

Performance and Innovation Unit - Energy Policy Review

RESPONSE OF UK COAL PLC TO THE INITIAL SCOPING NOTE ON COAL

UK COAL PLC is pleased to provide the following responses to questions raised in the initial scoping note on coal dated August 2001.

1. International Coal Prices

Are coal prices delivered to the UK over the next 10-20 years likely to fall or rise compared to the current level of around 115 –120 p/GJ?

Historically, international coal prices have been cyclical, the attached graph shows the variation over the last 15 years and outlines reasons behind the price movements. Prices going forward are also likely to be cyclical as new capacity meets and then exceeds demand during periods of economic growth and downturn respectively. A number of factors leads us to the conclusion that the underlying forward trend will be one of rising prices:

- The price of coal has risen in response to rising demand as coal-fired generation has replaced more expensive gas-fired generation. In the long-term, gas prices will continue to rise in Western Europe due to their linkage with rising oil prices, the greater cost of gas transportation as it is shipped over longer distances, and also as supplies become controlled by a few dominant players such as Gazprom.
- The trend of consolidation amongst world coal producers has led to a reduction in competition between suppliers placing an upward pressure on international prices that is likely to continue in the future.
- In their latest annual coal price forecast, economic consultants DRI-WEFA present a picture of prices falling slightly over the next two years before rising gradually to over \$50 / tonne by 2025. This is based upon the marginal cost of Australian coal supplying the European market.

Will international coal prices move in line with oil prices?

Both coal and oil prices move in line with global economic cycles, but coal has consistently shown a greater price stability.

OPEC has made its intentions clear on oil prices: it does not wish to see prices fall back to 1998 levels and has set a target range of \$22-28 per barrel. Due to OPEC actions, oil prices have remained in this band for the last 18 months and show no signs of weakening; unlike the DTI, we expect oil prices to remain high.

Within the European market, there is an observed price linkage between oil and gas. High oil prices have led to high gas prices on the continent, driving UK shippers to sell gas via the Interconnector into the higher value markets of mainland Europe. Fuel switching by generators, from gas to coal, has then ensured an increased demand

for coal and hence higher coal prices. With high oil prices, we would expect this trend to continue.

2. Coal Fired Electricity Generation

Whilst UK COAL does not operator any coal-fired generation plant, we believe that the main policy influences are as follows; however, we would encourage the PIU team to seek detailed information from UK generators.

What is the range of possibilities for UK coal-fired generation over the periods to 2010 and 2020, based on existing UK policies and expectations for future EU Directives?

The revised Large Combustion Plant Directive (revisions to 88/609/EEC as detailed in C5-0323/2001, the joint text agreed during conciliation of COM(1998)415) will require all UK coal-fired plant to fit flue gas desulphurisation (FGD) equipment by 2008 otherwise their operational life will be limited to a maximum of 20,000 hours. In addition, the National Emission Ceilings Directive will impose absolute caps on the SO₂ emissions each Member State may emit.

The Environment Agency (EA), in its 1999 decision on SO₂ emissions from oil- and coal-fired power stations, imposed a series of annual reductions on operators in England and Wales, limiting SO₂ emissions to 365 kt by 2005. As an incentive to retrofit FGD, additional SO₂ emission allowances are available to any operator who makes a firm commitment to retrofit.

The EA incentives, coupled with the ever more stringent EU legislation, have prompted a number of operators to retrofit FGD to meet tighter SO₂ objectives.

Coal is the most carbon intensive of all fossil fuels, thus any form of carbon taxation or emissions trading would encourage fuel switching away from coal. A draft proposal for an EU directive to introduce carbon trading by 2005, *i.e.* prior to the Kyoto commitment period, is presently at the stage of interservice consultation within the European Commission. A UK scheme, due to start next April, is more advanced and will exclude electricity generators from trading; **any change to this position would seriously threaten coal-fired generation.**

For how long can the lifetime of existing sets with FGD be extended?

UK COAL believes that there is no practical reason why the lifetime of existing sets with FGD could not extend beyond the next 20 years. London Power Company's Environmental Statement, accompanying its Section 36 application for a FGD plant at Cottam power station, evaluates FGD technology options over a 20 year timeframe. This is in line with our current thinking.

How much additional FGD equipment is likely to be fitted to existing stations?

The table below gives the status of FGD within the UK as of September 2001:

Station	Capacity	Capacity with FGD	Owner	Status
Drax	4.0 GW	4.0 GW	AES	operational
Ratcliffe	2.0 GW	2.0 GW	Powergen	operational
Fifoots Point	0.4 GW	0.4 GW	AES	operational
West Burton	2.0 GW	2.0 GW	TXU	under construction
Eggborough	2.0 GW	1.0 GW	British Energy	EPC contract let
Longannet	2.4 GW	1.2 GW	Scottish Power	call for tender published in OJ
Ferrybridge	2.0 GW	1.0 GW	Edison Mission	applied to DTI for S36 consent
Fiddlers Ferry	2.0 GW	0.5 GW	Edison Mission	applied to DTI for S36 consent
Cottam	2.0 GW	1.0 GW	London Power (EdF)	applied to DTI for S36 consent
Rugeley	1.0 GW	1.0 GW	International Power	announcement expected
		14.1 GW		

The above list is not exhaustive, many of the existing power stations are currently up for sale and it is likely that further plans for FGD will emerge.

Under current policies and expected prices are generators likely to choose to build new coal plant?

Current liberalisation policies favour short-termism since electricity prices are driven down to the marginal cost of supply with only limited opportunities for any return on capital investment. IEA Coal Research (Scott, 2001) estimates that for advanced clean coal technologies to compete in such an environment, there has to be a large price differential (*i.e.* >2.5:1) between the energy costs of gas and coal because of the relatively low capital cost, short construction time and high thermal efficiency of natural gas fired, combined cycle power stations. For a coal price of 120 p/GJ, this equates to a gas price of 30 p/therm and suggests that, although economically competitive at gas prices below this level, new coal-fired power generation would not be the preferred choice under the current policy of market liberalisation without some form of support. If new generation capacity was to be built today, it would be gas-fired CCGT because of its lower overall risk profile.

At present, the margin of installed plant capacity over peak demand in England and Wales, as reported by the National Grid Company, is just over 26%. This, coupled with low electricity prices and high gas prices, is delaying the start of any new gas-fired power station build.

3. UK Coal Production

What are the current estimates of future production levels and pit-head production costs from existing deep mines?

A bar chart showing UK COAL's latest projection of output and reserves base has been submitted to the PIU team (ref. letter from UK COAL to N. Hartley dated 20 July 2001). The company is currently undertaking a review of working practices at its collieries and believes that the introduction of flexible 24 hour, 7 day working would assist with lowering production costs to around £1.05/GJ.

We would be pleased to discuss this point and possible variations to the plan with the PIU team to explain how they could impact on our output and reserve base.

What level of pit-head prices would producers require to open new deep mines in the UK?

UK COAL estimates pit head prices would have to rise to around £1.50/GJ before new projects such as Witham or the re-opening of Thorne Colliery would proceed.

How long would it take for new deep mines to come into production?

It would take 8–10 years from inception to production coming on-stream. The timetable below shows an outline of activities:

Year 1	Environmental Impact Assessment baseline studies, initial planning discussions
Year 2	Environmental Statement
Year 3	planning application and determination, land and license acquisitions
Year 4	possible Public Inquiry
Year 5-6	shaft sinking
Year 7-8	development of underground infrastructure
Year 9	production

This time-scale could be shortened to 5-7 years with a fast-track planning procedure.

The cheapest way of accessing additional reserves would be from existing mines where infrastructure is already in place. It would probably take around two years for production to come on-stream and would have the benefit of ensuring that a skilled workforce was available. In addition, it would shorten many of the planning stages.

Additional production could be obtained on a shorter time-scale from existing mines by installing extra faces. A lead-time of around 12 months is required to establish a new face.

What contribution can opencast coal be expected to make given local environmental concerns?

Opencast coal production in the UK has been falling in recent years due to the growing difficulty in obtaining planning permission for new sites as old ones become worked-out, typically after five years. Planning issues are the biggest problem in maintaining a sustainable industry. Whilst every care is made to design schemes which take account of local environmental and planning concerns, more and more sites are now being referred to Public Inquiry (PI).

Even an Inspector's decision at a PI does not guarantee that a site will progress. UK COAL has recently had two instances where an Inspector has found in favour of a site proceeding, only to have his decision overturned by the Secretary of State at a later date.

Surface or opencast mining can make a major contribution to UK coal production, given a favourable planning environment. The Coal Authority estimates that there are around 400 million tonnes of workable, shallow reserves. However, there is a grave danger that these will be lost to the nation if the present planning presumption against opencast development continues. Mining companies will not survive and prosper unless utilisation of their expensive assets (a single excavator costs over £2 million) can be assured with a rolling programme of opencast projects. Importantly, land will become sterilised as other development is permitted which prevents any possibility of surface mining in the future; yet these other developments could have followed mining.

Are there other factors likely to affect the competitiveness of UK coal? If so, what would the impact be?

As internationally traded coal is priced in US\$, exchange rates have a major effect on the competitiveness of UK coal. The US\$ exchange rate directly impacts on the price paid by the UK generators.

The relationship of coal producing countries' currencies to the US\$ is very important. In recent years the main coal exporters of Australia, Columbia and South Africa have all seen major devaluations against the \$US. This has allowed producers to accept lower US\$ prices whilst maintaining home currency revenues. For example, since mid 1998, the value of the South African Rand has fallen by 50% against the US\$, whilst the Australian Dollar has lost over 10% of its value.

Economics dictate that UK COAL must sell to the small number of UK generators. To secure its future, the company relies on long-term contracts with these generators who have the option to buy from many international suppliers and are therefore in a strong negotiating position. The cost of hedging these contracts against currency risk would usually outweigh any benefits of linking our prices to international prices.

International shipping rates also impact on the competitiveness of indigenous coal as it is part of the delivered price. These rates tend to be cyclical as new shipping capacity enters and retires from the market. During the last 5 years, rates from South

Africa to Europe for Cape-size shipments have varied in the range \$4-11/tonne. At present, we are at a low point in the cycle with prices just below \$5/tonne.

Imported coals tend to have an environmental advantage over UK coals with sulphur contents of typically 1% or less, compared to an average of around 1.6% for indigenous supplies. Whilst the retrofitting of FGD plant alleviates this impact, there are increased FGD operational costs associated with higher sulphur coals.

On the positive side, there are opportunities for the UK coal industry to improve its productivity and compete with imported coal. In the UK there have been a number of incremental steps taken in mining practices, such as roof bolting, to improve productivity. The next challenge is a major reform of working practices so that assets are utilised on a 24 hour, 7 day basis in order to further reduce unit production costs. During the period 1995-2000 underground productivity in the USA rose by 40% and UK COAL plans to emulate this over the next two years. As previously mentioned, the aim is to reduce costs at deep mines to around £1.05/GJ.

4. Coal and Security of Supply

Does ease of storage justify retaining some role for coal in the energy mix?

Unlike oil and gas, coal can be easily and economically stored in large quantities at power stations. It is a fact that many gas-fired power stations have been built with no back-up fuel facilities and are extremely vulnerable to interruptions in the supply chain.

In view of the above, UK COAL believes that the easy ability to stock large volumes of coal does significantly add to energy security within the UK. This was demonstrated over the winter period of 2000/01 when large volumes of stock were lifted to meet the increased coal demand, as gas prices rose and nuclear units suffered unexpected outages. Either this ability should be properly rewarded, or there should be a requirement for competing fuels to hold back-up supplies.

Should there be some minimum share for coal in the electricity market?

Of course, UK COAL supports the concept of a minimum share for coal with a market-based mechanism that supports the deployment of clean coal technologies. This would assure electricity supply security and diversity in the UK.

UK COAL also supports the European Commission's proposal to provide security of energy supplies by developing and maintaining a variety of indigenous energy sources, including maintaining minimum coal production capacities in order to retain access to reserves (COM(2000)769).

An existing provision within Directive 96/92/EC on common rules for the internal electricity market (article 8.4) provides the opportunity for the UK Government to support electricity generated from indigenous coal in order to protect energy security.

This article allows support to be given for up to 15% of the overall primary energy necessary to produce electricity consumed in any Member State.

Is it worth retaining coal-burning equipment, including power stations, for back-up, even if regular use would conflict with environmental objectives?

UK COAL believes coal-fired generation is a major component of energy security and does not support the proposal that it should be used as a “back-up” supply. New, clean coal technologies should be deployed in order to meet environmental objectives whilst additionally enhancing fuel security and diversity.

5. Sources of Coal

What is the risk of a cartel of coal exporting countries, similar to OPEC, emerging?

UK COAL does not believe there is a strong risk of a coal cartel coming into existence because of the wide diversity of producing countries. However, the dominance of four major companies over international coal trade, together accounting for over 50% of the market, does raise the expectation of a better match of production and usage, and hence higher long-term prices as periods of overproduction are more limited.

What is the risk of future coal prices being sustained significantly above competitive levels by the action of a small group of international corporations?

There has been a trend of consolidation within international coal producers culminating with the recent merger of BHP and Billiton. These companies have production capacity spread across the world and collaborate in large ventures. UK COAL believes the reduction in the number of competitive suppliers could lead to an on-going, upward pressure on international prices. Nevertheless, the large number of smaller, independent producers, such as UK COAL, may ensure that market prices are not manipulated. It is therefore difficult to predict if prices could be sustained significantly above the competitive levels dictated by production costs. In any case, governments can ensure against such a possibility through anti-trust actions against the corporations involved, a power not available to counter the dominance of OPEC member countries on oil prices.

Is there a significant risk that port and rail constraints will limit the UK's ability to import the coal it may require in the medium to longer term?

There are significant infrastructure constraints on the volume of coal imports that can be brought into and then moved within the UK.

In the main, UK port capacity is held by a few generators/traders who are looking to position themselves as coal suppliers. This effectively places an entry barrier on new participants who would otherwise wish to import coal themselves. UK COAL

believes that the only capacity not tied up in this manner is at Hunterston, the furthest port away from the English coal-fired power stations. Before new facilities could be built, such as the Humber International Terminal extension (HIT2), major investments would need to be underwritten by long-term commitments to import.

The current rail network is not designed to move significant volumes of coal from ports to power stations. There are signalling, track and train path constraints around UK ports, and as coal is required to be moved over longer and longer distances, the availability of train paths *vis-à-vis* passenger traffic becomes more acute.

UK COAL, along with other UK producers, has experienced train cancellations due to long distance import flows tying up resources. The addition of more trains, crews and wagons cannot overcome the basic shortcomings of the rail network.

Does UK coal offer security benefits which are not recognised in the prices it is able to command in the market?

Historically, indigenous coal has been able to command a premium over internationally traded coal, at least until March 1998.

At the time of electricity privatisation, the coal generation market was dominated by just two companies who were unable to fully import their requirements and hence paid a premium to ensure UK supplies were available. From the late 1990s there has been a policy of divestment of coal-fired power stations, inspired initially by regulation and later by market positioning.

As the number of coal-fired generation companies has increased, so has competition for market share with each one looking for cheaper fuel supplies to reduce its own cost of electricity. With the decline in market share for coal-fired generation, the total tonnage requirement of all these companies is now much lower, and individually each could meet its requirement from imported sources. In consequence, UK prices have been driven down to international levels and the security benefits which indigenous coal offers are no longer reflected in realised prices.

6. Coal Mine Methane

Are there sufficient incentives to collect methane from coal workings and use it to produce energy?

There are no incentives to collect methane from coal workings and use its energy usefully. It has always appeared anomalous to UK COAL, that generation from landfill gas has been included within renewable support mechanisms, yet generation using mine gas from abandoned and working collieries has been specifically excluded. Coal mine methane is a waste product arising from the mining of coal and its use as an energy source should be rewarded in the same manner as other waste to energy opportunities.

We note that the Australian Government has recently announced a grant of A\$24 million to support schemes to capture methane and generate electricity at three mines in NSW and Queensland.

Despite the lack of Government support, UK COAL has made a voluntary pledge under the second Making a Corporate Commitment Campaign (MACC2) to increase methane utilisation at its collieries where this is economic. Much more methane could be captured and used with appropriate support.

What is the appropriate balance between collecting and using the methane, and preventing its release in the first place?

At operating coal mines, it is not possible to prevent the release of methane from the strata into the ventilation air. There is a background emission level as methane migrates out of the strata surrounding all areas of the mine, and this level increases significantly around coaling operations.

Gas captured from areas around a working coal face is often of a sufficient purity to generate electricity in relatively conventional generating sets using spark ignition, reciprocating engines. However, the vast majority of the methane emitted from working collieries is of low purity contained within the ventilation air. At least two technologies exist to utilise even this methane, but neither has been demonstrated at a scale that could be considered commercial.

7. Coal and Social Issues

As in other areas, the PIU is considering how far, and in what way, industrial and employment objectives should form a central part of energy policy: views are invited in relation to coal?

The UK coal industry provides vital, well paid jobs in areas of relatively high unemployment and supports many other indirect jobs. UK COAL's own contribution to the State, via taxes, rates, National Insurance and pension contributions, amounts to over £100 million per annum or around 14% of turnover. These benefits to the nation, along with those from other mining concerns and support industries, would be lost if indigenous coal was to be replaced by imports.

UK COAL notes that industrial, employment and energy security objectives are given a high priority within the energy policies of the other EU coal producing countries (Germany, Spain and France) and are a major factor in the high level of subsidies being paid. The EC's proposals for continuation of EU approved subsidies from 2002 to 2010 acknowledges the problems associated with the decline of coal mining and the need to cushion the social effects (COM(2001)423).

The UK coal industry has been disadvantaged by subsidies being paid in other Member State and accession countries. Given the EC's desire to maintain a coal mining capacity and capability within the EU, it would seem entirely reasonable that priority be given to the most viable mines, namely those found in the UK.