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**COAL AND SUSTAINABLE DEVELOPMENT:  
THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT AND ITS  
IMPLICATIONS**

(prepared by the World Coal Institute<sup>1</sup>)

**I. INTRODUCTION**

1. Coal and sustainable development? To many of those attending the World Summit on Sustainable Development (WSSD) in Johannesburg in August/September 2002, this sounded like a contradiction in terms. Yet that was not the message of the Summit. Indeed it is the contention of this paper that continued use of coal is not just compatible with sustainable development – it is essential.

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<sup>1</sup> World Coal Institute, Cambridge House, 180 Upper Richmond Road, Putney, London SW15 2SH, UK; Tel: +44 20 8246 6611; Fax: +44 20 8246 6622; E-mail: [info@wci-coal.com](mailto:info@wci-coal.com); Website: <http://www.wci-coal.com>

## II. ENERGY AND SUSTAINABLE DEVELOPMENT

2. To explain why, it is first necessary to look at what sustainable development means. A familiar definition is that it is “development that meets the needs of the present generation without undermining the capacity of future generations to meet their needs” – often known as the Brundtland definition after the former Norwegian Prime Minister who pioneered the case for sustainable development at international level. An alternative definition (favoured by the Government of the United Kingdom) is that it means “a better quality of life for everyone, now and for generations to come”. This definition, as well as being simpler, puts a helpful emphasis on quality of life issues, making it easy to see why the availability of adequate and affordable energy is so closely tied in with the achievement of sustainable development.

3. These links have been emphasised by international organisations and financial institutions. The World Bank, for instance, has commented that: “Reliable energy is a key component of economic and social development ... Lack of energy is among the key forces slowing down poverty reduction and growth of the rural sector.”

4. The World Bank has pointed out that improved energy services can, amongst other things:

- Enhance indoor air quality and reduce health hazards. In many developing countries, people are reliant for cooking and heating on traditional biomass and fossil fuels, often burned inefficiently and in poorly ventilated conditions. The resulting indoor air pollution is a major health and environmental hazard, in many cases having a much more direct and damaging impact on people's lives than outdoor air quality. Access to modern energy and electricity can bring a significant improvement in quality of life, and make health provision easier, eg by enabling vaccines to be refrigerated.
- Boost income. Energy provision can provide income opportunities directly by making possible small scale manufacturing and service activities. It can also significantly reduce the effort spent on other tasks – in many developing countries, collection of firewood is a very time-consuming activity. It is not uncommon for people (generally women) to spend 4 to 6 hours a day in the task. Releasing them for other activities, whether social or income-generating, again provides a significant boost to quality of life.
- Bring environmental benefits. Traditional biomass is generally not a sustainable form of fuel. Firewood collection can lead to deforestation with the associated problems of soil degradation and thinning; use of animal dung reduces soil fertility and agricultural output.
- Provide educational opportunities, for example by providing lighting, which enables people to study, or access to television and other services of direct educational relevance.

5. So the provision of modern energy services has a significant impact on sustainable development and quality of life, particularly in those developing countries where such services are currently lacking.

### **III. THE SCALE OF THE PROBLEM**

6. This affects huge numbers of people worldwide. A study published by the International Energy Agency (IEA) at the time of the Johannesburg Summit (“Energy and Poverty”, a chapter from the subsequently published 2002 World Energy Outlook) looks in detail at the scale of the problem. It estimates that some 1.6 billion people in developing countries have no access to electricity, while 2.4 billion rely on primitive biomass for cooking and heating. Against the background of the health, environmental and other impacts noted above, it is clear that a significant development challenge is involved.

7. Even more worrying, perhaps, is the IEA’s forecast that in 30 years time (without new policies), the figures will be little better – they estimate that there would then still be 1.4 billion without electricity, 2.6 billion relying on traditional biomass.

8. Although rural poverty, and access to electricity for rural consumers, is clearly one major component of the challenge, the IEA also notes that 95% of the population growth in developing countries over the next 30 years will be in towns. This means that there will be no single answer – while distributed generation may well be a significant part of the solution to the problem of energy access for the rural poor, centralised generation will be critical in meeting the needs of the urban poor.

9. The need to tap all sources of energy has also been recognised by the UNDP, which has pointed out that: “There are no “either/or” solutions” [fossil fuels or renewables]. “The real challenge is how to use carbon fuels more efficiently and reduce the environmental impacts ... Fossil fuels are part of sustainable development.”

### **IV. THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT**

10. These then were the major challenges facing the WSSD in the area of energy. It should be emphasised that the Summit was genuinely concerned with sustainable development – i.e. not just the environment, but all aspects of sustainable development, including economic and social issues, with a particular focus on combating poverty.

11. The United Nations Secretary-General [Kofi Annan] had identified a number of key themes for the Summit against this development perspective, summed up in the acronym WEHAB - water, energy, health, agriculture and biodiversity. It is worth noting that this is the first time that a United Nations Summit has focussed on energy as a specific topic – earlier Summits, such as the Rio Earth Summit, dealt primarily with environmental issues such as climate change, with energy being involved indirectly, because of the environmental impacts of energy use. The Johannesburg Summit effectively reversed this process – energy was seen from a positive perspective, as a fundamental component of development and poverty reduction.

12. The other key feature of the Summit was that it was intended to be action-oriented. Its main formal outcome was a “Plan of Implementation” (see below) and it also sought to reach a new sort of result, called Type 2 Initiatives – voluntary partnerships involving governments, business groups and other stakeholders, which seek to promote the Summit objectives via practical initiatives.

13. Of course, not all participants saw the issues in the same light. In relation to energy, the key focus of debate was the role of renewable energy sources. While the need to develop these sources is accepted on all sides, the issue for the Summit was whether that should be reflected in a formal numerical target, to ensure that concrete action is taken to promote renewables. On this, opinion was divided. Interestingly, the difference of views did not reflect a simple North/South split. The key proponent of a renewables target was the European Union, which argued that at least 15% of energy should come from renewable sources by 2015 (later advancing the target to 2010). The United States of America on the other hand strongly resisted this target (and indeed targets in general) as not reflecting individual countries' circumstances and likely to introduce distortions. The G77 group of developing countries contained various views. Some countries like Brazil – which itself relies extensively on renewable sources – favoured a target. Others opposed one, from a variety of viewpoints. Oil producers like Nigeria understandably saw the target as a threat to their interests, but others opposed a target for wider reasons. South Africa's Environment Minister [Valli Moosa] for instance described renewables targets as a “rich country's luxury” and declared “we will not support binding targets for renewables for developing countries”.

14. This reflected a widespread view, also apparent in many of the side meetings associated with the Summit, that renewables often reflected a “donor-driven agenda” rather than the real needs of developing countries – for instance, solar photovoltaic (PV) was often seen as attractive to Western aid agencies but as providing neither adequate nor affordable energy for the recipients.

15. In the end, the renewables target was dropped as part of an overall deal which saw agreement to a target on access to water and sanitation, reflecting an understanding that while access to water is essential for development, renewable energy sources as such are not.

## **V. PLAN OF IMPLEMENTATION**

16. The realistic approach of the Summit was reflected in the Plan of Implementation. There are two significant references to energy in the Plan. Paragraph 8, dealing with access to energy, calls on governments to “work together at all levels to improve access to reliable and affordable energy services for sustainable development .... bearing in mind that access to energy facilitates the eradication of poverty”.

17. Paragraph 19 focuses on energy policy. Paragraph 19e asks governments to “diversify energy supply by developing advanced, cleaner, more efficient, affordable and cost-effective energy technologies, including fossil fuel technologies ... and their transfer to developing countries on concessional terms as mutually agreed”.

18. On renewables, it urges governments to “with a sense of urgency, substantially increase the global share of renewable sources, with the objective of increasing its contribution to global energy supply, recognising the role of national and voluntary regional targets ... where they exist”.

19. Another potentially controversial area had been the phasing out of energy subsidies, but the eventual wording on this subject was fairly general – it calls on governments to “take action, where appropriate, to phase out subsidies in areas that inhibit sustainable development” taking account, among other things, of the impact on developing countries.

## **VI. IMPLICATIONS OF WSSD: THE FUTURE OF COAL IN RELATION TO SUSTAINABLE DEVELOPMENT**

20. It is always difficult to gauge the impact of high level declarations of this sort especially when, as in the present case, they contain no binding targets. But they can be expected to have some impact, not just on government policies but also on the practices of financial institutions and development agencies. It is therefore very encouraging (from the point of view of coal) to see the stress on the need to develop all forms of energy, including fossil fuel technologies. It was also noteworthy that there was no specific opposition to coal during the debates – the discussion revolved around the fossil fuel/renewable issue, with no particular distinction drawn between different fossil fuels. (Nuclear power barely featured in the debates, no doubt because it was seen as too controversial.)

21. In the view of the World Coal Institute (WCI), the wording of the Implementation Plan is entirely appropriate. The WCI spent some time in advance of the Summit briefing policy makers on the role of coal and the efforts being made by the industry to enhance its contribution to sustainable development.

22. In the context of the Summit’s development-oriented discussion and the emphasis on “reliable and affordable” energy sources, the advantages of coal are clear. Members of the Ad Hoc Group of Experts on Coal and Thermal Power will be familiar with the key arguments in favour of coal as a widely available, secure, low cost and abundant source of energy, and these arguments do not need to be rehearsed here.

23. These advantages have a very direct connection with development and electrification. Coal remains the most important source of electric power worldwide and in many developing countries, particularly those with their own indigenous supplies, it is the mainstay of the electricity system. Countries such as South Africa, India and China, rely on coal for nearly all their electricity supplies – and enjoy cheap power as a result.

24. They have also seen rapid advances in electrification. Indeed there are two key success stories in progress towards electrification in the developing world in recent decades – China and South Africa. China’s efforts have been particularly impressive; over the past two decades it has connected 700 million people to electricity supply. It has now reached a level of electrification of 98%, way above the average for developing countries at a comparable income level, with associated benefits for the quality of life of its people. In terms of the United Nations Human Development Index, China stands at a much higher level than other developing countries with a similar level of GDP per capita.

25. South Africa has also been a success story in electrification, though starting later than China because of the distortions of the apartheid era. In the past decade, South Africa has almost doubled the level of access to electricity supply, which now stands at nearly 70%. While this level is not as high as China's it remains very impressive for the region, particularly given the political history. Sub-Saharan Africa has the world's lowest level of electrification. Outside South Africa itself, the rate is little over 10%. In the context of its region, South Africa has an extremely high rate of access to electricity, again with associated benefits in terms of the quality of life of its people.

26. Both of these success stories have, of course, relied primarily on the availability of coal and coal-fired generation.

27. For coal-producing countries, there are of course other benefits of an economic nature. Coal reserves are widely distributed. Coal is mined in over 50 countries – and is found in around 100, so there is scope for future expansion. Coal makes a significant economic contribution to the countries lucky enough to possess it. Worldwide, it employs some 7 million people, 90% of them in developing countries. It generates around \$7 billion in export revenues for developing countries and (depending on what assumptions are made as to what would replace coal if it were not available) saves them up to \$60 billion in energy import costs.

## **VII. THE ENVIRONMENTAL CHALLENGE**

28. On two of the three pillars of sustainable development, it is therefore clear that coal is making a major contribution. Indeed, it is precisely because of this huge economic and social contribution in a number of key developing countries (as well, of course, as major OECD economies) that the continuing and growing use of coal needs to be taken as given in any view of the energy future, and in responding to environmental challenges.

29. This is not simply a matter of accepting the inevitable. Coal can meet the environmental challenge – at least if environmental policies are implemented flexibly enough to encourage cost-effective outcomes. Coal technologies continue to improve and effective options are now available – appropriate for countries at all levels of economic development – for emissions reduction. The scale of the potential savings is huge. For instance, the WCI has calculated that if coal-fired plant in China could attain the current average levels of efficiency of German plant, the CO<sub>2</sub> savings would exceed the total expected from the Kyoto protocol – and deliver economic benefits at the same time. New, cutting edge, plant with its even higher levels of efficiency, could, if deployed widely, maintain the world on a trajectory of lower emissions.

30. If the world were to agree on the aim of a low carbon future, with very significant reductions in global emissions, fundamental changes would be needed in the world's energy systems. In the present state of our knowledge, it is not clear exactly how such a result would be achieved. Although it is important to press ahead with the development and deployment of renewables sources, they still account for only a very small proportion of the world's energy mix and it is uncertain how large a part they can realistically expect to take. There are also major long-term uncertainties over other energy sources – the public acceptability of nuclear; the security and long term availability of hydrocarbons. Any realistic planning for a long-term low carbon world must seek to keep open all realistic options.

31. Coal combustion with carbon capture and storage is one such option. The technology is understood and available; identified storage capacity is more than adequate. There are at present question marks over cost and infrastructure issues and over the environmental acceptability of the storage option, but research into these aspects is under way. If the US Department of Energy (USDOE) programme meets its cost and other targets, carbon sequestration is likely to be as cost effective and practical as any other form of zero carbon system. In the very long term there is the prospect of a hydrogen/fuel cell economy, powering transportation as well as electricity generation. On the timescales with which climate change must be dealt with, coal is the only fossil fuel which could be a candidate for such a long term vision, as the only fossil fuel with reserves which will take us up to the end of this century and beyond.

32. So the coal industry is convinced that it can contribute to sustainable development and a better quality of life “for everyone now and for generations to come”. To ensure that it actually does so, the industry is aware that it needs to show leadership. It has examined its record in a report prepared for the United Nations Environment Programme in preparation for the World Summit. Copies of the report have been made available to the Ad Hoc Group of Experts and it will not be discussed in detail here. However, it is commended to the Group as an honest look at the industry’s track record - the problems as well as the successes. It sets out some key areas for improvement in the next decade, on which the industry is already acting, along with some key goals for 2012. Clearly the extent to which coal can genuinely contribute to sustainable development will depend in part on how effectively it can respond to the challenges it has itself set, but there is a clear commitment and will on its part to ensure that it does so.

## **VIII. THE WAY FORWARD**

33. In short, coal is not a sunset industry and has not been rendered obsolete by the sustainable development agenda. Clearly, it faces some major challenges, but the industry believes it has the will and the capacity to respond. Coal continues to underpin the economic and social development of the world’s biggest economies in both the developed and developing world. It is a major component in securing an improved quality of life for billions of people worldwide who gain access through it to the energy services they need for daily life, industrial development and social advancement. Demand for coal continues to grow and coal reserves are adequate to ensure that demand can be met far into the future. The challenge will be to use that coal efficiently and cleanly, enabling the world to meet its environmental goals. The industry is committed to sustainable development and will work to meet that challenge in partnership with customers, governments and other stakeholders.