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# COAL MARKETING IN EUROPE – TIME TO LOOK AT STRATEGY

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# I. INTRODUCTION

1. Coal has provided "cheap" and safe energy for mankind for at least a thousand years. Until now, it has remained a desirable energy source in view of its widespread availability, its low cost and safe handling characteristics that ensure its attractiveness over other fuels.

2. The recognition of coal's darker side, its ability to pollute the environment, gained momentum in the 1960s when the phenomenon of acid rain in Scandinavia became apparent. This was attributed to oil and coal use in Europe and, with the use of fossil fuels causing an apparent increase  $CO_2$  in the atmosphere; these factors prompted international bodies such as the United Nations (UN) and the European Commission (EU) to develop a range of legislation to attempt to curb such emissions. The legislation takes two broad forms:

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- Legislation deriving from the UNECE Convention on Long Range Transboundary Air Pollution (CLRTAP) and culminating in the EU Directive on Large Combustion Plant, 2001 (Graphic 1); and
- Legislation to support the implementation of the aims of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) to reduce greenhouse gas (GHG) emissions, of which CO<sub>2</sub> is one. On average, the target is that these emissions should drop by 5.2 per cent by the end of the first commitment period, 2008 2012, compared to 1990 levels, although the actual rate varies by country. The key item of legislation is the National Allocation Plans for 23 EU member states (excluding Cyprus and Malta) limiting CO<sub>2</sub> for eight industry sectors and forming the basis of the EU Emissions Trading Scheme.

3. Taken together, these two sets of policies and legislation pose the greatest challenge to coal's desirability as a fuel source in its history. Whilst the European countries are mainly affected at this stage (and therefore the focus of this paper), this serves as a good indicator of how producers should react to the situation.

#### **Graphic 1 – Hierarchy of International Pollutant Legislation**

HIERARCHY OF POLLUTANT LEGISLATION



4. To overcome these challenges and to turn them in to an opportunity, coal producers are going to have to:

- Understand their products;
- Understand the needs of the customer;

- Tailor products to the market needs;
- Understand the rival fuels better than before; and
- Support the technological advances in developing cleaner coals that will remain competitive in the market place.

5. The potential rewards for getting this right are an enhanced marketing system, which can take advantage of new opportunities that emerge from the changes that will occur.

#### II. NATURE OF THE LEGISLATION

#### (a) Large Combustion Plant Directive (LCPD)

6. The LCPD applies to combustion plants with a thermal output of greater than 50MW as of 1 January 2008 and was revised in 2001 to take into account advances in abatement technology (LCPD, 2001/80/EC), replacing an earlier version (88/609/EEC).

7. The LCPD tackles emissions of  $SO_2$ , NOx and dust, specifically intending to reduce acidification of soils and freshwater bodies and the potential damage to plants and aquatic life, due to the presence of  $SO_2$ . NOx reacts with volatile organic compounds in the presence of sunlight in a way that may affect human life and ecosystems.

8. The LCPD gives EU Member States two options to comply for so called "existing plants" (licensed before 1 July 1987). The first requires each plant to comply with specified emission limit values (ELV's) for sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NOx) and dust. The second allows a national emission reduction plan (NERP) to be implemented. Such a plan should reduce the total annual emissions of SO<sub>2</sub>, NOx and dust to the levels that would have been achieved by applying the ELV's to the existing plants in operation in the year 2000, on the basis of each plant's operational performance averaged over the last five years of operation up to and including 2000.

9. In effect, coal-fired stations in Europe have to fit equipment to extract SOx emissions from flue gases (flue gas desulphurisation or FGD), by 2008 or face a maximum operational life of 20,000 hours until 2015, after which compulsory closure occurs.

10. In practice, it would seem that power stations that do not have FGD would want to keep the average sulphur content of the coal used below 0.4%, significantly below typical current averages. The implications for coal are significant as the ELV system is a monitoring system whilst the NERP is a cap-and-trade system that may allow more flexibility for users and potentially create an allowance trading scheme similar to that created in the USA by the Acid Rain Programme.

#### (b) <u>The European Emission Trading Scheme (EU ETS)</u>

11. Graphic 2 provides a representation of the legislation that incorporates the Kyoto Protocol and depicts the relationship between the Protocol and the National Allocation Plans, which determine the amounts of  $CO_2$  individual companies are permitted to emit.

12. The EU ETS is a mechanism to allow parties to trade in  $CO_2$  credits to offset shortfalls in producing companies. It is founded on the concept that each country, and companies within those countries, will have a limit on the total  $CO_2$  emitted under the National Allocation Plan approved for each EU Member State. Each company will have to comply with its designated  $CO_2$  limit or buy credits to "balance the books".

13. The mechanism allows developed countries to trade with each other (Joint Implementation), to invest in projects in developing countries (Clean Development Mechanism) or developed countries can fund reductions in other developed countries in exchange for Assigned Amount Units (AAU's).

# **Graphic 2 – Hierarchy of Environmental Legislation**



HIERARCHY OF LEGISLATION

14. Unsurprisingly, coal is one of the fuel sources most seriously affected by the legislation by virtue of the fact that that coal emits more  $CO_2$  during burning that its main rival fuel sources for electricity.

15. As is graphically illustrated in Table 1, coal is one of the most polluting fuel sources for the generation of electricity, especially when compared to gas, its great rival in the area of electricity generation. This is not news to anyone in the energy industry, but the implications are important for the future of coal in electricity generation.

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16. It suggests that coal, to maintain its appeal, should be marketed in a way that is different to the methods of the past, focusing on its strengths and creating attractive selling points compared to the detrimental publicity often overlooked in the market place.

<b>Energy and Fuel Consumed</b>	Emission Factor (kg CO <sub>2</sub> /kWh)*
Electricity	
Electricity from grid	0.43
Renewable sources	0.00
Fuels	
Natural gas	0.19
Gas/diesel oil	0.25
Petrol	0.24
Heavy Fuel Oil	0.26
Coal	0.30
Coking Coal	0.30
Coke	0.37
LPG	0.21
Jet kerosene	0.24
Ethane	0.20
Naptha	0.26
Waste	0.25
<u>Petroleum</u>	0.34
Refinery gas	0.20
Other oil	0.24
<u>Renewables</u>	0.00

#### Table 1: CO2 Output Levels from Different Fuels

\*Source: Data from United Kingdom DEFRA, Guidelines for the Measurement and Reporting of Emissions by Direct Participants in the United Kingdom Emissions Trading Scheme.

17. Table 1 illustrates the CO<sub>2</sub> output levels adjusted for the amount of electricity produced.

18. There is a clear implication for coal in that consumers will find it more expensive than it has been. With coal emitting about 2.2 tonnes of  $CO_2$  when burnt, the marginal cost will increase by that factor. Although limited emission trading schemes have been in place in the United Kingdom, United States and other centres for the past two years, no one is prepared to predict the long-term price of emissions.

19. Current consensus suggests prices of one tonne of  $CO_2$  may range from  $\notin$  to  $\notin$  15 when the EU ETS is fully operational, which in itself represents a range too wide to be of much use in strategic planning. This is an example of a driver that needs monitoring so that when it is possible a more accurate figure can be used that creates a set of meaningful strategic options.

# III. SO WHAT DO WE DO NOW?

20. As with most things strategic, the first step is to determine what it is we want to achieve. As an industry, thermal coal marketers have not been as proactive in terms of developing ways to market coal in the revised markets, as have some other fuel sources.

21. Whilst this is partially because the restrictive legislation described above has created a new level of uncertainty, it is relevant to consider why this may be the case. There has always been a considerable debate as to whether coal is branded or is a simple commodity. In essence, thermal coal is a hybrid, being a commodity with individual brands within the product. To exploit the potential value of coal and maintain its role in the energy sector, there are several steps that could be taken.

22. Understanding the market drivers is a key element in strategic marketing of any product and especially so for coal. It is impossible to accurately predict coal usage by country or by plant for any significant future period. The International Energy Agency (IEA), in its 2004 review, considers coal usage in Europe will decline progressively, in line with the reduction in domestic coal production in Germany and the United Kingdom. The EU, however, in its 2003 "European Energy and Transport – Trends to 2030" believes coal usage will decline to 2010 and then slowly increase as new coal-fired generation capacity will replace ageing nuclear power stations. The point is that there is no certainty about absolute predictions, so the answer is to understand the market drivers and base production and marketing strategy on these factors.

23. The drivers can be summarised as:

(a) <u>Understand your product</u>

24. It may seem obvious but it is vital to develop a clear understanding of how your product rates compared to the competition. Traditionally, coal has been sold with the heat value as the primary price determinant. Of course, there are variations from one coal to another and the behaviour in boilers has played a role. However, one of the traditional attractions of coal as a fuel source has been the ability of customers to source coal from a wide variety of suppliers.

25. The legislation that is now coming into effect in Europe will heighten the differences between coals that were once considered traditionally similar. This means that coal companies will need to identify the strengths of the product in relation to the regulations and market those. It will also be important for the coal industry to recognise differences between its products and those of its competitors.

- 26. What will be important now, in addition to the traditional attributes, will include:
- The levels of sulphur produced if the customer does not have flue gas de-sulphurisation (FGD) equipment fitted which market is your coal better suited to?
- Burning characteristics of the coal in the boiler will the coal produce high levels of NOx during combustion?
- Does the coal product have unique attributes that are relevant to the new situation and are these marketed effectively?
- How do the long-term reserves, as yet unexploited, fit with the regulatory regime?
- (b) <u>Understand the needs of the customer</u>

27. Despite stating the obvious, the needs of customers are changing in Europe – does the coal sector know what they are? More importantly, does the customer know what they are?

28. Given the complexity of the legislation now in place, many customers are not sure of the potential impact on their business. This is especially true as the implementation for key legislation – such as the LCPD – is not defined, or options exist which are not finalised. The impact on some companies, especially domestic coal producers in the United Kingdom and Germany, could be severe and create opportunities for new markets for international producers. This depends on the producer being positioned favourably to exploit the situation based on their competitive advantage.

29. It should be remembered that customers will be affected in different ways. Larger ones are typically better prepared to withstand the uncertainties and smaller ones may lack the resources to employ experts to guide them through, possibly preferring to adopt a "wait and see" approach and see which way the larger companies move.

30. This may suggest a change to the traditional short term contracts now seen in the industry. One way for the consumers to reduce risk and provide some certainty is to develop strategic relationships with suppliers.

#### (c) <u>Understand competition</u>

31. The first step is to define who is the competition? Traditionally, coal companies have looked at other coal companies as the main competition and the battle has been fought out largely on price based on the heat value.

32. The competition is now much wider, being other coal companies plus other fuel suppliers, predominantly gas and renewables, but including nuclear and oil as well.

33. Taken in two stages, the strategic process is for the coal industry to first understand the immediate and traditional competition and determine how its product stacks up against it:

- Is there an advantage to exploit that was not there before?
- Does coal have a weakness to address?
- What marketing tactics can be employed to maximise the attractiveness of the product?

34. Following this, the next important step is to develop a clear understanding of the position occupied by the coal product in the wider picture. What gaps may appear that suit the product as a preferred supplier to the market. Such opportunities may arise from:

- The cost of indigenous coal produced in United Kingdom, Germany and Poland;
- The quality of such coals, especially the sulphur content and heat values;
- The possible reduced desirability of lignite as a long term energy source;
- The potential for renewable sources to miss their stated targets in a variety of countries;
- The split for coal into a high sulphur and low sulphur (below 0.4 per cent) market during the LCPD derogation period, 2008 -2015. How is participation possible, is there an opportunity to market other coals outside the portfolio that will be more attractive to the market?
- The fact that coal has strong storage capabilities, compared to gas; and
- Coal is capable of being blended with biomass and energy-rich waste and used in standard boilers.

#### (d) <u>Understand the drivers of other fuels</u>

35. The European market is on the cusp of change and, just as the traditional market drivers are changing for coal, so they are changing for other fuels.

36. Renewable energy sources in Europe are largely operating on what are effectively government subsidies – will these continue? What fuels will fill demand gaps if they occur and can coal's traditional value of flexibility and storability be exploited?

37. Similarly, the market should be studied to identify new entrants – will Liquefied Natural Gas (LNG) grow as a fuel and could it replace coal as a fuel of choice?

38. Will electricity demand remain linked to the industrial growth in countries or will the greatest untapped resource, energy conservation, grow and change the electricity demand patterns?

39. Any strategy needs to address the "what if" possibilities through a scenario planning process that determines the effect on coal sales. Absolute forecasting of demand for any product over a long period (over two years) is too easily rendered incorrect by rapid, but potentially, small shifts in the drivers.

# IV. PULL IT ALL TOGETHER

40. This paper serves to outline some of the strategic issues that should be addressed. The procedure should be refined into a process that is flexible and detailed enough to meet the needs of the organisation. The key is developing a clear understanding of the market place and the influences on it that promote change.

41. The quicker the aspects of the drivers, new and old, can be assimilated into a marketing strategy that realises the new operating environment, the quicker new opportunities and threats

can be recognised. The strategy needs to be dynamic so that it can monitor the drivers and react to the changes that are observed. Done properly, this can provide a significant competitive advantage that can be maintained.

42. A new operating environment requires a new approach. The uncertainty that still surrounds some of the issues pertaining to the regulatory requirements can be a powerful advantage to companies that adopt an aggressive approach founded on a carefully researched marketing strategy based on the assessed market drivers and the opportunities this creates. The strategy is effectively a blueprint to understanding the industry drivers and creating a competitive advantage in the European coal marketing arena.