

DECC Fossil Fuel Price Assumptions – Proposed Scenarios up to 2030

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This report has been prepared in response to a request from the Department of Energy and Climate Change to provide a review of their proposed fossil fuel price assumptions to 2030.

Five documents have been reviewed:

- A summary of the proposed scenarios for oil, gas and coal prices (13 pages);
- A paper setting out the proposed oil price scenarios (7 pages);
- 2 papers relating to gas price scenarios (9 pages and 18 pages); and
- A detailed paper on the coal market and coal price scenarios (34 pages).

This report is divided into two parts. The first part deals with major issues relating to the way in which the scenario exercise has been developed and set out. The second part sets out some detailed observations relating to the individual projections for oil, gas and coal prices.

The Scenario Exercise

I believe there are two very important issues which could impact on future energy price scenarios which are not considered in enough depth in these scenarios:

- The impact of climate change mitigation on energy prices;
- The impact of the shift in global economic activity to Asia and emerging markets.

Climate change mitigation and energy prices

The projections for oil, gas and coal prices cover a period to 2030. This is a crucial period in terms of the development of energy markets, as it is a period over which some significant measures will need to be taken to address the issue of climate change – to which emissions from fossil fuels are the dominant contributor. The independent UK Committee on Climate Change has argued that by 2030 the UK needs to cut its greenhouse gas emissions by 60% relative to 1990 levels (46% relative to current levels). Other major economies are planning major reductions in emissions or emissions intensity over the same period, which will have an important bearing on the demand for fossil fuels and energy prices. Significant international climate change treaties are likely to be agreed over the course of this decade to underpin this shift in energy consumption and emissions patterns.

This issue is not discussed in a coherent way in the documentation underpinning the scenario exercise. When it is mentioned – in the oil and coal price scenarios – climate

¹ The author is also a member of the Monetary Policy Committee of the Bank of England, but these comments do not reflect the views of the MPC or the Bank of England and are made in an independent capacity.

change is generally viewed as a factor weakening demand for fossil fuels, and hence supporting lower price scenarios. However, a world in which we take climate change seriously is likely to be a high energy price and high carbon price world. Even if producer energy prices are depressed by high carbon prices applied at the point of consumption through emissions trading and/or carbon taxes, it is still likely that consumers of fossil fuels will pay higher prices in a carbon constrained world. Moreover, if the world is shifting to more expensive renewable and low-carbon energy sources, this also offers a pricing opportunity to fossil fuel producers to charge much closer to the cost of these alternative energy sources. In the oil market, where strategic behaviour by OPEC is a key factor, this must clearly be considered as a factor affecting future prices.

As a result, I would recommend that 2 additional papers are prepared as part of this scenario exercise, which aim to consider:

- a) How various scenarios for addressing global climate change will impact on the final cost of energy to consumers; and
- b) How these different energy cost scenarios might impact on the producer fuel price scenarios presented in the current set of papers.

The impact of growth in Asia and emerging markets

It is very difficult to account for the major shift in the view of future energy prices without reference to the strong demand for world energy provided by Asia and emerging markets. As recently as late 2004, Lord Browne, Chief Executive of BP, was arguing that the benchmark oil price should be seen as around \$30/barrel.² Since then, medium-term projections of the oil price have shifted up to \$80-120/bl as the oil price paper produced for this scenario exercise shows.

In the papers, there is relatively little discussion of how this shift in the pattern of world growth (as opposed to the overall rate of world growth) to more energy-hungry emerging markets will shift the price outlook. This has clearly been one of the key ingredients in the move upwards in global energy prices during the 2000s. But there is little systematic analysis of whether this shift has already been reflected in prices, or whether it has further to run.

Again, this might be the subject of a separate paper which could usefully input into the scenario exercise.

Concluding remarks on the scenario exercise

The scenario exercise has been conducted on the basis of a standard demand-supply analysis of specific markets. But significant structural shifts affecting the operation of energy

² See Lord Browne's speech in Toronto, on 10th December 2004:
<http://www.bp.com/genericarticle.do?categoryId=98&contentId=7002851>

markets around the world have not been analysed in sufficient detail. In my view, the 2 key issues which ought to be considered further are the impact of future climate change mitigation and the impact of continued strong growth in Asia and emerging markets. The balance of the impact of both of these forces appears likely to favour upside price scenarios – at least at the consumer level.

Specific market forecasts

Taking into account the comments above, the report authors have done a good job of taking into account the various demand and supply factors affecting the various fossil fuel markets, and the interaction between them. The main weakness appears to be a lack of detailed consideration of the factors affecting the oil market, where a summary of external forecasts is the main basis of the analysis. Below are some comments on the specific market forecasts, insofar as the time available has allowed detailed consideration.

Oil market

My main concern here is that the spread of scenarios is too narrow and the overall level may be too low as well. In the current climate, a high scenario closer to the EIA high scenario, which rises to \$200/bl may be more realistic. To achieve this would require less than 3% real average increase in oil prices on current levels over the next 20 years.

Similarly, the low scenario looks rather implausible. It seems unlikely that real oil prices will be falling over the medium term. If there is a downward adjustment from current levels, it makes sense to see this happening in the next 4/5 years, followed by constant prices. However, the low scenario seems to be motivated by estimates of marginal costs of energy extraction which do not change over time. Most of the recent experience has been of rising energy extraction costs, and it is not clear why that might change. This issue is not really discussed in the oil price paper.

My view would be that a low forecast of \$80-100/bl, accompanied by a central view of \$140/bl and a high scenario of \$200/bl would give a more reasonable range, reflecting (a) general upward pressure on energy prices in a carbon constrained world; and (b) continuing strong demand for conventional energy sources from Asia and other emerging market economies. Some financial market commentators – such as Goldman Sachs – have been suggesting for some time that a \$200/bl oil price is entirely possible. It is noticeable that Goldman Sachs were not surveyed in the review of oil price forecasts – though their forecasting may be relatively short-term.

Gas market

The range of prices set out in the different scenarios looks more plausible in this section of the report. However, the low scenario, in which gas prices decouple from the oil price, needs a stronger justification in a world where climate change is being taken seriously. In

such a world, it is perhaps reasonable to argue that the prices of fuels will relate much more closely to their carbon content, which is likely to link fuel prices more closely – albeit taking into account the carbon content differential. Again, this reinforces the importance of setting out more clearly the climate change policy backdrop to these projections.

Coal market

Coal is a high-carbon fossil fuel source and its future demand is likely to be highly sensitive to the development of clean coal technologies in a carbon-constrained world. It is unclear from the background papers how the authors believe that the price of coal could move as a result. There are likely to be two offsetting pressures – higher demand because of the availability of the technology (if it comes onstream), but a downward impact on the producer price to defray the cost of “cleaning” the coal.

It is somewhat surprising that the medium-term cost of coal is projected to fall below the prices prevailing in the 2009 recession in the low price scenario. Given that the price of coal reflects market forces and this was a period when demand was particularly weak, the 2009 price might be seen as a floor and none of the external forecasts reviewed has prices falling below the 2009 level in the period to 2020.

Key conclusions

The papers underpinning the provisional DECC fossil price projections to 2030 contain a very detailed and thorough analysis of potential demand and supply price dynamics, with the possible exception of the oil price where more reliance is placed on external forecasts. However, the scenarios do not seem to properly embody two key factors which are likely to shape the energy market going forward: (1) the impact of climate change policies and (2) the rapid growth in Asia and other emerging markets. These issues are touched upon but not fully discussed. In the view of this reviewer, this results in an underestimation of the potential upward pressures on energy costs to 2030 in the proposed scenarios and a further consideration of the impact of these factors would be appropriate before the scenarios are finalised.

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