Focus on the Future:

Opportunities for Sustainability

In Western Australia

Submission to
The Western Australian Government
In Response to the Consultation Paper
On Sustainability

The
Institution of Engineers,
Australia

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Introduction

This submission is in response to the Western Australian Governments' consultation paper for the State sustainability strategy entitled 'Focus on the Future: Opportunities for Sustainability in Western Australia'. The Institution of Engineers, Australia (the Institution) is pleased to contribute to the development of the Western Australian Government's sustainability strategy.

The consultation paper poses some important questions about of sustainability in the State. Of particular significance is the question relating to the role that government, community and business can play in contributing to sustainability.

Change is needed in the way society views sustainability. Drivers for change to industry and consumer practices will primarily be generated by demand factors. In all work carried out by the Institution in the past, we have determined that the key driver for change is client demand (private and public sector) or clear direction from government in policies and practices.

The Institution believes that the Government can contribute to sustainability through the maintenance of existing programs that assist in sustainable development, promoting community awareness and through new initiatives such as the establishment of the Sustainability Policy Unit in the Premiers Department. It can further contribute by focussing R&D funding on new environmental technologies and the development of existing technologies such as wind and solar power. The community can contribute through greater awareness and the participation in local environmental management groups. Business can contribute by adopting sustainable practice in its production of goods, and through sustainable building development.

Professional and industry associations also have an important part to play in educating members about the benefits of sustainable practice. Over recent years, through the Institution, the engineering profession has recognised the need for sustainable practices.

The Institution believes that sustainability is important for three reasons:

- There is an over-arching ethical issue for engineers to act responsibly with respect to the environment.
- The changes necessary for our society to adopt more sustainable practices rely on engineering solutions.
- There is a substantial business opportunity for engineering in offering services to public and private sector organisations who want to improve their sustainability performance;

In line with this, the Institution has undertaken a number of initiatives to promote sustainable engineering practice, such as:

- Requiring members to take all reasonable steps to inform themselves, their clients and employers and the community of the social and environmental consequences of their actions and projects in which they are involved. (Contained in our code of ethics)
- Including sustainability as an element in our process for competency assessment for Chartered Professional Engineers.
- Publishing a Guide for Sustainable Engineering Practice in October 1997.
- Convening three taskforces on sustainability; focussing on sustainable transport, sustainability in the building and construction sector for commercial buildings, and on sustainable energy practices. These taskforces have produced reports that contain a number of recommendations for government and industry to improve sustainable practices.
- Participating in Government taskforces, roundtables and forums on sustainability.

- Identifying environmental industries as a critical area for future focus in a discussion paper on priority setting for R&D.

Engineering is at the heart of all Australian industry. As such, it is the key to implementing the principles of sustainability in Australian industry. Engineering practice can also help provide a framework for sustainable communities by reducing waste, preventing further environmental damage, creating business opportunities through innovation and encouraging community participation. Engineering can contribute to sustainability in a number of areas including: transport, building development, water management, agriculture, renewable energy and the development of cleaner production / environmental technology. These key areas are the focus of this submission.

Transport

Western Australia currently relies heavily on road transport for domestic and commercial use. In particular, the Perth region faces growing transport problems because of population growth and the continued reliance on private transport. Perth accounts for 1.3 million out of the State's 1.7 million population. The development of the Metropolitan Transport Plan by the Western Australian Government has attempted to address some of these issues for the Perth region. The plan calls for a 12% public transport target. It outlines how the reliance on road transport in the Perth region can be reduced through using transport alternatives such as buses, trains, bike riding and walking. It also calls for greater consideration of transport development in relation to urban planning and better transport linkages within urban areas. This can be achieved through better transport integration.

Despite the recognition the plan gives to the need to develop sustainable transport, it fails to outline spending priorities for public transport. The plan needs to include measures to reduce the continued emphasis on cars and other private vehicles as the primary source of transport in the city.

The Institution believes that a greater consideration of the funding transport needs of the metropolitan area need to be put forward. Options for transport such as road user charges and increased funding for rail, bus and ferry transport need to be considered. According to the Metropolitan Transport Plan, Perth's public transport system consists of four rail lines, 300 scheduled public bus routes, a public ferry link and numerous private bus transport operators. It also states that a review of the effectiveness of these services needs to be conducted which takes into consideration the future development needs of the city. Better planning of urban development to include public transport links is one option. Greater incentives for passengers such as more efficient transport links and fare discounts should also be considered. The Metropolitan Transport Plan Report states that patronage of the Perth system has been steadily declining.

Overall there needs to be an integration of Perth's Public Transport Infrastructure, and clear incentives for users. This can be achieved through the development of efficient intermodal links, and better feeder systems.

In terms of sustainability, the benefits of improved public transport system are as follows

- Reduction of greenhouse gas emissions – The transport sector is one of the primary contributors to greenhouse gas emissions in Australia. Per capita they are among the highest in the world. One-third of the average family's greenhouse emissions are the result of transport activities. The greenhouse gas emission from the average car is 4.3 tonnes per

year. In reducing private vehicle transport use, Western Australia can help Australia meet its obligations in relation to the Kyoto Protocol on greenhouse gas emissions.

- Better air quality – Perth does not face the same air quality problems as Sydney or Melbourne. However, continued urban development will affect air quality levels. This in turn can lead to health problems in the community such as increased asthma rates. Perth is already facing some problems in this area with air pollution levels rising. It is estimated that pollution from car emissions is one of the main causes of the fall in air quality.
- Equitable access to transport and facilities. - The heavy reliance on private vehicle use means that residents from poorer socioeconomic groups and the elderly are disadvantaged, because they cannot afford to run private vehicles. This is a particularly an issue in outlying suburbs of major cities, where public transport facilities have not kept pace with urban development. Improved public transport access will allow them to access public facilities such as shopping and medical centres. An efficient and accessible public transport network can encourage a greater patronage and a confidence in the systems efficiency.

Attached is the report 'Sustainable Transport Responding to the Challenges', which contains many recommendations regarding sustainable practice for transport.

Building Development

Domestic and Commercial building development can potentially be a major contributor to sustainability. The Western Australian Government funds programs that provide guidance and examples of sustainable domestic and commercial building development. Most notable of these are the programs managed by the Department of Planning. These include the Livable Neighbourhoods Program and the Coolamon Solar Village.

The Institution recommends that a comprehensive program be established to ensure that building developments are not excessive users of energy and resources. This would involve mandatory minimum energy design standards for building developments and the establishment of a regime of energy and greenhouse performance auditing and reporting. The Government could lead by example by establishing environmental design standards for all government buildings and encourage local councils to adopt the same practice. The Government could also encourage the use of triple bottom line reporting in building development.

Triple bottom line reporting takes into consideration the social, economic and environmental impacts of development. In terms of building development it requires the builder and the occupier of the building to take into consideration the environmental impacts of the development. Building design standards, management of office waste and corporate governance standards are just some of the ways in which building developments can meet triple bottom line standards. Triple bottom line reporting can be extended beyond building development to the actual product development of business itself. Avoiding the use of businesses products and technologies that are harmful to the environment is another way of meeting these standards. In effect, triple bottom line reporting covers the life cycle of the building development.

Also attached is the report 'Sustainable Energy Innovation in the Commercial Buildings Sector. The Challenge of a New Energy Culture', which contains many recommendations regarding sustainable building development.

Water

Sustainable water management is becoming a major problem for Western Australia. The Kimberley has an abundant water supply. However, Perth has had water restrictions imposed. This is a result of Perth's water supply falling to record low levels.

Sixty percent of consumption of water in Perth is for gardens. Heavy restrictions have been imposed including limiting the use of sprinklers to two days a week. The Water Corporation is encouraging the community to reduce their water consumption in the home by restricting the amount of water used for dishwashers, toilets, showers and washing machines. The Water Corporation and the Department of Energy is also encouraging the use of water saving devices such as efficient showerheads and water timers.

Although the Western Australian Government has demonstrated a commitment to sustainable water management, there is still potential for further changes to be made in this area. One option is incentives for users. These include subsidies for water savings devices and rewarding customers who use less water by reducing their water rates. More research also needs to be conducted into new water saving devices.

Another option available to government includes further investigation into options for recycling sewerage water for garden use. Other States such as New South Wales are conducting research into the use of sewerage water. Internationally, this technique has been used by arid countries such as Namibia, which recycles its sewerage water into drinking water. The use of less water intensive processes by consumers and businesses in Western Australia will help to alleviate water shortages and also reduce energy consumption.

In 1999, the Institution together with the Australian Academy of Technological Sciences and Engineering released a report called 'Water and the Australian Economy' This report describes the role of water as an input to the Australian economy and options for its future role.

In terms of Western Australia the report states that water usage will grow significantly in Perth, Goldfields, Gascoyne and Pilbara and Kimberley regions. It estimates that Perth water supplied from all sources will grow from 980GL in 1995-96 to 2,120 GL in 2020. In the areas outside of Perth this is mainly due to the rapid expansion of mining and other industries which are water intensive such as irrigation.

The report goes on to outline a process for the states to adopt sustainable management strategies of their water supply. This includes

- Improved distribution system efficiency through new infrastructure investment
- Improved farm efficiency particularly in the area of irrigation technology.
- Implementation of the COAG water reform framework. This requires the maintenance of water regulations and maintaining flexibility in water distribution

For Western Australia this could mean the need to adopt further sustainable water management practices and working with other states to better manage water resources.

Renewable Energy

The Government has demonstrated a commitment to this area by developing a program to help grow the sustainable energy industry in the State. It currently provides support for the

industry through a range of financial incentive programs and through the provision of information to both industry and users of sustainable energy products.

Funds are available through the Renewable Remote Power Generation Program, the Photovoltaic Rebate Program, the Financing Efficient Energy Use Program, the Solar Water Heating Subsidy and the Alternative Energy Development Board.

These projects provide important incentives for industry and the community. However, they are on a small scale, and there is a continued reliance on conventional sources of power in most regions in the State. The government needs to consider further trials of alternative energy sources to determine if these power sources can be used on a wider scale. It also needs to conduct further research into other alternative sources of energy such as biomass and wave power in order to be able to decide if they are viable for the State. The other area for consideration is the development of fuel cell technology and alternative fuel sources such as the hydrogen fuel bus project.

Part of this process of developing alternative energy sources could involve working with sustainable development bodies in other States, such as SEDA in New South Wales and SEA in Victoria. For example in terms of alternative energy uses, the Western Australian Government could consult with the Victorian government which is trailing the use of Canola oil as a cleaner fuel alternative for bus transport.

Agriculture

The major problem in this area is onset of dry land salinity that has primarily been brought about through the use of European farming methods.

The Department of Agriculture has established AGPLAN which is a set of objectives for agricultural management in the state. Two of the objectives are related to environmental management though repair of the land and encouraging environmentally responsible rural economic development.

In 1996, the Government established the Salinity Action Plan. This outlined a review of the Department of Conservation and Land Management's programs from January 1997 to 2000. These programs included Crown Reserves land program, the Natural Diversity Recovery Program the Biological Survey program and the Wetland monitoring program. These programs are aimed at establishing an understanding of the extent of the salinity problem and developing new techniques for better land management.

The review produced 16 recommendations relating to maintenance of funding for the programs and the improvement in infrastructure to continue the management of salinity. It is not clear whether all the recommendations have been taken up by the Government. Another review of the government programs assisting the problem may need to be conducted.

There are already examples of community groups sponsored by the government to rejuvenate particular areas. The Toolibin Lake community action group repaired the damage caused by salinity through drainage and revegetation. This example could be as a template for communities tackling the problem.

Further investment by the Western Australian Government in new methods of managing salinity may help to further alleviate the problem.

Cleaner Production & Environmental Technology

Major improvements are needed in the environmental performance of industry, as recognised by the World Business Council for Sustainable Development. Cleaner Production is about making more efficient use of the materials and energy we employ when we conduct our business while minimising the generation of wastes and emissions. Environmental technologies are required to assist in re-establishing and maintaining ecological integrity. Both matters are issues for the private sector.

As the Business Council of Australia (BCA) says of sustainable development

"There is a strong case for business leadership, working closely and collaboratively with governments and the community, to ensure Australia is well placed to meet these challenges and capture the opportunities."

The Institution believes it imperative that the Western Australian Government involve the BCA and other industry groups such as the CCI in developing strategies to advance cleaner production and environmental technologies in Western Australia.