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**GLOBAL AND REGIONAL COAL DEMAND PERSPECTIVES
TO 2030 AND BEYOND**

(prepared by the World Energy Council ^{1/})

I. BACKGROUND

1. The World Energy Council (WEC) is currently undertaking a study on “Sustainable global energy development: the case of coal”, which will be published on the occasion of the 19th World Energy Congress and Exhibition to be held in Sydney, Australia, 5 – 10 September 2004 (website: <http://www.worldenergy.org>). This study examines *inter alia* the perspectives of coal demand to 2030 and beyond, of which the following is an excerpt. Rather than venturing a projection of its own, the study analyses twelve projections undertaken by WEC, WEC/International Institute for Applied Systems Analysis (IIASA), International Energy Agency (IEA), European Union (EU) in its ‘World Energy, Technology and Climate Policy Outlook’ (WETO) and the US Department of Energy (DOE) Energy Information Agency (EIA) during 1977 – 2003. The findings are provided as follows.

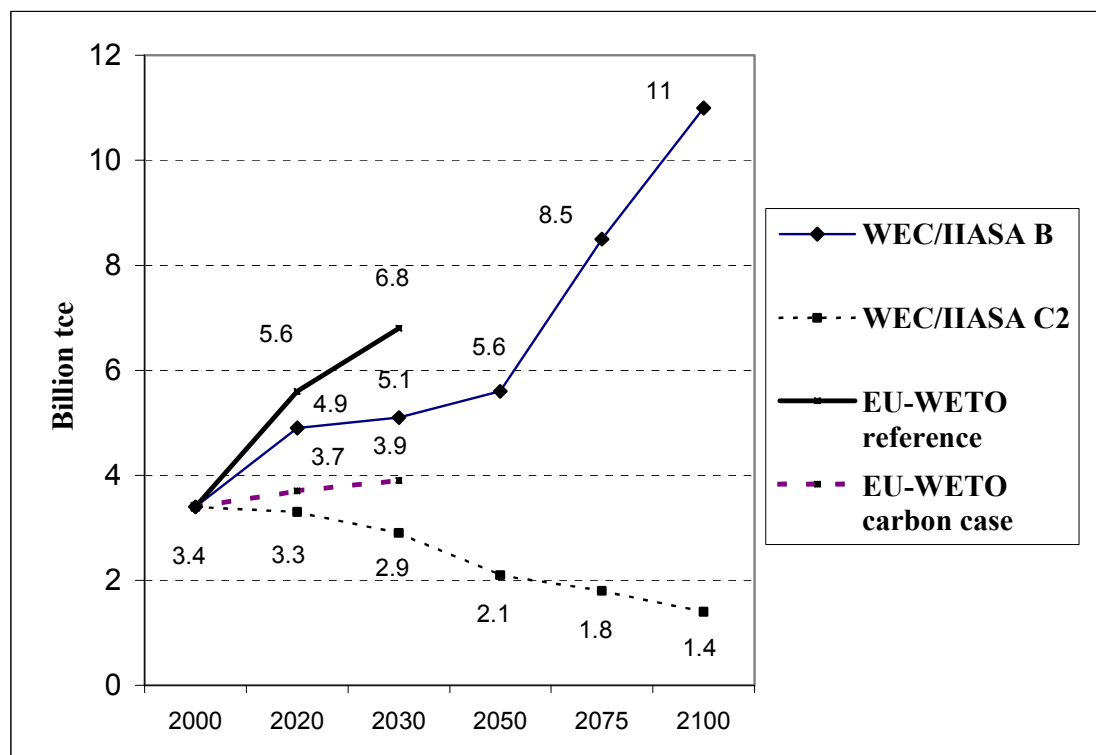
^{1/} Prepared by Klaus Brendow, Regional Coordinator Central, Eastern Europe, World Energy Council (WEC), Geneva, Switzerland, E-mail: KBrendow@compuserve.com, Website: <http://www.worldenergy.org>

II. SIGNIFICANT GROWTH OF COAL DEMAND UNTIL AT LEAST 2020/2030

2. Market-driven projections anticipate that world coal demand will increase during the entire twenty-first century. Most recent projections for 2000-2030 anticipate increases ranging from 53 % to 100 %, i.e. from 3.4 billion tonnes of coal equivalent (tce) in 2000 to 5.1 and 6.8 billion tce in 2030 (see Graph 1).

3. It is anticipated that carbon abatement policies would not have an impact on coal demand before 2020 or 2030. By 2050, under such constraints, coal demand would have declined by one third (only), to 2.1 billion tce.

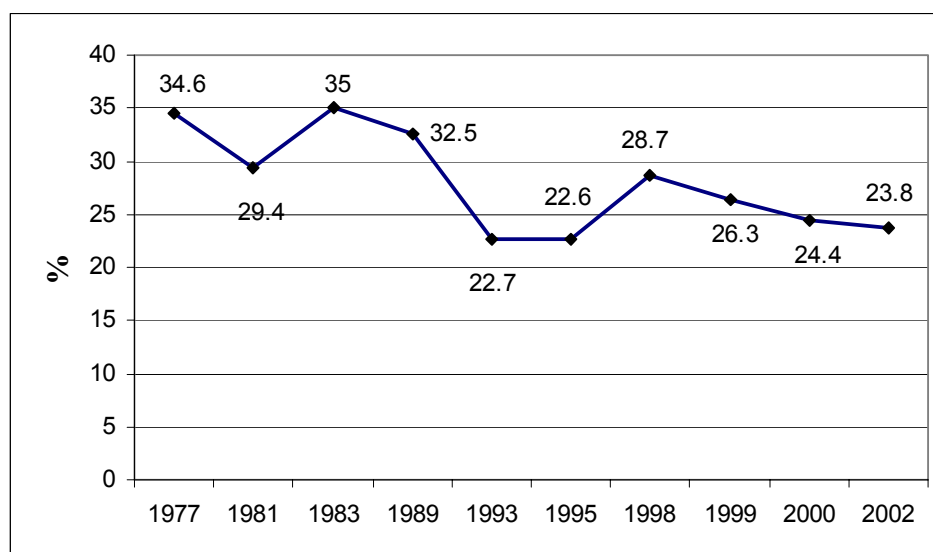
Graph 1: World Coal Demand Projections



4. Under market conditions, the share of coal in world primary energy supplies, at 26 % in 2000, would decline to 24 % in 2020 and 22 % in 2050 and 2100. Carbon constraints would reduce the share of coal to 11 % in 2050 and 5 % in 2100, which (nevertheless) corresponds to 2.1 and 1.4 billion tce, respectively.

5. The major competitor of coal would be gas, particularly under CO₂ emission constraints, although marginal gas is hardly better (in terms of life cycle GHG emissions) than marginal oil or coal. Specific investments in the coal mining-to-power chain would compare favourably with specific investments in the gas chain, as would international coal prices.

Graph 2: Projected World Market Share of Coal for 2020 by IEA and WEC/IIASA as Published in 1977 to 2002



III. REGIONAL DIFFERENCES

6. When considering coal demand: developing countries would take the lead in world coal demand growth. Demand in western Europe would decline.
7. When considering coal production it can be seen that during the last 30 years production rose steeply in China, India, United States of America, South Africa, Canada, Colombia and Indonesia, but declined in Europe. This pattern is expected to continue.

IV. EVOLVING SUPPLY PATTERN

8. Electricity generators would become the predominant customer for coal, absorbing 74 % of coal production in 2030 (compared to 66% in 2000). By 2030, coal would cover 45 % of world electricity generation compared with 37 % in 2000.
9. Demand for coking coal would slowly decline as a result of technological advances in steel making, growing use of electric arc furnaces and replacement of steel by other materials.
10. Synthetic gases and liquids from coal, while marginal from a global perspective, enjoy renewed interest. New coal liquefaction plants have gone on stream in China and are planned in Australia and the United States of America. An underground gasification project is under way in the United Kingdom.

V. GLOBALISATION OF TRADE AND OWNERSHIP

11. Whereas international hard coal trade accounted for only 7.5 % of world hard coal production in 1970, by 2000 already 16 % of production was internationally traded. At 595 million tonnes in 2000, international coal shipments are expected to grow to 826 million tonnes in 2025.

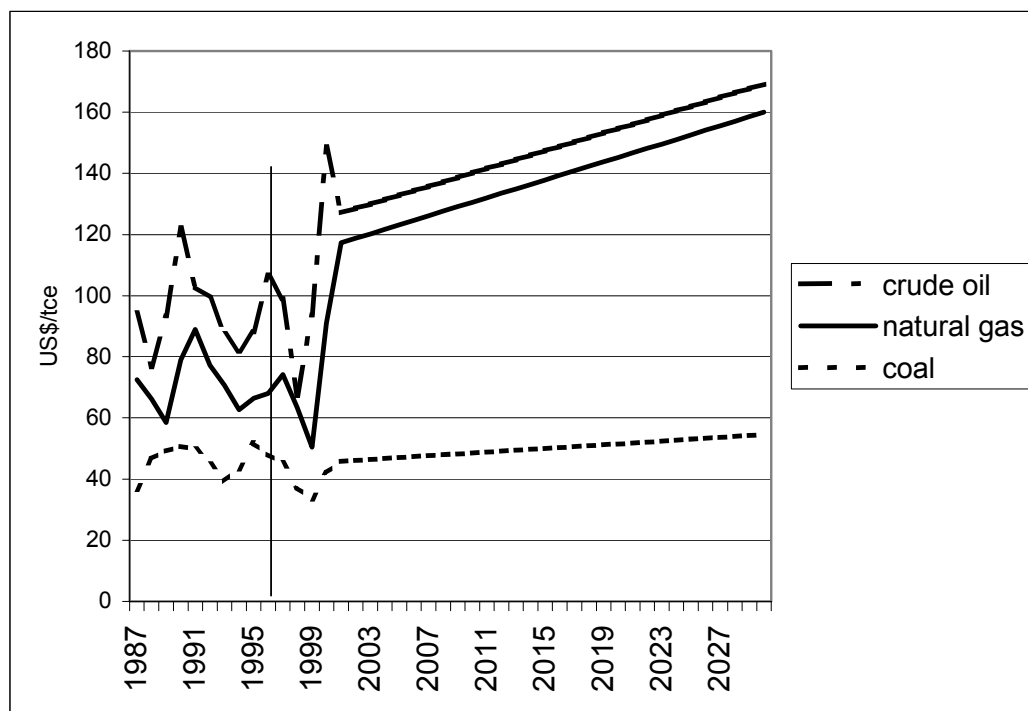
12. Coal trading practices have and will continue to change as witnessed by the increase in short term contracts and tenders and the development of e-commerce.

13. The industry has and will continue to consolidate.

VI. RISING PRICE COMPETITIVENESS

14. In the past, international prices of coal relative to oil and gas prices evolved in favour of coal. This trend is expected to continue due to significant increases in mining productivity.

Graph 3: Actual and Projected International Fuel Prices, 1987 - 2030



Source: IEA, World Energy Outlook 2002, p. 49

VII. PENETRATION OF CLEAN COAL COMBUSTION TECHNOLOGIES

15. Nil in 2000, advanced coal combustion technologies would account for 72 % of coal-based power generation and 33 % of world power generation in 2030.

16. The worldwide replacement of old coal power plants by advanced coal combustion technologies would reduce world CO₂ emissions by 7 to 8 %.

17. For the next two decades or so, advanced clean coal combustion may well be the most effective single technology option to combat climate change, bridging the time for coal sequestration to gain maturity.

VIII. SEQUESTERING CARBON

18. Advanced coal combustion technologies avoid CO₂ emissions only insofar they replace conventional coal combustion technologies. This is why, despite higher efficiencies, CO₂ emissions from coal-based power plants are expected to almost double between 2000 (2300 Gt) and 2030 (4300 Gt).

19. Coal does have every interest to develop carbon capture and disposal technologies to technical and commercial maturity in the next 15 to 20 years. International research is underway.

IX. ENERGY POVERTY AND CLEAN COAL

20. Two billion people are without access to commercial energy. Cleaner coal, indeed fossil fuel, technologies appear to be the only long-term means to seriously and simultaneously address the two issues of reducing energy-related GHG emissions and of enabling universal access to energy, as stipulated by the World Summit on Sustainable Development, Johannesburg, 2002.

X. COAL'S POOR GLOBAL IMAGE

21. Against these realities and perspectives, coal's image remained poor, as did related public relations efforts by the coal mining and combustion community. The global industry would be well advised to join forces in a proactive campaign highlighting the potential of sustainable development from coal. Acceptance by the public and more balanced policies are at that price.