

Submission to the Energy White Paper Issue Paper

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Submission from
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Doctors for the Environment Australia (DEA) is a health advocacy organisation of medical doctors in all states and territories of Australia working to address the diseases caused by damage to the earth's environment at local, national and global levels.

Summary

Planning Australia's future energy landscape well in advance provides important opportunities to address challenges facing us and maximize energy efficiency, and security, as well as health and environmental co-benefits. However, we find the Energy White Paper (EWP) significantly flawed due to omissions or failure to consider the following important factors:

- Fossil fuels are responsible for significant community and economic costs due to health externalities, particularly air pollution.
- Fossil fuel combustion is the major driver of climate change and neither its contribution nor adherence to emissions targets are considered.
- Climate change and its impacts on health and workforce productivity.
- The impacts of climate change on energy security, infrastructure and productivity through extreme weather events, changes in rainfall sea level rise and economic consequences.
- Renewable energy use's potential to improve human health through reduction in air pollution and climate change mitigation.
- Renewable energy options have been unfairly represented and recent advances have not been included.
- In contrast gas, particularly unconventional gas, is projected to grow significantly, without scrutiny of its greenhouse emissions or other health and environmental impacts and risks.
- Peak oil is imminent and will have significant effects for the energy security and cost, and on the wider economy.

Recommendations

- The full life cycle costs of all modalities of energy generation must be assessed and accounted for to provide a meaningful economic comparison.
- Health co-benefits from energy, transport and built environment choices should be considered and maximized.
- Health impact assessment (HIA) should inform decision-making regarding energy and resource projects.
- Carbon budgets in accordance with best scientific knowledge must guide energy choices.
- Resilience and security of energy generation in the face of peak oil and climate impacts should be considered in the EWP.

Energy generation and associated processes have significant and complex implications for, and interactions with, human health.

For the EWP to achieve its stated aims, as clearly laid out in the document, the full costs of energy generation including social and environmental costs must be captured and included. Continuing to “externalise” these costs provides a false account of our energy industry and failing to acknowledge these factors similarly results in failure to provide transparency.

Provision of reliable and affordable energy in the form of electricity and thermal energy clearly has had, and continues to have, health and social benefits. However, the various means of providing this energy have variable costs in both immediate and delayed terms for our health. This has increasingly been recognised over recent years and decades.

In the short term, air pollution dominates the health impacts (and hence costs) of fossil fuel combustion as a source of energy, and similarly the long term (and cumulative) costs are dominated by impacts from greenhouse gas emissions through climatic effects.

It is immediately clear that once these costs are incorporated into the price of energy, renewable generation has a significant economic advantage over fossil fuel derived energy sources. This is absolutely crucial to the economics of energy generation and cannot be omitted from a meaningful discussion around energy economics.

It is also essential that energy security is viewed in the context of climate change and the environmental and economic changes that that will bring. For example changing rainfall patterns will impact on water intensive industries such as coal-fired generation, and international economic decisions will potentially strand carbon intensive industries and the communities that are dependent on them.

It is hard to understate the health and economic importance of these costs which run into many billions of dollars in the short term, are cumulative and are likely to threaten our economy and, our way of life, even our survival, in the longer term.

However this EWP, as in previous similar documents, has largely ignored and omitted these considerations and discussion around them.

We would reiterate that a meaningful review and examination of our energy landscape and how we plan for our energy future must be fully informed by all of the available scientific, technical and health expertise. Failing to do so is likely to be a very costly mistake.

Security of Energy Supplies

The EWP raises issues around both short term and long term energy security, with diversity of supply being recognised as one of the important factors in improving security.

As noted in the EWP, increasing the diversity of supply can reduce energy prices, and equally importantly can improve the resilience of energy supply.

The potential for increasing extreme weather events to affect energy generation and distribution is an important aspect for energy security, with increased diversity of sources and local generation reducing risks. This aspect has not been considered in the EWP. It is especially relevant in the context of climate change and impending “peak oil”¹.

With just 0.7°C of average global temperature increase we are already experiencing more floods from heavy precipitation events and more frequent and severe heat waves and bushfire-prone conditions and these are projected to increase in frequency and severity.

Extreme weather events increase both the demand for electricity and increase the likelihood of supply interruption due to impacts on energy infrastructure, for example through flooding or bushfires, and this in turn can impact human health in a variety of ways.

There is an increase demand on health services² in the short term and for mental health services in the longer term³. Health infrastructure can be compromised directly by flooding or fire or due to impacts on transport and energy infrastructure limiting the access to, and functioning of, services.

Energy security in the context of worsening climate change is therefore an important consideration for protecting human health and well-being.

¹ <http://www.iea.org/aboutus/faqs/oil/>

² <http://www.health.wa.gov.au/circularsnew/pdfs/12612.pdf>

³ <https://www.ranzcp.org/About-us/News/Mental-health-impacts-of-flood-will-continue.aspx>

The EWP makes note of the fact that extraction, generation and distribution relies on dedicated electricity infrastructure, gas pipelines and various transport infrastructure and that risks and trends related to this will be assessed separately in 2014.

We recommend that the impacts to human health arising from climate change, directly or as a consequence of energy generation or insecurity be addressed as part of the EWP.

The consideration of the security of liquid fuels is noted. The EWP also notes that we are increasingly dependent on imported refined oil. Increasing domestic production of liquid fuels is therefore a temporary and partial solution, especially as the focus of producers is to export as much of the resources as rapidly as can be achieved.

It is surprising that “peak oil”⁴, and/or “increasingly expensive oil”, has not been directly raised or addressed in this context as it is critical for both economic and health reasons, particularly as it has again been flagged by the International Energy Agency (IEA)⁵.

Health services are highly energy intensive and dependent. We are still building health infrastructure with liquid fossil fuel back up, which involves a significant risk if we do not carry sufficient reserves (as is currently the case).

“Greening” health services and increasing the utilisation of renewable generation (electricity and thermal energy) can significantly reduce both energy costs and risks in the event of supply shocks.

If Australia does not increase physical refined fuel reserves (in deference to the IEA treaty) or increase refinery capacity, whether due to cost or political reasons, then the case for switching to non-fossil fuel alternative energy sources is made far stronger purely on the basis of energy security. This applies to the transport, resource and energy sectors.

The EWP appears to make a special case for gas development, which is seen as a potential solution to both energy security and as a source of export income.

Clearly there is a tension here between maximising corporate profits and export earnings and medium to long-term energy security. In a world of depleting fossil fuels it would be irresponsible to fast track that depletion and is to the detriment of future generations. Rationing or restricting resource use would have the combined benefit of reducing greenhouse emissions and ensuring long-term energy security.

⁴ <http://www.iea.org/aboutus/faqs/oil/>

⁵ <http://www.worldenergyoutlook.org/publications/weo-2013/#d.en.36200>

Regulatory Reform and Role of Government

A good regulatory framework is essential to protect human health and prevent environmental damage. It is the primary reason for the implementation of regulations in the first place, from public health protection, such as clean air acts, to occupational health and safety measures.

Current regulations, however, are still far from adequate, as we have detailed with a variety of examples in previous submissions⁶ on a range of related topics.

Rather than seeking to improve public health and environmental protection, which will in turn be of benefit to current and future Australians, the focus of the EWP appears to be solely on the “cost to business”.

The “costs to community” through ill health and other social and environmental damage must be equally important and therefore considered in this paper.

We urge the EWP to acknowledge current regulatory deficits in regards to the energy and resource sector and consider how these might be addressed and recommend the inclusion of Health Impact Assessments⁷ (ideally coordinated at a Federal level) be employed as a mechanism to evaluate and mitigate against risks as well as engage stakeholders.

It is clearly the government’s role to apply and enforce regulation in the interest of its citizens. It is also the task of government agencies to monitor and enforce regulation.

In the absence of a relevant price signal for pollution or other externalised costs, regulation is the only realistic method of preventing and controlling unwanted and damaging effects.

A strong and consistent RET is essential to provide certainty and stability for renewable energy development until these industries mature, as well as the successful Clean Energy Finance Corporation (CEFC).

Unregulated or poorly regulated markets can result in perverse and undesired consequences. A recent example is that of Queensland government owned Stanwell power station, which has just mothballed its gas power plant in favour of reopening the coal-fired Tarong plant.⁸

Outcomes such as these are more likely with increasing gas export and lack of support for renewables either directly or through an adequate carbon price.

⁶ <http://dea.org.au/resources/file/leaflet-the-health-factor-ignored-by-industry-overlooked-by-government>

⁷ <http://www.who.int/hia/en/>

⁸ http://www.businessspectator.com.au/article/2014/2/6/energy-markets/swanbank-shut-down-swan-song-gas?utm_source=exact&utm_medium=email&utm_content=575631&utm_campaign=cs_daily&modapt=

Growth and Investment

Increasing unconventional gas has been proposed as a means of supplying more energy and export revenue. Claims are also made that it is a “cleaner” fossil fuel and therefore may play a role in reducing greenhouse gas emissions.

Whilst the CO₂ emissions at the point of combustion are significantly lower than coal, and the associated criteria air pollutant emissions also much lower, there are significant uncertainties regarding fugitive emissions and the potential for air pollution and water contamination from leaks and spills.

From a public health perspective we would caution against the rapid investment in, and growth of, this industry without first thoroughly investigating these risks.

With regard to climate change mitigation; even with relatively low fugitive emissions rates, replacing coal generation with gas cannot meet the required emissions reduction targets⁹ to prevent internationally agreed 2 degrees global temperature increase¹⁰.

Growth in renewable energy generation should be prioritised. Renewable technologies are a central technology to reducing greenhouse emissions, and as previously stated they can play an important role in improving energy security. They also have significant health co-benefits resulting from the reduction in ambient air pollution compared to coal, oil and gas industries. There are opportunities for employment and export of technology, which can be maximised by early investment in these industries, and the risk of stranded assets and communities can be reduced by early transition to alternative technologies.

In this section the EWP again raises concerns that “growth and investment” is being limited by duplication of regulations and notes the Government’s intention to “Streamline regulation” and “relieve the need for each project proponent to develop environmental baseline data for each individual impact assessment”.

Again neither the benefits nor current inadequacies of regulation are discussed.

Prior to removing or relaxing regulation to protect environment or health, a detailed review including cost–benefit analysis should be performed. There are many examples where these benefits have been calculated, for example in the effects of air quality regulation, where health and other gains can outnumber the cost imposition by 30:1¹¹.

Clearly abandoning some regulations can have dramatic negative economic consequences and without detailed analysis it may not be evident as to what indirect impacts will occur.

⁹ <https://www2.ucar.edu/atmosnews/news/5292/switching-coal-natural-gas-would-do-little-global-climate-study-indicates>

¹⁰ <http://www.nature.com/nature/journal/v458/n7242/abs/nature08019.html>

¹¹ <http://www.epa.gov/air/sect812/prospective2.html>

With regard to unconventional gas development, the document states (pg. 20)

“The adoption of new technologies and energy sources (such as CSG) has the potential to outpace the capacity of authorities to develop and implement the corresponding regulatory frameworks. Rates of adoption should be monitored and appropriate regulatory responses developed to meet community expectations that do not impede industry development.”

Regulation must protect human health first and foremost. This statement would suggest that the main priority is instead promoting industry. There should be no trade off between risks to communities and profits.

Secondly, the government appears overly sensitive about perceived and unsubstantiated risks from renewable energy in marked contrast to the very real risks relating to unconventional gas. Regulations around wind turbines are very heavy handed, whereas unconventional shale gas exploration (a novel technology in Australia) is allowed to proceed in WA without EPA review.

This inconsistent approach does not improve community confidence and will impede gaining a “social license to operate”, which has been identified in the EWP as being “important for energy-resource development”.

To gain a social license, community consultation must be balanced and transparent. Similarly communities must have some ability to have input into, and determine the outcome of, projects.

Trade and Industrial Relations

With regard to exports, *“the Government and industry are aware of the importance of cost-competitiveness for our trading partners”* (pg. 23). There is a range of externalities relating to resource extraction, such as air pollution from coal dust, greenhouse gas emissions and water use and contamination or damage to ecosystems or agriculture, which are not captured in the price. When these resource commodities are exported, these hidden costs remain in the local and/or future economy.

This represents a market failure, and these costs must be included in the price to prevent false accounting. This should be considered before we consider relaxing regulations, which are likely to worsen this situation.

The EWP makes specific mention of the conversion of “brown coal reserves to higher value products for exportation”. As brown coal is the most polluting of Australia’s fossil fuel resources increasing its use will not square with efforts to reduce our national emissions.

It is suggested that brown coal is cheap, but as noted in the 2009 Australian Academy of Technological Sciences and Engineering (ATSE) study, environmental and health costs add \$52/MWh to the price of the electricity generation of brown

coal.¹² Further processing of this material to produce liquids or other products will increase these hidden health and environmental costs.

If regulation is reduced then it is all the more important that externality costs are captured in the market price, and failing to do this would appear contrary to the calls for openness and transparency in markets that are repeated throughout the EWP document.

Workforce Productivity

Increasing skills and training is identified as a priority in the EWP including renewable energy. Indeed this should be a focus as these renewable energy technology industries are likely to become the dominant energy industries of the 21st century in the face of resource depletion and increasing aspiration to address climate change and water security.

The health impacts of climate change have not been mentioned in this section, but are very relevant for worker productivity in energy as well as other sectors, particularly for outdoor workers. Increasing average temperatures and extreme heat have a significant impact on the health and productivity of outdoor or exposed workers.

A study by the National Oceanic and Atmospheric Administration (NOAA) in 2013 estimates that heat-stress related labour costs will double by 2050 under a business as usual scenario of greenhouse gas emissions.¹³

Increasing extreme weather events are also likely to increase the burden of mental health problems in the community resulting from bushfires and floods.

Driving Energy Productivity

Increasing energy efficiency in the built environment, industrial processes and transport sector is identified in the EWP as a means to reduce costs and improve business competitiveness. There are also benefits to emissions reductions, of both air pollutants and greenhouse gasses, so long as the efficiencies do not drive an increase in energy use (ie Jevons's paradox). Similarly better building and urban design and public transport systems can have additional health co-benefits.

The impacts of climate change have been omitted from this section but are significant. Not only does extreme weather affect energy security, but also can reduce energy and industry productivity. For example, water scarcity from drought can limit the use of water intensive electricity generation plants and higher temperature water used for cooling reduces the efficiency of thermal power plants.

¹² http://apo.org.au/sites/default/files/ATSE_Report_Hidden_Costs_Electricity_2009.pdf

¹³ http://www.noaanews.noaa.gov/stories2013/20130225_laborandclimate.html

Alternative and Emerging Energy Sources and Technology

Addressing climate change will mean decarbonisation of our economy, especially energy generation. The suggestion that there will be further growth in the use of gas is concerning particularly if it displaces uptake of renewable energy.

“Gas accounts for 23% of Australia’s total energy consumption with considerable potential for further growth” (pg. 35).

The prospect of ‘carbon capture and storage’ (CCS) is raised as a solution to continuing fossil fuel use, but there is no evidence that this will be commercially viable or technically scalable. There are also significant health risks attached to this process from leaks, which have not been explored.

Current renewable energy technologies can reduce emissions and are already cost competitive. Onshore wind is already competitive now and solar PV and concentrated solar thermal (CSP) are expected to be equivalent to traditional power generation by 2020.¹⁴

Studies here and overseas have shown that renewable energy can achieve high penetration into national electricity grids at low cost.

It is disappointing that the EWP does not recognize the co-benefits of renewable energy generation and at the same time overemphasises potential risks.

Alternative non-electrical energy is omitted from this EWP. This is quite perplexing as much of our energy requirements are for thermal energy, heating and cooling.

Solar hot water systems are the most obvious example, and have the capacity to reduce demand on electricity grids, gas use and urban air pollution. The same is true for other technologies such as heat pumps.

Several projects in Australia have shown the benefits of geothermal heat (rather than electricity generation) for heating water for pools and industry as well as cooling and generally despatchable. These technologies can significantly reduce energy demand from fossil fuels and electricity grids and therefore improve energy security, resilience, assist in reducing greenhouse gas emissions and air pollution, and can generate new employment. For these reasons these technologies should feature strongly in future energy plans for any of those reasons, but seem to have been overlooked in favour of continuing business as usual.

¹⁴ <http://reneweconomy.com.au/2014/a-dose-of-reality-for-australian-energy-cost-estimates-94767>