissions trading, and the need for new generation. These drivers are also expected to influence prices throughout Europe, although the degree of impact is likely to vary from country to country. Market structures, generator fuel mixes, and the level of interconnection with other markets will influence the way in which each driver feeds through to wholesale prices in each country.

Forward electricity prices can be used to obtain an indication of how the market expects electricity prices to evolve in different countries. Table 3.3 shows forward market prices for several European countries as well as the average 2003 wholesale price. This table indicates that, while wholesale prices are expected to rise significantly in the UK relative to 2003 levels, prices in other markets, particularly Germany and France, are expected to remain more stable. The reasons for these differences are explored in greater detail below.

Table 3.3: Historical and forward electricity prices as at June 3rd 2004 (€/MWh)

	2003 historical ¹	Year ahead (2005)	2006	2007
The UK	30.74	41.08	42.05	–
Germany	34.56	33.70	33.95	35.03
The Netherlands	49.28	39.65	38.43	37.85
France ²	29.22	32.20	32.53	33.58
Spain	30.66	31.63	–	–
Austria	34.62	33.68	–	–
Nord Pool	35.80	32.11	–	–

Notes: ¹ Prices refer to average of day-ahead, over-the-counter trades reported throughout the year, with the exception of France, where the price refers to the average traded price on the powernext exchange.

Sources: Energy Argus except ² which comes from www.powernext.fr

Natural gas prices

The UK is typically more reliant on natural gas for electricity production than most other countries (see Table 3.4). Over the last year, gas prices have risen sharply throughout Europe and are anticipated to remain at relatively high levels for several years. In addition, as discussed in OXERA's gas price projections, the price competitiveness of UK gas is likely to fall relative to mainland Europe, as the UK begins to import more gas, and gas-on-gas competition begins to evolve in Europe. Increasing gas prices are likely to influence

electricity prices across Europe; however, because of its greater reliance on gas, this effect is likely to be stronger in the UK.

Table 3.4: Fuel mix for electricity generation in 2001 (%)

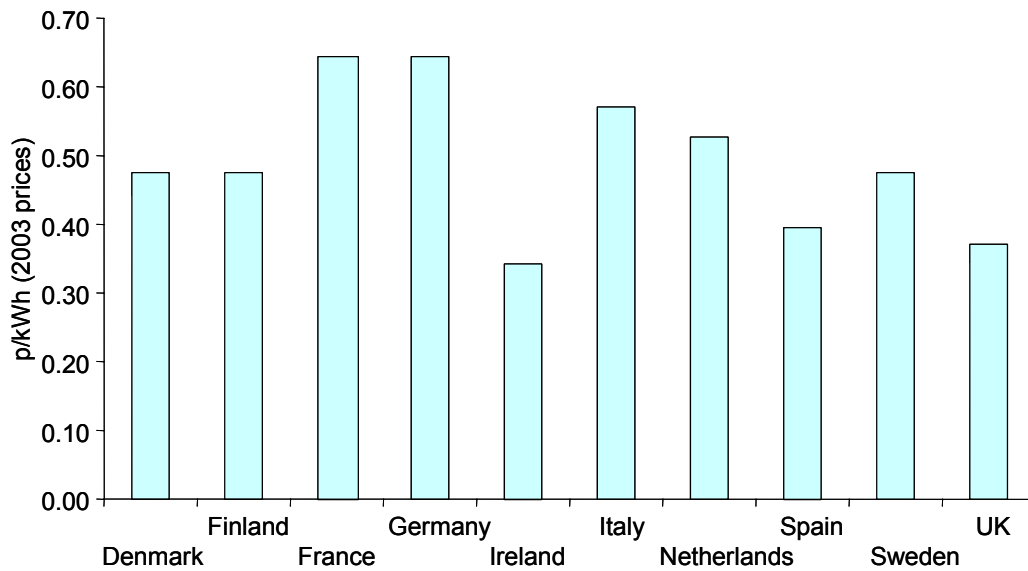
	Coal	Oil	Gas	Nuclear	Hydro	Other
Austria	12.7	3.2	13.6	–	67.0	3.5
Belgium	16.2	2.1	20.1	59.0	0.6	2.1
Canada	20.1	2.9	6.1	13.0	56.7	1.3
Denmark	47.3	11.1	24.6	–	0.1	17.0
Finland	23.5	0.9	15.5	30.6	17.7	11.8
France	4.5	1.0	3.1	77.1	13.6	0.7
Germany	51.9	1.1	9.9	29.5	3.5	4.1
Greece	66.8	16.0	11.6	–	4.0	1.8
Ireland	37.6	21.1	37.1	–	2.4	1.7
Italy	13.5	27.6	38.3	–	17.2	3.4
Japan	23.1	11.3	24.9	31.0	8.1	1.1
Luxembourg	–	–	56.0	–	26.7	17.3
The Netherlands	28.5	3.3	58.9	4.2	0.1	4.8
Portugal	29.5	20.2	15.6	–	30.4	4.2
Spain	30.6	10.5	10.0	27.1	17.5	4.4
Sweden	2.1	1.7	0.2	44.6	49.0	2.5
The UK	34.8	1.9	37.2	23.5	1.1	1.6
The USA	51.3	3.5	16.7	20.9	5.2	2.4

Source: IEA (2003), 'Energy Policies of IEA Countries 2003 Review'.

Emissions trading

The EU ETS is expected to have a significant influence on wholesale electricity prices across the EU owing to its effect on generators' marginal costs. Under the EU ETS, generators will receive a fixed volume of carbon allowances. Those who exceed their allocation will be required to purchase additional allowances from the market, while those who use less than their allocation will be able to sell their excess. This means that the use of carbon allowances for electricity generation represents a marginal opportunity cost for the generator, which, in turn, will have an impact on the marginal price of electricity. The magnitude of this impact will depend on the relative carbon intensity in each country. A recent study commissioned by the DTI and conducted by ILEX Energy Consulting suggests that, on an opportunity-cost basis, the EU ETS could increase wholesale electricity prices in various countries by between £3.30/MWh and £6.40/MWh (see Figure 3.1).¹⁹

¹⁹ ILEX Energy Consulting (2004), 'Impact of the EU ETS on European Electricity Prices', report for the DTI, August 11th.

Figure 3.1: Estimated opportunity cost of the EU ETS, 2005 (2003 prices, p/kWh)

Source: ILEX Energy Consulting.

Although the above figure gives an indication of the possible opportunity cost of the EU ETS, it is widely anticipated that, in some markets, there will not be full pass-through of marginal costs. The most significant factors affecting the level of cost pass-through will be the degree of market competition, the initial allocations embodied in each country's National Allocation Plan (NAP), and the regulatory constraints in each country.

In general, more competitive markets are likely to result in greater levels of cost pass-through. In markets dominated by a small number of large generators, there will be an incentive for generators to absorb some of the marginal cost in order to protect/increase their market share or to limit new entry. In markets with low levels of competition or with regulated prices, it is more likely that cost pass-through will be more closely related to the actual rather than marginal costs incurred by generators. These actual costs depend on the volume of allowances that a generator will need to buy over and above its initial allocation.

The study commissioned by the DTI assumes that full marginal cost pass-through will occur in Denmark, Finland, Germany, the Netherlands, Sweden and the UK. In contrast, the study expects cost pass-through in France, Ireland, Italy and Spain to be based on the generators' average actual costs. This is a relatively simplistic analysis, which does not seek to quantify the level of competition in each market or the effect of grandfathered rights on generators' market entry and exit decisions. It is unlikely that there will be 100% cost pass-through in any market, while the move towards increased market opening will provide pressure for a greater level of cost pass-through in the currently uncompetitive markets.

3.1.2 Supplier costs and margins

In recent years, there has been a movement towards greater levels of competition in electricity markets, although the degree of market opening varies significantly across the

EU and G7 countries. To date, only Austria, Denmark, Finland, Germany, Spain, Sweden and the UK have declared their markets fully open to competition, while France and Greece have less than 40% market opening.²⁰ However, by 2007, the markets in all EU countries are expected to be fully open in accordance with the EU Electricity Directive.²¹ This market opening and a greater degree of competition are likely to affect supplier margins and costs.

An Ofgem investigation into the introduction of supply competition in the UK concluded that the supply component of electricity bills rose by 5–10% between 1998 and 2002 as a result of the introduction of competition.²² The main factors contributing to these costs were:

- the administrative costs of handling customer transfers;
- customer acquisition and brand-building costs;
- increased levels of bad debt;
- higher depreciation charges due to necessary upgrades in IT systems;
- higher customer-care costs.

Market opening and the removal of price controls could also be expected to lead to a rise in supplier margins. At present, the majority of EU countries operate some form of end-use price control, with only the UK, Sweden and Austria imposing no price controls, and Denmark and Finland applying controls on domestic prices. Typically, the margins that suppliers can earn under these price controls will be limited but relatively risk-free. However, as the market in each country becomes more contestable, suppliers will be exposed to greater risks due to increased uncertainty in their sales volumes and the need to hedge their wholesale market positions. Suppliers will be likely to seek to compensate for this increased risk through the removal of price controls and higher supply margins.

Experience in the UK suggests that the introduction of competition is likely to raise supplier costs initially, although, in the long term, these will be offset by gains in efficiency. As markets open up across the EU, it is likely that supplier cost increases will exert upward pressure on end-use electricity prices. This effect is not expected to be felt in the UK, as supply competition is already relatively well established.

3.2 Summary

Without undertaking a full, in-depth analysis of the market in each country, it is difficult to state conclusively how UK electricity prices will move relative to other EU and G7 countries. However, by looking at the drivers on electricity prices described previously, it is possible to give an indication of the relative pressures on prices in each country. Table 3.5 below summarises the effect of various price drivers in each country relative to the UK. In interpreting the table, a 'positive' effect will encourage prices to rise relative to the UK, while a 'negative' effect will encourage them to fall.

²⁰ European Commission (2004), 'Third Benchmarking Report on the Implementation of the Internal Electricity and Gas Market', DG TREN Draft Working Paper, March.

²¹ Directive 2003/54/EC of the European Parliament concerning common rules for the internal market in electricity.

²² Ofgem (2002), 'Electricity Supply Competition: An Ofgem Occasional Paper', December.

Table 3.5: Summary of price drivers relative to the UK

	Fuel costs	EU ETS	Supplier costs	Supplier margins
Austria	Negative	–	Neutral	Neutral
Belgium	Weak negative	–	Positive	Positive
Canada	–	n/a	Weak negative	Weak negative
Denmark	Negative	Weak positive	Weak positive	Weak positive
Finland	Negative	Weak positive	Weak positive	Weak positive
France	Negative	Positive	Positive	Positive
Germany	Negative	Positive	Positive	Positive
Greece	–	–	Positive	Positive
Ireland	Positive	Neutral	Positive	Positive
Italy	Positive	Positive	Positive	Positive
Japan	–	n/a	Weak negative	Weak negative
Luxembourg	Neutral	–	Positive	Positive
The Netherlands	Weak negative	Positive	Weak positive	Weak positive
Portugal	Negative	–	Positive	Positive
Spain	Negative	Neutral	Positive	Positive
Sweden	Negative	Weak positive	Neutral	Neutral
The USA	–	n/a	Weak negative	Weak negative

Note: n/a = driver not applicable; - = no data available for driver

Source: OXERA.

In general, fuel costs are expected to exert larger pressures on prices in the UK than in most other countries. Notable exceptions are Italy and Ireland, which, like the UK, have a high reliance on natural gas for electricity generation. The Netherlands is also heavily reliant on natural gas, although interconnections between the Netherlands and other European electricity markets could be expected to offset much of the fuel cost effect. In contrast, the Irish gas and electricity systems are interconnected with the UK only, and are therefore likely to experience similar fuel cost pressures to the UK.

The UK is expected to be in a relatively strong position with regard to supplier costs and margins due to the earlier introduction of supplier competition, while these costs are expected to rise in most other markets as competition is introduced. The exceptions will be countries such as Austria and Sweden that have full supply competition already, and Canada, Japan and the USA, which face less pressure to introduce full competition.

An indication of future UK price competitiveness can be obtained by looking at the countries with prices that are likely to fall within the range of the UK price projections by 2008/09. In making this assessment, it is important to remember that many of the main drivers on electricity prices are similar across countries. For example, the drivers that resulted in UK prices at the high end of the projection range may also result in price rises in other countries, although the rises may be of a different magnitude.

3.2.1 I&C prices

For the I&C market, the UK price projections range between £31.26/MWh and £40.16/MWh. Based on the 2003 prices shown in Table 3.1, countries with prices below £30/MWh in 2003 are unlikely to experience rises that would put them above the UK, because the situations that would cause such price increases in these countries are also likely to cause increases in the UK. Similarly, the group of countries above Finland are unlikely to experience price cuts sufficient to challenge UK prices, even under the high UK price scenario. As such, the most important comparator countries are the USA, the Netherlands and Finland.

The forward curve data in Table 3.3 suggests that wholesale prices in the Netherlands are likely to fall below those in the UK by 2005, despite a higher expected impact from the EU ETS. Furthermore, with only small cost increases expected in the supplier market and no price controls on I&C customers, there is definite potential for I&C prices in the Netherlands to fall below those in the UK.

The arguments that Finnish prices may eclipse those in the UK are even stronger, mainly because low reliance on gas will isolate the Finnish market from expected rises in fuel costs. However, as Finnish prices in 2003 were already at the top of the UK price projection range for 2008/09, it is unlikely that UK I&C prices will rise above those in Finland. Table 3.6 below summarises the ranking projections for the I&C market.

Table 3.6: Projected I&C price ranking by 2008/09

Rank 2003	Country	Price 2003 (£/MWh)	Projected rank in 2008/09
1	Austria ¹	23.18	
2	Spain ¹	25.01	
3	Germany ¹	26.84	
4	France	27.45	
5	Greece ¹	28.06	
6	Belgium ¹	29.28	
7	USA ²	30.50	7
8	The UK ¹	31.72	9
9	The Netherlands	35.99	8
10	Finland ¹	39.65	10
11	Portugal	50.63	
12	Denmark	55.51	
13	Ireland	57.34	
14	Italy ¹	68.93	
15	Japan ¹	70.15	
Unranked	Canada	n/a	
Unranked	Luxembourg	n/a	
Unranked	Sweden	n/a	

Notes: n/a = data not available. Shaded cells denote countries that are unlikely to affect the UK ranking and hence have not been considered. ¹ If data is not available for 2003, the figure used is the most recent available year, adjusted for changes in exchange rates. ² Prices exclude tax for the USA.

Sources: OXERA and IEA (2004), 'Energy Prices and Taxes: First Quarter 2004'.

3.2.2 Domestic prices

UK price projections in the domestic market range between £84.98/MWh and £100.40/MWh compared with the 2003 UK domestic price of £70.76/MWh. Therefore, the important comparator countries for the domestic market are Germany, France, Belgium, Ireland, Austria, Italy and Portugal; the prices in all other countries fall outside of the range that could affect the UK's price ranking.

Domestic prices in the UK are expected to rise above those in Germany and France by 2008/09, principally due to the higher relative pressure on fuel prices in the UK. France and Germany both have a much lower reliance on natural gas than the UK; furthermore, although they are likely to face increases in supplier costs and margins with the introduction of competition, it is unlikely that these would be sufficient to offset the fuel cost effects. Belgium is also likely to face upward price pressures due to supplier costs and margins; however, as the fuel cost driver is weaker than in Germany and France, and 2003 prices were nearly £10/MWh higher than in the UK, Belgian prices are not expected to be below UK prices by 2008/09.

Similar arguments hold for UK prices remaining below those in Austria and Portugal. Both countries are expected to face lower price pressures due to fuel costs than the UK but currently have significantly higher domestic prices. Consequently, a situation that would

lead to UK prices rising to the current Austrian and Portuguese levels is also likely to lead to (smaller) price rises in these countries.

There are also clear indications that domestic prices in Ireland and Italy are not expected to fall below the UK. Both countries face price pressures that are similar to, or stronger than, the UK due to rising fuel costs as well as increasing supplier costs and margins. These pressures are likely to lead to the prices in Ireland and Italy eclipsing those in Austria and Portugal. Table 3.7 below summarises the ranking projections for the domestic market.

Table 3.7: Projected domestic price ranking by 2008/09

Rank 2003	Country	Price 2003 (£/MWh)	Projected rank 2008/09
1	Greece ¹	46.97	
2	The USA ²	53.07	
3	Spain ¹	66.49	
4	Finland	68.32	
5	Luxembourg ¹	68.32	
6	The UK	70.76	8
7	Germany ¹	75.64	6
8	France	77.47	7
9	Belgium ¹	80.52	9
10	Ireland	89.06	12
11	Austria	92.72	10
12	Italy ¹	95.16	11
13	Portugal	95.16	13
14	Japan ¹	106.14	
15	The Netherlands	117.73	
16	Denmark	156.16	
Unranked	Canada	n/a	
Unranked	Sweden	n/a	

Notes: n/a = data not available. Shaded cells denote countries that are unlikely to affect the UK ranking and hence have not been considered. ¹ If data is not available for 2003, the figure used is the most recent available year, adjusted for changes in exchange rates. ² Prices exclude tax for the USA.

Sources: OXERA and IEA (2004), 'Energy Prices and Taxes: First Quarter 2004'.

4. UK Gas Price Projections

This section outlines the forward price projections for industrial and domestic retail gas tariffs. The analysis was undertaken employing a similar methodology to that used for the electricity analysis. The projections disaggregate the likely movements in the most important cost components of a consumer's gas bill:

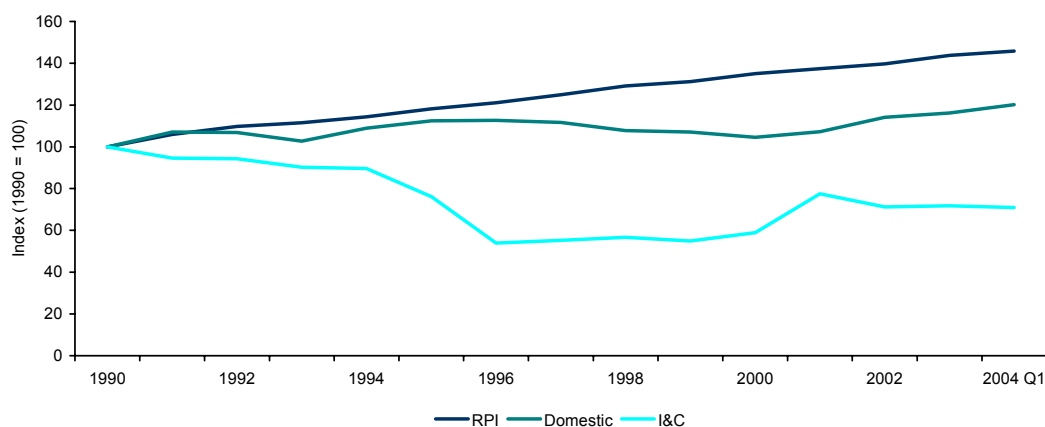
- the wholesale purchase cost;
- the network charges (transmission and distribution);
- supply/retail costs.

The level of detail incorporated in this projection is lower than that in the electricity projections (see section 2), due to existing work that could be drawn on for electricity.

Domestic and I&C gas prices in the UK demonstrate the variable impact of changes in wholesale, network, and retail competition, and provide empirical evidence supporting the analysis of forward-looking UK gas price projections. For example, in the period 1995–2000, there was a consistent downward trend in gas prices, as a result of increasing competition at both wholesale and retail levels.

The period from 2001 to 2004 has seen upward pressure on gas prices from increased wholesale costs, with domestic gas prices having risen by 6.4% in real terms since 2001. The same cost pressures have acted on real I&C gas prices; however, different compositions for domestic and I&C bills have resulted in a stronger overall increase, due to the more significant impact of wholesale costs and the speed with which costs are passed through in the I&C segment of the market. For example, since 2000, I&C gas bills have increased, in real terms, by 28%. Figure 4.1 shows the trend in real domestic and I&C end-user gas prices.

Figure 4.1: Historical trends in domestic and I&C end-user gas bills



Source: DTI (2004), 'Quarterly Energy Prices', June.

Table 4.1 below shows the estimated breakdown in end-user bills, highlighting the higher costs associated with serving domestic customers, with significantly higher network and retail costs. Changes in wholesale and transmission costs are expected to dominate over other charges for very large I&C customers, whereas changes in distribution and retail

costs are likely to have the greatest impact on domestic customers in the period to 2008/09.

Table 4.1: End-user gas bill components (%)

Value chain segment	I&C (very large user) ¹	I&C (large user) ²	Domestic
Wholesale	71	50	48
Network (transmission and distribution)	26	38	35
Retail	3	13	17
Total	100	100	100

Notes: Proportions are based on 2003/04 bills. ¹ Based on a minimum 25Mm³ annual consumption. ² Based on up to 0.1Mm³ annual consumption.

Sources: European Commission (2004), 'Third Benchmarking Report on the Implementation of the Internal Electricity and Gas Market', DG TREN Draft Working Paper, March; and Ofgem (2004), 'Domestic Competitive Market Review', April.

The likely paths of these drivers are discussed below.

4.1 Wholesale gas price projections

The wholesale price scenarios, shown in Table 4.2, represent various views of the evolution of the key drivers of the wholesale price:

- the broad supply–demand balance;
- the identity of the marginal supply source;
- the strength of the link with mainland Europe prices;
- the likely speed of development of gas-on-gas competition in the European market as liberalisation progresses.

Table 4.2: Wholesale gas price projections, 2003 prices (pence/therm)

	Gas price		
	Low	Central	High
2004/05	29	29	29
2005/06	25	27	29
2006/07	23	26	27
2007/08	20	25	27
2008/09	20	24	27

Source: OXERA analysis.

The current gas forward curve for 2004/05 and 2005/06 indicates that the market anticipates that annual wholesale gas prices will remain in the region of 29–30 pence/therm over the next two years.²³ This high expectation can be attributed to two main factors:

²³ These figures are indicative annual contract prices derived from prices reported in European spot gas markets in May 2004.

- the recent increases in crude oil prices and the knock-on effects on future mainland Europe gas prices, due to the nature of price indexation terms in existing long-term contracts;
- anticipation of a tighter supply–demand balance in the UK market over the next few years until additional supply infrastructure is operational and able to meet the forecast growth in demand.

In developing the wholesale price scenarios, OXERA has taken account not only of the current market sentiment in the forward curve, but also of broader changes in the key drivers affecting price formation set out above. In particular, the scenarios differ according to the nature of the competitive constraints on gas prices in the UK market.

Essentially, the existence of the Bacton–Zeebrugge interconnector implies that there is a relationship between the prices at the national balancing point (NBP) in the UK and the Zeebrugge hub (ZH) in Belgium, with price arbitrage suggesting that, without physical capacity constraints, the two prices should be broadly equivalent net of transport costs. Therefore, if prices are high in mainland Europe, it is likely that prices will be high in the UK. Prices in mainland Europe are currently determined on the market-value principle, and hence are not based on the underlying production costs (as would be expected in gas-on-gas competition) but according to the costs of alternative fuels. Going forward, the speed of liberalisation in mainland Europe markets will affect the extent to which gas-on-gas competition develops, and therefore the transition towards a cost-based price for gas in European wholesale markets.

At the same time, the cost of the marginal gas source is likely to increase, as more gas is imported from further afield, involving long transit routes and thus incorporating higher infrastructure costs, thereby raising prices.

The high gas price scenario assumes the following outcome:

- prices of competing fuels remain high;
- gas-on-gas competition fails to develop significantly in the European market, with the majority of gas traded on long-term contracts indexed to competing fuels;
- the UK becomes a net importer of gas, resulting in higher prices in the UK than in mainland Europe.

The low price scenario assumes that:

- gas-on-gas competition begins to emerge over the course of the period, with an extra stimulus provided by full retail competition across Europe in 2007;
- prices reflect more closely costs of production, although mark-ups remain, as liquidity takes time to develop in the traded markets;
- UK prices are above mainland Europe traded prices, as the UK is a net importer;
- demand growth is lower than expected;
- liquefied natural gas (LNG) becomes the marginal source of gas.

The central case assumes that the emergence of gas-on-gas competition and cost-based pricing occurs more slowly than in the low price case.

4.2 Network charges

Network charges cover the most important transmission and distribution costs faced by shippers. Although entry capacity is acquired through various market-based mechanisms, the prices reflect allowed revenues determined through a price-control review. The current price controls for gas transmission and distribution run from April 2002 to April 2007; as a result, the path of allowed revenues determined in the controls has been used as the basis for the expected path of average network charges over that period.

This is an imperfect proxy for the actual prices that an individual domestic or industrial shipper may face, but it captures the expected movements in the main cost drivers for network businesses. As shown in Table 4.3, the price-control revenues are expected to fall over the course of the price-control period up to 2006/07. Table 4.4 shows the implied average end-user prices for network services.

After this time, new controls will be set. However, for the purposes of this analysis, the trends in the current price-control are rolled forward on the assumption that there will be no substantive change in the overall structure of regulation or the requirements on the investment programme. Ofgem has already proposed that the distribution price control be rolled forward by one year, in response to possible changes in the commercial and regulatory regime associated with the proposed sale of the gas distribution networks by National Grid Transco (NGT). By this time, the mains-replacement programme will have reached its long-term level. At the transmission level, the next price-control period may see substantive new investment to reinforce the network as the pattern of gas imports shifts—for example, with a larger proportion of gas arriving at Bacton or through proposed LNG terminals.

Table 4.3: Price-control revenues, 2003/04 prices (£ billion)

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Transco (overall)	3.00	2.95	2.91	2.84	2.80	2.74	2.69
NTS	0.48	0.47	0.46	0.45	0.44	0.43	0.42
LDZs	2.10	2.07	2.03	2.00	1.96	1.92	1.88
Metering	0.42	0.42	0.42	0.40	0.40	0.40	0.40

Note: LDZ, local distribution zones; NTS, National Transmission System

Source: Ofgem (2001), 'Review of Transco's Price Control from 2002: Final Proposals', September.

Table 4.4: Implied prices (pence/therm)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Distribution (LDZ and metering/LDZ volumes)	9.85	9.53	9.32	8.88	8.62	8.39
Transmission (NTS/total throughput)	1.13	1.09	1.06	1.02	0.99	0.96

Sources: Transco (2003), 'Transportation Ten Year Statement', December; Ofgem (2001), 'Review of Transco's Price Control from 2002: Final Proposals', September; and OXERA analysis.

4.3 Supply/retail costs

Apart from technological developments in the retail and supply of gas to domestic and I&C customers, the most important driver of costs in the retail segment of the gas value chain is the nature and degree of competition. Given that competition in UK gas supply is highly competitive for both domestic and I&C customers, it is not expected that this will change significantly. This implies that supply costs and margins are not expected to differ appreciably either.

The introduction of greater competition would be expected to result in higher supply/retail costs compared with a situation involving a monopoly supplier, as a result of:

- increased marketing costs to gain and retain customers;
- increased levels of bad debt, as higher numbers of marginal customers are signed up to the distribution network, and customers escape final bill settlement;
- greater front-loading of depreciation charges due to more aggressive adoption of IT;
- increased financing charges associated with increased business risk driven by an expectation of increased earnings volatility (ie, a higher cost of capital).

Assuming that no radical technological developments materialise to enable further cost decreases in the retail segment and the persistence of effective competition, it is expected that retail costs and margins will remain at their current level in real terms in the period to 2008/09. This is reflected in Table 4.5 below.

4.4 Summary

Table 4.5 shows the expected impact of the cost drivers affecting the wholesale, network, and retail segments of the gas value chain, and Table 4.6 illustrates the impact on the various types of consumer, taking into account the different composition of typical domestic and I&C bills. As can be seen, short-term increases are to be expected for both I&C and domestic customers, as higher wholesale prices feed through into end-user bills; however, it is possible that these variations will be more extreme in the I&C market, as the more competitive structure in that part of the market implies a quicker pass-through of cost changes. By 2008/09, in the low scenario, increased competition may lead to lower prices in real terms for all customers.

Table 4.5: Scenarios for movements in cost components (2003/04 = 100)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Gas purchase cost						
High	100	138	138	128	128	128
Medium	100	138	128	123	119	114
Low	100	138	119	109	95	95
Network charges						
Transmission (all scenarios)	100	96	94	90	87	85
Distribution (all scenarios)	100	97	95	90	88	85
Supply cost						
All scenarios	100	100	100	100	100	100

Source: OXERA analysis.

Table 4.6: Scenarios for movements in end-user gas bills (pence/therm)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
I&C						
High	23.82	29.97	29.84	27.96	27.79	27.64
Central	23.82	29.97	28.23	27.15	26.18	25.23
Low	23.82	29.97	26.62	24.75	22.17	22.02
Domestic						
High	54.26	63.53	63.13	59.82	59.30	58.86
Central	54.26	63.53	60.63	58.57	56.81	55.12
Low	54.26	63.53	58.13	54.82	50.56	50.12

Source: OXERA analysis.

5. Gas Prices in EU and G7 Countries

This section considers the competitiveness of the UK gas prices compared with those in other EU and G7 countries. As mentioned in section 3, a comprehensive projection of actual prices in all major markets lies beyond the scope of this analysis; therefore, the focus centres on identifying the existence and strength of the most important price drivers across different countries. There are two principal elements covered in this section.

- *European price competitiveness rankings*—section 5.1 presents the latest available price rankings for the UK compared with EU and G7 countries, and how these may evolve given expected UK gas price movements.
- *Forward-looking drivers of European gas prices*—section 5.2 investigates the main gas price drivers affecting EU comparators, in particular, the impact of wholesale and retail cost drivers on end-user prices.

5.1 Gas price competitiveness rankings

Rankings for the competitiveness of the UK end-user gas prices can be developed from existing data provided by the IEA.²⁴ The statistics for end-user prices for both I&C and domestic customers are given in Tables 5.1 and 5.2 below.

²⁴ IEA (2004), 'Energy Prices and Taxes: Quarterly Statistics', first quarter (March).

Table 5.1: Industrial and commercial gas prices (p/therm)

Rank ¹	Country	2000	2001	2002	2003
1	Canada	14.96	19.03	21.06	19.26
2	UK	17.42	24.55	23.82	21.78
3	Finland	21.77	22.04	21.33	24.39
4	Ireland	19.02	25.10	30.89	28.25
5	Germany	31.30	32.86	31.58	28.88
6	Spain	29.22	30.78	27.82	31.36
7	Greece	36.00	35.89	34.49	31.54
8	USA	28.48	34.73	25.85	34.02
9	Netherlands	27.73	30.71	27.65	34.19
10	France	27.95	32.72	28.89	35.22
11	Portugal	n/a	n/a	40.02	44.21
12	Japan	75.41	71.07	60.01	54.88
Unranked	Austria	n/a	n/a	n/a	n/a
Unranked	Belgium	n/a	n/a	n/a	n/a
Unranked	Denmark	n/a	n/a	n/a	n/a
Unranked	Italy	n/a	n/a	n/a	n/a
Unranked	Luxembourg	n/a	n/a	n/a	n/a
Unranked	Sweden	n/a	n/a	n/a	n/a

Notes: n/a = data not available. Shaded figures relate to individual years where data is not available; in such cases, the figure used is the most recent available year (eg, 2002 for Canada), but adjusted for changes in exchange rates. ¹ Rank refers to 2003 prices.

Source: Converted from IEA (2004), 'Energy Prices and Taxes: First Quarter 2004'.

Table 5.2: Household gas prices (p/therm)

Rank ¹	Country	2000	2001	2002	2003
1	Canada	33.21	51.43	39.70	36.31
2	Finland	26.57	38.67	33.89	38.58
3	Luxembourg	45.91	52.50	45.84	41.92
4	Greece	47.84	53.99	51.89	47.45
5	UK	48.77	50.10	53.28	54.26
6	Germany	62.20	65.30	62.76	57.40
7	Ireland	57.60	61.73	63.23	57.83
8	USA	53.55	64.55	54.46	60.56
9	Belgium	67.91	71.30	68.53	62.67
10	Austria	58.03	64.45	63.75	67.13
11	France	57.88	70.43	71.54	80.18
12	Spain	81.85	88.82	83.52	91.34
13	Netherlands	59.86	70.20	76.83	92.60
14	Portugal	n/a	n/a	109.44	122.05
15	Denmark	122.48	124.03	121.04	137.48
16	Japan	215.56	204.30	182.60	167.00
Unranked	Italy	n/a	n/a	n/a	n/a
Unranked	Sweden	n/a	n/a	n/a	n/a

Notes: n/a = data not available. Shaded figures relate to individual years where data is not available; in such cases, the figure used is the most recent available year (eg, 2002 for Canada), but adjusted for changes in exchange rates. ¹ Rank refers to 2003 prices.

Source: Converted from IEA (2004), 'Energy Prices and Taxes: First Quarter 2004'.

The above tables show that, in 2003, the UK was highly competitive in the I&C segment (second lowest), and slightly less competitive in the domestic segment (fifth lowest), when comparing rankings.

Assuming that prices remain at their current level for all countries except the UK, it is possible that, by 2008, the UK could be ranked third in the I&C and fifth in the domestic segments, using the data in Tables 5.1 and 5.2 in comparison with Table 4.6. This is shown in Table 5.3 below, which gives the UK's rankings over this period.

Table 5.3: Scenarios for competitiveness ranking of UK gas prices

Segment	2004	2005	2006	2007	2008
I&C (UK rank)					
High	3	3	3	3	3
Central	3	3	3	3	3
Low	3	3	3	2	2
Observations	12	12	12	12	12
Domestic (UK rank)					
High	6	7	6	5	5
Central	6	6	5	5	5
Low	6	5	5	4	4
Observations	16	16	16	16	16

Notes: The UK estimate based on a large industrial user (>25Mm³ per annum). It assumes that end-user gas prices stay the same outside of the UK.

Source: OXERA analysis.

This trend would be mitigated by increasingly competitive prices in other countries. In this respect, the most important countries for which relatively small changes in price competitiveness may significantly influence the UK's overall ranking in 2008 are:

- *I&C segment*—Ireland, Germany, Spain, and the USA;
- *domestic segment*—Austria, Belgium, Germany, Greece, Ireland, and the USA.

The likely impact of the main gas price drivers for these countries is discussed below.

5.2 Impact of gas market drivers on UK gas price competitiveness

As with electricity prices, national end-user gas prices are largely driven by factors that have an impact on the main segments of the natural gas value chain, namely:

- wholesale and production costs (ie, gas-purchasing costs);
- network costs (ie, transmission and distribution);
- retail charges.

Of these, the most significant are wholesale costs and retail charges. Network costs are unlikely to differ within EU and G7 countries over the period 2004–08, due to the natural monopoly nature of transmission and distribution networks, and since these costs are likely to remain regulated. In any case, standardised regulatory accounts necessary to develop forward-looking estimates of network costs are not readily available.

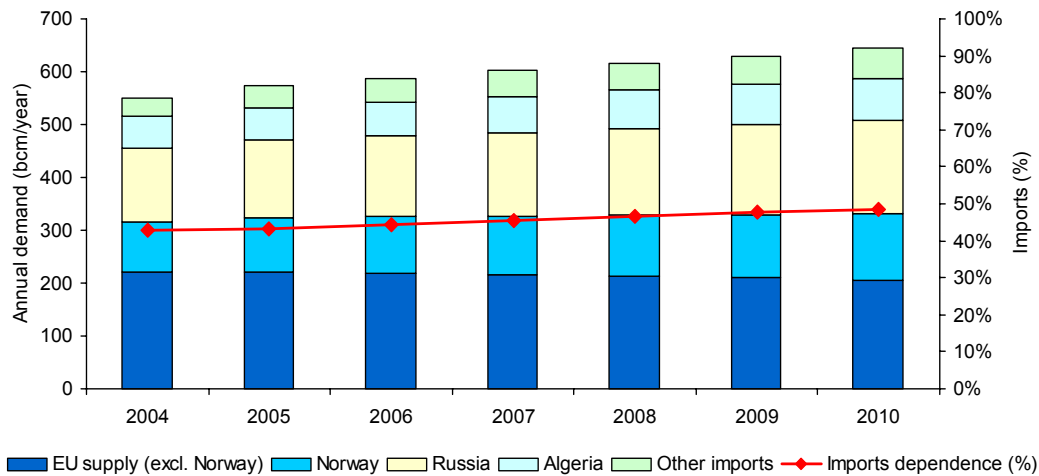
5.2.1 Wholesale costs

The most important wholesale price drivers in the period to 2008 that are likely to have an impact on the UK's relative price competitiveness are increasing dependence on imported gas sources, and greater gas-on-gas competition. It is expected that these drivers will influence gas prices in all European countries, although differences between national markets would also be expected to influence how each driver feeds through to wholesale prices in each country.

5.2.2 Increasing dependence on gas imports

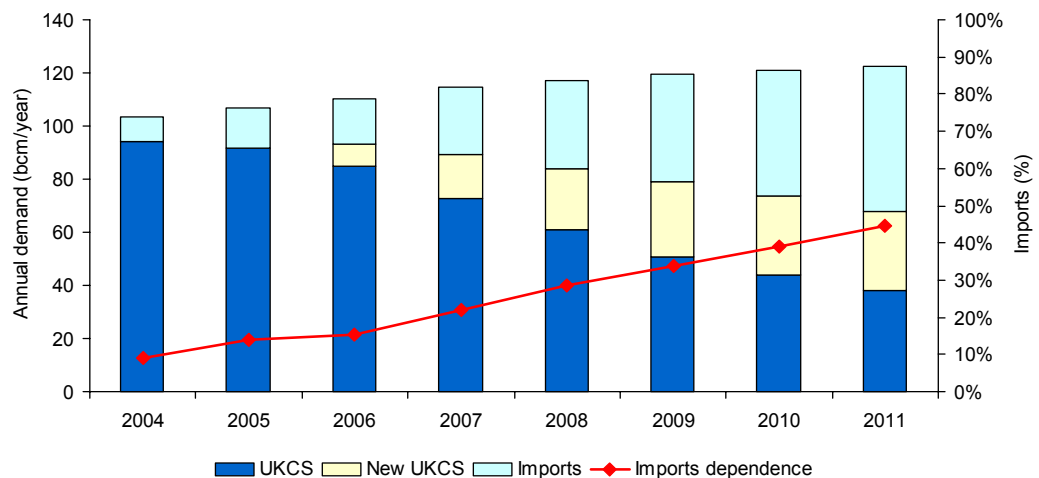
Natural gas prices throughout the EU have risen sharply over the last year and are anticipated to remain at relatively high levels over the next few years. This trend is at least in part a response to the growing overall European import dependence, which is shown in Figure 5.1. As more of the EU’s gas is imported from sources further away (eg, Russia, Qatar, Algeria, and Egypt), increased transport costs (eg, due to additional LNG and pipeline-investment requirements) and supply security issues will persist in keeping prices at high levels.

Figure 5.1: European gas demand and supply composition



Compared with the EU, the UK’s own import dependence is growing at a *greater* rate (see Figure 5.2). For example, Figures 5.1 and 5.2 show that UK import dependence is expected to increase by around 35% by 2010, whereas the EU’s import dependence will only increase by approximately 5% in the same period.

Figure 5.2: UK gas demand and supply composition



These trends imply that prices in the UK would be expected to rise principally due to increased transportation costs (eg, LNG) and greater demand for the *same* imported gas by EU Member States. Taken together, future increases in UK and EU wholesale gas prices mean that the UK's price competitiveness relative to the EU is likely to deteriorate. All other things being equal, it also means that the UK and EU will experience a relative deterioration in their gas price competitiveness relative to the USA, Canada, and Japan.

An indicator of the trend for rising gas prices is the evolution of wholesale gas prices at the NBP and ZH, and, specifically, the spot price differentials between these hubs. Table 5.4 shows the spot and year-ahead forward prices at the NBP and ZH.

Table 5.4: Gas spot market prices (pence/therm)

	NBP	ZH	Differential (NBP-ZH)
Historical spot¹			
2002/03	16.043	17.99	-1.947
2003/04	21.075	22.344	-1.269
Calendar year ahead²			
2005	30.350	29.013	1.337
2006	28.588	n/a	n/a
Gas year ahead²			
2004/05	30.463	28.725	1.738
2005/06	29.325	n/a	n/a

Notes: ¹ Prices refer to the average of day-ahead, over-the-counter trades reported throughout the period April 1st to March 31st (or next trading day) in years 2002/03 and 2003/04. ² As at June 17th 2004.

The price differentials given in Table 5.4 reflect market expectations of the price arbitrage opportunities between NBP and ZH. Where the differential is negative, the market's expectations of gas availability (relative to demand) in the UK is greater than in the EU, implying that gas trades at a higher price in the EU due to a 'tighter' supply and demand balance—gas flows from the UK, which has a 'plentiful' supply, to the EU where gas is more 'scarce'. If the differential is positive, the converse is true.

The evolution of price differentials shown in Table 5.4 is therefore consistent with the finding of faster growth in import dependence in the UK compared with the EU. Historically, the price differential was negative over a full year (-1.947 pence/therm in 2002/03, and -1.269 pence/therm in 2003/04), indicating that, on average, more gas flowed from the UK to the EU in the past. However, as at June 17th 2004, the outlook is for gas to flow increasingly from the EU to the UK, given the price differential is positive in 2005 forward gas contracts (1.337 pence/therm for 2005). As UK import dependence has grown since 2002/03, price differentials have become less negative to being positive by a significant margin.

In future, it is reasonable to expect that, as indigenous UK gas is increasingly supported by imports via the interconnector, price differentials will increase, unless alternative infrastructure investments are undertaken to supply gas from other sources. For example, the expected commissioning of LNG terminals at the Isle of Grain in early 2005 would help to increase gas availability and reduce import capacity limits. This may already be

priced into the 2005 year-ahead (calendar year) forward price (ie, 1.337 pence/therm), which already shows a lower gas price than the equivalent gas year-forward price (1.738 pence/therm in 2004/05).

5.2.3 Increasing gas-on-gas competition

A further driver for UK gas price competitiveness is the implementation of the European Directive 2003/55/EC,²⁵ in the period to 2008, which may result in increasingly effective competition through greater third-party access (TPA),²⁶ and a widening of the customer base eligible to switch suppliers. These changes, together with other pro-competitive measures,²⁷ are likely to lead to greater gas-on-gas and retail competition.

Significant retail market opening and network unbundling has already been achieved in some countries, for example, those passing the initial filter tests on gas in the PSA target analysis (the UK, Austria, Italy, Spain and Denmark).²⁸ In contrast, France has not yet opened the majority of its market to retail competition, and the separation of transmission and distribution networks is currently only completed on an accounting basis.²⁹

Despite these measures, wholesale market concentration is likely to continue to impede progression to a fully competitive market structure, although further EC proposals to standardise transmission network access and to facilitate cross-border trade should help to increase competitiveness in this segment of the gas value chain.³⁰ In the UK and Ireland, there is currently effective wholesale competition, although, in other EU countries, wholesale market concentration is moderate to high, implying competition is not yet effective.³¹

In the USA, wholesale gas markets are already highly competitive, and the retail segment is to a large extent competitive, although this varies significantly between states. In Japan, the degree of competition in gas wholesale and retail segments is mixed, with some liberalisation based on greater TPA and retail competition.

5.2.4 Retail costs and price-cost margins

As mentioned above, retail market opening has been a feature of the development of EU gas markets to date, with further opening expected in the period to 2008. For example, Directive 2003/55/EC stipulates that all non-household gas customers should be free to choose their supplier no later than July 1st 2004, and that all customers are to have this right by July 1st 2007. Implementation of this Directive is therefore likely to impact on the costs of gas retailers and their margins.

²⁵ The Internal Gas Market Directive (2003/55/EC) repealed the First Gas Market Directive (98/30/EC) on June 26th 2003.

²⁶ Directive 2003/55/EC stipulates that transmission- and distribution-network TPA should be on the basis of published and regulated tariffs.

²⁷ Other measures stipulated by Directive 2003/55/EC include: a) establishment of a regulatory authority in each Member State with common minimum responsibilities; b) legal unbundling of transmission and large- and medium-sized distribution companies; and c) TPA to storage facilities either on a negotiated or regulated basis.

²⁸ European Commission (2004), 'Third Benchmarking Report on the Implementation of the Internal Electricity and Gas Market', DG TREN Draft Working Paper, March.

²⁹ Ibid.

³⁰ European Commission (2003), 'Proposals for Regulations on Conditions for Access to the Gas Transmission Networks', COM (2003) 741, Brussels, December.

³¹ European Commission (2004), op cit.

The impact of greater competition on supplier costs may be expected to result from the additional efforts required to acquire and retain customers through marketing expenditure. Other retail cost drivers may include higher levels of bad debt, and increased depreciation charges for more intensive use of IT systems to support innovations in customer service or multi-product marketing strategies. Similar cost increases to those experienced in the electricity retail sector may result, with the supply component of increasing by perhaps as much as 5–10% in the period directly following the introduction of competition in the domestic segment.³²

In addition to increased gas supplier costs, supply price–cost margins may also be expected to increase with greater retail market opening. Specifically, the move from end-user price controls to a fully competitive market structure implies that earnings volatility should increase due to more frequent customer switching, thereby requiring higher returns to compensate for increased business risk. However, end-user price controls only persist in Italy and Luxembourg, implying that this may not change significantly in the period to 2008.

Overall, the impact of cost and margin increases may be expected to be mitigated over time, through the effects of efficiency savings from competitive pressures. This has been the experience in the UK electricity sector, where retail competition is well established.

5.3 Summary of gas market drivers

Table 5.5 below summarises the impact of the main gas price drivers discussed above. The impact of each driver is either positive or negative. A *positive* impact indicates that, provided a price driver is in evidence in the period to 2008/09, gas prices for each country will *rise* relative to the UK (ie, the UK becomes *more* competitive). A *negative* impact indicates that the prices of each country relative to the UK will *fall* (ie, the UK becomes *less* competitive). The following table does not show the quantitative impact, and it is not certain that a positive indicator will exactly counterbalance a negative one, even if they were of equal strength.

On the wholesale side, no distinction is made between gas-on-gas competition and import dependence, as drivers of cost changes. Given that the UK has a relatively competitive wholesale market that is linked to mainland Europe, it is to be expected that the UK price will reflect the prices being charged in the rest of Europe (whether these are determined by cost of gas or alternative fuels), and hence the difference is likely to be in transportation costs linked to the marginal gas sources.

For example, the UK will be better off than Ireland because it is closer to the gas markets; however, countries like Germany and Austria, which are close to the main transit routes for Russian gas, for example, will see less severe price changes than the UK.

On the retail side, the supply margins in other countries may be expected to increase relative to the UK, as increased risk requires a higher return for suppliers. In addition, the actual supply business costs, including elements such as advertising and marketing of

³² Ofgem (2004), 'Domestic Competitive Market Review', April.

new tariffs, can be expected to increase, as it did in the UK with the introduction of competition, thereby raising overall prices, particularly in the domestic market.

Table 5.5: Indicative impact on competitiveness of key gas price drivers relative to the UK

	Wholesale costs	Supplier costs	Supplier margins
Austria	Negative	Neutral	Weak positive
Belgium	Weak negative	Weak positive	Positive
Canada	–	–	–
Denmark	Neutral	Weak positive	Positive
Finland	–	–	–
France	Weak negative	Weak positive	Strong positive
Germany	Negative	Neutral	Neutral
Greece	–	–	–
Ireland	Positive	Positive	Positive
Italy	Neutral	Weak positive	Positive
Japan	–	–	–
Luxembourg	–	Positive	Positive
The Netherlands	Weak negative	Positive	Weak positive
Portugal	–	–	–
Spain	Neutral	Neutral	Positive
Sweden	Positive	Neutral	Positive
The USA	–	Weak negative	Weak negative

Note: Finland, Portugal and Greece have very immature gas markets where standard market drivers are less important to price.

Source: OXERA analysis.

Currently, the UK is ranked second and fifth in international price comparisons for I&C and domestic gas tariffs respectively. Given the potential impact of the drivers, as presented in Table 5.5, it is likely that these rankings will slip to fourth and sixth.

For the I&C market, the tariff in 2008/09 is expected to be in the range 22.02–27.64 p/therm. As indicated in Table 5.3, this would not suggest a change in the UK's relative ranking if all other countries' prices remained unchanged. However, the analysis in section 5.2.1 suggests that there will be a net change in UK–European relative prices as the UK switches from net exporter to net importer and the industrial tariffs in other countries will become correspondingly cheaper. Given the extent of this relative price switch, it is possible that Finnish and German prices will become comparable with, or lower than, those in the UK, but the existing advantageous price differentials against the next most competitive countries—ie, Spain, Greece and the Netherlands—imply that the UK's price ranking is unlikely to fall further.

Similarly, in the domestic gas market, projected tariffs in the range 50.12–58.86 p/therm in 2008/09 are likely to imply a similar adjustment in ranking relative to Germany by 2008/09.