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THE GLOBAL IMAGE OF COAL AND THE WORLD ENERGY COUNCIL'S GLOBAL COAL STUDY

Note by the secretariat

1. INTRODUCTION

1. The purpose of this paper is two-fold. Firstly, to draw attention to the World Energy Council's (WEC) initiative to undertake and facilitate a Global Coal Study. The last global coal study was undertaken (outside the framework of the WEC) over twenty years ago (Carroll L. Wilson, Coal – Bridge to the Future, Cambridge/Massachusetts, May 1980). Secondly to draw attention to the UNECE's draft contribution on 'The Global Image of Coal'.

II. GLOBAL COAL STUDY

2. WEC, as its names implies, focuses on energy generally, therefore it is unusual for it to elect to address the future of a particular fuel, unless its growth (renewable energy) or decline have a significant impact on world energy supplies. Coal is expected to have such an impact, either way. According to most of the scenarios (A and B) of the WEC/IIASA study on "Global Energy Perspectives" (Cambridge 1998), coal will remain the second most important fuel worldwide until 2020 and 2050. Under these scenarios, coal's output would double between 1990 and 2050 and economically recoverable coal reserves would outnumber other fossil fuels by several times. However, the environmental implications of coal use may act as an impediment to its projected growth, may indeed prompt its decline below 1990 levels (scenario C), unless cleaner coal technologies are implemented on a worldwide scale including in developing countries. Success or failure of such policies have a significant impact on world energy balances beyond coal proper and, hence, deserve the attention of the energy community at large.

3. The key objective of the Study is to gain an internationally consistent reply to the question whether and to what extent coal use could be economic and sustainable in meeting global energy needs up to 2020 and beyond. The Study will also evaluate the impact of opportunities (resources, restructuring, technologies, trade, alliances, etc) and constraints (financing, environment, institutional framework, etc) on coal developments worldwide, as an integrated part of an overall energy framework determined by government policies and competition.

4. The Study will, thus, address the contribution that coal could make to economic development worldwide as well as the need for coal to adapt to the exigencies of security of supply, quality of service, global competition and environmental protection, i.e. to the conditions of global sustainable energy development. A vision for coal in 2050 will also be included as the epilogue.

5. The Study is being guided and developed by both a Study Group and a Steering Committee. The Study Group, which has a global coverage, is composed of coal producers, users, traders, policy advisers, equipment manufacturers, international organisations, researchers and global and regional energy analysts. The following countries are currently represented in the Group: Australia, Brazil, Czech Republic, Germany, Islamic Republic of Iran, Italy, Republic of Korea, New Zealand, Pakistan, Philippines, Poland, Romania, Russian Federation, Slovakia, Slovenia, South Africa, Thailand, Turkey, Ukraine, United Kingdom and the United States of America.

6. A draft text is being prepared, which will then be evaluated and submitted to the WEC Studies Committee for approval and publication. The aim is to release the Global Coal Study at the WEC Congress in Sydney, Australia, in 2004.

III. THE IMAGE OF COAL

7. The UNECE Sustainable Energy Division is contributing a paper on 'The Global Image of Coal' to the Study.

8. The underlying theme of this paper is to propose a quantum shift, from identifying differences and problems, to an approach based on building a common strategy to unite, not divide, coal in addressing the global challenges facing the industry.

9. Very distinct differences exist throughout the coal sector worldwide; from Asia-Pacific, the Economies in Transition, Western Europe, to the United States – differences in terms of government policies, community acceptance, liberalisation of energy and electricity markets, production and consumption subsidies, through to environmental regulations and climate change policies. Focussing on such differences has not helped the industry improve the image of coal at the global level and it is suggested that it is time, long overdue, to adopt an approach that seeks to develop a strategy based on the shared common themes faced by the sector – a common strategy that can then be tailored to regional and national circumstances. With climate change and sustainable development high on the radar screens of both policymakers and the public, the industry is under pressure more than ever before and – more than ever before – it must be united in securing a future for coal.

What Challenges the Image of Coal?

10. Perception, reality and the industry itself are coal's greatest challenges.

11. One dictionary defines the word 'image' as "the opinion or concept of something that is held by the public". Under this spotlight at the global level coal's image is not good! The coal industry has willingly accepted this fact for a number of years now – this is not news, nor the first paper written on the topic. But what has been achieved by the industry to date in improving this image, and more importantly what can be done to mobilise the industry to address this issue proactively in the future? Perception, reality and the coal industry have all worked against coal's image – they have all become coal's problem, but could equally become coal's solution.

12. Why perception? The generally perceived image of coal is very far removed from today's reality, a reality that is dynamic due to the innovative technical research and development being undertaken worldwide. Yet the coal industry is still tarred with the brush of past poor performance and mistakes. Some one hundred years ago much of the industrial world was almost entirely dependent on coal. For many, the image of coal still conjures up a picture of the belching chimney stacks and smogs of the Industrial Revolution, that is their reality. And the reality for coal is that only its industry is accountable for the fact that such a legacy has been allowed to linger – a legacy that should have long ago been confined to the history books.

13. Why reality? The industry has without question responded to the challenge of its image of the past – it is now cleaner, more efficient, and safer and has a vastly improved environmental and social performance. Coal has improved its environmental credentials across the full life cycle in all regions of the world and is making a valuable contribution to social and economic development. Yet the far greater challenge facing coal is for the reality of this new image to be accepted by the public and policymakers alike.

14. Why the industry? For too long now the coal industry has observed its own importance with such clarity that it has failed to appreciate that the rest of the world does not have the same knowledge and understanding of coal as a key commodity and the crucial and enduring contribution it makes to today's society. Yes, the industry has undertaken efforts to engage its critics, but this has largely been limited to the national level and undertaken in a reactive and defensive manner rather than through proactive measures. However, there are still many examples of unacceptable practices in coal operations, in terms of safety and environmental performance, which exist worldwide – examples that serve to justify coal's poor image. The industry cannot ignore these instances and must seek to assist in minimizing them. In today's increasingly carbon constrained world with climate change and sustainable development high on the agenda, coal's future will be challenged more than ever before. The need to improve the public and policymakers' image of coal at the national, regional and global level has never been more pressing.

15. The poor image of coal is a global problem. True, the problem is more acute in the developed world, but it is still also a growing issue in many developing and transitional economies. Take the examples of Hong Kong and Thailand – both part of Asia, the forecast growth market for coal, but the future of coal-fired power generation is under threat either due to unwilling/concerned investors or public protest. The coal industry bemoans the fact that the

opponents to new coal-fired power plants are uninformed, their thinking clouded by misperceptions – but whose fault is this situation?

16. This is an opportunity for all stakeholders in the coal industry to unite and develop a forward-thinking and coherent strategy. Notwithstanding that national and regional circumstances facing coal differ precluding a single 'one size fits all' global approach, a common programme can still be developed and then tailored at the regional or country/local level.

17. A two-pronged policy needs to be adopted: (i) the industry must cooperate and collaborate to influence, educate and raise awareness of the reality of twenty-first century coal through dialogue with policymakers and the community alike. Continuous improvement is being demanded by the public in today's quest for a sustainable future and the facts and figures chronicling coal's true performance must be constantly updated based on the latest research and development programmes; and (ii) the industry must actively implement concrete projects based on coal, including technology transfer and capacity building initiatives, to support the global transition to sustainable development. Coal can and does make a difference to people's lives. By engaging in projects, such as electrification schemes, economic regeneration of restructured coal regions, and retrofitting of obsolete coal-fired boilers, a win-win outcome for sustainable development and for coal would be achieved. The outcome: raised living standards, an improved environment, economic development and an enhanced image for coal.

18. Perhaps every individual member of the coal chain, not just the producers and consumers, should ask themselves the questions "Am I proud of what my company does? Do I contribute to coal's future or am I relying on the proactive efforts of others? What I am prepared to put back into the community locally and globally?" The responses would be interesting, with the majority predictable! Is the coal industry prepared to work together or will it allow the image of coal to continue to suffer?

Why Coal?

19. Coal has an impressive story of achievement and innovation to tell – a story that continues to evolve. All too often described as the problem, coal is rarely seen in the more positive light as one of the leading sources of global energy – with significant opportunities to improve its performance and provide benefits to local communities and the environment, particularly in developing countries and economies in transition.

20. Coal remains the world's most abundant, safe and secure fossil fuel. Globally, it is the most competitive fuel for the generation of electricity – an icon of modern life. Parts of the coal industry are responding to the environmental challenge; commercially available clean coal technologies allow coal to meet the most stringent current environmental standards. Ongoing technical research and innovation will ensure coal's performance continues to improve.

21. Over the centuries coal has bestowed very significant and substantial benefits on social and economic development at the global level. Coal has been used as an energy source for hundreds of years; there was international trade in coal as long ago as the Roman Empire. Coal fuelled the Industrial Revolution of the nineteenth century, and launched the electric age in the twentieth century.

22. However, since then coal's share of the primary energy market has declined for two reasons. Firstly, energy supply changes: oil became more widely available, followed by natural gas, nuclear energy and, more recently, new non-fossil energy technologies have emerged to claim a share of the energy market. Secondly, energy demand changes: the nature of the energy market itself changed, largely through the growth of personal transport and widespread electrification.

23. Today's world now enjoys a more diversified energy economy with each primary energy source used where it is most suited, a transition that has taken over a hundred years. But coal is not a fuel of the past – although its overall market share has fallen, global coal demand has increased enormously. Coal is still essential to global economic and social progress. It accounts for 25% of commercial energy demand worldwide, with 38% of global electricity generated from coal. Coal is also a key requirement for two other building blocks of modern society – the production of steel, with 70% of total global steel production dependent on coal, and cement.

24. Currently, 1.6 billion people are without access to electricity. Rapid increases in world population and economic development, particularly in developing countries, is resulting in phenomenal growth in world energy demand. If the aspirations of the majority of the world's population are to be realised, coal will have to play a major role in meeting this demand for the foreseeable future.

Security of Supply

25. Extensive reserves of coal are present in many countries and this abundance means that coal supplies for both domestic and industrial users are guaranteed at competitive prices. The need to ensure secure and reliable energy supplies at affordable and stable prices over the short and long term is an integral part of any sound and consistent energy policy.

26. Energy security is once again high on the agenda of policy makers and the general public, due to an increased sense of vulnerability and insecurity fuelled by concerns regarding a plethora of issues, including: the growing dependence on imported energy; the increasing reliance on oil from OPEC and the Middle East; the uncertainty about the full implications of market liberalization and its eventual impact on the energy security of countries; the way energy-related environmental problems and issues, and most notably climate change, are eventually resolved; the potential narrowing of future energy options because of concerns regarding safety, the environment and other factors; the perceived higher costs of new incremental energy supplies; the ever increasing distance of supply routes between producing and consuming centres; the security risks and dangers of terrorist attacks on energy installations, such as nuclear power plants and oil and gas facilities; and, the potential for social unrest and ethnic strife in a number of energy producing and transit countries.

27. In reviewing the above listing, coal scores well as a key strategic fuel for inclusion in a modern, balanced energy portfolio. World coal reserves are large; sources of supplies are diversified; ample supplies are available from politically stable regions; world infrastructure is well developed; new supplies can be easily brought on stream; and coal can be safely transported and stored. But the question mark still looms menacingly over coal because of misperceptions, its environmental performance and, in some cases, the need for costly and painful restructuring. Unless these problems can be successfully resolved, coal could gradually be displaced from the

market in the longer term, especially in countries where there are other options. With a significant decline in the market share of coal, the diversity of the fuel mix could be compromised and, thereby, contribute to heightening energy security risks.

28. There is a ready answer to the environmental problems; cleaner coal technologies are available now and the immediate task is to accelerate the global deployment of both conventional and advanced technologies as appropriate. Moreover, emerging new coal technologies (carbon sequestration, gasification and liquefaction) could offer the potential of using coal for power generation with low or zero emissions in the future. But, is the industry ready to join together to address the misperceptions?

Health, Safety and Coal

29. There is no safer major energy source than coal when stored, handled and used correctly.

30. Health and safety issues have long been of primary concern to the coal industry. The technological advances in mining during the twentieth century led to simultaneous improvements in both productivity and safety. Modern coal mines today increasingly resemble highly mechanized factories, rather than the labour intensive, cramped and hazardous production environment of the nineteenth century. Coal mining can – and does – achieve health and safety standards in line with many other industries in developed countries.

31. Safety is of prime importance to everyone involved in mining, from individual workers to management, investors and ultimately the consumer. In most countries, miners receive regular briefings on job-skills and safety training – coal companies recognise that training prevents accidents, and that improved productivity and improved safety are closely linked. Coal companies are translating commitment into effective action with substantial results. Considerable efforts are being made to provide a safe and healthy workplace through fundamental organisational reform.

32. However, there are still a number of countries that neither operate with such a degree of mechanization nor with the ethic that the health and safety of the workers is the highest priority. It is the ongoing existence of these operations that gains public attention and serves to undermine coal's image, perpetuating a damaging perception that is not reflective of the rest of the industry. Leading coal producers need to engage in the task of addressing the problem and facilitate capacity building and technology transfer to those sectors of the industry below the acceptable industry benchmark of safety performance.

33. It is also essential that the industry encourage ongoing research and dissemination of information on modern industry safety practices and performance. Contributing to improved coal mine safety in the practical field will contribute to an improved image for coal. A key example is the pioneering work that has been undertaken to capture and drain methane seam gas from underground mines. The existence of methane poses a significant safety hazard for coal mine operations, but innovative methods are now available to successfully collect and utilise the gas to produce electricity. The benefits are three-fold: the important safety aspect, the environmental benefits accruing from the capture of a potent greenhouse gas (GHG) no longer being vented to the atmosphere, and through the use of the energy value of this fuel for electricity generation.

An Integral Component of Social Development

34. Coal's role in social development and advancement cannot be underestimated. The developing world and its prosperity are highly dependent on coal – in countries such as China and India there are extensive coal industries with associated mining and power generation educational establishments and research institutes. In these countries, coal not only provides the energy base of local communities but also offers the opportunity of employment and for people to learn and develop a range of skills, from the basic use of a screwdriver through to competency in engineering and advanced technical qualifications. Coal has and continues to enrich these people's lives, providing opportunities for future growth and development.

35. The valuable contribution of coal to social development needs to be expanded and promoted by the industry.

The Greening of the Coal to Energy Chain

36. The greening of the coal to energy chain, from cleaner coal technologies, reduced environmental impact, energy efficiency improvements through to energy conservation, offers coal's image an olive branch that must be taken and promoted by the industry.

37. On economic grounds the case for coal is compelling and, provided that modern standards of health and safety are met, coal also fares well on social criteria. The greening of coal within the energy chain ensures a reduced environmental footprint, serving to reinforce coal's role as a crucial partner in global sustainable energy development.

Cleaner Coal Technologies

38. Cleaner coal technologies offer opportunities to mitigate the environmental impact of coal use at all stages of the coal cycle. The World Coal Institute (WCI) highlights "clean coal technology is not a single technology or even a single set of technologies, but rather a continuously developing range of options" – a range of options that all serve to improve coal's image on a dynamic basis at the global level.

39. Moreover, emerging new technologies (ultra low ash/ultra clean coal, gasification and underground gasification, liquefaction and sequestration) could offer the potential of using coal for power generation with low or zero emissions of GHGs to atmosphere, in combination with other economic, environmental and operational benefits. Full realisation of the potential benefits of cleaner coal technologies requires the cooperation of both industry and governments in encouraging their further development and deployment.

40. Extensive deployment of cleaner coal technologies can offer substantial environmental improvements for countries at all stages of development, as emphasized by the following examples sourced from WCI:

- coal cleaning (beneficiation) can reduce the ash content of coal by over 50%;
- CO_2 emissions from coal-fired electricity generation in China could be reduced by one third if German levels of efficiency were matched;

- SO_2 emissions from electricity generation in the United States have fallen 3% a year since 1980, despite increasing use of coal; and
- new supercritical coal-fired plant under construction in Australia have GHG emissions 10 - 20% lower than conventional plant.

41. However, there are obstacles to the wider use of cleaner coal technologies, including higher costs and technical and regulatory risk.

42. In order for full recognition of the potential benefits of clean coal technologies to be identified will require industry and government cooperation – and industry will need to take the initiative.

Energy Efficiency

43. There are many opportunities to improve the efficiency of coal utilisation at all stages of the fuel cycle from mining, through power generation to end-use. Such efficiency improvements can produce direct environmental benefits in a number of ways, not only reducing pollution but also delaying the need to develop new energy resources. In addition, energy efficiency improvements can considerably reduce the cost of pollution abatement.

44. The developing and transitional economies offer the most potential for coal to achieve significant energy efficiency improvements. The transitional countries have a unique opportunity to reduce the overall energy intensity of their economies and improve the efficiency of energy production and use. They are currently in the midst of transforming their economies and implementing broad-based reforms at both the macro and sectoral levels, including the rehabilitation and modernization of their energy infrastructure and facilities. Reduced energy consumption from higher transformation efficiency can delay the need for new additional sources of energy supplies, including imported energy, and thereby enhance energy security. For the economies in transition, this is an economic as well as an environmental imperative.

45. Extensive environmental pollution at the local and regional level has guaranteed a poor image for coal, largely arising from inappropriate production and consumption using obsolete equipment, technologies and practices/techniques. However, in these countries it is often the lack of finance that limits improvements, not a lack of will. Here, the coal industry could join and build on the work of others, who are already active on coal's behalf. For example, the Energy Efficiency 21 Project (EE21), implemented within the UNECE, supports the efforts of Central and Eastern Europe and CIS countries to enhance their energy efficiency and security to ease the energy supply constraints of economic transition. The EE21 focus includes coal-related projects ranging from rehabilitation of entire coal-fired district heating systems to retrofitting of boilers in hospitals. These projects all provide the basis for an improved image for coal through energy efficiency improvements, reduced environmental pollution, increased employment and reduced maintenance costs – but often the image potential is not realised, notwithstanding the improvements, due to a lack of exposure for the new reality.

Research, Development and Innovation

46. Without question, an improved environmental performance is fundamental to an improved image for coal. Coal's future thus heavily depends on technology and innovation.

47. Given the forecast increases in global population and energy demand, one of the most pressing and challenging issues facing the international community is how to simultaneously achieve energy security, economic growth, poverty alleviation and environmental protection. Fossil fuels currently supply over 85% of the world's commercial energy (coal 25%), account for 65% of global electricity generation (coal 38%) and 97% of the energy for transportation. Renewables (including large hydro) and nuclear currently supply 7% and 6% respectively of the world's commercial energy. In response to a burgeoning population global energy use is forecast to increase by 75% by 2020, with most of the demand to be met by available and affordable fossil fuels. Despite the desire of the international community to shift to a low carbon economy, fundamental changes to the world's energy system cannot take place rapidly. It is recognised that extensive research and development programmes on a wide range of technologies will be necessary if the world is to achieve the reduction in GHGs currently being sought.

48. Coal clearly has a role to play in achieving these emission reductions and in helping to build the bridge to a low carbon future. It is essential that the research and development door is left open. The United State's US$2 billion ten-year clean coal technology initiative announced as part of President Bush's National Energy Policy of 2001 is a recognition of coal's role in a balanced energy mix. China offers another example – here, cleaner coal technologies have been included as part of the Government's 'Agenda 21' plan for sustainable development.

48. The industry should not become complacent with the work and commitment that has been achieved to date; instead it should use the growing environmental pressure as the spur for greater action. The incentive being to foster alliances with governments, research institutes and the community to ensure there is a sustained research and development effort covering a broad portfolio of coal-related technologies. The achievement of ongoing advancements in commercially proven cleaner coal technologies is as important for the industry as the development of innovative zero emissions technologies based on coal, although, the latter will clearly be a key component in the portfolio of strategies and technology options being sought at the international level. Only a fraction of the task ahead can be achieved by industry – however, governments, industry and international agencies can work together to maximise the outcome.

Coal's Opportunities

49. Coal does not have to be the problem. The gulf that exists between the modern reality of coal's performance and how the world at large generally views it does not need to exist.

50. The opportunities for coal to make a difference and be part of the global solution are enormous. Access to affordable, modern energy services is increasingly seen as a prerequisite for sustainable development and poverty alleviation. Coal can deliver cleaner sustainable energy solutions to help achieve the UN's Millennium Development Goals, including the goal to halve the proportion of people in poverty by 2015. An opportunity exists for the industry to improve coal's image by working in partnership with the UN to seek to maximise coal's contribution in attaining such a goal. Coal needs to be seen as a willing and proactive partner.

51. Today, only a small fraction of the industry is prepared to put aside national, corporate and other differences to work together with the sole aim of changing perceptions and promoting the case for coal. As the most carbon intensive of all the fossil fuels, coal is now under threat

more than ever before and the industry needs to ask itself why it is prepared to entrust its future to so few. Unfortunately, there will always be those that are happy to coat-tail on the efforts of others yet the coal industry seems to be an extreme example of this. Why, for example, are there only a handful of members of the WCI, the international coal industry support team? The work and achievements of WCI in promoting coal need to be applauded; the industry should not watch the efforts of WCI from the side lines, but join them on the playing field.

52. A number of coal public awareness raising programmes have recently been undertaken in the United States, notably by Americans for Balanced Energy Choices (ABEC) and the Coalition for Affordable and Reliable Energy (CARE). The campaigns undertaken were sizeable and proved to be both capital and labour-intensive. For those and other reasons, there is a percentage of the industry that believes a public information exercise at the global level should not be considered and that the focus should remain on the policy makers. Were the industry to choose to act as a truly united voice would the financial limitation still be there? If all key stakeholders in the coal chain – from production, transportation, consumption through to equipment manufacturers – were to choose to be committed and join national and global industry response efforts, the capability to turn words and policy dialogue into action would be created.

53. A global 'Sustainable Development from Coal Fund' to which all stakeholders committed an insignificant percentage of their annual revenues could make a significant investment in the future of the industry. Investing in projects that change people's lives will change people's perception of coal and hence its image. People are regularly informed through news agencies and television networks of bad news from coal, stories of coal mine disasters, respiratory diseases from unclean combustion of coal, all accompanied by dirty images of polluting stacks or the familiar image of mine workers liberally covered with coal dust. The industry has the capacity to make people aware of the reality of today's 'coal' by actively working with communities and governments to invest in projects that make a difference to the living standards of society. Clearly the opportunities are greatest in the developing and transitional economies. The industry should look to work in partnership with local agencies and high profile regional and global organisations, such as the Asian Development Bank, the United Nations Environment Programme, the United Nations Industrial Development Organisation, the US Geological Survey and the World Bank.

54. To take one example, one of the key arguments to underpin the achievement of an improved public image for coal is the vital role of electrification in economic and social development. In releasing a new International Energy Agency (IEA) publication "*Energy & Poverty*" in August 2002, Robert Priddle, Executive Director, IEA, stated that "1.6 billion people today have no access to electricity. 2.4 billion rely on primitive biomass for cooking and heating. What is more shocking, in the absence of radical new policies, 1.4 billion will still have no electricity in 30 years time." Electrification projects based on coal can be part of the solution to this problem.

55. The WCI's 'Good News from Coal' stories highlighting coal's improvement in its environmental performance and contribution to sustainable development need to be replicated. A number of excellent reports have also been produced on coal's role in sustainable energy development to coincide with the World Summit on Sustainable Development, including by the Coal Industry Advisory Board of the IEA and also the WCI. Why cannot the industry commit to putting these words into action and implement sustainable development projects based on coal on a widescale?

Agenda for Action

56. Coal's image is poor. The industry's efforts to improve coal's image have been – and remain – poor. It is time for the global coal community to commit to action. As fuel for thought, what a different world it would be if the global coal community committed to:

(i) develop a 'Common Strategy for Future Action'. By focusing on the similarities and not the differences, a shared, forward-thinking strategy based on (i) communication, (ii) advocacy, and (iii) concrete actions could be developed that would serve to improve coal's image, by addressing the issues that challenge the role of coal in the transition to a more sustainable society. Such a strategy could then be tailored to meet specific national and regional/local circumstances. This could be initially drafted by marshalling the expertise of all existing national, regional and global coal associations.

(ii) **establish** a 'Sustainable Development from Coal' Fund. This Fund would support and finance the development of regional 'Sustainable Development from Coal' Centres to implement the 'common strategy for future action' at regional and national levels. The Centres would be tasked with building local capacity to deliver sustainable energy from coal in an environmentally acceptable manner through the funding of projects and technology transfer. The opportunity of basing such Centres at UN regional commissions (e.g. ECA, ECE, ESCAP and ECLAC) could be explored as this would offer the potential for significantly reduced overheads, access to UN networks and expertise, and the linkage of coal with other efforts in the sustainable development arena.

(iii) **actively work** with industry organisations such as the WCI, particularly in its efforts to give practical effect to promoting coal's role in sustainable development, where WCI has identified five key actions:

- to minimise coal production impacts on the biosphere (land, water) and on local communities;
- to improve the technical and economic efficiency of energy conversion, thereby minimising resource use;
- to significantly reduce 'per unit' emissions from the production and use of coal;
- to contribute to the efficient and beneficial transfer of new and advanced cleaner coal technologies to enhance their global uptake and to assist in meeting the needs of developing countries (recognising their legitimate development aspirations and the low energy efficiency of existing thermal plant); and
- to support individual coal companies on community development initiatives to address local sustainability issues, providing enhanced economic and social opportunities relevant to the location and scale of their operations.

(iv) **identify** opportunities for improvement and facilitate capacity building and technology transfer initiatives where unacceptable practices and operations exist (both in terms of production and consumption) and cause the continued evidence of an industry falling behind community expectations and standards;

(v) **foster** a closing working relationship with the United Nations, through partnerships with its specialised agencies, functional and regional commissions, in order to benefit from their expertise, networks and standing within the community.

(vi) **operate** with transparent integrity and highlight both good and bad practices and outcomes.

(vii) **collaborate** with and assist research agencies and institutions on the development of the next generation of technologies that will improve coal's environmental performance at all stages of the coal cycle and to facilitate the early commercialisation of such technologies.

(viii) **build** local capacity to deliver sustainable energy from the environmentally-acceptable use of coal for those currently without access to modern energy where coal resources provide the most appropriate and affordable energy supply source; and

(ix) **encourage** all stakeholder groups within the coal industry to work together to achieve results that will significantly contribute to the task of achieving international sustainable development aspirations and the UN Millennium Development Goals.