

6 December 2013

The Hon Mark McArdle MP  
Minister for Energy and Water Supply  
PO Box 15456  
City East QLD 4002



Environment  
Institute of  
Australia and  
New Zealand  
SOUTH EAST QLD DIVISION

Dear Minister

The Environment Institute Australia and New Zealand (EIANZ) commends the Government for initiating the development of the QLD Electricity Strategy and applauds the way that the proposed strategy takes up the challenge of applying a long term perspective. It is also encouraging to see that the process for developing the strategy includes opportunities for community engagement and consultation.

Attached to this letter is a copy of the EIANZ submission on the proposed 30-year electricity strategy discussion paper "Powering Queensland's future". The submission focuses on the following points:

- Supporting Resilience and Sustainability of the Power Sector through good practice environmental management
- Avoidance of market intervention and reduction of regulatory burden while maintaining good practice environmental management
- An Energy Hierarchy-based approach.

The EIANZ is a not for profit, politically independent professional association that represents environmental practitioners in Australia and New Zealand and has two Queensland Divisions, South East Queensland and Far North Queensland. Founded in 1987, the EIANZ has a key role as a major contributor through its membership to the formulation of effective policies in the broad field of environmental management. The practical consequence of the Institute's involvement in reform processes is a long-term improvement in the quality of a good practice environmental management.

The Institute is multi-disciplinary in its membership and they include some of Australia's best environmental consultants, managers and academic thinkers. Institute members practice in accordance with the EIANZ *Code of Ethics and Professional Conduct*. The Institute delivers training and professional development to ensure that its members have contemporary skills; and accredits the proficiency of members through its Certified Environmental Practitioner (CEnvP) program, in general practice and specialisations in Environmental Impact Assessment and Ecology (and soon-to-be-launched, Climate Change).

I would be pleased to meet with you to discuss the work of the EIANZ as it relates to your portfolio at a mutually convenient time.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Vicki Low', written in a cursive style.

Vicki Low MEIANZ CEnvP  
President SEQ Division



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## **EIANZ SEQ Division**

**Comments on:**

**“Powering Queensland’s future”**

**The 30 Year Electricity Strategy  
Discussion Paper**

**Prepared by the Department of Energy  
and Water Supply**

**December 2013**

## 1. Introduction

The Environment Institute Australia and New Zealand (EIANZ) commends the Government for initiating the development of the QLD Electricity Strategy and applauds the way that the proposed strategy takes up the challenge of applying a long term perspective. It is also encouraging to see that the process for developing the strategy includes opportunities for community engagement and consultation.

The EIANZ would especially like to thank Scott Agnew, Jim Chisolm and Stephanie Jolly of the Department of Energy and Water Supply for taking time to meet with EIANZ representatives to further elaborate on information and view points contained in the discussion paper.

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The EIANZ welcomes the opportunity to comment on the 30-year electricity strategy discussion paper "Powering Queensland's future". This submission focuses on the following points:

- Supporting Resilience and Sustainability of the Power Sector through good practice environmental management
- Avoidance of market intervention and reduction of regulatory burden while maintaining good practice environmental management
- An Energy Hierarchy-based approach.

Specific comments relating to some of the Immediate Challenges and the Future Challenges are included in each of the above sections.

## 2. Supporting Resilience and Sustainability of the Power Sector through good practice environmental management

The EIANZ acknowledges the electricity strategy's vision, of providing an "electricity supply system" that is "resilient, cost-effective and customer-focussed to support the economic and lifestyle aspirations of Queensland customers" (p 4).

The EIANZ is also pleased to see that one of the objectives is to establish a “secure, reliable and sustainable electricity supply system” with “sustainable” referring to “the enduring capacity of the electricity system to meet the needs of customers over time, including mitigating the environmental impact of electricity use so that future generations have access to energy resources and infrastructure to meet their needs” (p 5).

While resilience and sustainability considerations have been included in the proposed strategy, the EIANZ points out that the current version focuses predominantly on social and economic ‘sustainability’ and ‘resilience’. The EIANZ encourages the Department to elaborate further the aspect of ‘mitigating environmental impacts of electricity use’ – and generation.

As the EIANZ blueprint<sup>1</sup> points out: “Our environment is finite, and should be No. 1 in the minds of the community, governments and business, now and into the future”; it also says: “Climate change, water, sustainability and energy are the major challenges of the future. Finding lasting solutions will need an even-handed consideration of the economy and society as well as the environment. Long gone are the days when solutions were a simple matter of trading off the environment against development interests – we now know we need both to prosper. (...) To meet future challenges decision-makers need to integrate consideration of the environment into the planning, development and operation of all activities.” (p 2)

It often seems as if ‘mitigating environmental impacts’ in the context of electricity generation, distribution and usage is understood as meaning ‘climate change mitigation and/or adaptation’. However, this would reduce the meaning and practice of good practice environmental management to the mitigation of air emissions, and in particular Greenhouse Gases. Good practice environmental management encompasses much more than that: it includes waste management, contamination prevention and contaminated site remediation, mine site rehabilitation and revegetation, protection of endangered species against habitat loss and degradation, water discharge management, air, water and land pollution monitoring and many other issues. Mitigating environmental impacts can therefore mean (at least) two things in the context of the electricity strategy:

1. The mitigation of environmental impacts when choosing technologies (including power generation, distribution and consumption); and
2. The mitigation of environmental impacts when constructing and operating technologies.

Tools to be deployed in this context could be life cycle analysis, environmental risk assessment, environmental management systems, Geographical Information System based mapping of environmental values, contaminated sites investigations, environmental and ecological monitoring and surveys, and many, many more.

If the lifestyle of Queenslanders is to be maintained and enhanced – as stated in the vision of the 30 year electricity strategy - then governments on behalf of the community need to also ensure that the environmental values that support this lifestyle are maintained through good practice environmental management. Environmental practitioners as represented by the EIANZ are trained to provide these professional services and can be called upon for advice support, if needed.

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<sup>1</sup> refer <http://www.eianz.org/sitebuilder/aboutus/knowledge/asset/files/67/futurechallengesblueprint.pdf>

Accordingly, the EIANZ recommends that the Department conduct a Strategic Environmental Assessment (SEA) of the energy system in Queensland, to determine the system that would be of greatest benefit to the Queensland community, industry and the environment. An SEA could be undertaken of the various scenarios considered in the Discussion Paper (p16). It would consider the total environmental costs and benefits, including the impact on ecosystem services, and allow the Department to consider not just the resulting power price of various scenarios, but whether the scenario would impact on the state's natural environment (highly valuable to the tourism industry), productive agricultural land, communities, and economic development including employment. An SEA would also consider what implications the various scenarios would have in mitigating climate change, and how the system could evolve to ensure that it is resilient to the effects of climate change.

### **3. Avoidance of market intervention and reduction of regulatory burden**

The EIANZ acknowledges the strategy's intent of supporting market forces as expressed in the strategy for example: "The nature and timing of future investment in generation should be determined by the market. The Queensland Government will not attempt to 'pick winners' by creating incentives for specific technology types" (p 19). We also are aware of the interest to provide a regulatory framework that "is designed to minimise regulatory burden and supports competitive markets" (p 26).

It needs to be acknowledged though, that 'competitive markets' do not intrinsically lead to good practice environmental management. In the last century, environmental economics were established based on the finding that if the environment is seen as a 'free good' this leads to environmental pollution and the degradation of environmental values. Since Ronald Coase, who received the Nobel Prize in 1991, published his paper "The Problem of Social Cost", the theorem of externalities has been commonly accepted. "Social costs, which economists usually call externalities, are the costs that an economic activity imposes on other parties not involved in the activity. Pollution is the most commonly cited example of a social cost" (refer <http://www.coase.org/coaseretrospective.htm>).

While the theorem of externalities has been widely accepted, there is scientific and political debate about how best to 'internalize' these externalities, through price mechanisms, such as taxes, pollution permit prices or similar, or through government intervention, in the form of legislation, policy and economic stimulus. Current practice shows that over the last 100 years, both happened: environmental legislation was put in place (eg environmental protection, nature conservation, protected species, water quality legislation etc) as well as taxes and price systems (eg setting a price for carbon emission permits, handing out water licences etc). These efforts fluctuate between setting a focus on the technical (ecological) aspects of environmental management through legislation on one side and the approach of defining ecosystem services and natural capital on the other side of the spectrum.

It might be of interest in this context, that the report 'Natural Capital at Risk: The Top 100 Externalities of Business' (refer <http://www.teebforbusiness.org/how/natural-capital-risk.html>) was published recently. It was published by the "TEEB (The Economics of Ecosystems & Biodiversity) for Business Coalition", and demonstrates the relevance of the discourse about environmental externalities in market economies.

Key findings of the report are:

- The primary production (agriculture, forestry, fisheries, mining, oil and gas exploration, utilities) and primary processing (cement, steel, pulp and paper, petrochemicals) sectors analysed are estimated to have externality costs totalling US\$7.3 trillion, which equates to 13% of global economic output in 2009. The value of the Top 100 externalities is estimated at US\$4.7 trillion or 65% of the total primary sector impacts identified.
- The majority of environmental externality costs are from greenhouse gas emissions (38%) followed by water use (25%); land use (24%); air pollution (7%), land and water pollution (5%) and waste (1%).

As highest impact externalities were identified:

- Coal-fired power in Eastern Asia and Northern America rank 1 and 3, respectively estimated at US\$453 billion per annum and US\$317 billion. These consist of the damage impacts of greenhouse gas emissions, and the health costs and other damage due to air pollution. In both instances, these social costs exceeded the production value of the sector.
- The other highest impact sectors are agriculture, in areas of water scarcity, and where the level of production and therefore land use is also high. Cattle ranching in South America, at an estimated US\$354 billion ranks second. Wheat and rice production in Southern Asia rank fourth and fifth respectively.

This submission is, of course, not the place to discuss in great detail the concept of externalities in general, or the above quoted report in particular; however it needs to be noted that coal-fired power was identified as one with the highest externalities. What the EIANZ wishes to stress is that, while the impetus for scaling back government intervention and reducing regulatory burdens is support for a strong economy, governments must be very mindful that environmental values are not 'automatically' accounted for and valued appropriately by the market, yet are commonly mentioned as the basis of valued economic activity associated with the Queensland lifestyle.

Good practice environmental management, therefore, if not automatically called forward by market forces needs the political direction of government to be applied. The QLD 30 year electricity strategy should express this will based on technical and professional expertise, providing a way forward independent of the political flavour of the government of the day.

#### **4. An Energy Hierarchy-based approach**

The proposed 30 year electricity strategy provides the opportunity to lead Queensland to be an efficient, low cost producer and user of electricity, using an [energy hierarchy approach](#).

This approach would encourage economic development through less energy use, seeking to eliminate unnecessary energy consumption, using energy more efficiently and then source energy from efficient, versatile, low-impact sources, with conventional plant to assist in the transition, phasing out at the end of its economic life.

Market participants would then be rewarded for supplying the right amount of power at the time it is needed, in response to a lower per-unit-of-GDP demand.

The EIANZ sees the plan as providing the opportunity to reduce the environmental impact of the energy supply chain over the long term. Accordingly, stable and effective policies should be in place to provide long-term certainty to all market participants. Sudden changes that affect the long-term decisions of these participants lead to a high-risk market that discourages new entrants and disengages customers.

On the **Demand Side**, the plan should consider opportunities to reward participants, who:

- reduce their energy consumption and demand;
- use alternative sources of energy where available, and where a benefit to the system results (for example, consumers may be discouraged from using gas cookers and hot water because of the additional standing charges)
- Increasingly switch to off-peak power, and being encouraged to do so with no additional charges or connection costs;
- Participate in efficiency and demand reduction schemes.

### ***Immediate Challenge 2: Strengthen Customer Protections***

The pricing of electricity and structure of customer recognitions should recognise both:

- that low income households may need some assistance to manage high energy costs; and
- that households who have taken steps to manage their energy consumption should be rewarded with consistent price signals. For example, households that have made significant energy reductions through design (ie house design, retrofits and renovations) and good practice (switching off lights and appliances may consider themselves to have been penalised by the doubling of the daily access charge on 1 July 2013).

**EIANZ Recommendation:** The EIANZ considers that customer pricing should recognise the impact the customer has on the grid. Tiered pricing systems, or time-of-use charging may encourage electricity customers to become more efficient.

### ***Immediate Challenge 3: Improve Customer Engagement***

Customers need to be encouraged to take a greater interest in their electricity consumption, and understand their personal ability to reduce costs.

This is a difficult task as (small) customers are reluctant take an active interest in electricity use/consumption beyond bills, blackouts, energising/de-energising properties (e.g. house moves or connection of new homes) and electricity export (e.g. feeding back into the grid with solar pv). The key means of engagement is more likely to be through retail product offerings (the New Zealand example cited in the Paper's Supporting Material document supports this view.

Customers may become further disengaged by frequent policy shifts and changes to pricing strategy, so the EIANZ supports the proposal in the paper to set in place long-term policy certainty.

Customers should recognise however that wasteful consumption through poor building design and/or inefficient use of appliances (leaving appliances on, appliances not fit-for-purpose etc) will lead to higher consumption and higher individual costs.

Customer are recognising that efficient houses and buildings cost their occupants less to run, and more and more evidence demonstrates that they don't have to cost more to build (and in fact lead to many other benefits such as well-being and productivity improvements).

***Immediate Challenge 6: Develop a Demand Management and Energy Efficiency Strategy.***

The EIANZ strongly supports this initiative, which will lead to greater asset utilisation throughout the supply chain, in turn leading to improved environmental outcomes. This should be at the core of an energy-hierarchy approach.

The Queensland Government has previously prepared a Queensland Energy Management Plan which should be consulted in developing such a strategy.

On the supply side, the plan should encourage that the networks and national energy market facilitate the connection of new technologies and distributed generators, recognising the important role they play in network constraint alleviation, decarbonisation of the electricity system (in the case of renewables) and reduction of losses through locating them closer to energy users.

**EIANZ Recommendation:** The EIANZ recommends that the Department of Energy and Water Supply develop a **Queensland Renewable Energy Plan**, to set targets (of at least Queensland's proportion of the Renewable Energy Target) and specifically propose and implement measures to increase the penetration of low-emission technologies in the state.

In particular:

***Immediate Challenge 9: Improve consultation practices for network extensions.***

The EIANZ supports the proposal to provide for earlier public consultation in relation to network extensions.

**EIANZ Recommendation:** The EIANZ recommends that this concept is expanded to include the network solutions themselves. The Institute suggests that constrained network areas could be published by the Network Service Providers along with an anticipated solution date, by which time a solution is required. This would allow a range of technology providers to propose solutions to network constraints which may alleviate the need for a 'poles-and-wires' approach. The current regulatory period is too short to allow proponents to develop and cost solutions, resulting in missed opportunities for renewables or storage solutions, particularly in remote areas.

## ***Future Challenges 2: Attracting Investment in Generation***

The EIANZ considers that the above suggestion (in relation to Immediate Challenge 9) would assist in achieving investment in both generation and energy storage, as proponents will have appropriate time to develop proposals and discuss them with the Network Service Providers.

### ***Future Challenge 1: Facilitating the deployment of cost-effective generation alternatives***

The EIANZ welcomes this statement of intent and suggests that the term cost-effective recognises the full cost of the various technologies (including externalities as outlined above). Such consideration would improve the economics of some technologies that the government considers to be not yet cost-effective. It should also be recognised that many generators developed at a time when much of the enabling infrastructure was funded by state-owned corporations. This includes transmission and distribution infrastructure, as well as roads and rail for supplying fuel and removing wastes and water distribution networks.

It is difficult to estimate the economic benefit of generators that need no cooling water (without the parasitic losses of air cooling), or produce no wastes?

Clean generators can be co-located with the communities they serve, reducing transmission losses, and increasing the public's engagement with the energy system.

New entrants to market of any technology enjoy less of this assistance in the current regulatory environment. There may be opportunities for the State to recognise this and provide assistance to connect new generators to networks, recognising the long-term benefit, which may include network constraint alleviation.

The EIANZ recognises the Governments reluctance to pick technological winners, though suggests that a "Connection Facilitation Program" where new, more flexible, efficient, cleaner technologies can be provided some financial assistance to connect to the grid. It is recognised that a regulatory process may need to commence to investigate and implement this suggestion.

There are a number of regulatory barriers to the deployment of renewables, and some have been addressed elsewhere in the submission (network constraint solutions – *Immediate Challenge 9*). There are barriers in the statutory planning system to renewables that could be better used to facilitate development with no greater risks to local communities, such as:

- adding definitions into the Queensland Planning Provisions (QPP) for resource monitoring equipment, such as wind masts and solar monitoring equipment. Wind Masts could be incorporated into planning schemes as Code Assessable (subject to a brief code related to height, risk management and duration), to ensure that wind developers can undertake monitoring without the uncertainty of an Impact Assessment Process (including third party appeal rights). Members of the community would still have the opportunity to make submissions for any

- applications for wind farms; Wind monitoring masts in particular are undefined in many rural planning schemes and therefore default to Impact Assessment,
- providing a standard assessment framework for renewables developments under the Queensland Planning Provision, such that renewable developments of certain size are subject to a consistent process state-wide.

**EIANZ Recommendation:** The EIANZ welcomes the creation of the *Electricity Outlook Expert Panel* and should be asked to nominate a suitable representative.

In relation to developing new technologies, the EIANZ suggests the further encouragement of Research and Development into such technologies (and energy storage). A suggestion for supporting research and development is the creation of “Technology Nurseries” where the State, in partnership with Ergon Energy and Local Councils, could establish nodes with a number of small grid connections in regional areas to provide access to the grid for commercialising new technologies. The Technology Nurseries would have a small land allocation and planning approvals in place, and allow for a number of connections up to a certain scale, subject to meeting technical standards, and subject to an EOI process. Measures could be developed to ensure proponents develop within a certain time, and demonstrate that the connection and operation at the nursery would lead to market acceptance of the technology for widespread adoption.

## 5. Conclusion

The EIANZ supports the development of an electricity industry where it is recognised that energy consumption does not have to be an indicator of economic growth.

Efficient economies prosper; and Queensland has the opportunity with an abundance of energy resources, both renewable and non-renewable, to determine a long-term vision for the state, and develop an energy supply system which will lead to prosperity, strong communities and an improving environment.

The EIANZ and its members are keen stakeholders in Queensland’s future, and wish to be actively engaged in the development of the Electricity Strategy. As it is a strategy with such a long term view, the EIANZ wishes to see regular review intervals built into the strategy. These will allow further community views to be obtained and the strategy to evolve around emerging issues. The EIANZ would welcome the opportunity to contribute to such reviews in the future.

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