

# Climate change challenges and opportunities: Industry responds

**Leaders in science, government and industry addressed the energy challenges, and explored the energy opportunities, created by climate change at a symposium hosted by Sydney Branch on 21 July 2007.**

Sponsored by EnergyAustralia, The Nour Group and the NSW Department of Environment and Climate Change, the symposium covered the science and policy framework, then industry response. The NSW Government's view was presented by the Hon Phil Koperberg, MP, NSW Minister for Climate Change, Environment and Water. Kevin Hennessey, Principal Research Scientist, CSIRO, provided an update on climate change science, including the latest evidence and projections. Prof Ian Lowe, President, Australian Conservation Foundation, talked about the energy options for a sustainable future. Industry's response was articulated by Dr Nicole Williams, Chief Executive Officer NSW Minerals Council; Susan Jeanes, Chief Executive Officer, Renewable Energy Generators of Australia; Dr Andrew Harris, Director of the Laboratory for Sustainable Technology, University of Sydney, and Dr Ian Woods, Senior Research Analyst, AMP Capital.

Here, **ENERGYNEWS** presents a summary prepared by AIE student member, Eleanor Wood, who is studying renewable energy engineering at the University of New South Wales School of Photovoltaic and Renewable Energy Engineering.

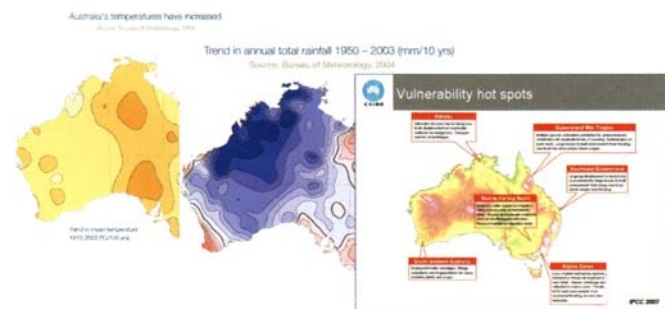
The seven speakers at the symposium made presentations which demonstrated that the issue of climate change is a political dilemma, a scientific phenomenon, a technological challenge, an economic opportunity and a moral issue facing society today.

In his presentation on sustainable energy, Prof Ian Lowe highlighted the instrumental role energy plays in shaping human lives around the world. The contrasting social conditions in the developed and developing worlds can be attributed to energy availability. Bearing this in mind, it is no surprise that strategies for addressing and combating global warming by changing, and in some cases restricting, energy markets are highly controversial. The symposium demonstrated how governments, scientists, industry and investors are all in the process of developing strategies to address the effects of long-term climate change in Australia and around the world.



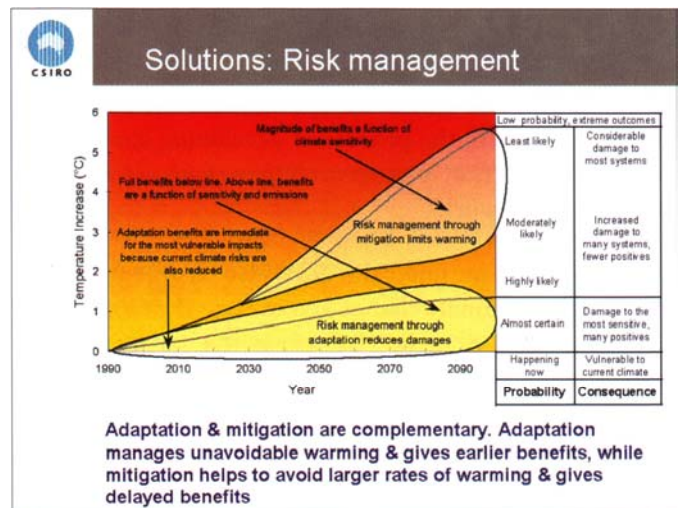
*The media were keen to interview Phil Koperberg*

have already occurred in Australia, resulting in stresses on water supply and agriculture, changed natural ecosystems and reduced snow cover. The potential impacts of climate change in Australia in the coming century include water security problems which would impact directly on the energy sector. Most of Australia's power stations require large amounts of water. Similar implications would also have to be considered in the development of a nuclear energy industry in the future. Changing climatic conditions would also affect the electricity grid, with an increase in peak energy demand for air-conditioning likely.



Phil Koperberg outlined the NSW Government's policy framework for climate change and energy. The Greenhouse Gas Abatement Scheme (GGAS) is the carbon trading scheme which has been operational in NSW since 2003. It was designed to contribute to the NSW economy-wide target of reducing greenhouse gas emissions to 60% of 2000 levels by 2050. Mr Koperberg described the target as ambitious, but realistic and necessary. The relative success of GGAS, so far, demonstrates industry's ability and willingness to adapt to a new carbon market. The increasing body of evidence for global warming, including coastal erosion in NSW, demonstrates the need for bold action now, according to Minister Koperberg. He regards the Australian Government's plan to introduce a national carbon trading scheme after 2012 as irresponsible, and failing to grasp the imperatives surrounding this issue.

Kevin Hennessey is with CSIRO's Marine and Atmospheric Research Division, and is a coordinating lead author of one of the chapters in a forthcoming IPCC (Intergovernmental Panel on Climate Change) report. He presented evidence to suggest that an increase in greenhouse gas emissions is responsible for most of the warming of the planet since 1950. He explained how regional climate changes



Prof Lowe presented possible responses to the climate dilemma, identifying energy as the key consideration in creating a sustainable future. He noted that tackling climate change requires drastic intervention now, suggesting that the linear modeling used in IPCC reports understates the future impact of human activity on the climate. Prof Lowe explored the possibility of reaching a 50% reduction in 2000 greenhouse gas emissions levels by 2050. This figure was presented by the IPCC as the level required to limit warming to 2°C this century. In order to achieve this global target, Prof Lowe argued that developed nations such as Australia will have to make deeper cuts in order to allow continued expansion of energy availability in developing countries. He sees this as achievable, but requiring serious changes in attitudes towards energy use. The capacity to make deep cuts to our energy consumption was demonstrated by the example of the modern motor car, which uses 20-30 times as much energy moving one person from A to B, than is necessary. The scale of action required now cannot be underestimated, since most of the transport

and electricity infrastructure which will be used in 2050 is not yet built.

The science and policy frameworks identified in the first session of the seminar established a complex and challenging platform for the industry responses presented in the afternoon of the symposium.

Dr. Nicole Williams told us that “miners care about climate change too”, and the coal industry in NSW is serious about climate change and committed to developing practical solutions to reduce greenhouse gas emissions to ensure the viability of the industry into the future. According to Dr Williams, the Australian coal industry has made a substantial financial commitment to the rapid development of low or zero emissions technology for coal-fired power plants. As far as policy responses to the issue are concerned, she sees it as vital that Australia uses the phenomenon of China's rapid development and economic growth as the basis for the global reality within which to address climate change here. Dr Williams proposes that practical technological solutions which can be exported to the developing world are preferable to policy measures which hinder the local industry without producing meaningful cuts in greenhouse gases. The strength of such an argument is hard to deny when it is revealed that globally there are around 800 coal-fired power plants either under construction, or planned for the coming years.

The issue of economic growth in developing nations was explored. Questions of whether unbridled development necessarily leads to improved lives or even better outcomes for health and education in developing nations were raised after Dr Williams' formal presentation. The deregulated markets which have delivered global economic growth are intimately related to increasing energy demands, but not necessarily associated with increasing standards of living in the countries involved. In the coming decades the sustainability of such growth may be challenged or ignored, but whether China has the economic capacity to adopt low emissions technology for their new coal-fired power stations will be irrelevant if the technologies themselves are not available yet.

Dr Williams' claim that coal will remain the central ingredient in Australia's energy mix was challenged in the presentation by Susan Jeanes, who believes that an expanded MRET (Mandatory Renewable Energy Target) as well as an effective emissions trading scheme (or carbon tax) would facilitate huge expansion of the renewable energy industry in Australia, and a gradual phasing out of high emissions technology between now and 2050. Ms Jeanes used examples from Australia as well as countries where renewables constitute a large proportion of national power supplies, diversify power grids, and provide increased flexibility and energy security. Mature, intermediate and emerging technologies were outlined, including solar, wind, bioenergy and hydropower.



Solar concentrators

Technological breakthroughs in areas such as geothermal power were described as exciting developments which present huge commercial opportunities for investment. Furthermore, it was predicted that over the next 50 years renewable prices, which are already competitive with other clean technologies, would approach current electricity prices.

Dr Andrew Harris is the foundation director of the Laboratory for Sustainable Technology, a multidisciplinary research group at the University of Sydney, whose goal is to create products that maximise resource and energy efficiency, eliminate waste and cause no harm to the environment. He presented a range of exciting technologies which have huge potential to mitigate greenhouse gas emissions. Several of

his PhD students are investigating low impact methods of producing hydrogen as a fuel, and simple ways of mitigating greenhouse gas emissions from coal mines. Central to the technologies contained in his presentation, including the BioRegional MiniMill – an acclaimed sustainable pulp and paper mill in Britain – is the principle of sustainability. Achieving sustainability in the energy industry will rely on long-term investment and an integrated approach which ensures the incorporation of new technologies in future infrastructure planning.



Geodynamics Habanero 2

AMP Capital Investors Sustainable Funds which manages investments of nearly A\$3 billion. Senior Research Analyst Dr Ian Woods presented the investment opportunities and challenges associated with climate change. The investment risks for a venture which relates to climate change may be related to weather, regulation or emerging opportunities. Regulatory risk is associated with the development of emissions trading schemes. Dr Woods authored a submission to the Australian Government's Task Group on Emissions Trading, outlining the desirable attributes for an emissions trading scheme. An effective scheme would result in extensive, low-cost abatement of greenhouse gases with minimal impact on the economy and minimal unnecessary wealth transfer, as has been seen in the European Union scheme. The ‘what, when and how’ of the emissions trading scheme will determine which industries are most affected, and what will be the future of those industries. The investment sector responds to these risks by assessing the policy options being explored. Dr Woods presented survey data from the Carbon Disclosure Project, which represents over A\$50 trillion of investment globally. As far as the private sector is concerned, the question of whether climate change is occurring, or if it is a significant problem, is well and truly answered. The data showed that while 94% of the companies acknowledge that climate change can impact their future earnings, only 31% have a company policy of accountability for managing climate change issues, and only 11% have greenhouse gas reduction programs with demonstrated implementation.

Industry and investors now need strong indications from governments as to how this issue will be addressed, and to what degree.

### Investor's Response – Understanding Risk and Opportunity

• Results of 2006 Australian CDP

|                |     |   |
|----------------|-----|---|
| Awareness      | 94% | Recognise climate change can impact future earnings   |
|                | 84% | Recognise physical impacts can affect operations  |
| Accountability | 31% | Internal accountability for managing climate change issues  |
|                | 11% | Greenhouse gas emission reduction programs with demonstrated implementations                        |
| Action         | 9%  | Full emissions profile from owned and controlled entities (with 3 <sup>rd</sup> party verification) |
|                | 9%  | Energy costs & an understanding of potential impact of changes in energy pricings on profitability  |