Submission to the
Department of Resources, Energy and Tourism

Draft Energy White Paper

Consultation

March 2012
Total Environment Centre would like to thank the Department of Resources, Energy and Tourism for the opportunity to provide input to the Draft Energy White Paper (DEWP).

**Total Environment Centre’s National Electricity Market Campaign**

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

Total Environment Centre has been involved in National Electricity Market (NEM) advocacy for eight years, arguing for greater utilisation of energy efficiency and demand side participation to meet Australia’s electricity needs.

**Introduction**

TEC’s interest in the DEWP is in its environmental implications. We note that environmental sustainability is the last of the DEWP’s seven sub-objectives listed. We also note that the DEWP discusses Australia’s climate change response as one of the long term energy policy drivers only after considering a number of others. In other words, environmental sustainability in general and climate change mitigation in particular are considered in the DEWP to be only two factors among many to be considered in framing Australia’s future energy policy. While it is not clear whether the objectives and drivers are in order of priority, the tenor of the DEWP suggests they may be, at least implicitly.

We note that the DEWP position is in apparent contrast to the priorities of DCCEE, which proclaims on its website that “The Australian Government is committed to action that will safeguard our environment, sustain our society and support our economy.” For TEC, a safe climate is the *sine qua non* of a responsible energy policy.

The DEWP acknowledges the Federal Government’s “goals of reducing greenhouse gas emissions from a minimum unconditional 5 per cent reduction from 2000 levels by 2020 and an 80 per cent reduction by 2050” (page 43). It also notes that “The energy sector accounts for around three-quarters of Australia’s greenhouse gas emissions,” with electricity generation constituting 38 per cent of the total (23). Our response is therefore based around answering one critical question:

*Does the DEWP detail a credible plan to transition the energy sector in Australia and globally to a low or zero carbon future?*

For the purposes of this submission, it assumed that the DEWP is framed within the parameters of meeting the Government’s short and long term emissions targets, even though this does not appear to be explicitly stated. It is also assumed that the atmospheric CO2-e concentration must not exceed 450 ppm in order to limit warming to no more than 2
degrees,¹ consistent with Australia’s endorsement of the Copenhagen Accord,² even though there is considerable doubt as to whether these arbitrary thresholds are internally consistent and will be sufficient to avoid dangerous climate change (discussed below). We take issue with three aspects of the targets: their scientific validity, the energy mix required to meet them, and the disconnect between the domestic targets and Australia’s projected energy exports.

**Climate science and Australia’s emissions targets**

While “Australia’s unconditional 2020 target of 5 per cent represents a 23 per cent decline below business as usual”,³ this target is not based on any scientific data regarding a safe climate threshold. It follows Treasury’s CPRS -5 scenario, which assumes global stabilisation at 550 ppm.⁴ In proposing that “Australia will reduce its greenhouse gas (GHG) emissions by 25 per cent compared with 2000 levels by 2020 if the world agrees to an ambitious global deal capable of stabilising levels of GHGs in the atmosphere at 450 ppm carbon dioxide equivalent (CO₂-eq) or lower”, the Federal Government implicitly acknowledges that the 5 per cent target will not lead to a safe climate outcome. While certainly better than no action at all, the 5 per cent by 2020 target is a political rather than a science-based target and is not a credible strategy for Australia to contribute to a global climate change solution.

The Government’s long term 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 ppm⁵ (the Garnaut -10 scenario). However, IPCC modelling presented in its 2007 Assessment Report 4 predicts that stabilising emissions in the 535-590 ppm CO₂-e (440-485 ppm CO₂) range will likely lead to warming of around 3 degrees,⁶ with serious impacts globally⁷ and in Australia.⁸

Garnaut’s more ambitious -25 scenario requires Australia’s emissions to be reduced 25 per cent below 2000 levels by 2020 and 90 per cent below by 2050 in order to play our part towards a 450 ppm future.⁹ To be environmentally responsible, these are the minimum

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⁹ Garnaut Review, 2008, Ch. 12.
domestic emissions reduction targets that the EWP should model Australia’s domestic energy mix in response to. Anything else is a likely recipe for catastrophic climate change.

The DEWP does note that under one of the three scenarios in the International Energy Agency’s (IEA’s) World Energy Outlook 2011 (WEO), emissions would be limited to 450 ppm, with a 50 per cent chance of warming being limited to 2 degrees. (29) However, the DEWP goes on to refer to demand forecasts for various energy sources under the more climatically dangerous New Policies scenario, referring only to the implications of the 450 scenario in noting the IEA’s warnings that CCS and nuclear technologies need to be developed and expanded, respectively, in order to stay within the 450 scenario.

In a classic example of cherry-picking, the DEWP fails to note that, in discussing the 450 scenario, the IEA also states that “If stringent new action is not forthcoming by 2017, the energy-related infrastructure then in place will generate all the CO2 emissions allowed in the 450 Scenario up to 2035, leaving no room for additional power plants, factories and other infrastructure unless they are zero-carbon, which would be extremely costly.”10 In other words, if the 450 scenario is to be taken seriously, we need a radical transformation of the global energy economy in the next five years — not recourse to unproven CCS and additional costly, risky and long lead-time nuclear energy. Indeed, the WEO begins with a statement that could have been made directly in response to the DEWP: “There are few signs that the urgently needed change in direction in global energy trends is underway.”11

Finally, even the 450 ppm scenario gives only a 50:50 chance of not exceeding the arbitrary 2 degrees threshold this century.12 Few people offered only a 50:50 chance of surviving crossing the road would take the risk, yet even this highly risky future is currently beyond the possibility of a global agreement. A more responsible climate future would therefore be consistent with the argument of some reputable climate scientists, including James Hansen, that emissions should actually be reduced to 350 ppm CO2-e at most to avoid warming of more than 1.5 degrees, beyond which various feedback loops and tipping points are likely to be triggered.13 This would require a much more radical, yet still feasible, energy policy response than the one advocated in the DEWP.

Energy mix

In view of the IEA’s warning about 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,14 it is unfortunate that the DEWP continues to spruik the roles of gas (see below), CCS (unproven, costly and risky) and nuclear energy

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11 See, e.g., IEA WEO 2010 and UNEP November 2010.
(costly, long lead time, serious environmental issues) in meeting future domestic and export energy demand.

The problem is particularly acute in relation to gas. The DEWP repeats the argument (without providing evidence) that gas is an important transitional fuel to a lower carbon economy, especially since “other technologies have yet to successfully commercialise” (xxv). As the Government is aware, there is an increasing body of evidence to suggest that under some circumstances at least (i.e., when extraction involves hydraulic fracturing; when the supply chain is geographically dispersed and complex; where wellheads are not regularly monitored for fugitive emissions; when the gas is compressed for export; etc.), the production of gas can be as emissions intensive, or more so, than coal. But even if gas were always only half as emissions intensive as coal, it still makes no sense to be feeding increasing world and Australian energy demand by a greenhouse polluting energy source. This makes as much sense as a smoker upping his pack a day habit to a pack and a half on the logic that he was planning to increase it to two packs a day, but his conscience got the better of him; or he will still go to two packs but it’s OK because the second pack will be low tar.

We are also concerned about the 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 of dugong habitat and other marine ecosystems from the massive expansion of gas production and export facilities in Gladstone and elsewhere on the Australian coastline.

On the other hand, the argument that “other technologies have yet to successfully commercialise” is outdated and fallacious. 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 on us by the IEA. 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.

Of particular concern is the DEWP’s proposal for the Commonwealth to work “with other jurisdictions to identify opportunities to harmonise micro-generation feed-in tariffs, so that they do not impose an unjustifiable burden on electricity consumers, either through cross-subsidy mechanisms or their impact on the Small-scale Renewable Energy Scheme” (xxxii).

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15 See e.g. Howarth, Santoro and Ingraffea, Methane and the greenhouse-gas footprint of natural gas from shale formations, *Climatic Change* (2011) 106:679–690. While there have been criticisms of this paper, which related to shale rather than coal seam gas, there have also been subsequent validations of its main conclusion that “Compared to coal, the footprint of shale gas is at least 20% greater and perhaps more than twice as great on the 20-year horizon and is comparable when compared over 100 years.”

16 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.
This is an abrogation of the Government’s responsibility to at least attempt, via SCER, to introduce a national feed-in tariff and should not be touted as an “opportunity.” Moreover, the idea that FiTs 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. A well-designed national FiT, which accurately accounts for the benefits to the market as a whole, is urgently needed to give the same kind of efficiencies of scale and regulatory consistency across the NEM that are already enjoyed by fossil fuel generation sources. This is particularly pronounced against the backdrop of massive fossil fuel subsidies, discussed below.

The DEWP appears to assume that renewables are expensive and will remain so without any evidence. Yet already Australian investment is increasingly being directed toward renewables. In its latest list of large-scale energy projects in the pipeline, the Bureau of Resources and Energy Economics notes that with 41 per cent of committed new investment is in wind, with 36 per cent in gas.17

**Energy exports**

Since up to half of Australia’s net emissions reduction by 2020 may be obtained by the purchase of offshore permits,10 the 5 per cent by 2020 target creates no great incentive to reform Australia’s energy industries beyond those required to implement a carbon price and the Renewable Energy Target (RET). Indeed, Treasury modelling suggests that Australia’s domestic emissions will not begin to reduce until around 2035.

While the DEWP’s projections of energy consumption and fuel mix within Australia to 2035 reflect the Government’s current emissions reduction targets, no such constraints apply to the DEWP’s bullish projections for Australian coal, uranium and gas exports.19 The DEWP portrays these “greater opportunities” in terms not only of the potential economic boon to Australia, but also of greater energy security and reduced greenhouse gas emissions in importing countries, especially in Asia.

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.

At the very least, if they are inconsistent, the Government should be frank about its abrogation of responsibility for the emissions from our energy exports. That would, of course, be awkward from policy and public relations perspectives. After all, our domestic

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17 BREE, Major Electricity Generation Projects (2011)
19 See, e.g. DEWP, xiii-xiv.
emissions reduction targets are based on the assumption that a reduction in domestic emissions is consistent with Australia playing its part toward a global agreement. However, the inevitable outcome of the energy export policy espoused in the DEWP is a rise in global emissions which is inconsistent with domestic climate policy.

It is hard to see how reliance on Australian energy exports creates greater energy security for importing nations vis-a-vis developing indigenous renewable energy sources. With the exception of uranium, with its multitude of particular problems, the energy sources Australia wishes to export in greater amounts to 2035 will contribute to escalating global emissions, and that the residents of cities in Asian megadeltas, coastal fishing communities and those living in the watersheds of the disappearing Himalayan snowcaps and glaciers are expected to be among the worst-hit by atmospheric warming, changing rainfall patterns, sea level rise, greater severe weather events and ocean acidification. If the Government is serious about increasing energy security in developing Asian nations, it should reduce Australia’s emissions to levels consistent with global efforts to constrain warming to less than 2 degrees and 450 ppm at the very most, and preferably 1.5 degrees and 350 ppm (as above); assist Asian nations to increase the availability of transport and electricity from renewable sources; and also help them to invest in energy efficiency and demand management.

Most importantly, though, the Government has the power under S51(i) of the Constitution to determine what resources Australia exports. If it wants its energy export policy to be consistent with its domestic climate change policy and its efforts to secure a binding global climate change deal to deliver a safe climate, it should prohibit the further expansion of Australia’s coal and gas exports. This has nothing to do with Australia dictating to other nations how they should procure their energy supplies; if they asked for opium we would not grow it for them, but we are apparently happy to supply an infinite amount of substances which may prove more dangerous, in terms of the numbers of people affected, in the long term. It is about Australia showing some domestic and international leadership, of putting the future of people and the planet before short term profits.

**Sustainability**

The problem with the DEWP’s approach to climate policy reflects a broader failure to understand, let alone respond adequately to, the global ecological crisis. The DEWP makes numerous motherhood statements about sustainability (especially under 8.2), but does not back these up either with scientific evidence or a commitment to regulation to implement it. Indeed, it applauds the shift towards a market-based approach to environmental solutions “rather than... heavy-handed regulation” as if this approach has worked. But look at any objective scientific assessment and it is obvious that the Australian and global environments are deteriorating rapidly. For instance, the 2005 Millennium Ecosystem Assessment concluded that

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20 See e.g. Suffering the Science: Climate Change, People and Poverty, Oxfam 2009.
over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period of time in human history, largely to meet rapidly growing demands for food, fresh water, timber, fiber and fuel. This has resulted in a substantial and largely irreversible loss in the diversity of life on Earth. In addition, approximately 60% (15 out of 24) of the ecosystem services it examined are being degraded or used unsustainably, including fresh water, capture fisheries, air and water purification, and the regulation of regional and local climate, natural hazards, and pests.21

A national energy policy that is framed to stabilise or even reverse this clearly unsustainable trend would start by implementing in relevant legislation the 1992 National Strategy for Ecologically Sustainable Development (ESD), yet the SCER has refused even to consider introducing an environmental objective (which should be related to ESD) into the National Electricity Objective. Likewise, the current and previous Federal Governments both refused to introduce a greenhouse trigger into the Environmental Protection and Biodiversity Conservation Act — as recommended most recently by the Hawke Review.22

Until there is clear evidence of a culture supporting genuine ecological (rather than economic) sustainability in Australia’s energy policy, the use of the term amounts to little more than weasel words.

Our remaining points concern more specific issues in the DEWP.

**Energy efficiency and demand management**

As the WEO notes, “The most important contribution to energy security and climate goals comes from the energy that we do not consume.”23 The DEWP also correctly observes the inefficiency of catering for expanding peak demand rather than investing in energy efficiency and demand management. However, it does not propose any new initiatives, such as incentives to networks to engage in more demand management, that would reduce peak or overall demand, in spite of the fact that Australia’s National Electricity Market (NEM) has one of the lowest demand management take-up rates in the developed world (reportedly as low as 0.02 per cent of consumption across the NEM in 2010-11).24 Indeed, the DEWP gives the impression that demand management and energy efficiency will remain subsidiary to new infrastructure investment to meet growing demand, especially at peak periods.

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23 IEA, WEO 2011, Executive Summary, 2.
24 See Australian Alliance to Save Energy, Report of the 2010 Survey of Electricity Network Demand Management in Australia, vi.
Fossil fuel subsidies

While the DEWP repeatedly touts the virtues of market forces and economic efficiency, nowhere does it even flag the removal of perverse incentives to the fossil fuel industries in Australia, which the Australian Conservation Foundation estimated in 2011 to amount to around $12 billion per year,25 or about ten times the level of government support for the renewables sector. This is in spite of the fact that, also in 2011, it was reported that “bureaucrats had identified up to 17 programs costing more than $8 billion a year that could have to be cut for Australia to meet a Group of 20 agreement that member countries would eliminate inefficient fossil fuel subsidies that led to wasteful consumption.”26

Standards for New Power Stations

The DEWP disappointingly reneges on a key election promise of the present Government that minimum standards for emissions would be introduced for new power stations. Such standards should be in place to ensure that Australia is not building 20th century infrastructure to meet 21st century energy use and environmental needs. Standards have been very effective in other areas, e.g. driving innovation in the manufacture of white goods in Europe and efficient vehicles in the US during the 1970s oil crisis. The argument that such standards will become redundant with the introduction of a carbon price, because it will favour low emissions investment, is rendered hollow by continuing investment in existing coal-fired power stations (such as the recent bid by AGL to wholly own the highly polluting Loy Yang by AGL) and the failure of any state or territory government to ban new coal-fired power stations. Introducing emissions standards would be a complementary measure to the carbon price, which the Government has repeatedly said are required as the electricity market adjusts over time to a low carbon future. That said, they must be set high enough to correct market failures — in this case, to adequately price carbon pollution.

Recommendations

1. The EWP should recommend the inclusion of ecologically sustainable development as an objective and an operational requirement in all legislation related to energy resources, especially in the National Electricity Rules (NER).

2. The EWP should include modelling of how Australia’s energy production, consumption and export to 2035 could be consistent with achieving (a) an atmospheric CO2-e concentration of 450 ppm and/or not more than 2 degrees of warming by 2050, and (b) an atmospheric CO2-e concentration of 350 ppm and/or not more than 1.5 degrees of warming by 2050.

3. The EWP should not endorse the expansion of the domestic and export gas industries on the pretext that it will contribute to lower carbon emissions without a thorough assessment of the latest science regarding the relative emissions intensity of coal and gas.


4. The EWP should canvass and endorse potential changes to the NER to incentivise networks to increase the amount of demand management in the NEM.

5. The EWP should recommend the removal of perverse subsidies to fossil fuel industries in Australia that subvert our climate policy.

6. The EWP should correct, or at least explain, the disconnect between Australia's domestic climate policy and the energy export policy espoused in the DEWP.

7. The EWP should recommend the reintroduction of minimum emissions standards for new power stations sufficiently stringent to act as a disincentive to further investment in coal-fired plants.

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