15 October 2008

Mr Michael Deegan
The Infrastructure Coordinator
Infrastructure Australia
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Via: mail@infrastructureaustralia.gov.au

Dear Mr Deegan

Thank you for the opportunity to provide a submission on the Infrastructure Australia's discussion on Australia's future infrastructure requirements

The Clean Energy Council (the Council) is the peak body representing the clean energy industry. The Council is a member-based industry association representing businesses ready to innovate, invest and act to meet Australia's energy needs safely and reliably while lowering greenhouse emissions. Our member organisations cover a quarter of Australia's total electricity production and are involved in renewable energy, gas, energy efficiency, and distributed generation.

In this submission, the Clean Energy Council is concerned with matters relating to energy infrastructure. In addressing issues and identifying potential solutions related to energy infrastructure it is important that Australia plans for and moves for a reduction in the carbon intensity of our economy.

High-quality energy infrastructure is essential for social wellbeing, environmental health, economic but there is also a need to future-proof the economy particularly with respect to greenhouse pollution reduction and the continuing need to maintain energy security.

Australia can achieve required carbon emission reductions through, a permanent shift to renewable energy, an aggressive push on energy efficiency, strategic use of fossil fuels, an attractive investment environment for innovative / clean technologies and engagement of the community to promote behavioural change.

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The implications of this approach for infrastructure planning and expenditure are to:

- identify areas significant renewable energy resource with limited or no transmission infrastructure and develop innovative funding mechanisms to allow the optimum development of the required networks;
- strengthen the energy networks to further encourage trades between the regions and states;
- consider the greenhouse emissions associated with the life of the infrastructure and at the time of planning include a greenhouse trigger for major infrastructure projects;
- ensure the regulatory environment and the market conditions and incentives are aligned to encourage flexible infrastructure options that consider both supply and demand options; and
- invest in infrastructure to meet future growth needs and ensure consistency between sustainability policy and implementation.

If you are seeking clarification on any of the issues raised in this paper or answers to any questions that arise, please do not hesitate to contact me or the Council's General Manager Policy, Mr Rob Jackson on ph. (03) 9929 4100 or email rjackson@cleanenergycouncil.org.au.

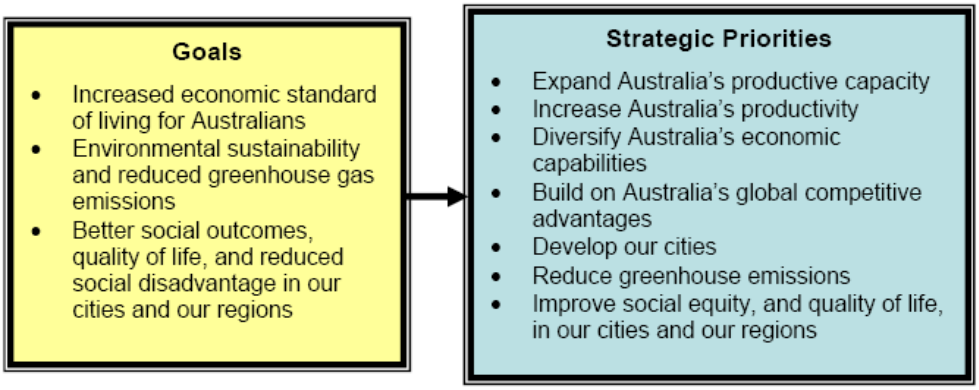
Yours sincerely

Matthew Warren
CEO

Infrastructure Australia Goals

The Clean Energy Council supports the three key goals developed by Infrastructure Australia and the high level strategic priorities determined to achieve these goals. It is appropriate that Australia aspires for the triple goals of economic, environment and social wellbeing for the country.

Australia continues to spend money on building new and upgraded coal infrastructure on the basis of a continuing coal export industry. In the longer term, such investment may be stranded should the demand for coal drop in a carbon-constrained world. Australia should be consistent and also invest in the infrastructure needed for zero and low carbon industries that can support the country in a carbon constrained future.



Network extension and Augmentation

Australia is truly a lucky country; we have enormous energy reserves in all forms of primary fuels from cheap fossil fuels to a wide range of renewable energy sources.

However, our current energy infrastructure was designed to take advantage of the high polluting, but very cheap coal and the resulting cheap electricity prices. It was built predominantly by the State governments to carry electricity from the large power stations mostly built at mine heads to the major loads in cities and industrial hubs. Light connections have been added to provide power to regional centres and to connect the states and regions.

As Australia moves into the new low carbon economy there will need to be changes with many new areas of the country being investigated for electricity generation using the wide range of low emissions technologies.

The best geothermal energy sources are in the Cooper Basin. Some of the best wind sites are in remote South Australia, Western Australia and central New South Wales.

Large-scale solar PV and solar thermal generators will be built principally in remote areas. Ocean technology will be deployed around the coast where the best resources are found. All of these will require large investment in the networks to connect the new generation to the customers.

Infrastructure investments are extremely long-lived investment and the potential risks and rewards to the community must be considered when making such investments.

Internationally there is growing recognition that additional assistance is needed to ensure that the appropriate and optimum networks are built to ensure that the emerging technologies can economically connect to the grid and get their valuable zero emission energy to market.

For example, Texas has identified zones of high wind energy potential and arranged for strong, coordinated extensions to the grid to be built and ultimately paid for by consumers. This investment has allowed Texas, a state traditionally associated with petroleum, to become the fastest growing area for wind farm development in the world.

If Australia is to develop its huge renewable energy potential it must develop and implement new funding mechanisms to extend the transmission infrastructure to strategic areas of significant renewable energy resource outside the existing grids. As part of this process, we must also identify the week links within the exiting infrastructure and find innovative ways to fund augmentations to remove congestion both within and between regions.

Greenhouse Impacts

The greenhouse emissions associated with all infrastructure choices for the lifetime of that infrastructure need to be considered to ensure the optimum results for the country. The decisions on infrastructure will tie the economy into the corresponding level of carbon intensity for the life of the asset. To avoid undesired outcomes, the choice and planning for infrastructure needs to be flexible and needs to consider both the supply and demand side impacts around infrastructure planning and selection. On the supply side, develop all feasible options for producing renewable and low emissions generation technologies. On the demand side, implement aggressive energy efficiency across all sectors (commercial, industrial and residential), increase the proportion of distributed generation and demand management practices. Energy generation is responsible for over 50% of Australia's total greenhouse emissions, due to our reliance on coal, but this can be reduced by the uptake of renewable energy generation and increased energy efficiency measures, but the incorrect infrastructure environment will hinder this improvement.

Regulatory consistency to promote flexible Infrastructure Options

Total real electricity supply costs are rising significantly across national electricity market, driven not only by the expected carbon price, but also particularly in relation to distribution and transmission network investment. Per capita electricity consumption is

rising and peak demand is rising even faster. Consequently, electricity prices and electricity bills are expected to increase significantly over the next few years. The extent of these increases in consumption, demand, costs and prices is to a large degree due to a failure of economic regulation to provide appropriate incentives for efficient demand management investment.

Demand management has very large and yet unrealised potential to reduce both costs to consumers and the environmental impacts of electricity supply. It does this by promoting both efficient investment in, and efficient use of, electricity services for the long-term interests of consumers of electricity.

The current regulatory approach taken by the Australian Energy Regulator to demand management initiatives for network businesses is minimalist and out of tune with international precedents. There needs to be much greater incentives on network business to find demand side solutions to Australia's growing energy demand.

The Role of Distributed Generation and Demand Side Management

Distributed generation is a term for small power generation plants distributed through the distribution network[1] and is usually located in or close to consumers' premises where the electricity is needed. As we move into a low carbon world, it is expected that there will be significant growth in distributed generation particularly in conjunction with the development of smart grids.

Currently the biggest source of distributed generation is solar PV which will work well in a smart grid where energy use and flows can be managed.

Because distributed generation power plants supply a nearby electrical load it displaces the need for electricity sent from the large power station. If this energy is available during the peak demand periods (like, for example, solar PV), the energy market system will register a reduction in peak demand. It is peak demand that drives the need for augmenting and building more power stations and network infrastructure, and hence the development of distributed generation will delay the need for augmentation.

The reasons and opportunities for supporting greater proportion of renewable and distributed generation would be to:

- reduce the risk associated with Australia's growing demand for electricity, increasing peak demand and rising cost of network charges as a proportion of total costs of energy;
- improve competition and therefore innovation for power station and network investment options;
- electricity (transmission and distribution) system benefits through improved system security, reliability, power quality, reduced network losses;
- provide least cost energy system planning investment; and
- reduce greenhouse gas emissions.

[1] Defined as below 22 kV

Distributed generation can help to meet additional demand for energy while deferring the need for additional investment in transmission network. The financial value of deferring or avoiding a capital investment in centralised generation capacity and transmission or distribution system capacity is in the order of $6 billion per annum.

Monitoring and Evaluation

Infrastructure Australia should take on a role to monitor and provide independent reporting on risks, ongoing maintenance, national efficiency, cost-benefit and environmental impact. This work could also include the publishing of an 'infrastructure forward plan' to coordinate national priorities, and ensure appropriate and timely infrastructure investment and ongoing maintenance.

Importance of Ongoing Maintenance

The construction of infrastructure is just the starting point for whole-of-life management, ongoing maintenance is essential to the ongoing safety and amenity of energy networks. There needs to be coordinated actions from infrastructure owners to ensure that ongoing maintenance of priority infrastructure is undertaken in a fashion that does maximises the value of the assets and minimises the impacts on the users.