



Brotherhood
of St Laurence

Working for an Australia free of poverty

Submission to
Department of the Environment
Emissions Reduction Fund
Green Paper

Brotherhood of St Laurence

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Summary

Significant greenhouse gas emissions reductions are available in the residential sector. However, as the Green Paper recognises, these potential savings are dispersed across thousands of households. Unless the Emissions Reduction Fund (ERF) is specifically designed to help unlock the savings in the residential sector it is quite possible that limited activity will occur in this sector.

This would be unfortunate as involving the residential sector, and low-income households in particular, has the potential to provide multiple benefits.

The focus, and primary metric, for the ERF should remain on dollar per tonne of carbon abated. However, in designing the ERF the Commonwealth Government should seek to maximise the potential for residential sector involvement. The additional benefits may include:

- enabling more households to participate in society-wide efforts to reduce emissions
- helping households mitigate the impact of high energy prices
- addressing market failures and other barriers to energy efficiency
- making homes more resistant to climate extremes.

Many of the benefits are likely to be magnified in low-income households. Evidence from past energy efficiency programs suggests incentives to reduce emissions in low-income households may also lead to more additional activity than incentives for higher income households (Wasi & Carson 2013).

Our recommendations focus on the residential sector.

Recommendations

- 1 The ERF should develop methodologies to calculate abatement from a range of efficiency upgrades in the residential sector including:
 - a package of low-cost energy efficiency upgrades within a single household, such as replacing inefficient showerheads, CFL and halogen lights and installing draught proofing and window shading
 - mid-range energy efficiency upgrades, including fridge upgrades and ceiling insulation
 - high-cost energy efficiency upgrades, including hot water systems (solar, heat pump and some gas varieties), heating and cooling.
- 2 Complementary incentives (outside the ERF) should also be put in place to help low-income households to access the energy efficiency measures under the ERF.
- 3 An innovation fund should be established to support the involvement of under-represented resident segments, such as tenants in private rental accommodation.
- 4 To make residential sector abatement more financially viable, the ERF should purchase emissions reduction permits relating to this sector for the lifetime of the abatement.
- 5 The ERF should permit state and local governments (including housing authorities) and not-for-profit organisations to act as aggregators of residential sector emissions abatement.
- 6 The ERF should provide payment for residential activities once the measure(s) are installed and documented.

1 The Brotherhood of St Laurence, climate change and emissions reduction

The Brotherhood of St Laurence (BSL) is an independent non-government organisation with strong community links that has been working to reduce poverty in Australia since the 1930s. Based in Melbourne, but with a national profile, the BSL continues to fight for an Australia free of poverty. We undertake research, service development and delivery, and advocacy with the objective of addressing unmet needs and translating the understandings gained into new policies, new programs and practices for implementation by government and others.

The Brotherhood's Equity in Response to Climate Change program was initiated in recognition that low-income households are particularly susceptible to the effects of climate change such as increased heatwaves, fires and severe storms. Low-income households can also be vulnerable to the policy responses to climate change.

Our guiding principles for reducing the impact of climate change are:

- Reduce greenhouse gas emissions in line with the best available science and avoid the worst impacts of dangerous climate change
- Ensure policy responses to climate change are equitable and do not increase the disadvantage of the already vulnerable
- Harness the economic opportunities from addressing climate change, and maximise the opportunities for lower carbon, or greener, growth
- Enable low-income and vulnerable households to be part of the solutions to climate change
- Ensure we have a comprehensive approach to climate change adaptation, to reduce the unavoidable impacts of climate change, and that vulnerable households and communities are adequately recognised and protected
- Pursue policies that provide additional social and economic benefits along with addressing climate change, such as removing fossil fuel subsidies, developing effective and accessible urban public transport and improving the energy efficiency of low-income households.

Enabling low-income households to access effective energy efficiency measures has been a key aspect of the Brotherhood's approach.

Improving residential energy efficiency can not only decrease household emissions, but also lower bills and make homes more resilient to climate change. However, according to research sponsored by the National Climate Change Adaptation Research Facility (NCCARF), people on low incomes are more likely to live in 'older, poorer quality housing stock, often in locations of high climate change risk with few resources to invest in climate adaptation' (Barnett et al. 2013). Enabling those on low incomes to improve the energy efficiency of their homes can therefore have multiple benefits.

We note the Emissions Reduction Fund (ERF) has the potential to unlock these benefits, addressing climate change mitigation and simultaneously assisting households to lower their energy bills. However, the Brotherhood is concerned that unless the ERF is designed to ensure people on low incomes can reduce their emissions they will not benefit from the fund and the energy efficiency equity gap will continue to widen.

Emissions reduction and energy affordability

The challenge of reducing emissions is linked with our society's energy systems. For low-income households, energy affordability remains a pressing issue. Responses to climate change which can assist households to lower their greenhouse gas emissions and reduce their energy bills can lead to a win-win situation. Residential energy efficiency initiatives are a good example of such responses.

The value of helping households lower their electricity bills can be seen by looking at the energy affordability challenge in Australia. Australian household electricity prices have risen significantly above the CPI (a national average of 83% from 2007 to 2013 (Chester 2013)). The Brotherhood remains acutely aware of the impact of these price rises on low-income and disadvantaged households. A survey on energy affordability conducted in late 2013 by Essential Media for the Brotherhood, Choice and Energy Efficiency Council found that electricity prices remain the number one cost of living concern for Australian households, with almost 85% indicating they were concerned (40%) or very concerned (44%) about electricity costs.

Since low-income households spend a higher proportion of their income on energy than other households, they are particularly vulnerable to rising energy prices. As energy prices have increased so have the number of residential electricity disconnections, which points to growing energy-related financial hardship in Australia. A recent study suggests that rising energy prices impact on the wellbeing, health and lifestyle of low-income Australian households (Chester 2013).

2 Principles to guide the ERF

It is important in developing the ERF that the Commonwealth addresses effectiveness, efficiency and equitability.

While our submission focuses on maximising the ability of the ERF to unlock emissions reduction in low-income households, we draw attention also to some general issues that will ultimately impact low-income and vulnerable households.

In developing mechanisms to reduce Australia's carbon dioxide emissions, the Commonwealth should seek to ensure emissions reduction policies and programs are:

- effective in reducing emissions
- the most economically efficient option available
- flexible enough to be expanded in line with the best available science, and Australia's international obligations
- socially equitable so that low-income Australians not only do not suffer a disproportionate impact, but also are able to participate in societal efforts to reduce emissions.

Others are better placed to evaluate the potential effectiveness of the ERF compared with alternative emissions reduction approaches. We do however note that issues have been raised by industry, economic analysts and research organisations about the effectiveness of the ERF to achieve the domestic emissions reduction to meet the minimum target of 5 per cent reduction on 2000 levels by 2020, within the allocated budget (Climate Change Authority 2013; McGoldrick 2013; RepuTex 2013; TCI 2013).

Concern has also been raised about the ability of the ERF to deliver Australia's share of the global greenhouse gas abatement required to ensure a reasonable probability of avoiding a global temperature increase greater than 2 degrees Celsius.

It is also important to understand how the ERF will be scaled up, in line with the best available science and international agreements.

For low-income and vulnerable Australians the transition to a lower carbon economy must be well managed rather than a transition which involves dramatic structural adjustments in relatively short time frames. In our experience, people who are already disadvantaged are particularly at risk from dramatic structural adjustments. What is needed is a planned approach, with appropriate short, medium and long-term emissions reduction trajectories in line with the best available science. The mechanisms, which deliver the emissions reductions, also need to be flexible enough to cope with changes in the emissions reduction trajectory.

3 Residential sector abatement

As stated in the ERF Green Paper:

Residential buildings account for 60 MtCO₂-e or just over 10 per cent of Australia's national emissions. Energy use from space heating, hot water systems and lighting represent the three largest energy consuming activities in the average Australian household. Energy efficiency opportunities are individually small and widely dispersed across millions of households, but they can make a significant impact when aggregated (Commonwealth of Australia 2013).

The Brotherhood welcomes the proposal to include residential households (via aggregators) in the ERF. Enabling households to participate in the ERF offers significant potential benefits in addition to the GHG abatement. They include:

- making emissions reduction a positive activity for households
- providing direct benefits to households by mitigating the impact of rising electricity prices (KPMG 2008)
- addressing market failures and other barriers to the uptake of residential energy efficiency, such as the split incentive between landlord and tenants, and capital barriers for low-income households
- promoting human health and well-being by encouraging the uptake of climate change adaptation in older housing stock (Barnett 2013)

We recognise the single assessment criterion for the ERF is abatement cost. However, given the potential benefits from abatement in the residential sector, it is important that the ERF build in conditions that support a range of residential energy efficiency upgrades (while retaining the single assessment criterion for the auction process).

We are concerned that the proposed arrangements for the ERF will not foster significant action in the residential sector.

Below we briefly address specific emissions reduction opportunities in the residential sector, crediting emissions reduction, and purchasing emissions reduction.

Specific emissions reduction opportunities

Types of residential emissions reduction opportunities

There are a series of emissions reduction opportunities within the residential sector that should be considered under the ERF.

Existing analysis published by ClimateWorks Australia (2010), the *Your Home* Steering Committee and existing government schemes such as the Victorian Energy Savings Initiative provides detailed methodologies for crediting abatement.

Potential energy savings from residential energy efficiency activities have been calculated in the *Your Home* Technical Manual (Reardon et al. 2008). The authors identified that substantial energy savings could be achieved (see Table 1). The greatest energy savings came from either low-cost activities such as reducing standby electricity use and replacing lighting, or high-value activities such as hot water system upgrades and improvements to residential heating and cooling systems.

Table 1 Annual average household energy use and load reduction from energy efficiency interventions

Energy service	Average yearly energy use (%)	Carbon emissions (%)	Initial load (kWh)	Energy efficiency measure	Approx. energy savings (%)	New load (kWh)
Heating/cooling	40	20	1900	Improve house energy rating by at least 2 stars	35	1235
Water heating	21	23	1250	Change to solar hot water system	50	625
Other electrical appliances	19	24	800	Improve efficiency and reduce use	10	720
Lighting	6	11	350	Change to efficient lighting (e.g. LED)	75	88
Refrigeration	6	12	350	Improve efficiency by 2 stars	30	245
Cooking	5	5	200	Improve efficiency by using induction or microwave	30	140
Standby	3	5	150	Turn off most appliances at the plug	90	15
Total	100	100	5000			3068

Sources: Reardon et al. 2008; Energy use percentages have been updated by Chris Reardon (Pipkorn 2013)

According to ClimateWorks Australia (2010), there are 6 MtCO₂-e of potential emissions reduction by 2020 within Australia's residential sector. It has identified key additional activities within the residential sector that could produce large-scale, low-cost emissions reduction:

- improvement of new house shells (projected abatement of 3.9 MtCO₂-e per year from 2020)
- increased efficiency of appliances and electronics above current levels (2.0 MtCO₂-e per year from 2020)
- replacement of CFL light bulbs by LEDs (0.7 MtCO₂-e per year from 2020)
- replacement of standard quartz halogen light bulbs with high-efficiency halogen bulbs (0.3 MtCO₂-e per year from 2020).

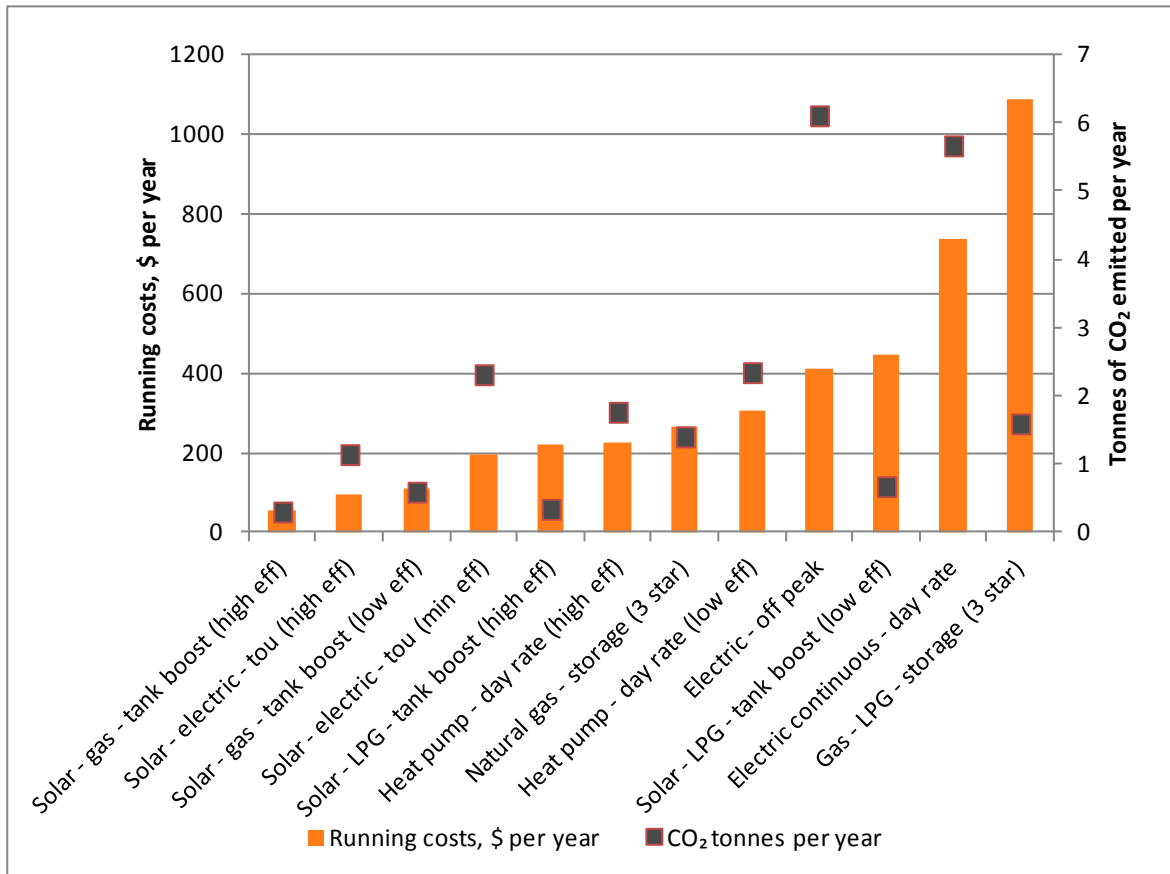
Replacing greenhouse gas (GHG) intensive hot water heaters and increasing the insulation of existing buildings were not included in the ClimateWorks Australia analysis as it was assumed that these two activities would take place under existing or proposed policies. Given the changes in the policy and program environment, both water heater upgrades and insulation (with appropriate safeguards) should be considered as additional activities under the ERF.

Hot water system upgrades

Given that Phase 2 of the mandatory phase-out of greenhouse intensive hot water systems has stalled, GHG intensive hot water systems should be given specific attention under the ERF.

Hot water systems are a major energy user in most homes. The analysis undertaken for the phase-out of GHG intensive water heaters has identified the GHG implications of different types of hot water systems (see George Wilkenfeld & Associates 2009). Figure 1 shows the annual running costs and CO₂ emissions of some types of residential hot water systems installed in Victoria (Energy Consult 2010). It highlights the high emissions of electric water heating systems, relative to other types.

Figure 1 Estimated hot water system running costs and CO₂ emissions (Victoria)



Source: Data from Energy Consult 2010

Notes: eff= efficiency tou = time of use tariff

The distribution of different types of hot water systems is also known. According to the most recent Household Energy Use and Conservation Survey (ABS 2011), 52 per cent of residential hot water systems were electric and 36 per cent were mains gas. A survey conducted by BIS Shrapnel (cited in AECOM 2012) found that electric storage accounted for 36 per cent of hot water systems in Australia, with gas storage representing another 27 per cent (see Table 2). Although there are

discrepancies in these figures, taken together they still point to significant scope to reduce emissions by upgrading residential hot water systems.

Table 2 Types of hot water system by percentage and state, 2012

Type	NSW	Vic	Qld	SA	WA	Australia
Electric storage	49	16	61	21	8	36
Gas storage	20	52	7	24	37	27
Gas instant	15	20	12	40	28	19
Solar electric boost	9	3	14	8	16	9
Solar gas boost	1	5	1	3	6	3
Heat pump	3	1	4	2	2	3
Electric instant	3	3	1	2	3	3

Source: AECOM 2012

The BIS Shrapnel survey found that the incidence of solar hot water systems across Australia rose from 7 per cent in 2008 to 12 per cent in 2012, indicating that the Renewable Energy Bonus Scheme (REBS) and Small-scale Renewable Energy Scheme (SRES) are influencing consumer choices. Given that more than 70 per cent of hot water installations occur when the current system needs to be replaced (AECOM 2012), targeted incentives are required to stimulate households to upgrade their GHG intensive electric hot water systems to more efficient hot water systems before an urgent replacement is needed.

Recommendation 1

The ERF should develop methodologies to calculate abatement for a range of energy efficiency upgrades in the residential sector including:

- *a package of low-cost energy efficiency upgrades within a single household, such as replacing inefficient showerheads, CFL and halogen lights and installing draught proofing and window shading*
- *mid-range energy efficiency upgrades, including weather sealing retrofits, fridge upgrades and ceiling insulation*
- *high-cost energy efficiency upgrades, including hot water systems (solar, heat pump and some gas varieties), heating and cooling.*

Tenure – a key consideration in unlocking residential emissions reduction

While energy efficiency opportunities exist in all segments of the residential market, rental properties are likely to have more scope for improvement. This is because the split incentive between landlord and tenant has made energy efficiency savings in rental households particularly difficult to realise.

To access the savings in the rental market, provision should be made to enable major categories of landlords to participate. For low-income households these categories should include:

- state housing authorities
- social housing agencies
- private landlords.

State housing authorities and social housing agencies are relatively straightforward, if the Commonwealth allows them to participate. Private landlords with a small number of properties are more difficult to involve.

Genuine and additional emissions reduction

We are pleased that the Australian Government will consult with state and territory governments to determine the most efficient and cost-effective ways to complement existing emissions reduction programs and energy efficiency schemes. Given the understandable restrictions on accessing funding from more than one source for the same activity (double-dipping), benefits from the ERF scheme are likely to flow preferentially to states and territories with fewer existing energy efficiency schemes, or to components of the residential sector excluded from existing activities (such as public housing for some rebates).

The Brotherhood would like to reiterate that low-income and disadvantaged households can benefit from residential sector emissions reduction activities. These households tend to spend more of their weekly income on energy than other households and often live in relatively poor quality housing.

Experience suggests low-income households are less likely to take up higher cost energy saving items, often because of a lack of upfront capital; however, they can be more responsive to well-targeted rebates. Wasi and Carson's (2013) review of the federal and state rebates for solar hot water in NSW found that rebates led to a greater shift in purchasing behaviour in low-income households than wealthier households. Sullivan and Johnson's (2012) review of the Victorian Energy Savings Initiative in metropolitan Melbourne found that households in geographical areas that were more disadvantaged were more likely to take up free measures such as light globes and showerheads. On the other hand they were less likely to take up higher value, higher return measures which cost more, such as hot water systems, suggesting a greater incentive was needed.

Appropriate incentives targeted to low-income households are therefore likely to lead to higher levels of additional action than incentives targeted to wealthier households.

The ERF should recognise that incentives targeted to low-income households may lead to more additional action, than the same incentives targeted to wealthier households (largely because low-income households would not have acted without the incentive).

Recommendation 2

Complementary incentives (outside the ERF) should also be put in place to help low-income households to access the energy efficiency measures under the ERF.

Recommendation 3

An innovation fund should be established to support the involvement of under-represented resident segments, such as tenants in private rental accommodation.

Crediting emissions reduction

For the residential sector, where emissions reduction will be aggregated, post intervention verification of all savings is unlikely to be feasible.

If possible, standardised methodologies for deeming savings in residential properties should be adopted (with allowance for climatic factors and variations in emissions intensity).

These methodologies should be based on existing deeming methodologies such as those for the VEET scheme in Victoria, or alternative robust methodologies proposed by residential aggregators.

Purchasing emissions reduction

Period of commitment to purchase residential permits

It is unclear to us whether a commitment to purchase savings for 5 years will be sufficient to stimulate activities in the residential sector. The VEET scheme in Victoria provides a return based on a lifetime abatement cost.

Given the benefits of abatement in the residential sector in low-income households in particular, consideration should be given to purchasing the lifetime abatement from these households.

Recommendation 4

To make residential sector abatement more financially viable, the ERF should purchase emissions reduction permits relating to this sector for the lifetime of the abatement.

Aggregators

The Green Paper notes that many individual emissions reduction opportunities are small but when aggregated can be large:

Local governments and non-government organisations, as well as climate advisory businesses, have identified opportunities to become project aggregators, helping to overcome one of the key barriers to many emissions reduction activities (Commonwealth of Australia 2013, p.16)

In the residential sector, aggregators will be key to unlocking emissions reduction. In addition to business entities, the following should be able to act as aggregators:

- state government agencies: State government agencies which are well placed to deliver large scale GHG abatement in the residential sector may include authorities which manage housing stock or have environmental or sustainability functions.
- local government authorities: Many local governments have the capacity and connection to the community to lead or deliver GHG abatement in the residential sector.
- not-for-profit organisations: A number of not for profit organisations with experience in housing or energy and energy efficiency may be in a position to act as aggregators.

Recommendation 5

The ERF should permit state and local governments (including housing authorities) and not-for-profit organisations to act as aggregators of residential sector emissions abatement.

Payment for activities

If all payments are made after verification of energy savings it is difficult to see which entities will be able to cover the cost of the residential sector activities. This is likely to lead to very low levels of activity in the sector.

Payments for residential sector activities should be made once the measure has been installed. Appropriate verification of savings should be part of the approved methodologies and checking a certain percentage of the measures should be required.

Recommendation 6

The ERF should provide payment for residential activities once the measure(s) are installed and documented.

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