



## Submission on Residential Electrification to Senate Economics Reference Committee

**Lighter Footprints** welcomes the opportunity to make a submission on Residential Electrification to the Senate Economics Reference Committee.

### Who We Are

**Lighter Footprints** is a community-based group that lobbies Australian local, state and national decision makers to take the action necessary to halt global warming as a matter of urgency. For over a decade, we have educated, advocated and brought people together in Boroondara and surrounding suburbs to inform the community and promote a clean energy future. We have 3,500 people on our mailing list.

As an environmental group focused on tackling climate we are dismayed at the failure of successive governments to take decisive action. We believe that there are a number of decisions that the government could take quickly to reduce the harm that we do to this planet. Many of these decisions would be economically positive. The resistance to decisive action appears to come from the influence of the fossil fuel lobby groups that outweigh the wishes of the people and the advice from scientific and economic experts;

We hope that the recommendations from this enquiry will be used to gain bipartisan support for the necessary decisive action. We are disappointed that this report will not be submitted for another 15 months, which is yet another example of unnecessary delay.

As Saul Griffiths<sup>[1]</sup> says; subsidies to electrify households, small businesses and their vehicles will yield immediate decarbonisation and stimulate five to ten times the subsidy. This result is far better than the two to three times “multiplier effect” for production subsidies for hydrogen and battery materials. Investing in households and saving money, will make the money go the furthest and get the nearest term emissions reductions.

### Summary

- There is no time to waste. Don't let perfection be the enemy of progress.
- Residential electrification / efficiency can be accelerated by action at Federal, State, Local Governments and community groups.

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[1] “Why Australia must pick households, not industry, to hit net zero”, Saul Griffiths, <https://www.afr.com/policy/energy-and-climate/why-australia-must-pick-households-not-industry-to-hit-net-zero-20230906-p5e2le>

## Detailed response

Our detailed response follows on pages 3 to 30. It is structured as follows:

Section 1	Our views	Pages 5 to 8
Section 2	Responses to specific Senate Estimate Questions regarding Australia's residential electrification efforts	Pages 9 to 30

We agree to publication of this submission.  
Residential Electrification – Parliament of Australia (aph.gov.au)

The closing date for the committee receiving submissions is 29 September 2023.

### SUBMISSION BY:

**Organisation name:** Lighter Footprints Inc.  
**Organisation Position:** Co-Convenor  
**Date:** 28 September 2023

This submission has been authorised by:



Michael Nolan  
Co-Convenor  
Lighter Footprints Inc  
Email: [mick23nolan@gmail.com](mailto:mick23nolan@gmail.com)



David Strang  
Convenor  
Energy Transition Group  
Lighter Footprints

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# 1. Our views

## Background

### Scope

We have taken a broad view of electrification. We have taken it to include; energy efficiency (including insulation), solar PV systems, home batteries, home appliances and residential vehicles. We have done this because the electrification of cars and bikes is closely coupled with home charging.

### Our baseline

The economic cost of electrification should not be compared to zero. The economic cost of doing nothing is very high as explained in the Melbourne Sustainable Society institute paper “Australia’s Clean Economy Future: Costs and Benefits”<sup>2</sup>.

The potential damages to Australia of doing nothing to reduce emissions with the continuation of current global emissions patterns,<sup>3</sup> are: (see Steffen et al. 2019)<sup>4</sup>

- \$584.5 billion in 2030
- \$762 billion in 2050
- More than \$5 trillion in cumulative damages from now until 2100.

Over time, the total cumulative damages ramp up dramatically from 2050, illustrating the importance of acting quickly to reduce emissions now.

These damage estimates are conservative – the modelling is limited to reduced agricultural and labour productivity, loss of arable land due to sea level rise, some health impacts and losses from infrastructure. The modelling excludes the bulk of the costs of floods and bushfires, pollution, damage to environmental assets, and biodiversity losses that result from temperature increases.

We also know that in late 2022 the government received an Office of National Intelligence (ONI) climate risk assessment — an election promise of the Albanese government. This report has not been released.

Facing existential climate risks, a government can only lead, and the community can only fully participate in overcoming the threat, if the government is open and transparent about the magnitude of that threat. We join with Adm. Chris Barrie (Retired), Former Chief of the Australian Defence Force, who believes that ["A declassified version of the climate risk assessment should be released by the Albanese government as a matter of urgency."](#)

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<sup>2</sup> “Australia’s Clean Economy Future: Costs and Benefits”, Melbourne Sustainable Society Institute, [https://sustainable.unimelb.edu.au/\\_\\_data/assets/pdf\\_file/0012/3087786/Australias\\_Clean\\_Economy\\_MSSI\\_Issues\\_Paper12.pdf](https://sustainable.unimelb.edu.au/__data/assets/pdf_file/0012/3087786/Australias_Clean_Economy_MSSI_Issues_Paper12.pdf)

<sup>3</sup> Which means assuming an increase in global temperatures of roughly 3.6 to 4 degrees Celsius

<sup>4</sup> Steffen, W., Mallon, K., Kompas, T., Dean, A., and Rice, M., 2019. Compound Costs: How climate change is damaging Australia’s Economy, Climate Council of Australia, Sydney. <https://www.climatecouncil.org.au/resources/compound-costs-how-climate-change-damages-australias-economy/>

## Our approach

We have reviewed the scope of the Senate enquiry and we have made our recommendations. In arriving at our recommendations, we have taken into account the important high-level conclusions from our detailed responses to the detailed questions shown in Section 3 of this response. The high-level conclusions are set out in Section 2.

We identified three areas that we felt required clarification, and these were discussed in Section 3 (k). These areas are:

- Addressing the issues facing renters.
- Addressing the issues associated multi-dwelling properties.
- Key structural levers.

## Summary

Based on our analysis and our understanding of the changes that Australia needs to make we have arrived at the following conclusions / recommendations.

### Urgency

There is no time to waste. Don't let perfection be the enemy of progress. Australian governments have procrastinated for too long and we already face an uncertain future. Further delay is unacceptable. The costs of inaction are summarised in '**Section 4 – The cost of doing nothing**'.

The southern Australian fossil gas supply is declining and we must avoid investing in additional fossil gas supply while managing this challenge. It is possible that shortages in the short-medium term will occur in winter, due mainly to high demand for gas and gas-fired electricity for heating with inefficient gas and electric equipment (appliances). This potential shortage can be avoided if we address energy efficiency (improved thermal efficiency of homes and efficient appliances).

### Infrastructure project

We believe that residential housing electrification is a national infrastructure project and that it should be managed in that way. This will require the federal and state governments to work together to develop an agreed plan and to establish a body to manage the project. Implementation of the project might then be left to state governments. The potential benefits from electrification (including improving the thermal efficiency of homes) is too large to remain unmanaged. If Australian homes were electrified, met current construction standards (NatHERS 6 - 7) and had solar PV, then they would have net zero annual energy demand.

### Budget

Federal and state governments need to agree on a budget for this critical project. The budget can be justified on the following basis:

- Improving the thermal efficiency of poor-quality homes will pay for itself through a reduction in health costs
- Cheap loans to assist with electrification can be provided at little or no cost using the strong credit ratings of governments
- Government funds for grants and rebates can be manageable as electrification reduces running costs and provides a payback for the owner
- Other changes require legislation and will not require government funding.

## Energy efficiency

An investment in energy efficiency would improve the lives of Australians, would reduce the need to build additional renewable generation and would provide savings to governments through reduced health costs.

Australia has underspent on energy efficiency in the past and this has left us with poor-quality homes and often inefficient appliances. Energy efficiency was nick-named ‘the first fuel’ by the IEA in 2019<sup>5</sup>. In fact it is the energy you do not need to buy at all so it is not affected by price. Irrespective of the difference in price between fossil fuel and renewables, energy efficiency is agnostic. Energy efficiency must be a key plank in ‘residential electrification’.

## Openness and communication

Governments must clearly communicate the reasons for action and the desired outcomes. They need to be open with the public. We know that in late 2022 the government received an Office of National Intelligence (ONI) climate risk assessment — an election promise of the Albanese government. This report has not been released.

Facing existential climate risks, a government can only lead, and the community can only fully participate in overcoming the threat, if the government is open and transparent about the magnitude of that threat. We join with Adm. Chris Barrie (Retired), Former Chief of the Australian Defence Force, who believes that "[A declassified version of the climate risk assessment should be released by the Albanese government as a matter of urgency.](#)"

## Promoting consistency and best practice

The success of the electrification will largely depend on the federal and state governments promoting consistency and best practice. The current situation where States have different schemes and objectives leads to confusion. Areas where government can provide the clear direction include:

- National V2H/V2G standards (EV charging standards)
- Dynamic solar export limits
- Regulatory support for micro-grids (so a home can sell their solar excess to their neighbours).
- Smart home EV charging standards (any EVSE>5kW must be internet connected, installed to a standard, support demand response and operating envelopes).
- Expand the demand response mechanism (DRM) to include aggregated household distributed energy resources to enable participation in the wholesale DRM
- 3-tier ToU tariffs (4-9pm peak, 10-4 super off-peak, 9pm-10am off-peak).

## Planning

The federal and state governments need to come together to develop an electrification plan and roadmap for Australia. The benefits of electrification can only be fully realised if governments all work together.

Residential electrification / efficiency can be accelerated by action at Federal, State, Local Governments and community groups.

- Federal and state together

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<sup>5</sup> <https://www.weforum.org/agenda/2022/01/iea-energy-efficiency-worlds-first-fuel-net-zero/>

- Develop a national electrification plan agreeing what is to be managed at the federal level and what is to be managed at the state level.
- Establish a body to ensure that the plan is followed and to report on progress (at a high level).
- Use finance powers to provide grants / rebates and low-interest loans to assist with electrification.
- Develop plans to ensure that all buildings are at least 4 star by 2030.
- Agree a set of sticks and carrot to ensure that rental properties are electrified along with owner occupied properties.
- Develop solutions for multi-dwelling properties.
- Federal
  - Use tax law powers to provide incentives to landlords
  - Create a national renewable energy storage target policy to complement the existing RET scheme. This will be the fastest way to address the solar duck curve issue.
  - Encourage consistent electrification standards via national regulations (AER)
  - Use Australian Bureau of Statistics to data warehouse residential / commercial energy consumption and production data from energy distributors.
- States
  - Government should be exemplar landlords by electrifying and upgrading all state provided housing to a minimum of 4 stars. This would be funded via a fee recovering the costs over time from rent.
  - Work with social housing providers to ensure that all social housing is electrified and upgraded to a minimum 4 stars.
  - Mandate disclosure of Scorecard ratings at time of sale / lease of residential properties. (Already nationally agreed and deployed in the ACT since 1999)
  - Develop 'Electrify the State' plans for each State & Territory across Australia. These plans should sit under the national plan and will include deadlines for retiring the residential gas distribution networks.
  - Modify state planning laws to allow councils to ban or discourage new residential gas connections & re-connections.
- Local
  - Councils to facilitate community "Electrify 2515" type plans.
  - Where State Planning laws allow, ban or discourage new residential gas connections & re-connections.

Packaging some of these actions will achieve synergies greater than the individual benefits. For example:

- Improving home thermal efficiency will mean lower bills for households, lower the need for high capacity space heating / cooling systems, and lower the demand for grid supplied electricity.
- Tying Residential Scorecard disclosure to low-cost loans for landlords.
- Tying Residential Scorecard disclosure to tax depreciation for landlords.
- Planning to ensure that all homes are at least 4 star by 2030 will positively impact owner occupiers and landlords.



## 2. Responses to specific Senate Estimate Questions regarding Australia’s residential electrification efforts

### (a) The economic opportunities of household electrification:

#### Section (a) summary

In this summary we bring forward the important high-level conclusions from our detailed responses.

The major opportunities are shown in the table below:

Cost reduction for householder	National benefit
<ul style="list-style-type: none"> <li>All-electric home</li> <li>Insulation and draught proofing</li> <li>Energy efficient appliances</li> <li>Rooftop solar</li> <li>Electric vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Insulation and draught proofing</li> <li>Energy efficient appliances</li> <li>Rooftop solar</li> <li>Electric vehicles</li> <li>Health benefits from electrification</li> </ul>

(i) Long-term reduction of energy price inflation,

Wholesale energy prices will fall but distribution and transmission charges need to be carefully managed.

(ii) Long-term employment opportunities, and

There will be increased demand for tradespeople and workers in manufacturing, recycling and mining.

(iii) The scaling up of domestic capacity.

Governments need to incentivise investment in the domestic economy.

#### Section (a) detail

##### List of opportunities:

##### 1. All-electric homes

The Grattan Institute has estimated the savings from switching to electric appliances as follows<sup>6</sup>:

<sup>6</sup> <https://grattan.edu.au/report/getting-off-gas/> Wood, T., Reeve, A., and Suckling, E. (2023). *Getting off gas: why, how, and who should pay?* Grattan Institute – Figure 2.2

Figure 2.2: Most households will save money by upgrading to electric appliances  
Household savings over 10 years



Notes: Includes the upfront cost in savings calculations. See Appendix B for further detail.

Sources: Grattan analysis of Energy Consult (2021) and retail data.

This is explained in more detail in the table below<sup>7</sup> which shows 10 year NPVs are nearly all strongly positive and as most appliances have a 15 year life this will only improve over time.

	Gas configuration	Electric configuration	Capital cost savings	Annual running cost savings	Evaporative savings	Total annual running cost savings	NPV of savings over 10 years
Sydney	2 appliances	N/A	-\$1,917	\$479		\$479	\$1,970
Brisbane	2 appliances	N/A	-\$1,917	\$716		\$716	\$3,893
Perth	2 appliances	N/A	-\$1,917	\$216		\$216	-\$169
Adelaide	2 appliances	N/A	-\$1,917	\$682		\$682	\$3,613
Sydney	3 appliances	RCAC	\$2,131	\$635		\$635	\$7,284
Perth	3 appliances	RCAC	\$2,131	\$539		\$539	\$6,505
Adelaide	3 appliances	RCAC	\$2,131	\$827		\$827	\$8,837
Perth	3 appliances	Evaporative	\$4,371	\$539	-\$90	\$449	\$8,013
Adelaide	3 appliances	Evaporative	\$4,371	\$827	-\$107	\$720	\$10,208
Melbourne	3 appliances	RCAC	\$1,993	\$1,255		\$1,255	\$12,174
Canberra	3 appliances	RCAC	\$1,993	\$950		\$950	\$9,698
Melbourne	3 appliances	Evaporative	\$4,233	\$1,255	-\$62	\$1193	\$13,908
Canberra	3 appliances	Evaporative	\$4,233	\$950	-\$64	\$886	\$11,418

This study assumes that electricity is sourced from the grid. Further savings can be made if rooftop solar is available.

The Victorian Government fact sheet shows that the cost of an all-electric home is less than the cost of a dual-fuel home and that further significant savings can be made by installing solar as well<sup>8</sup>. This takes into account the saving from only having to pay one utility connection fee.

<sup>7</sup> <https://grattan.edu.au/report/getting-off-gas/> Wood, T., Reeve, A., and Suckling, E. (2023). *Getting off gas: why, how, and who should pay?* Grattan Institute – Appendix B, Figure B1

<sup>8</sup> Save money and the environment with your new all electric home, [https://www.energy.vic.gov.au/\\_data/assets/pdf\\_file/0035/668591/save-money-and-the-environment-with-your-new-all-electric-home.pdf](https://www.energy.vic.gov.au/_data/assets/pdf_file/0035/668591/save-money-and-the-environment-with-your-new-all-electric-home.pdf)

## 2. Insulation and draught proofing

Studies that show that improving the thermal efficiency of poor-quality housing will have economic benefits for the residents and economic benefits for governments with greatly reduced healthcare costs as well as reducing emissions.

The Victorian Healthy Homes Program funded by the Sustainability Fund of the Victorian Government and by Sustainability Victoria found that a relatively minor upgrade (average \$2,809) had wide-ranging benefits over the winter period. While fuel savings were modest, householders in the intervention group were more comfortable and healthier. Health benefits of the upgrade were reflected in cost savings, with \$887 per person saved in the healthcare system over the winter period. Cost-benefit analysis indicated that the upgrade would be cost-saving within 3 years – and would yield a net saving of \$4,783 over 10 years – due to savings in both energy and health<sup>9</sup>.

Improving the thermal envelope will reduce fatalities. A University of Adelaide study<sup>10</sup> of deaths from hypothermia over 6 years showed that more people die of cold in South Australia than in Sweden.

A more recent report ‘Learnings from the Energy Savvy Upgrades program for vulnerable households’<sup>11</sup> found that the program delivered a 21% reduction in energy costs which equated to annual householder energy bill savings of \$550 per annum. In addition to this significant health benefits were achieved.

Energy efficiency was nick-named ‘the first fuel’ by the IEA in 2019<sup>12</sup>. In fact it is the energy you do not need to buy at all so it is not affected by price. Irrespective of the difference in price between fossil fuel and renewables, energy efficiency is agnostic. Energy efficiency must be a key plank in ‘residential electrification’.

Improved the thermal efficiency of poor-quality housing will result in reduced energy bills, reduced energy demand and reduced health costs.

## 3. Energy efficient appliances

Energy efficient appliances such as hot water heat pumps will result in reduced energy bills, reduced energy demand.

Energy efficiency often goes hand in hand with electrification and this is important when looking at emissions. Switching from a gas heater to a reverse cycle air-con (RCAC) will move customers away from fossil fuels as the grid becomes renewable thus reducing carbon emissions. Detailed analysis by Northmore Gordon in their Energy Efficiency modelling

<sup>9</sup> <https://assets.sustainability.vic.gov.au/susvic/Report-Energy-Victorian-Healthy-Homes-program-research.pdf>

<sup>10</sup> <https://www.adelaide.edu.au/news/news68322.html>

<sup>11</sup> <https://www.homescorecard.gov.au/about-scorecard/publications>

<sup>12</sup> <https://www.weforum.org/agenda/2022/01/iea-energy-efficiency-worlds-first-fuel-net-zero/>

report for the Energy Efficiency Council ANZ<sup>13</sup> shows the role of efficiency in reducing Australia's carbon emissions.

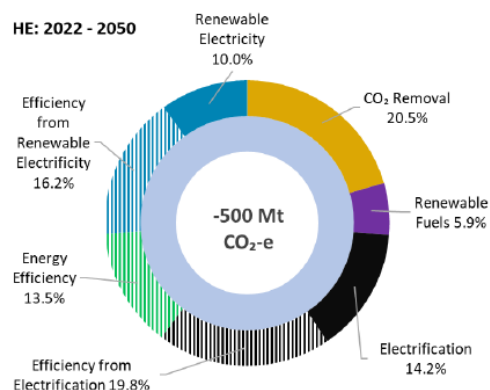


Figure 8. Role of efficiency in Australia's carbon emissions reduction in the high electrification scenario

#### 4. Rooftop solar

The continued roll-out of rooftop solar will result in reduced energy bills, reduced energy demand.

#### 5. Electric vehicles

Electric vehicles are already economically positive in some cases<sup>14</sup> and EV prices are falling quickly. The transition to EVs will improve Australia's balance of payments as EVs reduce fossil fuel imports for transport.

Current studies still show that the long-term cost of ownership of an EV is higher than that of an internal combustion engine vehicle<sup>15</sup> although that position is expected to change by 2025.

Research shows that the increased grid demand caused by EV charging can lead to a reduction in distribution charges and an efficient use of surplus generation during the daily peak.

#### (i) Long-term reduction of energy price inflation,

Renewable energy is cheap energy compared to energy generated by coal and gas and, in the long term, the wholesale cost of energy will fall in real terms. However, in the short term the wholesale price will be determined by the coal and gas generators, and it will remain high for a while.

<sup>13</sup> <https://northmoregordon.com/articles/eec-energy-efficiency-scenario-modelling/>

<sup>14</sup> BYD stars as cost of owning an EV now on par with ICE cars – even without rooftop solar, <https://thedriven.io/2023/09/11/byd-stars-as-cost-of-owning-an-ev-now-on-par-with-ice-cars-even-without-rooftop-solar/>

<sup>15</sup> <https://www.whichcar.com.au/car-advice/electric-cars-do-they-make-financial-sense>

The prices over the weekend of 16th and 17th September 2023 provide an indication of where wholesale prices will be trending. During the daylight hours wholesale prices were as low as minus \$64/MWh for some time and prices were negative for most of the daylight hours<sup>16</sup>.

However, distribution and network prices could rise if the transition is not well managed and governments should focus on maintaining costs at reasonable levels and ensuring that charges are reasonably spread.

### **(ii) Long-term employment opportunities, and**

The electrification of Australian households will greatly increase the demand for electricians with both the ACT and the Victorian Government's putting in place training programs to build up the workforces.

There will also be opportunities in manufacturing and recycling. These are discussed in Section a (iii) below.

### **(iii) The scaling up of domestic capacity;**

While we understand that there may be opportunities arising from building up domestic capacity, we can only cite a few examples. Ultimately governments should be incentivising the manufacturing, recycling and mining sectors to seize the opportunities in areas such as;

- Heat pump hot water manufacturing
- Recycling solar panels and batteries
- Manufacturing batteries based on new technologies developed in Australia.
- Mining and processing energy transition minerals with Australia's abundant renewable energy resources

## **(b) The macro-barriers to increasing the uptake of home electrification;**

### Section (b) summary

In this summary we bring forward the important high-level conclusions from our detailed responses.

**Major barriers to increasing the uptake of home electrification are:**

1. Misinformation from the fossil fuel companies.
2. The lack of government policy at the Federal and State levels

The plan (and associated policies) must include

- a. A transition plan to provide certainty for investors, network owners, suppliers, tradespeople and customers
- b. Vehicle fuel efficiency standards
- c. Regulatory and safety solutions
- d. Communication
- e. Solutions for renters
- f. Standards for EV chargers
- g. Solutions for multi-dwelling units.

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<sup>16</sup> [https://reneweconomy.com.au/rooftop-solar-smashes-records-sends-coal-and-demand-to-new-lows-as-it-reshapes-the-grid/#google\\_vignette](https://reneweconomy.com.au/rooftop-solar-smashes-records-sends-coal-and-demand-to-new-lows-as-it-reshapes-the-grid/#google_vignette)

## Section (b) detail

### Major barriers to increasing the uptake of home electrification are:

1. Misinformation from the fossil fuel companies who are still advertising the “cleanliness of natural gas” despite its health and greenhouse gas issues.
2. The lack of government policy at the Federal and State levels
  - a. The Federal government and the State governments need to announce the electrification of household energy (including EVs) and develop a transition plan that provides certainty to network owners, suppliers, tradespeople and customers. If we want to compete for private investment in a competitive global environment, we need long-term policy settings that incentivise private capital to invest in Australia,” Thornton said<sup>17</sup>. The plan must:
    - i. prioritise the regulation of vehicle fuel efficiency standards (FES)
    - ii. Address the regulatory issues associated with closing down the gas networks for household customers by working with the AER, State government bodies and the gas distribution businesses to:
      1. resolve the issue of stranded assets
      2. Develop solutions to the safety issues associated with customers leaving the network (or at least clarify these issues)
      3. Ensure that customers who are slow to transition do not face large cost increases
    - iii. take a central role in making it easier for consumers to electrify by:
      1. ensuring the products necessary for electrification are available in Australia and are highly efficient, affordable;
      2. providing publicly available and simple-to-understand lists of the most efficient brands and models in every category of residential appliances (including energy ratings and global warming potential) and any government support available to consumers installing such appliances
      3. Identifying and resolving supply chain issues and ensuring that there are sufficient qualified service providers to support the transition
      4. Ensuring that information is made available to home and EV purchasers and to renters
      5. Developing standards for EV chargers (preferably with support for V2G)
      6. Ensuring there are sufficient EV chargers
    - iv. Take action to ensure that tenants (who represent roughly 1/3 of households) do not miss out (Rental Providers may not want to make a big purchase out-of-pocket)
    - v. Develop solutions for Multi-dwelling units

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<sup>17</sup> <https://www.cleanenergycouncil.org.au/news/australia-at-risk-of-being-locked-out-of-global-superpower-race>

## (c) the total upfront cost and longer-term benefits of household electrification and alternative models for funding and implementation;

### Section (c) summary

The items set out in section 3 (d) below deliver abatement at no marginal cost. However, funding may be required for bulky items. Governments can help by facilitating low-cost funding or through grants and rebates.

Additional support required for:

- Short-term low-cost funding for rooftop solar.
- Short-term incentives for EV purchasers phasing out by 2025.
- Assistance with improving the thermal efficiency of the existing housing stock.
- Assistance with the lumpiness of electrification.

### Section (c) detail

Electrification of households is a long-term proposition and costs will vary by household. However, it is possible to identify many areas where the benefits clearly outweigh the costs.

Identified areas where the financial benefits outweigh the costs are as follows:

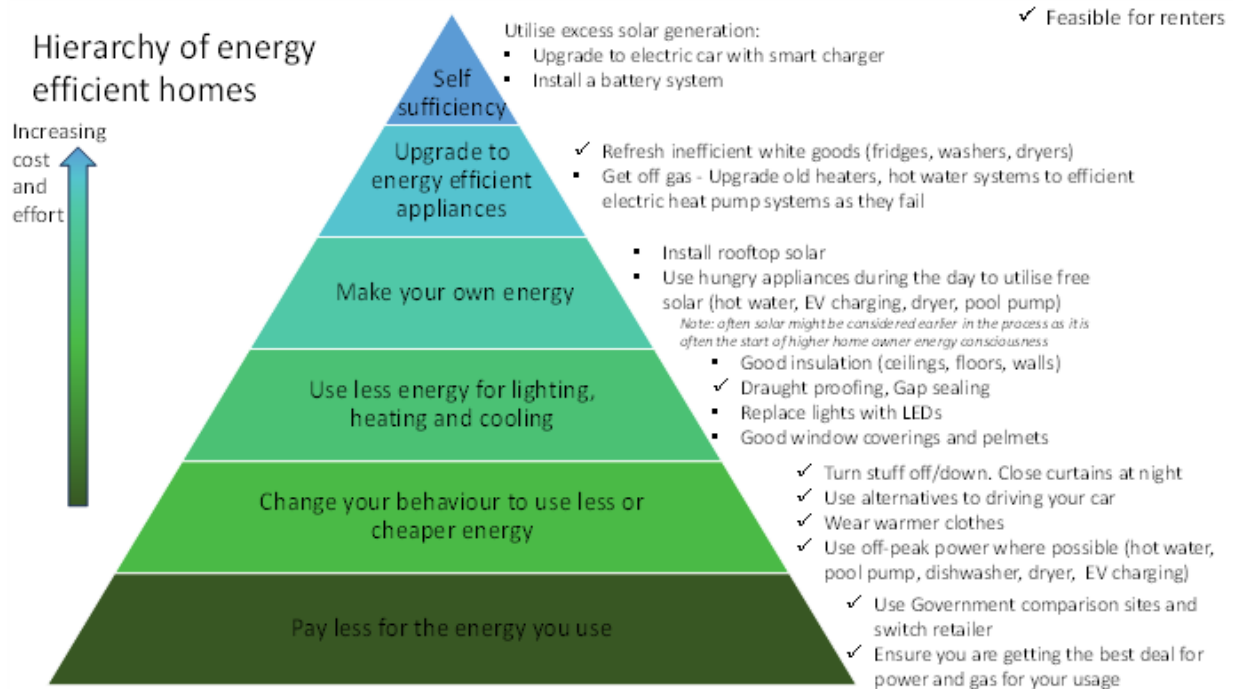
- Ensuring that all new homes are all-electric, ideally with solar and a battery. The Victorian Government fact sheet shows that the cost of an all-electric home is less than the cost of a dual fuel home and that further significant savings can be made by installing solar as well.<sup>18</sup>
- Improving the thermal insulation of low-quality housing;
- Installing rooftop solar

Electrifying the existing housing stock has benefits if addressed properly as there is clear evidence that an all-electric home will be cheaper to run and will also deliver health and climate benefits.

To explain our recommended approach to household electrification to capture the maximum benefits we refer to the Lighter Footprints hierarchy of energy efficient homes as set out below:

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<sup>18</sup> Save money and the environment with your new all electric home, [https://www.energy.vic.gov.au/\\_data/assets/pdf\\_file/0035/668591/save-money-and-the-environment-with-your-new-all-electric-home.pdf](https://www.energy.vic.gov.au/_data/assets/pdf_file/0035/668591/save-money-and-the-environment-with-your-new-all-electric-home.pdf)



We believe that this illustrates that a sensible approach to electrification can result in dollar savings while reducing emissions. However, there are a number of places where government support could effectively speed up the transition.

In this section we look at where incentives and / or policy could realise the greatest emissions reduction.

#### Incentives

- Electrification of new homes
  - With some minor low-cost funding many of these new homes could have rooftop solar. The payback period should be a few years and the reduction in emissions would be significant.
  - The subsidy required to make this an attractive proposition for the home owner is not large and the likely emission savings for these home would be significant.
- Accelerating the roll-out of EVs can significantly reduce emissions
  - The average ICE vehicle emits approximately 2.6 t CO<sub>2</sub>/year.
  - An EV will emit zero (or next to zero) emissions if it is charges from rooftop solar or is charged during the middle of the day when the grid is mainly renewable.
  - EVs have already reached parity with ICE cars in Queensland according to a recent RACQ report<sup>19</sup>.
  - Incentivising EV purchasers (a small incentive tapering to zero over 3 years) would increase the take-up of EVs.
  - Providing incentives for customers who will charge their EVs during the day

<sup>19</sup> <https://www.racq.com.au/-/media/project/racqgroup/racq/pdf/articles/news/2023/9/2023-running-costs-racq-final.pdf?rev=61307c2d5e6a42888451ffb5abe101a4&hash=D3C38144A4D84E86C603FF76861ED4AF>



- will maximise emissions reduction.
- The potential reduction is significant.
- Upgrading the thermal efficiency of the existing housing stock
  - Governments should introduce programs to accelerate the upgrading of existing properties and should be prepared to partially fund these upgrades.
- Assistance with electrification
  - While the benefits of retrofitting homes with electric appliances have been demonstrated, the retrofitting will take place over a long time and expenditure may be lumpy.
  - The major benefits will come from replacing gas heating with RCACs.
  - Providing assistance to those transitioning away from gas heating should be prioritised.

## **(d) the marginal cost of abatement for household electrification compared to alternative sectors and options to decarbonise the economy;**

### Section (d) summary

Governments can achieve many of the benefits of electrification at little or no cost by enacting sensible policies such as:

- Introducing vehicle emission standards.
- Mandating efficiency standards for new homes (and ensuring that homes are built to those standards).
- Mandating minimum efficiency standards for appliances.
- Mandating minimum efficiency standards and appliance standards for rental properties.

### Section (d) detail

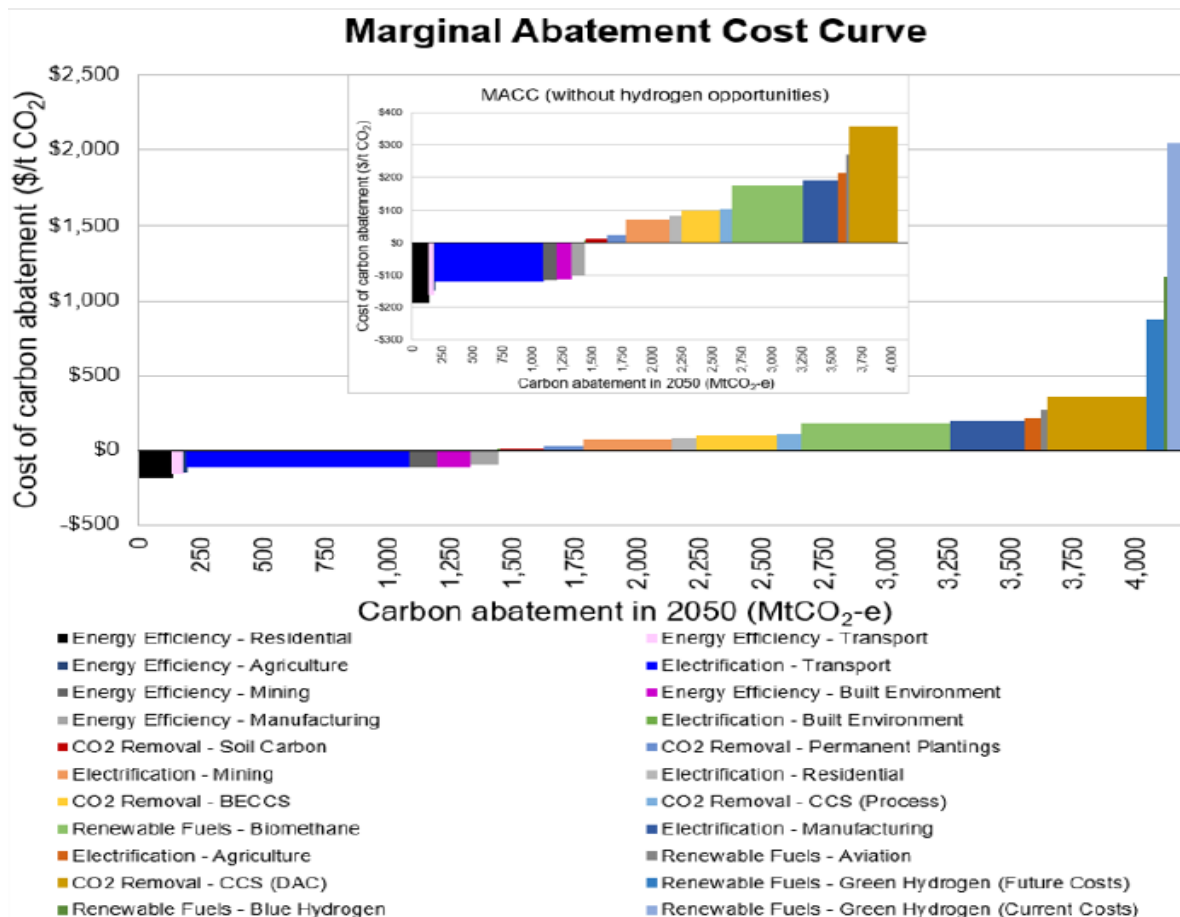
This question assumes that abatement always comes at a cost. This is not always the case, and some significant abatement can be achieved through communication and policy change. Set out below are measures that governments can take to reduce emissions at little or no cost.

- Introducing vehicle emission standards.
- Mandating efficiency standards for new homes (and ensuring that homes are built to those standards).
- Mandating minimum efficiency standards for appliances.
- Mandating minimum efficiency standards and appliance standards for rental properties.

In their Energy Efficiency modelling report for the Energy Efficiency Council ANZ<sup>20</sup> Northmore Gordon show the following marginal abatement cost curve:

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<sup>20</sup> <https://northmoregordon.com/articles/eec-energy-efficiency-scenario-modelling/>



**Figure 2. Marginal Abatement Cost Curve**

The Marginal Abatement Cost Curve (MACC) shows that the energy efficiency opportunities all result in negative costs of abatement (cost savings), as does electrification of transportation. The remaining opportunities (electrification, renewable fuels and CO<sub>2</sub> removal) result in positive costs of abatement (cost increases). Electrification opportunities result in large emissions reductions, due to the efficiency gained by a change in technology in combination with the transition to emissions-free electricity (by 2050).

Clearly, all activities that have a negative cost of carbon abatement should be prioritised and hopefully cost savings can be used to fund further carbon abatement.

## **(e) the optimal timeline for household electrification accounting for the likely timing of decarbonising electricity;**

### Section (e) summary

- Go fast with new homes.
- Replace gas appliances with electric when they fail.
- A gentle initial push for EVs with ramp up as EV costs reduce.

### Section (e) detail

Major studies show that an all-electric home is cheaper to run and produces fewer emissions than a dual-fuel home. This leads us to the conclusion that the optimal timeline is for an immediate change. However, given practicalities, we recommend the following, based on the opportunity to

build better homes and the Lighter Footprints hierarchy (page 16 this Report) of efficient homes as follows:

Firstly, all new homes should be all-electric homes (with rooftop solar where possible) built to a standard of at least NatHERS 6 or 7. These homes will be cheaper to build, efficient to run and will have lower emissions than dual-fuel homes.

Secondly, governments should announce the transition off gas, implemented in an orderly fashion and ensure that appropriate measures are put in place such as reliable and clear information, a sufficiency of tradespeople and assistance for those that need it. Managed properly this will result in an orderly transition off gas as appliances fail and are replaced.

## **(f) the impacts and opportunities of household electrification for domestic energy security, household energy independence and for balance of international trade;**

### Section (f) summary

- Most households will have a reduced exposure to electricity and gas prices reducing their exposure to price shocks.
- EVs will reduce our exposure to international oil prices and improve our balance of payments.

### Section (f) detail

As we move along the road to electrification it is becoming apparent that the old solutions are no longer fit-for-purpose and that there are better and cheaper solutions.

There is still a vast untapped potential in Australia's networks that can provide additional security for households and can provide a level of independence against rising prices although total energy independence (going off grid) is likely to result in reduced security. This potential relates to:

- realising energy efficiency in homes.
  - Raising the NatHERS star rating of properties
  - Installing energy efficient appliances
  - Transitioning to EVs
- maximising rooftop solar.
- implementing integrated local storage solutions that benefit all households

An article in PV Magazine states that new digital modelling technology has made visible 10 Gigawatts (GW) of untapped capacity in Australia's existing electricity networks. That 10 GW number is probably achievable without any meaningful incremental cost investment<sup>21</sup>.

Currently homes built to current standards with a 6 kW rooftop solar system can be a net exporter and future homes, built to a NatHERS 7 star with 10 kW of solar can be a significant exporter of energy.

This new local grid will have many impacts and will present opportunities.

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<sup>21</sup> <https://www.pv-magazine-australia.com/2023/09/13/no-transition-policy-is-going-to-be-realised-with-current-strategies-shifting-focus-to-existing-grids-untapped-10-gw/>

The impacts are as follows:

- Firstly, increased energy efficiency and electrification will significantly reduce household energy requirements.
- Secondly, EVs will increase energy requirements although, with proper management most charging can take place during the day when there is surplus solar.
- Thirdly, with good planning and integration of local storage, the existing distribution networks will require minimal reinforcement and will mainly become distributors of local energy.
- By establishing household communities that are energy neutral, the reliance on the grid will be greatly reduced.

The opportunities are as follows:

- Households generating excess solar will be able to provide electricity locally to those who are net users.
- EVs charging during the day can absorb some of the excess solar, flattening the duck curve.
- Energy storage can also take some of the surplus to feed in during the evening peak and overnight.

Required changes to the status-quo

- Distribution and transmission network charging should be changed so that both exporters and importers pay for the grid.
- Transmission charges should not apply to local distribution of energy (or should only apply at a reduced rate).
- Simplified trading rules should be introduced for local energy trading.
- Government needs to encourage retailers to offer better ToU plans with solar soak super off-peak, peak and overnight off-peak.

The major impact on domestic energy security will be in relation to oil (petrol and diesel). Australia currently imports almost all its oil and it has just 2 refineries. We hold approximately 28 days supply of oil derived products in Australia. Electrifying household vehicles will remove household exposure to oil supply and will provide security of supply for household vehicles.

Household electrification will also reduce our exposure to gas supply issues and international gas prices. With gas producers prioritising exports it is unclear that Australia will have security of gas supply despite the volumes of gas produced in this country.

## **(g) the impacts of household electrification on reducing household energy spending and energy inflation as a component of the consumer price index;**

### Section (g) summary

Reduced energy expenditure and downward pressure on the consumer price index.

### Section (g) detail

- There are many studies that show that an all-electric home will be cheaper to run than a dual fuel home. These are detailed in Section a) and summarised below:

- The Victorian Government fact sheet shows that the cost of an all-electric home is less than the cost of a dual fuel home and that further significant savings can be made by installing solar as well.<sup>22</sup>
- The Grattan Institute has estimated the savings from switching to electric appliances as follows:<sup>23</sup>

Figure 2.2: Most households will save money by upgrading to electric appliances  
Household savings over 10 years



Notes: Includes the upfront cost in savings calculations. See Appendix B for further detail.

Sources: Grattan analysis of Energy Consult (2021) and retail data.

Note: This study assumes that electricity is sourced from the grid. Further savings can be made if rooftop solar is available.

These studies do not include the running costs of EVs. However, there are numerous studies that demonstrate that the running costs of EVs are materially lower than those of ICE vehicles.

## (h) solutions to the economic barriers to electrification for low-income households;

### Section (h) summary

Governments need to step in to provide advice and assistance to low-income households. The returns for households and for governments should be considerable.

### Section (h) detail

The economic benefits of electrification and insulation to low-income households are similar to those for other households except:

<sup>22</sup> Save money and the environment with your new all electric home, [https://www.energy.vic.gov.au/data/assets/pdf\\_file/0035/668591/save-money-and-the-environment-with-your-new-all-electric-home.pdf](https://www.energy.vic.gov.au/data/assets/pdf_file/0035/668591/save-money-and-the-environment-with-your-new-all-electric-home.pdf)

<sup>23</sup> <https://grattan.edu.au/report/getting-off-gas/> Wood, T., Reeve, A., and Suckling, E. (2023). Getting off gas: why, how, and who should pay? Grattan Institute – Figure 2.2

- The energy cost benefits may be lower because this sector of the community often cannot afford to heat or cool their homes. Solutions may result in low income households being able to heat and cool their homes.
- The insulation and draft proofing benefits may be larger because of the very poor conditions of their housing - hopefully homes can be brought up to at least 4 star NatHERS rating.
- The benefits to government will be larger because low-income households have higher health issues caused by the poor conditions of their homes. (The Victorian Healthy Homes Program funded by the Sustainability Fund of the Victorian Government and by Sustainability Victoria found that a relatively minor upgrade, average cost \$2,809, had wide-ranging benefits over the winter period. While fuel savings were modest, householders in the intervention group were more comfortable and healthier. Health benefits of the upgrade were reflected in cost savings, with \$887 per person saved in the healthcare system over the winter period. Cost-benefit analysis indicated that the upgrade would be cost-saving within 3 years – and would yield a net saving of \$4,783 over 10 years – due to savings in both energy and health<sup>24</sup>).

In this section we address the solutions for low-income property owners. We address the issues facing tenants in section (k).

#### Low-income property owners:

- may not be able to afford to upgrade their property,
- may not be able to navigate the government websites to secure grants or loans,
- may not understand what is important and
- may worry about having poor installations.

#### Other issues – multi-dwelling properties

- Property owners may not have complete control over their solutions if the Body Corporate provides heating or hot water.
- Property owners may have difficulty paying their share if the Body Corporate decides to electrify.

However, this group is the easiest to assist.

#### Solutions for low-income property owners

Governments need to work with community organisations to establish an organisation to assist this group and to work with these households to identify what needs to be done to their property and what the benefits might be;

- Help them access grants and funding;
- Arrange for modifications;
- Implement solutions that provide benefits to households and to government
- Support the households with any issues

This organisation needs to be a trusted organisation.

Governments need to address the funding issue:

- Government can arrange for commercial lenders to provide facilities;
- Government can put in place loan facilities (possibly interest free) secured against the property (or even take part ownership if interest free loans are provided).

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<sup>24</sup> <https://assets.sustainability.vic.gov.au/susvic/Report-Energy-Victorian-Healthy-Homes-program-research.pdf>

- Governments should also actively consider funding as the major beneficiary of the improvements will be Governments with a reduced cost of providing health services.

## **(i) the effectiveness of existing Australian Federal, state and local government initiatives to promote and provide market incentives for household electrification;**

### Section (i) summary

- Rooftop solar subsidies are a shining example of success.
- Other measure have been introduced piecemeal by States and have been less successful.
- Governments need to work in a coordinated manner and provide clear, easy to understand information to the public.

### Section (i) detail

Governments have had some successes with incentives to promote household electrification with the major success being the roll-out of rooftop solar.

However, other initiatives are delivered piecemeal (and in a seemingly uncoordinated way) by state governments and the effectiveness of these is questionable. We see from social media (refer facebook site, My Efficient Electric Home) that the public find it complex and difficult to work out what rebates and subsidies they are eligible for, they vary by state and over time, and people often can't find installers who are accredited to receive specific rebates.

Most consumers don't have the large amounts of time and knowledge it takes to effectively identify what they should do, research solutions, find tradespeople and manage the tradespeople to ensure quality.

If Governments want to fast-track electrification they need to work in a coordinated manner and provide clear, easy to understand information to the public. Governments also have a role to play in ensuring that there are sufficient adequately trained tradespeople to complete that transition.

## **(j) Australia's current standing against international standards, particularly with respect to the uptake of rooftop solar, batteries and electric household appliances; and**

### Section (j) summary

- Australia leads the world in rooftop solar more than one in four households now generating power on their roofs<sup>25</sup>.
- Australia is also one of the leaders in moving away from gas in the home with both the ACT and Victoria taking steps to ban new gas connections.
- Australia is a laggard on vehicle emission standards and is one of a few developed countries without such standards.

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<sup>25</sup> <https://www.minister.industry.gov.au/ministers/taylor/media-releases/australia-leads-world-rooftop-solar-share-renewables-jumps-35>

- Australia is a laggard in not having energy ratings for residential dwellings being disclosed at sale and / or lease.
- Australia's GEMS registry is a laggard with regard to alignment with international technical standards and compliance and currently has no star ratings on heat pump hot water systems.

### Section (j) detail

Australia leads world in rooftop solar more than one in four households now generating power on their roofs<sup>26</sup>. This can be attributed to government grants, relatively low installation costs and a lack of red tape.

Australia is also one of the leaders in moving away from gas in the home with both the ACT and Victoria taking steps to ban new gas connections although New York City is the first large cold-weather city to phase out fossil fuel combustion in new construction.

Australia is a laggard on vehicle emission standards and is one of a few developed countries without such standards.

Australia is a laggard in not having energy ratings for residential dwellings being disclosed at sale and / or lease.

Australia's GEMS registry is a laggard with regard to alignment with international technical standards and compliance and currently has no star ratings on heat pump hot water systems.

Australia is a laggard with regard to energy efficiency<sup>27</sup>. The 2022 International Energy Efficiency Scorecard of the American Council for an Energy-Efficient Economy (ACEEE) ranks Australia 12th in building energy efficiency among the world's 25 largest energy users. This is a fall from its 10th place in the 2018 rankings (Subramanian et al., 2022). Australia's 2022 scores for buildings in various categories were lower than for 2018 for most of the categories, including residential building codes, appliances and equipment, building retrofit policies, and energy intensity in residential buildings.

Furthermore, current spending on research and development in energy efficiency is just AUD 0.94 per capita, whereas the highest score achieved is AUD 6.76 per capita (for Canada) (ACEEE, 2022; Subramanian et al., 2022).

## (k) any other matters.

In this section we deal with two major issues not highlighted elsewhere:

1. Addressing the issues facing renters
2. Addressing the issues associated with apartments and other properties subject to body corporate rules.

### Section (k) summary

#### (k) 1 Addressing the issues facing renters

Governments must introduce a series of sticks and carrots to ensure that landlords

<sup>26</sup> <https://www.minister.industry.gov.au/ministers/taylor/media-releases/australia-leads-world-rooftop-solar-share-renewables-jumps-35>

<sup>27</sup> [https://racefor2030.com.au/wp-content/uploads/2023/05/H2-OA-0199-Final-Report\\_.pdf](https://racefor2030.com.au/wp-content/uploads/2023/05/H2-OA-0199-Final-Report_.pdf)



electrify rental properties and improve their thermal efficiency along with owner occupiers.

**(k) 2 Addressing the issues associated multi-dwelling properties**

Governments should ensure that their electrification plans includes solutions for multi-dwelling properties covering:

- Timelines for transition
- Solutions to problems

**(k) 3 Key structural levers**

Governments should:

- Use Financial instruments to defray the upfront investment cost in exchange for the individual and national economic incentives to electrify.
- Establish national standards & timelines and tie federal funding to implementation of uniform standards across the State / Territories could reduce the current “NIBYism” by State governments of electrification standards. The existing fragmentation is leading to customer confusion, inefficient deployment of training, trouble for equipment suppliers etc
- Establish an Energy Data Information Access. This national energy clearing house could be run by the Australian Bureau of Statistics (ABS) and could provide unbiased and transparent information to all players in the market.

Section (k) detail

(k) 1 Addressing the issues facing renters

Roughly one third of households live in rented accommodation. We feel that tenants face challenges different from owners occupier and we address these issues in this section. We have identified three different groups of tenants:

**Low income public housing dwellers**

- Governments are responsible for upgrading and electrifying public housing. It is likely that the benefits will outweigh the costs (see section (h) above).

**Low income social housing dwellers**

- It is possible that the social housing providers may not be able to afford to upgrade and electrify their housing. However, governments should assist with upgrades (see Victoria’s “Energy Efficiency in social housing” - <https://www.housing.vic.gov.au/energy-efficiency-social-housing>)

**Low income renters with private landlords**

- The comments here apply to all renters with private landlords, not just low income renters;
- All renters have their living conditions determined by their landlords and in many cases these are inadequate. In fact, the lot of many renters should be unacceptable to society. The fact that landlords can determine the conditions that their tenants live in is quite feudal.

- Governments should implement measures to raise the standards of all rental properties such as:

Set mandatory minimum thermal efficiency standards and minimum energy efficiency standards (Establishing whole-of-home annual energy use budgets for rental properties (including air conditioning) – this will force the installation of more efficient appliances.)

Set a trajectory for gradually increasing those mandatory minimum standards;

Put in place approved rental increases that are linked to improving the energy efficiency of rental properties ensuring that the landlords and the tenants share in the savings.

Put in place a scheme where landlords have to have their properties certified and this information must be made available when a property is being leased;

Consider incentivising landlords that have properties well above the minimum standard (possibly funded by reducing tax incentives for those where the property is below a certain level).

Bring in rules requiring replacing gas appliances with electric – in line with owners – but must mandate efficient appliances – induction cooktops, heat pump hot water, reverse cycle air conditioner.

Consider incentives for landlords such as accelerated depreciation on capex.

#### (k) 2 Addressing the issues associated multi-dwelling properties

Owners of apartments and other properties subject to body corporate rules face additional challenges in transitioning to the new world. These additional challenges include:

- Changes to shared services require approval by the body corporate.
- The body corporate may prohibit change that an individual property owner may wish to make.
- Solutions may be difficult to implement (e.g. heat pump hot water for apartments).

Governments should ensure that their electrification plans include solutions for multi-dwelling properties covering:

- Timelines for transition
- Solutions to problems

#### (k) 3 Key Structural Levers

Residential electrification, especially of existing properties, is going to be driven by millions of 'kitchen table' discussions right across the country. The role of government is to set the framework for those individual decisions, and to remove perceived and real barriers to taking effective action.

Saul Griffiths is right to identify residential electrification as a national infrastructure upgrade. This mindset encourages creative use of national resources (like access to finance and bulk buying) to boost our economy and also strengthen Australia's resilience to climate change.

We have identified three key structural levers that governments can influence. Examples are given later in the document.

- Financial instruments

Defraying the upfront investment cost in exchange for the individual and national economic incentives to electrify.

The federal government has several financial powers that will aid electrification.

- a. [Accessing funds at low cost and act as guarantor](#)

Residential electrification almost always has a positive Net Present Value (NPV) versus fossil fuel alternatives for space heating, water heating or cooking, but the upfront cost can be higher. Removing this barrier for switching fuel types is fundamental to ensuring that lower income Australians get equitable access to lower utility costs.

There are several ways of making funds available. Some include:

- Government underwriting “energy switch” loans so that financial institutions can provide lower interest rate loans. This way the government funds the risk, not the full amount of the loan.
- Governments, or government bodies (such as ARENA or CEFC) providing zero interest loans via the energy retailer which are paid back via utility bills.

Such loans for home batteries / home V2G investments which will help the individual access ultra-low-cost solar power and help the nation by time shifting the duck curve into the evening peak and thus help to defray some transmission infrastructure.

- Government supported finance instruments available for approved installers to offer. Examples of this include the Clean Energy Finance Corporation (CEFC) committing over \$120 million into funding green home loans, lenders offering this product include:
  - Commonwealth Bank [CommBank Green Loan](#)
  - Bank Australia [Clean Energy Home Loan](#)
  - Regional Bank Australia [Sustainable Home Loan](#)
  - Gateway Australia [Green Home Loans](#)
- Government supported finance could be contingent on efficiency of appliance, level of Australian content, installer track record. The finance rate may be contingent on certified improvement in energy efficiency (before and after scorecards).
- Financial support to installers as they transition. Support should include education, training, refitting/tools and tax support (instant write offs).
- Financial support for local manufacturers of energy efficiency products.

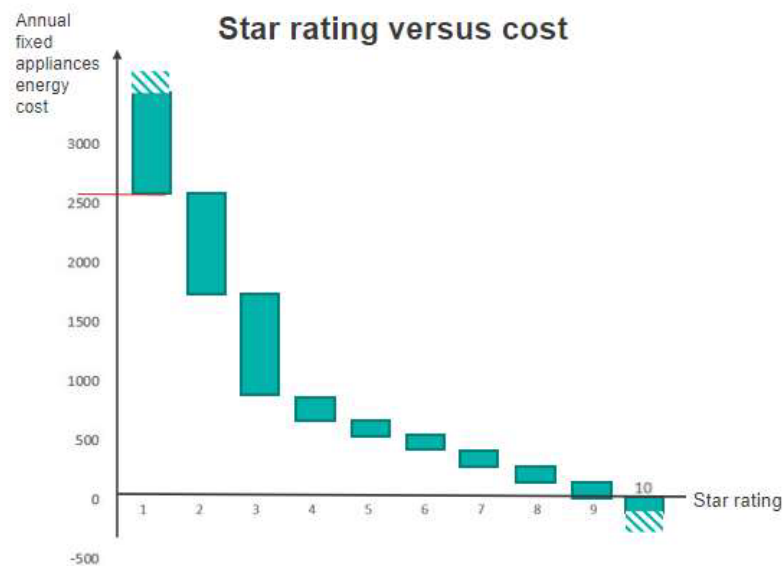
- b. [Changing income tax law, including deductions and depreciation schedules](#)

Residents in rental / supported housing arrangements risk being left out of the transition. Tax law could be altered to support & encourage landlords to upgrade their assets to support energy efficiency and electrification.

In addition tax laws could be altered to incentivise manufacturers and installers to establish new products and assist with the transition.

Examples include:

- Accelerated depreciation or tax write-offs for qualifying investments in home efficiency improvement. These should be tied to before / after scorecard ratings, and verifiable using utility invoices.
- Tying negative gearing provisions to minimum scorecard targets. This could be phased in. As many rental homes will be at the lowest end of the score ("1", that is effectively a tent) and the Australian average is "3", then starting with a minimum standard of "2" will make a significant difference. In time the standard should be increased to 3 or 4.



This graph is for *one* climate. Other climates will have different costs. It depends on cost of fuel, type of housing most common to the area and the climate.

Note 1: The Australian new standard of 7 stars would still not comply with equivalent European or US expectations in equivalent climate zones.

Note 2: The NatHERS and Scorecard rating systems are not linear. A one-star rating improvement from 1 to 2 Stars achieves a much larger energy saving than an improvement from 5 to 6 Stars. For example, in Melbourne, a shift from 1 to 2 stars saves five times as much energy as a shift from 5 to 6 stars.

### c. [Creating financial instruments such as RET certificates](#)

Reviews have been done that look at extending the Australian Renewable Energy Target (RET) scheme to battery storage systems, but no concrete policy has been implemented yet.

We support the joint position of the Smart Energy Council and the Climate Council, calling for a national renewable energy storage target policy, to complement the existing RET scheme and support the deployment of battery storage systems across Australia. Their analysis finds a Renewable Energy Storage Target could unlock \$42 billion dollars of private investment and create roughly 100,000 jobs in renewable energy. It would do this by adding security and minimising risk for renewable storage investors.

### National Standards & Timelines

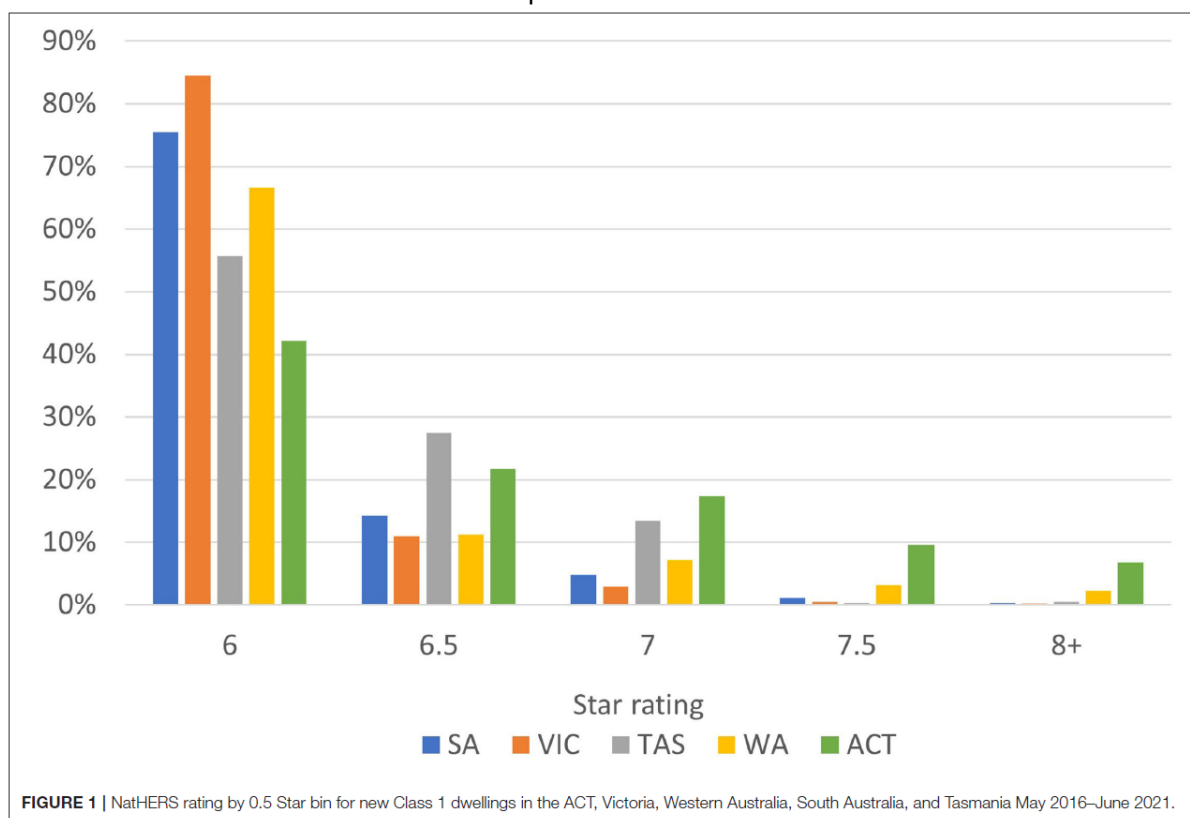
Tying federal funding to implementation of uniform standards across the State / Territories could reduce the current “NIBYism” by State governments of electrification standards. This fragmentation is leading to customer confusion, inefficient deployment of training, trouble for equipment suppliers etc

### Mandate Residential Efficiency Score

The most effective way of raising community awareness and creating incentives for improving housing efficiency standards is to make the disclosure of the score mandatory at sale or lease of the property. This was agreed by all Federal & State Ministers in 2009 but has not yet been implemented except in the ACT.

This lamentable lack of urgency / uniformity has at least enabled researchers to study the impact of the ACT system compared to other states. Their work<sup>28</sup> shows that:

- Disclosure creates an incentive for new homes to be built above standard as they are worth more at re-sale. More than 33% of new homes in ACT are built at least one star above the minimum requirement.



- If the improved energy performance outcomes from the ACT were replicated in other states it would lead to a reduction of energy required for heating and

<sup>28</sup> Australia's Experience of Combining Building Energy Standards and Disclosure Regulation, Berry Stephen, Moore Trivess, Ambrose Michael, *Frontiers in Sustainable Cities*, Vol 4 2022, <https://www.frontiersin.org/articles/10.3389/frsc.2022.801460>

- cooling of ~17% for new Class 1 dwellings across Australia.
- The evidence shows a similar process to that of household appliance labelling, where minimum standards push the industry to a particular societal minimum housing requirement, and mandatory labelling encourages consumers to pull the product toward higher energy efficiency performance levels. The results suggest that compulsory labelling is equally valid for high value, long-life housing assets as it has been for lower value, short-life household appliances and equipment.

### Energy Data Information Access

#### National Energy Data Clearing House

One significant barrier to progress is the lack of access to transparent information about the use of electrical & fossil gas energy in the home by governments, researchers, community groups etc.

A national energy clearing house run by the Australian Bureau of Statistics (ABS) would provide unbiased and transparent information to all players in the market. The Australian Bureau of Statistics (ABS) would be an ideal organisation to serve as this clearing house as they are; a reputable and well-respected institution, already have the authority to compel information disclosure, and possess the expertise to aggregate data while maintaining anonymity and confidentiality.

The data requirements for this initiative are simple. Energy distributors, metering companies and/or their contractors with direct access to residential electricity & gas meters should be required to provide the ABS with energy usage data on a connection by connection basis, including information such as the supplier code, unique connection code, location, tariff type, ANZSIC code (for commercial accounts), start and end times, and energy consumption (in units such as kWh or PJ). This information will already be available in their billing databases. Price data would not be gathered. The ABS should also get energy data from electricity generators through AEMO.

The ABS would aggregate the data to preserve anonymity and store it securely. The costs for this should be shared as a network charge just like transmission costs.

The benefits of this initiative are manifold.

- Governments to better target energy efficiency / electrification support schemes.
- Governments to identify regions needing skills support for implementing electrification.
- Homeowners to compare their usage against that of their region.
- Businesses to better identify potential markets for upgrades.
- AEMO to better understand drivers for residential energy consumption.
- Businesses, governments, councils, industry associations and researchers would be able to use this data to more effectively target and track their efforts to improve energy efficiency and residential electrification.
- Consumers would be able to compare their energy usage data (from their own bills) and compare it with equivalent homes in their climate zone. They would then be more likely to invest in energy-efficient upgrades such as draft-proofing and insulation.