Australian National University


# SUBMISSION
# THE DEPARTMENT OF INDUSTRY
# 2014 ENERGY GREEN PAPER

ANU Energy Change Institute

## About the Energy Change Institute

The Energy Change Institute at the Australian National University (ANU) combines leading research and teaching on the science, engineering, policy, law, sociology and economics of moving to a sustainable and dominantly renewable energy future.

The Energy Change Institute (ECI) is pleased to provide a submission to the 2014 Energy Green Paper.

The ECI provides authoritative leadership in Energy Change research and education through a broad portfolio ranging from the science and engineering of energy generation and energy efficiency, to energy regulation, economics, sociology and policy.

The ECI comprises more than 200 staff and PhD students from all 7 Colleges of the University, plus around $100 million in infrastructure and facilities, supported by a major portfolio of external grant funding.

The ECI is both technology and policy neutral.

## Executive Summary

The ECI supports the overarching goal of the 2014 Energy Green Paper to create energy policy that secures affordable energy supply to underpin long-term business competitiveness and prosperity for Australia.

Consistent with this is a recognition that it is in Australia's economic interests to develop energy policy that aligns economic goals with a transition to a low carbon future. The majority of the nations of the world now develop their national energy policies to simultaneously address climate change. The ECI welcomes recognition in the 2014 Energy Green paper of the urgent need and responsibility for Australia to lower greenhouse gas emissions.

With our abundant skills and resources, there is scope for Australia to go further – to be a global leader in emissions reduction. Lagging behind reduces Australia's global competitiveness and runs the risk of encountering trade barriers as other countries and regions take a lead in reducing emissions.

To most effectively lower emissions, a range of policy instruments is required. Without a price on carbon, and with a lessening of emphasis on incentives such as the RET, the range of policy instruments is limited to Direct Action and to performance and regulatory measures. The latter are important: for example, the closure of domestic vehicle manufacturing opens up the prospect of significantly increasing imported vehicle emissions performance standards.

However, making available a full range of policy instruments – including an Emissions Trading Scheme (ETS) which places a market premium on carbon to provide a price signal – will be crucial to reducing emissions. As such, we welcome the legislation recently passed by the Federal Parliament that will review options for an Australian ETS.

Failure to provide a regulatory environment that aligns with the world-wide transition to a low emissions economy based on carbon pricing creates uncertainty both for incumbent and emerging energy generators. The ECI strongly supports creating investment certainty by setting a market price on carbon through an ETS or other means, to enable phasing out of inefficient, high-emission energy production in an increasingly competitive international environment.

Further, the ECI agrees with the Green Paper's goal of improving Australia's energy productivity, which is poor compared to other OECD countries. Importantly, improved energy productivity has the capacity to enhance other forms of national productivity such as labour productivity.

## Measuring up against the 2012 Energy White Paper

The following section reviews the 2014 Energy Green Paper against the recommendations the ECI put forward in its submission to the 2012 Energy White paper. While some important progress has been made, there are a number of key policy areas that require further consideration.

| ECI 2012 Submission | | 2014 Green Paper |
|---|---|---|
| **Policy Principles** | | |
| Keeping all energy technology and policy options open | ✓ | Energy technology options are well considered but several policy options have been closed |
| Combining policy flexibility with regulatory certainty | ✗ | Regulatory uncertainty is a prevailing feature of the current energy policy arena |
| Combining market forces with policy instruments to address market failure | ✗ | While there is a strong emphasis on market forces in the gas sector, such an approach is missing more broadly on market failures including carbon emissions |
| A strong role for government in planning and research support for new energy technologies | ✓ | While the government has committed to R&D in some energy technologies, the quantity of funding remains insufficient |
| **Policy Commentary** | | |
| Keeping options open | ✓ | See above |
| Uncertainty arising from changes to government policy | ✗ | The uncertainty over a domestic price on carbon in an international carbon market will discourage investment, whether in incumbent or emerging generation. |
| Addressing market failure | ✗ | See above |
| The need to remove energy subsidies | ✗ | There remains a need to remove the diesel fuel rebate |
| Energy policy reform at the regional and global level | ✗ | Australia has yet to significantly engage in global energy policy reform. |
| The need for a mix of policy instruments | ✗ | See above |
| Expanding public debate | ✓ | Recognised by the EGP |
| Cross-cutting policy issues | ✓ | Recognised by the EGP |
| **Technology commentary** | | |
| Embracing a mix of energy technologies | ✓ | Recognised by the EGP |
| Nuclear power | ✓ | Recognised by the EGP |
| Solar power | ✓ | Recognised by the EGP |
| Carbon capture and storage | ✓ | Recognised by the EGP |
| **Technology omissions** | | |
| Fusion power | ✓ | Mentioned by the EGP |
| Artificial photosynthesis | ✗ | Not mentioned by the EGP |
| Algae fuels | ✓ | Mentioned by the EGP |

## Feedback on specific initiatives

### 1. Attracting energy resources investment

**Streamline regulatory processes**:
Policy certainty is key for encouraging investment. This is just as important for incumbent generators, as well as emerging technologies such as wind farms and solar generators. Delaying entry into the developing global trade in carbon will inevitably reduce Australia's competitiveness in a global investment market.

**Improving labour productivity and skills**:

Being prepared for future energy sources requires investment in current skills gaps. A skilled workforce will provide business with the conditions to transition the economy to a lower emissions pathway.

Given the long lead time needed to implement new energy options – particularly in the case of nuclear power which would require the establishment of a new regulatory framework - there is a role for government in planning ahead to ensure that regulation allows efficient and timely implementation, and that the right knowledge base and human skills are in place to support new energy sources.

**Promoting exports**:
Australia has the potential to export value added products such as energy intensive nuclear fuels. Other options for export include the potential to export electricity (including generated from Australia's vast renewable resources) via a future south-east Asian supergrid).

## 2. Electricity prices

**Increase the range of tariff choices:**
As identified in the Green Paper, existing inequitable cross-subsidies should be addressed by time-of-use pricing of electricity. We support the general thrust of the Green Paper to "Pursue tariff reform and improved consumer access to energy use data, including electricity network tariff reform to limit cross-subsidies."

A significant component of recent electricity price rises has been the large infrastructure investment needed to cope with high peak demand. New tariff schemes should charge a premium for usage at peak demand times in order to enable better demand management and reduce costly investment in peak network and peak generation capacity.

As recognised by the Green Paper, to achieve better demand management, information (e.g. through smart metering) needs to be accessible by all market participants to enable efficient choice informed by time-of-use electricity costs.

**Rationalise emissions reduction schemes:**
The ECI supports the national harmonisation of the state's energy policies. Misalignments between state policies has plagued electricity feed-in tariffs. Notwithstanding the aim of streamlining energy policy, a suite of complementary instruments that encourage a more rapid transition to lower emissions should be pursued. The RET is an essential tool for enabling industry to adapt to a changing energy emissions environment. The ECI agrees with the identification of sovereign risk in radically changing the RET so that a smooth transition to low emissions technologies reduces the risk of stranding fossil fuel assets. Retaining the RET is critical to provide policy certainty so that generators can modify their business model in preparation for a low emissions energy market.

Otherwise, where possible, the marketplace should be allowed to determine the future energy mix, guided by technology-neutral mechanisms such as carbon pricing, minimum energy performance standards and minimum greenhouse gas (GHG) performance standards.

**Remove unnecessary regulation and encourage privatisation**:
There is a key role for government, in developing energy policy, to address the market failure to reflect the true cost of greenhouse gas emissions. This is particularly necessary in order to accelerate the adoption of energy efficiency, demand management and clean energy technologies in the timeframe needed to avoid dangerous climate change more rapidly than if left to the market. Regulation through a mix of carbon pricing and complementary policy instruments will still be required to effectively achieve the necessary greenhouse gas emissions.

## 3. Building gas supply and improving market operation

**Sustaining national gas supply**:

**Gas prices are not transparent:**
The ECI supports greater investment in information regarding the social and environmental risks posed by gas projects.

**Improving gas market function**:
Given the significantly high uncertainty around future gas prices, investment in gas market function and infrastructure should be approached with caution. Global analysis provides no certainty that gas prices will increase, and policy changes in Russia and the United States have the potential to dampen price rises and demand for Australian gas by trading partners such as China.

## 4. Security, innovation and energy productivity

**Secure and reliable energy supplies**:
Energy security in Australia relates primarily to liquid fuels. Electrification of the rail and road transport would considerably reduce dependence on liquid fuel imports. Transport energy policy in Australia should consider the electrification of the transport sector, not merely the adoption of more efficient vehicles and alternative transport fuels as it currently does. The potential for commercial and public transport modal shifts to more efficient forms of transport such as rail, shipping, public transport, and cycling should also be considered. Doing so would also address the challenge of falling electricity demand in Australia.

Finally, the only remaining subsidy - the diesel fuel rebate – should be removed immediately, encouraging industry to seek more efficient alternatives.

**Improving energy productivity**:
The ECI supports the Green Paper's recommendations on how to improve energy productivity and energy efficiency. We strongly reiterate the importance of government leadership to support business improvements in energy productivity as a range of market failures exist in Australia.

To achieve a step change in energy efficiency will require additional policy reform to overcome barriers to the uptake of energy efficiency investment beyond what is covered in the current Green Paper. The ECI recommends that a number of additional policy options be considered to achieve a step change in energy efficiency in Australia. These include:

- Implement higher energy efficiency standards in the building code of Australia
- The closure of domestic vehicle manufacturing opens up the prospect of significantly increasing imported vehicle emissions performance standards
- Use the experience gained from the former Energy Efficiency Opportunities program (EEO) to provide industry guidelines for energy efficiency in Small Medium Enterprises (SME)

**Develop a better outlook capacity**:
The ECI supports investment in outlook capacity through the AERA, AETA and NESA efforts. We also stress the importance of considering a broad range of costs and benefits, including those arising from social and environmental factors.

**Keep future technologies open**:
A key market failure in energy arises from R&D costs and first-of-a-kind cost barriers to adopting new clean energy technology. Government has an especially important role in co-investing in energy R&D and in facilitating the first development of large-scale (billion dollar, near-Gigawatt capacity) carbon-free energy projects where there are market failures in private investment.

**Technology collaboration:**

Australia needs to complement its world-leading expertise in solar technologies by leveraging international expertise in other low-carbon energy generation. Ongoing involvement in the ITER fusion program is essential to grasp this technology when the opportunity arises.

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