energy efficiency
COUNCIL

Plan for
Affordable & Efficient Energy

Six Priority Actions to make energy affordable in Australia

We can reduce energy bills for households and businesses by getting smarter with the way we use and supply energy. The Energy Efficiency Council recommends six priority actions to make energy affordable in Australia.

1. Energy Market Reform (Page 5)

The rules of the National Electricity Market (NEM) determine how we generate, transmit, sell and use electricity. The energy market reforms of the 1990s delivered many benefits to Australians, but the reform process isn't complete and this is pushing up electricity prices. To keep energy affordable we need to accelerate NEM reform, focusing on ensuring that that network prices are fair and efficient, fostering 'demand-side' services and ensuring that network companies reduce expenditure by reducing peak demand.

2. Reduce energy waste in Australian Government agencies (Page 6)

The Australian Government spends well over $450 million a year on energy and water. The Government could cut its gas and electricity bills by at least 30 per cent, saving well in excess of $2 billion over the next two decades. The Australian Government's current program to improve the efficiency of agencies should be remodelled on the new Victorian and NSW programs. The Victorian Government uses loan facilities and private sector delivery to save $2.5 billion in operational costs and create 620 private sector jobs.

3. Harmonise existing energy efficiency certificate schemes (Page 7)

NSW and Victoria have energy efficiency certificate schemes and South Australia and ACT have similar non-certificate schemes. These schemes help homes and businesses save energy by addressing market failures and biases in the electricity market. However, each scheme has different rules, which discourages businesses from participating and increases the costs of the schemes. The Australian Government should establish a national scheme to replace the existing state schemes, and allow states that don't already have schemes in place to voluntarily opt-in to the national scheme.

4. Strengthen and streamline existing energy efficiency programs (Page 8)

There are a number of existing programs that have been very effective at helping homes and businesses mange their energy bills, including the Energy Efficiency Opportunities (EEO) program, the Commercial Building Disclosure (CBD) program, minimum standards for buildings and standards and labels for appliances. These critical programs were all introduced with bipartisan support, and should be strengthened to help homes and businesses deal with rising energy prices. There are opportunities to streamline the compliance aspects of the EEO and CBD programs while making them more effective.

5. Skills and Facilitation (Page 8)

Australian businesses are still relatively unfamiliar with managing their energy use, and as energy prices rise this reduces their global competitiveness. Programs like energy efficiency certificate schemes will partly address these issues, but complementing them with targeted investment in training and best-practice guidance will substantially increase their effectiveness. The Government should allocate $90 million over 5 years, from the proposed Emissions Reduction Fund, to the Department of Industry to expand support services and work with industry associations on training and facilitation to help businesses reduce energy waste.

6. Ensure emission reduction policies support energy efficiency

While this document focuses on using energy efficiency to reduce energy bills, energy efficiency is also the fastest and cheapest way to reduce greenhouse emissions. Whatever policies are in place to reduce emissions, they need to drive energy efficiency to deliver emission cuts at the lowest cost.

The Benefits of Energy Efficiency

Energy efficiency is Australia's biggest untapped opportunity. The policies that are set out in this document would help keep energy affordable, tackle cost-of-living pressures, strengthen businesses and improve Australia's competitiveness.

> *"Make no mistake, we are in a global race...*
> *it is the energy-efficient that will win that race,"*
>
> ***British Prime Minister David Cameron***
> ***February 2013***

Making energy affordable

Homes and businesses save money when they get more out of each unit of energy that they use. Smarter energy use can also lower energy prices. Energy prices almost doubled in the last five years, putting huge stresses on homes and businesses. These price rises were mainly caused by the network companies spending $45 billion on the grid (poles and wires). Over a third of this was investment to meet rising peak demand on a few very hot or cold days. Boosting efficiency and reducing peak demand will reduce wholesale electricity prices and reduce the amount that we need to spend on poles and wires, keeping energy affordable.

Boosting competitiveness

Australia is one of the least energy efficient developed economies. This puts our businesses at a competitive disadvantage as energy prices rise, particularly with China investing heavily to improve the energy efficiency of its industry. Giving Australian businesses access to the skills and programs they need to improve their efficiency is essential for their global competitiveness. Recent research by Vivid Economics suggested that improving Australia's energy efficiency by an extra 1 per cent a year would generate an extra $8 billion in GDP by 2020 and $26 billion in GDP by 2030.

Managing the change in energy supply

There are significant changes occurring in energy supply, both locally and globally. The domestic price of gas in Australia is rising and the future gas price is the subject of extensive debate. The costs of renewable energy and energy storage are falling but uncertain. This creates a difficult environment for investing in electricity generation, and an unwise environment for investing in long-lived monopoly network infrastructure that might not be suitable for future energy supply. Addressing the market failures that decrease energy efficiency will help energy users adapt and reduce the need to invest in supply-side assets that could become stranded during this period of uncertainty.

Creating jobs

When a company improves its energy efficiency it becomes more competitive and can invest its savings on expanding production and retaining workers. Studies in the US found that each dollar invested in energy efficiency generates US$2.32 in local economic activity, US$0.84 more than an equivalent expenditure in petroleum and gas bills[1]. Boosting energy efficiency would also create a thriving domestic and export market with thousands of jobs including builders, engineers and manufacturers.

Meeting Australia's emission targets

Energy efficiency makes good economic sense and also reduces greenhouse gas emissions. Energy efficiency could deliver a third or more of carbon cuts that Australia needs to meet its bipartisan emissions target for 2020, and the Australian Bureau of Agricultural and Resource Economics estimated that energy efficiency could account for 55 per cent of Australia's greenhouse gasses cuts over the next 40 years[2].

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[1] National Renewable Energy Laboratory 1995, DOE/GO-10095-196, Energy Efficiency Strengthens Local Economies, U.S. Department of Energy, Washington

[2] Gurney, A., Ford, M., Low, K., Tulloh, C., Jakeman, G. and Gunasekera, D. 2007, Technology: Toward a Low Emissions Future, ABARE Research Report 07.16

Why have electricity bills been rising?

Electricity prices have more than doubled over the past five years, placing real strains on households and businesses. We can reduce the risk of further rises in electricity prices and, more importantly, reduce electricity bills.

The cost of supplying electricity and gas consists of a number of components:

- The number of units of energy consumed over a year and the timing of when it is consumed. The amount of energy consumed determines how much fuel is used to generate electricity (e.g. gas and coal), and if that energy is consumed during peak periods then it is supplied from more costly sources like peaking generators.
- The cost of building and maintaining the network ('poles and wires'). This is sometimes referred to as a 'fixed cost', because once infrastructure is built the costs don't vary with the amount of energy consumed. However, the future cost of the network isn't fixed - it depends on 'peak demand' on just a few hours a year.
- Statutory charges and levies, including renewable energy certificates

The main factor driving up electricity prices in the last five years was the $45 billion spent to augment the network. While some of this expenditure was necessary, much of this investment could have been avoided if network investment had been more prudent and peak demand had been proactively managed.

Peak demand in Australia has grown very rapidly over the past decade, partly because of the problems in the energy market described on page 5, and also because energy users haven't built a strong capacity in energy management. As a result, the productivity of Australia's electricity infrastructure has declined rapidly, and around 10 to 25 per cent of retail bills now come from peak demand periods that last less than 0.5 per cent of the year. This significantly reduces Australia's competitiveness.

If homes and businesses reduce their peak demand, it will immediately reduce wholesale electricity prices and, while it won't reduce the cost of sunk network infrastructure, it will reduce the need to build more infrastructure. The Energy Supply Association of Australia estimated that better management of peak demand would deliver gross benefits of $1.6 to $4.6 billion by 2022 - we believe that the benefits could be much higher.

However, we shouldn't just focus on reducing peak demand. When a home or business improves its energy efficiency, it gets more out of each unit of energy. This means that they need to consume fewer units of energy to achieve the same outcome, reducing fuel costs and energy bills.

Energy efficiency can also contribute to reducing demand for energy during peak periods. In the short-term, this will reduce bills and wholesale prices but won't reduce network prices, as the sunk costs of network infrastructure have to be spread across fewer units of energy. In the long-term it will reduce bills, wholesale prices and network costs, as it will reduce the need to expand network infrastructure.

In other words, getting smarter with the way we use energy will reduce the nation's electricity bills from day one, and keep energy affordable into the future.

What is the future of gas prices?

Gas can be stored, so although there are network costs for gas supply, the main component of gas bills is the amount of gas consumed. Gas prices in the next few years are highly uncertain, and supply could be constrained unless community concerns about coal seam gas can be addressed. However, domestic gas prices are expected to rise significantly in the short- and medium-term as our gas market links domestic prices to global gas market prices. This means that helping homes and businesses become efficient with gas will have a real impact on welfare and competitiveness.

Action 1 - Energy Market Reform

The rules and regulations of the National Electricity Market (NEM) affect how we generate, transmit, sell and use electricity. In an ideal market, consumers would meet their demand for energy services by balancing investment in supply (the amount of energy they use) and demand (the efficiency of energy use). The NEM should encourage consumers and suppliers to invest in the most cost-effective mix of demand- and supply-side options, but the current rules favour supply-side approaches, even when it's much more expensive. For example:

- Energy prices do not reflect the cost of supply, particularly during peak periods. It has been estimated that when someone installs an air conditioner that costs $1,500, it requires $7,000 of investment in the network that other people subsidise.
- Energy users don't face site-specific price signals. This means that, if peak demand increases in a particular part of the electricity network, the network monopoly needs to determine whether it's better to invest in augmenting the grid or reducing peak demand at that location. However, networks don't face price signals that encourage them to invest in the most cost-effective option.

These problems are well known. In 2002 Warwick Parer (Australian Minister for Energy and Resources from 1996 to 1998) chaired a review that confirmed:

> *"[There] is a relatively low demand side involvement in the NEM because*
> - *the NEM systems are supply side focussed*
> - *the demand side cannot gain the full value of what it brings to the market*
> - *residential consumers do not face price signals."*

In 2012 the Australian Energy Market Commission (AEMC) and the bipartisan Senate Committee on Electricity Prices came to similar conclusions, and determined that these problems had pushed up electricity prices. In late 2012, the Energy Efficiency Council, Australian Industry Group, CHOICE and Brotherhood of St Laurence jointly launched a *'Plan for Affordable Energy'* that recommended a number of specific changes.

In December 2012 the Council of Australian Governments (COAG) adopted a number of the recommendations in the AEMC's review and the *'Plan for Affordable Energy'.* However, further reforms are required. We recommend the Australian Government lead an aggressive reform program, with a focus on:

1. Completing the reforms that COAG agreed to in December 2012, particularly the establishment of a mechanism to allow energy users to sell demand-response during periods of peak demand
2. Ensuring that network companies are as cost-effective as possible. Some reforms have already been agreed to, but governments should look at:
    - Ensuring that network incentives encourage cost-efficiency, and decoupling network profits from the amount of energy that is consumed.
    - Measuring distribution companies' investment in demand-side and supply-side initiatives and encouraging them optimise their investment patterns. Network companies have a lot of experience in building infrastructure to meet demand, and very little history with peak-reduction projects that can be much cheaper. On their own, incentives will take a long time to change this.
3. Reviewing the system for charging energy users for using the network, and for charging large and small-scale generation to connect to, and use, the network, to ensure the system is fair and cost-effective. A well-designed system of charges will result in better investment decisions, ultimately saving all end-users money. Conversely, moving to fixed network charges for energy users would be inequitable, highly inefficient and lead to rising energy costs.

Action 2 - Efficiency in Australian Government agencies

The Australian Government spends well over $450 million a year on energy and water. If the Government upgrades the efficiency of the buildings that it owns or occupies, it will:

- Deliver well over $2 billion in operational savings over 25 years. The Council offers to work with agencies to produce a more detailed estimate of the savings potential.
- Have a positive impact on the budget. Investments in energy efficiency upgrades would only have a very modest impact on debt, and would have a strong positive impact on surplus from day one, as they deliver both ongoing operational savings and immediate increases in asset values;
- Attract investment and create over 1000 jobs;
- Place downward pressure on electricity prices by reducing peak demand; and
- Reduce energy use (and emissions) from government buildings by 25 to 50 per cent and water use by around 10 to 20 per cent.

While the Australian Government has introduced a strategy to improve the energy efficiency of its agencies, it is largely ineffective because it:

- Doesn't support agencies to invest in projects that improve efficiency;
- Focuses on arbitrary 'feel-good' targets rather than financial savings; and
- Doesn't provide agencies with the guidance that they need. Agencies are generally unfamiliar with how to upgrade their efficiency, and need support.

Recommendation

The Australian Government should replace its current program with a much more effective scheme that includes:

- A procurement framework that uses the private sector to competitively deliver energy efficiency upgrades. The framework should set clear financial goals. For example, the Victorian Government's highly effective program only invests in projects that deliver the equivalent of 12 per cent or above return on investment.
- Setting up an team of commercial experts in the Department of Industry or the Department of Finance to help other agencies develop plans, contracts and manage service providers. This would significantly improve the effectiveness of the program compared to expecting each agency to develop in-house expertise.
- Providing agencies with access to capital for energy efficiency projects. Agencies generally lack access to capital to pay for the upfront costs of energy efficiency upgrades and normal budget cycles are not well suited to energy efficiency retrofits. As a result, governments around the world have used a number of methods to provide capital loans, which are paid back through energy savings. In the US, government agencies can often directly borrow capital from the private sector. In Victoria, the Department of Treasury and Finance provides loans to agencies under Section 37 of the *Victorian Financial Management Act*.
- A requirement for all Government agencies to develop a plan to assess their assets, identify opportunities and take action improve energy efficiency. In Victoria, agencies are required to examine buildings representing 20 per cent of their energy use by 2012, and 90 per cent of their energy use by 2018.

Action 3 - Harmonising Energy Efficiency Certificate Schemes

NSW and Victoria have 'energy efficiency certificate schemes' and South Australia and ACT have similar schemes that don't use certificates. These schemes improve the efficiency of the energy market and help homes and businesses save energy by:

- Enabling third-parties to help consumers undertake coordinated demand-side activities at scale. This would address the structural imbalance in the energy market which encourages supply-side activities at scale but impedes delivery of demand-side activities at scale;
- Creating an incentive for third-parties to find ways to overcome well-known market failures that prevent the take up of privately cost-effective energy efficiency, including information barriers, bounded rationality and split-incentives;
- Providing a positive price signal for demand-side activities to correct a number of distortions in the energy market that are extremely difficult to reform; and
- Enabling market-transformation in the supply of energy efficiency goods and services, such as high-efficiency motors.

The state schemes have delivered substantial benefits, with the NSW scheme estimated to deliver $187 million in net benefits in its first 18 months. However, each scheme has different rules, which discourages businesses from participating and increases the costs of the schemes. Replacing these schemes with a single national scheme would substantially reduce red-tape and improve the effectiveness of the schemes.

All major parties have agreed that it is common sense to look at harmonising these schemes, and supported an investigation into the benefits of a national scheme. The Department of Industry recently completed analysis that suggested that a national scheme would deliver benefits of between $1.5 billion and $5.3 billion. This analysis was internationally extremely conservative, and concluded that the upside risk of benefits exceeding $5.3 billion was much larger than the downside risk.

Recommendation

The Energy Efficiency Council recommends that the Australian Government establish a single national Energy Savings Initiative to replace the schemes in NSW, Victoria, South Australia and ACT. NSW and Victoria are currently reducing the differences between their schemes and, while this has benefits, full harmonisation will be extremely difficult without the development of a national scheme. We recommend that, once a national scheme is in place, states like Queensland, which don't currently have schemes, would be able to voluntarily opt-in to a national scheme.

Action 4 - Strengthen and Streamline Existing Programs

Existing Program: Energy Efficiency Opportunities Program

The Energy Efficiency Opportunities (EEO) Program was introduced by the Howard Government in 2005-06. The EEO Program helps large energy users save energy and improve their productivity. The program has helped energy users find over $323 million in annual savings, which each dollar spent on the program delivering $2.9 dollars of benefit. Continuing the program but cutting compliance costs would deliver even more benefits.

The Executive Director of the International Energy Agency recently stated that the EEO program is world's best practice in industrial energy efficiency. The program requires companies that use more than 0.5 petajoules (PJ) of energy a year to look at energy saving options, and provides them with the high-quality information, resources and tools they need to do this.

The EEO program does not mandate any investments - it leaves it to companies to decide whether to implement the energy saving projects that they find. The Energy Efficiency Council agrees with this approach, and recommends that a Coalition Government rule out mandatory implementation to allay businesses' concerns.

An independent audit in 2013 found that 87 per cent of the EEO participants they surveyed improved their energy management processes. EEO participants saved 88.8 PJ of energy per annum, delivering financial benefits of $808 million per year. At least 40 per cent of these savings, roughly $323 million per annum, could be attributed to the EEO program.

The independent audit recommended that the EEO be continued to at least 2017. However, there are opportunities to improve the EEO program and reduce compliance costs. Last year the Energy Efficiency Council recommended that the States eliminate the programs that duplicated the EEO program (such as the Victorian 'Environment and Resource Efficiency Plans program'), and they were subsequently closed. The next steps for improving the program are reduced reporting requirements and providing more resources to help save energy in smaller companies and new projects.

Recommendations:

- Continue the Energy Efficiency Opportunities program until at least 2017, but make it clear that companies will not be mandated to implement opportunities.
- Allow companies that can demonstrate that they already have excellent energy management processes to exit the scheme.
- Allocate DRET an extra $25 million over 5 years for the EEO program to provide more support for participants, including the smaller energy users (which use over 0.1 PJ, or over $1 million a year) that voluntarily participate in the program.
- Update the National Greenhouse and Energy Reporting Scheme (NGERS) to collect the information required for EEO and other programs. This would give companies a single portal for reporting energy data, reducing compliance costs.
- Invest in the recently introduced 'new developments' unit in the EEO. Trials in new developments found that EEO support could reduce life-time energy costs for new sites by between 22 per cent to 50 per cent, in a range of sectors including manufacturing, mining, oil and gas and industrial processes.

Existing Programs: Commercial Building Disclosure Scheme, performance labels for appliances and minimum standards

The Commercial Building Disclosure (CBD) scheme was introduced in 2010 with bipartisan support. The CBD scheme requires that office buildings must provide an energy efficiency rating (NABERS Energy rating) when they are put on the market for lease or sale. This system enables tenants and buyers to compare the efficiency of buildings in a fair and transparent way, addressing a well known market failure identified by Nobel-prize winning economist George Akerlof. The CBD scheme has allowed market forces to drive improvements in the building stock. Research for the Australian Property Institute and Property Funds Association found that tenants are willing to pay more for higher-rated buildings, and buildings with efficiency ratings over 4 stars attract much higher returns.

Similarly, energy rating labels for appliances help consumers determine how much various products will cost to run. Without labels, consumers would be completely unable to distinguish between products that are cheap and expensive to run.

Australia has also had minimum standards for buildings and appliances for many years. These programs act as a form of consumer protection, because the companies that manufacture products and construct buildings do not have to pay for the ongoing running costs of buildings and appliances. Minimum standards are exactly that - they provide consumers with a guarantee that goods meet a minimum quality, and then rating schemes allow them to balance upfront costs and ongoing running costs for higher performance.

Standards also have a significant impact on the energy market. Australia had much lower standards for air conditioning units than many other countries until 2011. Combined with the massive subsidy for peak energy use, this resulted in many people installing inefficient air conditioners, pushing up peak demand and electricity prices.

Recommendations:

- Continue the CBD scheme, but reduce the frequency of 'lighting assessments' to reduce compliance costs
- Continue and update labelling and minimum standards for appliances (GEMS)
- Continue minimum standards for buildings, and update them to ensure that they deliver the maximum benefit for consumers.

Action 5 - Skills and Facilitation

Australian businesses are still relatively unfamiliar with managing their energy use, and as energy prices rise this reduces their global competitiveness. Programs like energy efficiency certificate schemes will partly address these issues, but complementing them with targeted investment in training and best-practice guidance will substantially increase their effectiveness. The Government should allocate $90 million over 5 years, either from carbon price income or the proposed Emissions Reduction Fund, to the Department of Industry in order to:

- Support the Energy Efficiency Opportunity program help large and medium energy users manage their energy bills;
- Invest in skills, training and accreditation programs to improve the capability of Australia's workforce; and
- Develop a program to help building owners and SMEs upgrade their energy efficiency, which would include a suite of best-practice guides, standard contracts and funding for facilitation services.

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