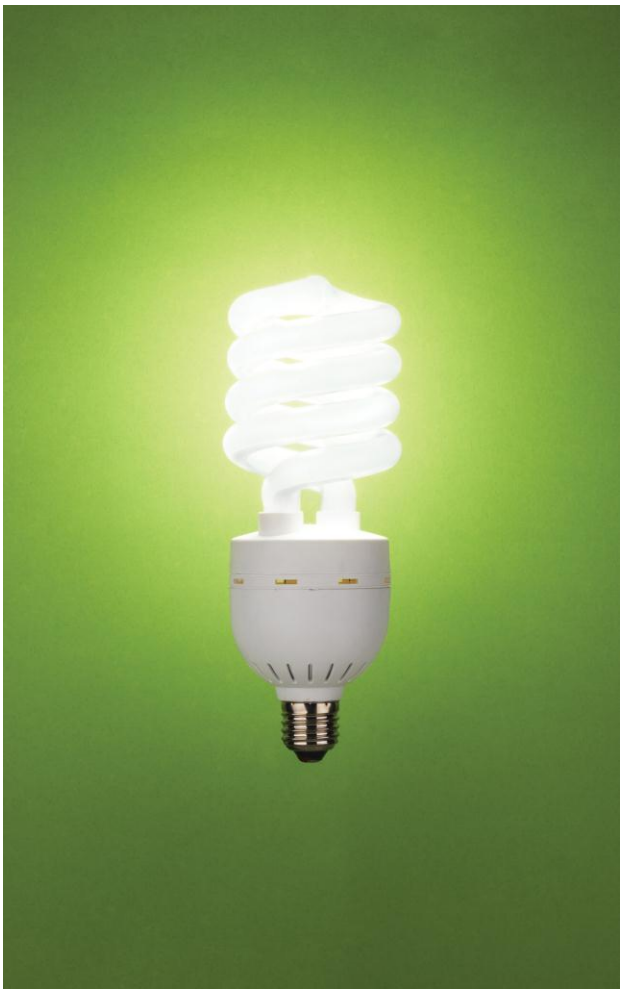
Submission to the Australian Government's Energy White Paper – Issues Paper



February 2014

KNAUF INSULATION
it's time to save energy

Submission to the Australian Government's Energy White Paper – Issues Paper – Knauf Insulation

About Knauf Insulation

With 30 years of experience in the insulation industry, Knauf Insulation is one of the largest and most respected names in insulation worldwide and is part of the Knauf Group; a family owned multi-national manufacturer of building materials and construction systems with more than 25,000 employees in over 40 countries around the world. Our business is energy efficiency. We are committed to meeting the increasing demand for energy efficiency and sustainability in new and existing homes around the world. As part of this commitment, Knauf Insulation recently commissioned the Institute of Sustainable Futures at the University of Technology Sydney (UTS) to undertake research to determine the value of the energy savings in Australian buildings. This research informs this submission.

Buildings – the Need for "Negawatts"

The International Energy Agency (IEA) in its *Transition to Sustainable Buildings* report predicts that if no action is taken to improve energy efficiency in the buildings sector, global energy demand is expected to rise by 50 per cent by 2050 – this growth could be limited to just over 10 per cent through energy efficiency improvements in buildings.[1] In Australia, energy use in residential and commercial buildings is projected to steadily rise by 2020 (Figure 1):

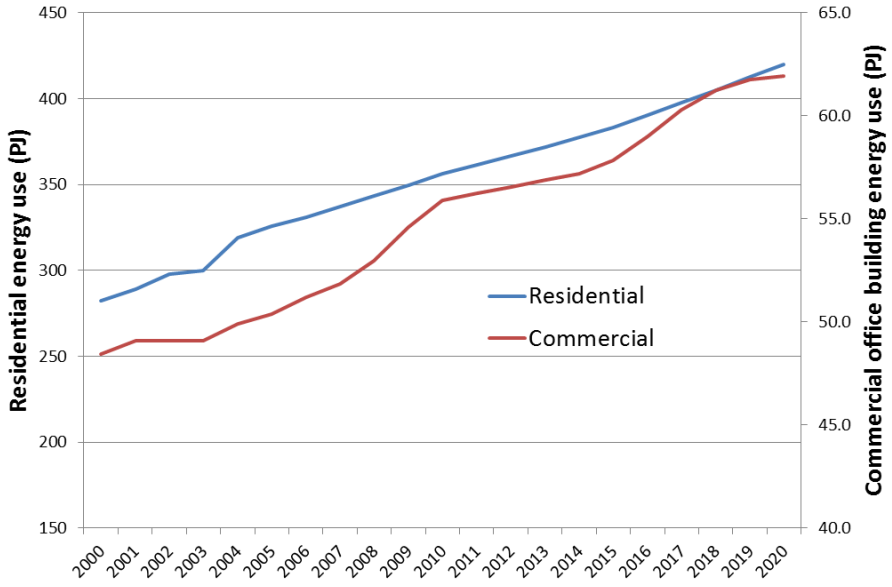


Figure 1 - Electricity and Natural Gas Use in Commercial Office Buildings 2000-2020[2]

Rising energy prices have placed an increasing number of Australian households and business under financial pressure. The impact of rising prices is undeniable with electricity prices rising nationally over the five years to 2012–13 by 64 per cent in real terms (87 per cent in nominal terms)[3] including 84 per cent in Melbourne and 79 per cent in Sydney from June 2007 to June 2012.[4]

1 International Energy Agency, 2013, Transition to Sustainable Buildings – Strategies and Opportunities to 2050.
2 Milne, G and Dunstan, C, 2014, The Value of Energy Savings in Australian Buildings, prepared for Knauf Insulation by the Institute for Sustainable Futures, UTS, 10.
3 Australian Energy Regulator, State of Energy Market 2013, 133.
4 Australian Bureau of Statistics, 2012, 4102.0 - Australian Social Trends, Sep 2012.

In addition, the growth of the export LNG sector on the east coast of Australia will expose domestic gas prices to higher-priced export markets in Asia thereby placing unprecedented pressure on domestic gas prices which have been historically low by international standards. According to the Australian Industry Group, commercial gas users are already facing much higher prices when renegotiating contracts from 2013 onwards (Figure 2):

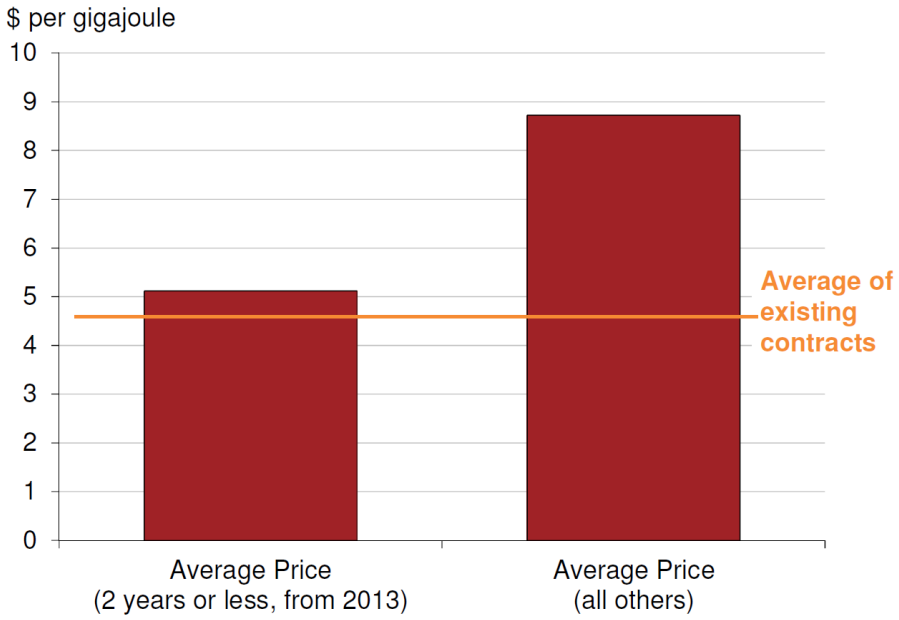


Figure 2 - Gas prices offered for new contracts, 2013[5]

With electricity and gas prices on the rise, the current suite of energy efficiency measures could be improved to target the energy savings that can be realised in Australian buildings – especially existing homes. Approximately 88 per cent of Australia's housing stock was built prior to the introduction of minimum energy efficiency standards.[6] It is estimated that approximately 94 of the current housing stock will still be standing in 2050.[7] Consequently, there are a large number of homes that are wasting energy today and will continue to do so without further incentives to improve energy performance. Now more than ever, energy savings – "negawatts" – are needed to help household address rising energy prices today while also easing the impact of rising energy costs tomorrow.

The energy performance of Australian homes

The largest proportion of energy used in Australian homes – up to 40 per cent – is for heating and cooling. In 2012, heating and cooling represented a third of the electricity and natural gas used in residential buildings.[8] Last year the total heating and cooling bill for Australian residential and commercial buildings was nearly $7.25 billion.[9] Generating this much electricity is the equivalent of keeping a 2 000MW power station at 80 per cent capacity for an entire year.[10] Given the impacts that extreme weather has on peak energy load, reducing the energy used for heating and cooling is likely to have multiple benefits for energy users.

5 Wood, T, Carter, L, & Mullerworth, D, 2013, Getting gas right: Australia's energy challenge, Grattan Institute, 13
6 Milne and Dunstan, 2014, 28.
7 Milne and Dunstan, 2014, 28.
8 Milne and Dunstan, 2014, 13.
9 Milne and Dunstan, 2014, 17.
10 Milne and Dunstan, 2014, 16.

Submission to the Australian Government's Energy White Paper – Issues Paper – Knauf Insulation

Over the last decade, the electricity needed for cooling Australian homes has nearly tripled – from 1 442GWh in 2000 up to 3 968GWh in 2012. Air conditioner use has increased noticeably during this period.[11] In 2013, an air conditioner added between $45 (in climates where it least used) and $831 (in climates where it most used) to annual household electricity costs.[12] These amounts are likely to increase in homes built before minimum energy efficiency standards – especially the approximate 1.2 million homes in Australia that do not have any insulation.

According to data published by the IEA, Australian homes have a long way to go before they match or exceed the energy consumption of homes in other developed economies (and G20 members) such as Germany, Japan, Republic of Korea and United Kingdom:

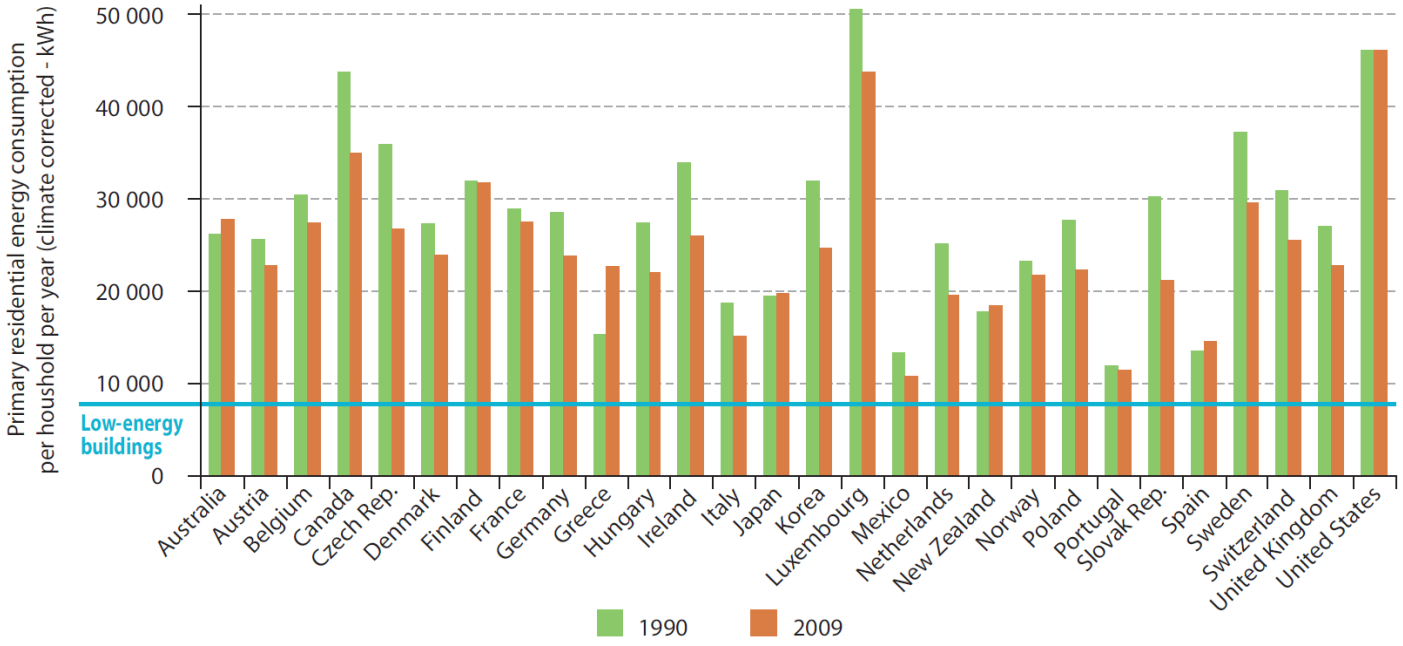


Figure 3 - Annual residential primary energy consumption per household in kWh[13]

11 Milne and Dunstan, 2014, 15.
12 Milne and Dunstan, 2014, 18.
13 International Energy Agency, 2013, Modernising Building Energy Codes, 39.

Submission to the Australian Government's Energy White Paper – Issues Paper – Knauf Insulation

Expanding the suite of Energy Efficiency measures

To fully realise the economic benefits that energy efficiency can provide, further consideration should be given to the following:

Cost-Optimal Energy Efficiency Standards for Buildings:

Following the approach taken in the European Union, conduct a national study to review energy efficiency standards for buildings and introduce the "cost-optimal" levels i.e. "the energy performance level which leads to the lowest cost during the estimated economic lifecycle"14 for each climate zone.15 The levels would incorporate not just the initial cost of the upgrade but the returns anticipated over the life-cycle of a building from energy savings and reduced operational and maintenance costs.

Residential Energy Ratings at Point of Sale or Lease:

Extending the principles of the Commercial Building Disclosure (CBD), to enable homeowners to measure and communicate the energy efficiency improvements they make to their homes would help the real estate market attribute value to residential energy efficiency.

Harmonisation of state-based energy efficiency schemes:

Ensuring consistency for certificate creation and eligible activities under these schemes would further the creation of a national market for energy efficiency certificates. This could also encourage states that currently do not have these schemes to consider introducing compatible schemes in future.

Low-Interest Finance:

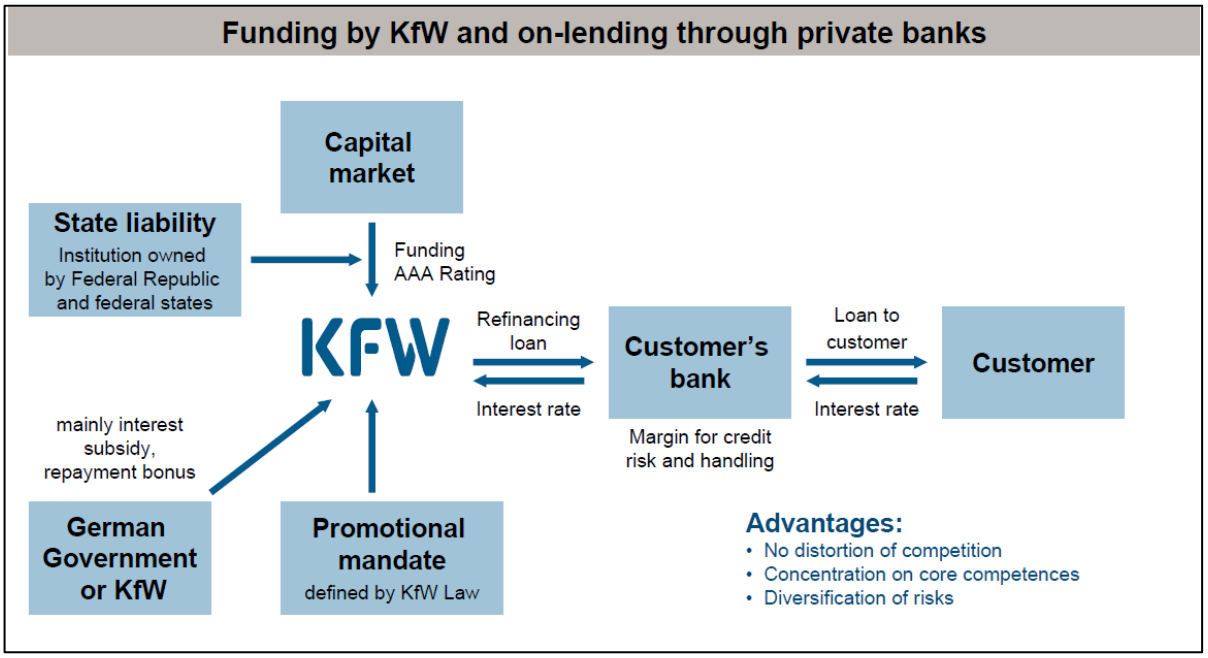
The lack of low-cost capital to undertake energy efficiency improvements is a significant barrier in the residential energy efficiency sector. Some commercial building upgrades can be repaid through council rates.16 Such a facility should be considered for residential energy efficiency upgrades. Germany has a highly successful low-interest loan programme delivered through the state-owned, AAA credit-rated, KfW bank for on-lending through private banks (see Appendix).

Tax incentives for energy efficiency upgrades:

Another significant barrier for energy efficiency upgrades occurs where there are "split incentives" e.g. where funding an upgrade would be paid for by a property owner but the benefit is realised by the tenant. Reviewing the tax incentives for energy efficiency upgrades to maximise incentives for property owners to make upgrades would help catalyse the improvement in the energy efficiency of rental properties.

14 See EU Energy Performance in Building Directive 2010/31/EU, Art. 4.1.
15 As contained in the Building Code of Australia.
16 See Environmental Upgrade Agreements (EUAs) in New South Wales and Victoria.

Appendix – Germany's KfW *Effizienzhaus* Loan Scheme[17]



17 Extracted from Dr Vivian Lo, Vice President Economic Research – KfW, The German Model for Energy Efficiency Financing – Experience of the KfW. Presentation at "Expert Dialogue on Energy Efficiency: How to Combine Incentives and Regulation?" Berlin, 23 January 2013.

REFERENCES

Australian Bureau of Statistics, 2012, *4102.0 - Australian Social Trends, Sep 2012.*

Australian Energy Regulator, 2010, *State of Energy Market 2013.*

International Energy Agency, 2013, *Modernising Building Energy Codes.*

International Energy Agency, 2013, *Transition to Sustainable Buildings – Strategies and Opportunities to 2050.*

Lo, V, Vice President Economic Research – KfW, 2013, *The German Model for Energy Efficiency Financing – Experience of the KfW, Presentation at "Expert Dialogue on Energy Efficiency: How to Combine Incentives and Regulation?" Berlin, 23 January 2013.*

Milne, G and Dunstan, C, 2014, *The Value of Energy Savings in Australian Buildings, prepared for Knauf Insulation by the Institute for Sustainable Futures, UTS.*

Wood, T, Carter, L, & Mullerworth, D, 2013, *Getting gas right: Australia's energy challenge, Grattan Institute.*