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Submission to Queensland Government Department of Energy and Water Supply

30-Year Electricity Strategy

Directions Paper

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Total Environment Centre's National Electricity Market Advocacy

Established in 1972 by pioneers of the Australian environmental movement, Total Environment Centre (TEC) is a veteran of more than 100 successful campaigns. For nearly 40 years, we have been working to protect this country's natural and urban environment, flagging the issues, driving debate, supporting community activism and pushing for better environmental policy and practice.

TEC has been involved in National Electricity Market (NEM) advocacy for eight years, arguing above all for greater utilisation of demand side participation — energy conservation and efficiency, demand management and decentralised generation — to meet Australia's electricity needs. By reforming the NEM we are working to contribute to climate change mitigation and improve other environmental outcomes of Australia's energy sector, while also constraining retail prices and improving the economic efficiency of the NEM — all in the long term interest of consumers, pursuant to the National Electricity Objective (NEO).

30-Year Electricity Strategy

TEC appreciates the opportunity to make a submission to the Queensland Government regarding its proposed 30-Year Electricity Strategy. While we applaud the Government for engaging in such a forward-looking process to shape the future of Queensland's electricity supply, it is important that the Strategy is cognisant of the pressing environmental challenges facing Queensland and the rest of Australia.

Overall, TEC feels that the Directions Paper is lacking in detail, fails to seriously acknowledge or respond to the seriousness of current and projected climate change, and is weak in committing to creating a forward-thinking energy supply which leverages the states significant potential for demand management and renewables.

Climate change and renewable energy

Climate change remains the greatest challenge facing Australia.[1] We urge the Queensland Government to ensure that the final Strategy places climate change front and centre, along with the concomitant need to rapidly transition from fossils to renewable energy sources and energy efficiency.

The Federal Government's long term emissions reduction goal — an 80 per cent reduction in emissions by 2050 — is consistent with Garnaut's 2008 modelling for Australia to play its part in ensuring that the global atmospheric CO2-e concentration does not exceed 550 ppm[2] (the Garnaut -10 scenario). However, IPCC modelling presented in its 2007 Assessment Report 4 predicts that stabilising emissions in the 535-590

[1] See Climate Commission, *Off the Charts* (2012) http://climatecommission.gov.au/wp-content/uploads/CC_Jan_2013_Heatwave8.pdf.

[2] See Treasury, Australia's Low Pollution Future, 2008, vi; i.e., Australia's targets are framed "within the context of global action to reduce greenhouse gas emissions and stabilise concentrations at 450-550 ppm around 2100. In all scenarios, Australia's action is comparable to that of other developed economies…", ibid, vii. For the sake of simplicity, here we are not addressing the critical issues of when Australia's and global emissions peak and how quickly they decline.

(440-485 ppm CO2) range will likely lead to warming of around 3 degrees,[3] with serious impacts globally[4] and in Australia.[5]

In order for Australia to play its part in securing a future where there is no greater than the relatively safe level of 450ppm CO2-e, Garnaut suggests that Australia's emissions must be reduced 25 per cent below 2000 levels by 2020 and 90 per cent below by 2050.[6] These are the minimum domestic emissions reduction targets that all Australian governments must pursue. Anything less is a recipe for catastrophic climate change.

Queensland has a shared responsibility for reducing greenhouse gas emissions in Australia and ensuring a safe climate for future generations, yet the Directions Paper currently only mentions climate change and renewable energy in a negative sense, lamenting the small costs that they impose and negating to recognise the benefits.

The growing role of demand-side participation

A further trend that will shape the next three decades is a move away from centralised supply to demand-side participation. Demand side participation refers to range of mechanisms that are designed to manage and reduce energy consumption on the consumer's side of the meter, rather than building additional generation and infrastructure capacity to meet ever-increasing demand. These mechanisms include energy efficiency (reducing the amount of energy consumed), demand management (better distributing demand) and distributed generation (locally generating electricity within a customer's or distributor's network).

Demand side participation lowers the demand on the electricity network, lessening the need for investment in energy generation and infrastructure, currently at "historically high levels".[7] Demand side participation saves consumers money by lowering their consumption of electricity and avoiding or deferring investment in energy networks, the cost of which is ultimately passed on to consumers. Recent reform processes are set to cement the role of the demand-side, particularly the AEMC's recently concluded Power of Choice review.

AEMC Power of Choice

The Power of Choice review proposes:

- A Reformed Demand Management Incentive Scheme (RDMIS) which will provide an appropriate return for networks on their investment in DM projects.

[3] IPCC AR4, 2007, Synthesis Report: Summary for Policymakers, Table SPM.5.

[4] See, e.g., IPCC AR4, 2007, Synthesis Report: Summary for Policymakers, Table SPM.7.

[5] See, e.g., http://www.csiro.au/Outcomes/Climate/Understanding/Climate-Change-Continues.aspx and Australian Academy of Science, The Science of Climate Change, 2010, Part 6. These impacts will obviously increase with greater warming.

[6] Garnaut Review, 2008, Ch. 12.

[7] See AER, State of the Energy Market (2011) 6.

- A demand response mechanism that pays for changes in demand via the wholesale electricity market. Consumers will be able to reduce their consumption by a certain amount for which they will be paid the spot price for electricity at that time.
- Decoupling revenue from throughput by providing networks with an allowance for revenue foregone as a result of undertaking DM activities instead of traditional capex projects and the development of a set of ricing principles to guide network tariff structures. These decoupling measures are concerned with lessening the perverse incentives to invest in additional infrastructure which are built into the regulatory framework.
- Minor amendments to the NER to clarify that AER can have regard to non-network market benefits when assessing efficiency of expenditure and provide for some flexibility in the annual tariff process to manage potential extra volatility of DM costs.

Taken together, these proposals represent a significant shift in thinking for the NEM, and will ensure that demand side activities emerge as a cost effective and efficient manner of meeting demand.

Demand-side participation in Queensland

While the Draft Strategy does not focus on demand-side participation, Queensland's energy distributors are already taking the initiative and leading the way in the NEM.

Queensland Electricity distributor Energex has already invested in an innovative demand-side program, inserting a 5 year demand management plan as part of its proposal to the regulator. The projects it proposes cover a wide range of activities, from a short-term "summer readiness" program to long term investments in capability development. Energex has initiated direct load control of air conditioners through its PeakSmart program and encourages off peak use of pool pumps.

Ergon is currently trialling a range of demand management programs that could define the next 30 years of electricity supply in Queensland. These trials include: a tariff trial to see how prices may be used to alter electricity use; a Commercial Network Demand Management Pilot aiming to both reduce demand and greenhouse gas emissions; a district cooling project in Townsville CBD; and a power factor correction pilot project involving nearly 30 major business and industrial customers.

We applaud the efforts of the Queensland distribution businesses to find efficient and effective ways of meeting peak demand and providing innovative services to consumers. We urge the Queensland Government to follow their lead and ensure that the Strategy places increased demand-side participation at the forefront of future development of the electricity sector.

Energy mix

In view of the need for a fast and radical transformation of the energy sector, and with a solar resource in Australia that is approximately a hundred times the world's total annual energy consumption,[8] it is clear

[8] See IEA 2009 World Energy Outlook and ABARE Australian Energy Resource Assessment.

that Australian Governments have a responsibility to reduce the role of fossil fuels in meeting future domestic and export energy demand. However, the Directions Paper does not yet recognise this responsibility.

While we agree that there must be a "Supportive regulatory and policy framework to allow the market to invest in the best choice in generation technology to respond to emerging needs", it is also clear that government has a role to play in shaping investment patterns — especially since markets tend to react to current prices and short term trends and opportunities rather than long term costs and benefits.

There is now a substantial body of evidence that Australia has the renewable energy resources, technology, infrastructure and financial structures to support the kind of transformation urged by the IEA.[9] Solar PV technology is nearly as cheap as coal in some contexts already; solar thermal power stations can store energy on a commercial scale; and there is doubt about the need for large baseload power stations vis-a-vis a mix of energy sources that can be managed to respond to demand fluctuations throughout the day and night.

Queensland should not only be passively responding to Federal action on climate change and energy, but ensuring that is shaping a sustainable energy future for the state.

The hidden costs of Queensland's reliance on coal

The Strategy must recognise the negative health impacts of traditional generation. These impacts have largely been ignored to date, yet a number of recent studies have highlighted the scale and cost of these impacts, particularly on population health. Dr Eugenie Kayak notes that "every stage in the coal lifecycle costs our health, but we do not know the true financial costs of the coal industry to the Australian taxpayer."[10]

A paper in the Medical Journal of Australia states:[11]

- each phase of coal's lifecycle (mining, disposal of contaminated water and tailings, transportation, washing, combustion, and disposing of postcombustion wastes) produces pollutants that affect human health.
- Communities in which coalmining or burning occurs have been shown to suffer significant health impacts.
- The health and climate costs of coal are unseen, and when costs to health systems are included, coal is an expensive fuel.

[9] See Zero Carbon Australia Stationary Energy Plan, Beyond Zero Emissions and University of Melbourne Energy Research Institute, 2010; Low Carbon Growth Plan for Australia, ClimateWorks Australia, 2010; and Elliston, Diesendorf and MacGill, Simulations of Scenarios with 100% Renewable Electricity in the Australian National Electricity Market, proceedings of Solar2011, the 49th AuSES Annual Conference 30 November–2 December 2011.

[10] 'Health costs of coal well hidden' The Age (25 February 2011) available at http://www.theage.com.au/national/letters/health-costs-of-coal-well-hidden-20110224-1b74f.html#ixzz1lXlikWi1

[11] Castleden, W et al., 'The mining and burning of coal: effects on health and the environment' (2011) Medical Journal of Australia 195 (6).

In the US, Physicians for Social Responsibility have catalogued the negative health impacts, ranging from asthma to lung cancer, in an extensive report entitled *Coal's Assault on Human Health*.[12] The report stated that: "A medically defensible energy policy must take into account the public health impacts of coal while meeting our need for energy".[13]

We therefore urge the Queensland Government to duly account for the health impacts of traditional fossil fuel generation in considering how future electricity needs will be met.

Queensland's energy exports

It is disappointing that the Issues Paper alludes to "the development of a $50 billion liquid natural gas export industry ". There are potentially significant environmental impacts of expanding gas supply, whether it is the pollution of groundwater and surface water from coal seam gas extraction or the destruction marine ecosystems from the massive expansion of gas production and export facilities in Gladstone and elsewhere on the Australian coastline.

TEC accepts that rising living standards across Asia will lead to the expansion of electricity and transport infrastructure and demand. However, it does not follow that these must be, or are best, met by fossil fuel imports; or that, even if they are, that it should be via Australian exports. If Australia is serious about playing a responsible, let alone a leading, role in creating a safe climate future, there should be consistency between our domestic and foreign energy policies.

The final Strategy should therefore focus on the reduction of fossil fuel use, rather than pressing ahead with dangerous expansion of these industries.

Supporting renewable energy

The Directions Paper unfortunately gives short shrift to renewable energy, generally framing it in negative and ideological terms, including:

- stating that 'green schemes' and the price on carbon are "now adding significantly to electricity bills", even though they account for only 14% of the average bill; by far the most potent contributor to rising prices is network investment - Garnaut calculates that increased investment in electricity networks constitutes around two-thirds of price rises;[14]
- questioning the benefits of schemes designed to produce environmental benefits, while making no proper assessment thereof;
- asserting that environmental schemes and residential solar PV is increasing costs, without mentioning the merit order effect, factoring in hidden costs of the current electricity system, or comparing this to other drivers of network costs, such as air conditioners (see below);

[12] Lockwood, A. et al., *Coal's Assault on Human Health* (Physicians for Social Responsibility, Washington, DC 2009).
[13] Ibid 44.
[14] Garnaut, R. (2011). Transforming the electricity sector.

- using the loaded term 'subsidy' to describe feed-in tariffs (FiTs). Apart from the fact that such tariffs are not subsidies, i.e. money granted by the government to assist an industry, usually one that is in decline, FiTs have been described as the European Commission as "the most efficient and effective support schemes for promoting renewable electricity";[15]
- citing an IEA report saying that "9 out of 10 low-carbon technologies are failing to meet deployment aims and time lines". Quoted in isolation, this could suggest that the technologies are performing poorly, however the IEA makes it clear that governments are at fault as "committed government funds are inadequate and are not being allocated to projects at the rates required" and that "low-carbon electricity is at the core of a sustainable energy system".[16]

Renewable energy is framed as a problem, rather than a necessity and an opportunity. This must be corrected in the final Strategy if it is to be a helpful document for guiding how Queensland meets its future electricity needs.

Consumer appetite for renewable energy

Consumers have shown that they have a strong appetite for clean energy, which has unfortunately not yet been met with similar enthusiasm from the Queensland Government. Most notably, the unstable nature of policymaking on FiTs contrasts markedly with the enthusiasm of Queensland consumers for residential PV installation, which has seen 427MW of rooftop PV installed to date.[17]

Consumer uptake of schemes such as GreenPower and other energy efficiency initiatives has also been high. In 2008, 817,000 households were paying a premium to receive renewably generated electricity under the GreenPower scheme.[18] The Strategy must therefore reflect this strong consumer interest.

Residential PV and the merit order effect

The Queensland Government has consistently criticised FiTs on the basis that they are inefficient subsidies, while also failing to acknowledge the prevalence of fossil-fuel subsidies, or the other, more pressing and costly strains on electricity bills.

The Government itself has published a report estimated that the installation of a 2kW reverse cycle air conditioning unit costs a consumer an average of $1500 year, yet imposes a cost on the electricity networks as a whole of up to $7000 due to its addition to peak demand.[19] On the other hand, the former Queensland FiT cost users around $1 a week, with most bill increases coming from network investment.[20]

[15] http://ec.europa.eu/energy/climate_actions/doc/2008_res_working_document_en.pdf

[16] http://www.iea.org/Textbase/npsum/ETP2012SUM.pdf

[17] www.aemo.com.au/.../Rooftop_PV_Information_Paper.ashx

[18] http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features80March%202009

[19] Department of Employment, Economic Development and Innovation, *Queensland Energy Management Plan* (Queensland Government, Brisbane 2011).

[20] http://reneweconomy.com.au/2012/can-do-campbell-slashes-queensland-solar-pv-tariffs-23238

The idea that feed-in tariffs are an unjustifiable burden on consumers neglects their ancillary benefits, which include reducing the need for new network infrastructure investment and changing the merit order to reduce spot market prices in the NEM.

The merit order is the method used to rank the available sources of energy in the National Electricity Market. Generators are ranked in ascending order according to short-run marginal costs of production, such that those with the lowest marginal costs are the first to be brought online to meet demand. Increasing the amount of renewable energy lowers the average price of electricity because of the merit order effect, whereby cheap generation capacity from renewables displaces more costly generation, particularly at peak times where the displaced generation would have been from expensive gas-fired peaking plants.[21]

This has been pronounced in Germany, where it has essentially covered the costs of their extensive FiTs.[22] Indeed, Germany as a whole provides an impressive example of an industrialised manufacturing nation that has aggressively adopted renewable energy technologies while remaining economically competitive: despite its mild climate, Germany has the highest installed capacity of solar electricity in the world and has achieved impressive uptake rates through a combination of longstanding and stable feed-in tariffs, strong governmental support through R&D funding, and fostering a culture that is accepting of renewable energy technologies.

The impact of the merit order effect in Australia is beginning to be better understood, with studies tentatively concluding that the NEM will benefit from the merit order effect.[23] The positive impacts of renewables are already pronounced in South Australia, where the high penetration of wind generation is pushing down wholesale prices,[24] and increased solar generation is having the same effect.[25]

A well-designed FiT which accurately accounts for the benefits to the market as a whole is an essential regulatory support mechanism to ensure that renewables are correctly valued and have available the same kind of efficiencies of scale already enjoyed by fossil fuel generation sources.

[21] See Wright, M., 'The merit order effect – actually, it's a good thing', http://reneweconomy.com.au/2012/the-merit-order-effect-actually-its-a-good-thing-84129.

[22] Parkinson, G., 'Why generators are terrified of solar', Renew Economy, http://reneweconomy.com.au/2012/why-generators-are-terrified-of-solar-44279

[23] See, e.g., MacGill, I., 'Possible merit order impacts of wind in the Australian NEM' http://www.ceem.unsw.edu.au/sites/default/files/event/documents/ceem-windandmeritordereffect-macgill.pdf

[24] McConnell, D., 'Power of the wind – how renewables are lowering SA electricity bills', The Conversation, https://theconversation.edu.au/power-of-the-wind-how-renewables-are-lowering-sa-electricity-bills-9945

[25] Parkinson, G., 'Why generators are terrified of solar', Renew Economy, http://reneweconomy.com.au/2012/why-generators-are-terrified-of-solar-44279

Assisting households and business to reduce their energy costs

Improved customer advocacy and representation

In November 2010, a group of four consumer advocacy organisations released a detailed report into the structure of energy consumer advocacy in Australia.[26] There is currently a formal process taking place as a result of this report, with the assistance of the Consumer Advocacy Panel and the Standing Council on Energy and Resources (SCER), to create a national peak body (tentatively called Energy Consumers Australia, ECA) for consumer advocacy on energy issues.

At present there is a clear preference for creating a national organisation with the capacity to respond to energy issues on a national basis, while maintaining funding for jurisdictional organisations/projects (the 'augmentation model'). This option requires additional funding required so as not to diminish present advocacy efforts. A $2 million investment in a national advocacy body, for example, equates to about 10 cents per capita per annum.

Yet Minister Ferguson flagged in a letter to the groups involved that he expected funding for the new body to come from existing sources, which would obliterate the advocacy done by specialist and jurisdictional consumer and energy efficiency groups. At the same time there are only vague references to a new consumer body in the recent COAG communiqué and we understand that the Queensland Government did not support the business plan for the proposed ECA, though we are not aware of any reasons given for this.

Adequacy of current consumer information, choice, and protection measures

TEC is critical of the state governments that took part in developing the National Electricity Customer Framework (NECF), but failed to implement it for spurious reasons. For example, in NSW the government did not implement the NECF so that it could retain control of licences in order to force retailers to include so-called 'red text' regarding the carbon price and other "green schemes" on consumers' energy bills. This political sniping has no place in an energy market that is struggling to maintain its social licence to operate as it fails to deliver on its objectives.

We understand that the NECF is currently being considered by the Interdepartmental Committee on Electricity Sector Reform, but the only official communication we have been able to find are the SCER communiqués, which say that the Queensland Government is yet to consider the implementation of the NECF.

Queensland's Strategy should commit the government to the NECF as part of a long-term reform effort that will shape the next 30 years and beyond.

[26] Renouf, G., & Porteous, P. (2012). Making Energy Markets Work for Consumers: The Role of Consumer Advocacy.

Comprehensive energy policy

Unfortunately, it is often the case that energy is discussed in isolation, when in reality it is highly interconnected. For instance, the Energy White Paper recognised that

> *"climate change, water policy, fiscal settings or broader environmental management… intersect closely with energy policy, and… it is important to be clear about the nature of the interrelationships and ensure that they are delivering mutually supporting outcomes as efficiently as possible" (p 8).*

The final Strategy should integrate with other areas of policy in at least two ways. Firstly, the Strategy must emphasise that Queensland's electricity market exists in the context of the NEM, which will be the primary driver of energy reforms, and in the context of a national and international drive to reduce emissions and create sustainable energy systems. Secondly, the Strategy should note the need to integrate energy policy with planning controls and building standards.

Recommendations

The final Strategy must:

1. Highlight the pressing challenge of climate change and the need to rapidly transition to renewable sources of electricity.
2. Acknowledge the current regulatory reforms in relation to demand-side participation and plan for an increased role for this resource in the future.
3. Follow the lead of Queensland's innovative distribution businesses, which are developing economically efficient and environmentally-conscious ways to modernise the supply of electricity in Queensland.
4. Ensure that the Government take an active role in shaping a more sustainable and economically efficient electricity system, rather than deferring to, or waiting for, the Federal Government.
5. Recognise the negative impacts of coal mining and coal-fired generation on all Queenslanders and on the environment, and factor these impacts into its strategy.
6. Focus on scaling back, rather than expanding, fossil fuel industries.
7. Fully recognise the positive aspects of renewable energy resources and technologies and the role they are likely to play in the future energy mix, particularly in a carbon-constrained world.
8. Counter the unfounded negativity surrounding feed-in tariffs and propose suitable and efficient long-term support for the developing renewable energy industry in Queensland.
9. Acknowledge the appetite of consumers for demand reduction, small-scale renewables and GreenPower, and ensure that Government policy is in line with this.
10. Commit the Government to supporting a national body for electricity consumers and the NECF.

TEC staff would be happy to present or answer questions at any public hearing related to this inquiry.

Yours sincerely,

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