



# How to halve renters' energy bills

The case for minimum energy efficiency standards for rental properties

Jay Gordon, Energy Finance Analyst, Australian Electricity



# Contents

- Key Findings..... 4
- Executive summary ..... 5
- Introduction ..... 8
  - Renters are missing out on efficient, affordable homes ..... 8
  - The odds are stacked against renters ..... 9
  - The rental dilemma cannot be solved through incentives alone ..... 10
- Upgrades could halve renters' energy bills ..... 12
  - Upgrading rental properties would save renters \$107bn by 2050..... 15
  - Renters would benefit from day one with appropriate financing ..... 17
- Rental upgrades could deliver system-wide benefits ..... 18
- Minimum standards needed to unlock rental upgrades ..... 21
  - The growing case to phase out gas and inefficient appliances ..... 22
  - Flexible approach may be appropriate for other energy upgrades ..... 22
  - Incentives and financing complement but can't replace standards ..... 23
- Conclusion and recommendations..... 24
- Appendix A: Results by state and territory ..... 28
  - Cumulative energy bill savings for renters ..... 28
  - Amortised costs vs savings of upgrading rental properties..... 29
- About IEEFA..... 30
- About the Author ..... 30

---

## Figures and Tables

Figure 1: Apartments as a share of dwellings.....	9
Figure 2: Energy bill savings for four household energy upgrade case studies .....	13
Figure 3: Cumulative energy bill savings from upgrading rental properties .....	16
Figure 4: Net present value of rental upgrades, nationally and by state/territory to 2050 .....	16
Figure 5: Amortised costs vs annual energy bill savings from upgrading rental properties .....	18
Figure 6: Reduction in average-day peak electricity demand from rental upgrades, January .....	19
Figure 7: Reduction in average-day peak electricity demand from rental upgrades, July .....	20
Figure 8: Potential reduction in gas demand from electrifying rental homes in Victoria.....	21
Figure 9: Cumulative energy bill savings from rental property upgrades (AU\$ billion) .....	28
Figure 10: Amortised costs vs savings, and net savings, by state and territory (2026 AU\$).....	29
Table 1: Minimum rental energy-efficiency standards in Australia .....	11

## Key Findings

**Household energy upgrades could halve renters' energy bills, delivering AU\$107 billion in savings by 2050.**

**Minimum energy-efficiency standards are a critical lever to enable these benefits, as incentives to landlords alone are not effective.**

**Complementary incentives and financing mechanisms could ensure renters are financially better off from day one.**

**Upgrading rental properties could deliver meaningful system-wide benefits by reducing peak electricity demand and/or gas demand.**



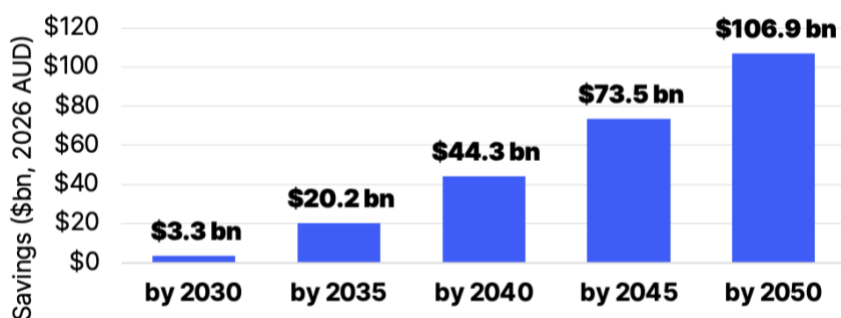
## Executive summary

Rental properties in Australia are far less likely to have energy-efficient features such as insulation or efficient electric appliances, and risk being left behind as rooftop solar and battery uptake surge.

Renters face deep structural barriers that prevent them from accessing home energy upgrades. The responsibility to undertake these upgrades rests with landlords. However, landlords have little to no financial motivation to undertake upgrades, as the benefits accrue to tenants, who are responsible for paying energy bills. This is described as the “split incentive” problem, and it is compounded by other challenges, such as the disproportionately high share of renters living in apartments, and the power imbalance between landlords and renters.

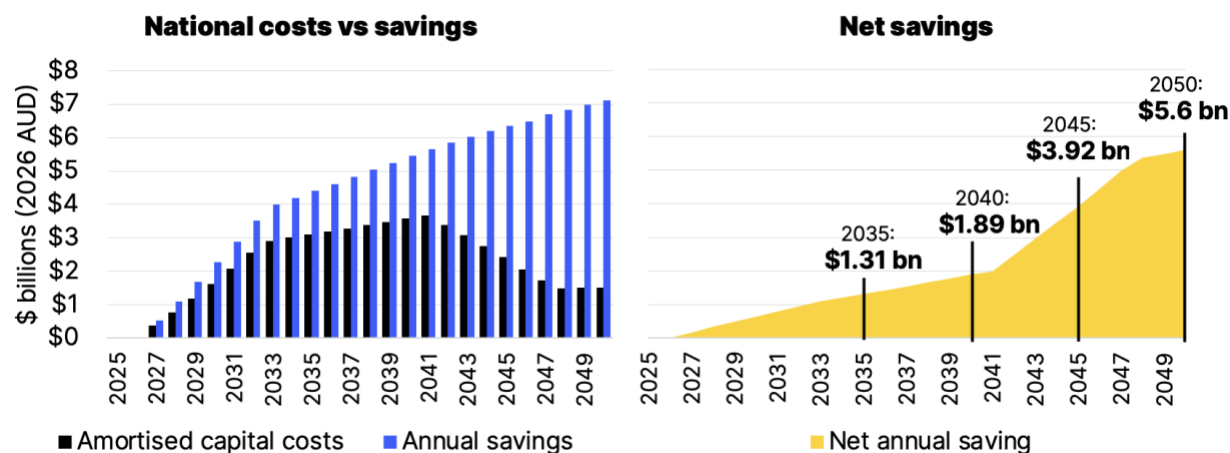
While policies that reduce the financial barriers to landlords can be helpful, they have been unsuccessful at addressing this split incentive issue on their own. Minimum energy-efficiency standards for rental properties would be an effective regulatory lever to address this barrier.

IEEFA has modelled the costs and benefits of a concerted effort to upgrade Australia's rental property stock – effectively halving renters' energy bills, relative to a poor-performing home. In the vast majority of rented households, a combination of thermal efficiency upgrades, efficient electric appliances and rooftop solar could be deployed to halve renters' energy bills, relative to a poorly performing home. These upgrades could generate AU\$107 billion in real cumulative savings by 2050.



The long-term savings of the upgrades outweigh the capital costs. IEEFA calculates that upgrading rental properties starting from 2027 would deliver a net present value (NPV) of AU\$24.8 billion to 2050 at a discount rate of 5%. NPVs were also consistently positive in each state and territory.

Upgrading rental properties would be cash-flow positive if the costs were amortised over a 15-year loan period at an interest rate equivalent to an investor home loan. This shows us that even if the costs of upgrades were passed on to renters, it is possible to ensure they benefit from day one.



Upgrading rental properties could also yield system-wide benefits. In most regions, the upgrades delivered a net reduction in average-day peak electricity demand in summer and winter, even if some renters increased their electricity consumption following the upgrades.

In Victoria, the electrification of a large stock of gas appliances could increase average-day peak demand in the long term. However, these increases were small relative to the reduction in gas demand that would be achieved, and could be addressed via additional measures such as increasing the stock of residential batteries.

Upgrading gas or inefficient electric appliances to efficient electric alternatives was a critical enabler behind these savings. The cost of upgrading rental properties is likely to be higher, and the benefits lower, if landlords continue to install new gas or inefficient electric appliances in rental properties.

In lieu of a state- or nation-wide approach to phase out the installation of these appliances, minimum energy-efficiency standards for rental properties should include a specific features-based provision to ensure new appliances in rental properties are efficient and electric.

Other upgrades – including thermal efficiency upgrades, rooftop solar and batteries – could be sequenced in a number of ways, and a flexible approach to implementing these upgrades makes sense. This could be via setting a benchmark standard under a relevant ratings scheme. However, it could also be implemented via a flexible, features-based approach.

While incentives and financing solutions alone are not effective, they could be key complements to the implementation of minimum energy-efficiency standards. Financial products should be provided to enable landlords to amortise the costs of their upgrades over a reasonable loan period, at an accessible interest rate. The Clean Energy Finance Corporation (CEFC)'s Household Energy Upgrades Fund could be adapted and expanded to fill this role.

States and territories should also consider adapting their existing incentive schemes to embed targeted rebates for landlords who upgrade their properties to meet minimum standards.

Finally, the federal government should consider introducing incentives to encourage rental property upgrades as part of ongoing tax reforms. This could include further restrictions on the eligibility for negative gearing, conditions on the ability to deduct appliance upgrade costs, or the introduction of instant asset write-offs or accelerated depreciation for home energy upgrades.

### Summary of recommendations

- 1 State and territory governments should aim to halve renters' energy bills via minimum energy-efficiency standards.
- 2 Rental minimum energy-efficiency standards should mandate the installation of efficient electric appliances.
- 3 Rental minimum energy-efficiency standards should include a flexible component that can be met through a number of home energy upgrades.
- 4 The federal government should make discounted financing available for rental property upgrades via the CEFC.
- 5 State and territory governments should consider targeted transitional financial incentives to support landlords to upgrade their properties.
- 6 Federal tax incentives should be made conditional on properties meeting minimum standards.

## Introduction

### Renters are missing out on efficient, affordable homes

#### Structural barriers prevent energy upgrades

Australia is a world leader in the uptake of rooftop solar.<sup>1</sup> While the same cannot be said for other home energy upgrades – such as insulation or efficient electric appliances – household energy performance is becoming an increasing focus of state, territory and federal governments.

Australians who own their own homes are well placed to reduce their bills by undertaking home energy upgrades, many of which offer short paybacks.<sup>2</sup> However, more than 30% of Australian households rent, and they are generally locked out of home energy upgrades.<sup>3</sup>

The proportion of rental properties with some form of insulation is less than half the equivalent rate in owner-occupier properties, and solar uptake for renters lags owner-occupiers significantly.<sup>4</sup> Renters are disproportionately likely to face financial stress and experience energy hardship, and many report significant adverse health impacts from living in poorly performing homes.<sup>5,6</sup> One study found 28% of renters nationally (and 41% in Queensland) reported feeling too hot in summer “almost all the time”, while 36% of renters nationally (and 49% in Tasmania) reported feeling too cold in winter “almost all the time”.<sup>7</sup>

The most pervasive barrier to upgrading the energy performance of rental properties is the “split incentive” problem. The depth of this structural barrier is often underappreciated in energy policy decisions, despite being well understood by the broader energy-efficiency community.

Household energy upgrades such as insulation, efficient electric appliances, rooftop solar and batteries typically require a capital investment in a permanent property improvement, which is recouped over several years via cheaper energy bills.

Renters in Australia are responsible for paying their own energy bills.<sup>8</sup> However, they have no legal right to alter the fixed appliances in their homes. Even if tenants could reach an agreement with landlords to invest in new appliances, most are unlikely to be motivated to do so. Bond refund data

---

<sup>1</sup> International Energy Agency (IEA). [Trends in Photovoltaic Applications](#). 2025. Page 20. Australia has the 6<sup>th</sup> highest capacity of distributed solar globally, but is far lower in population than all of the other top 10 countries.

<sup>2</sup> IEEFA. [A focus on homes, not power plants, could halve energy bills](#). 9 July 2025. Page 25.

<sup>3</sup> Australian Bureau of Statistics (ABS). [Housing: Census](#). Accessed 6 May 2026.

<sup>4</sup> Energy Consumers Australia (ECA). [New research underlines need for minimum energy efficiency standards for Australia's rental properties](#). 4 December 2025.

<sup>5</sup> ECA. [Understanding and measuring energy hardship in Australia](#). July 2025. Page 12.

<sup>6</sup> Consumer Policy Research Centre (CPRC), Anika Legal and Consumer Action Law Centre. [Too Hot, Too Cold, Too Costly: Victorian Renters Pay the Price for Energy-Inefficient Homes](#). 11 December 2024. Page 9.

<sup>7</sup> Better Renting. [Joule Thieves: Renters' energy challenges in a cost of living crisis](#). 29 August 2024. Page 6.

<sup>8</sup> With some exceptions – for example, a minority of multi-unit dwellings where no separate meter is present.

for New South Wales (NSW) reveals that more than 60% of tenants stay in a property for two years or less – far shorter than the lifetime of most energy upgrades.<sup>9</sup>

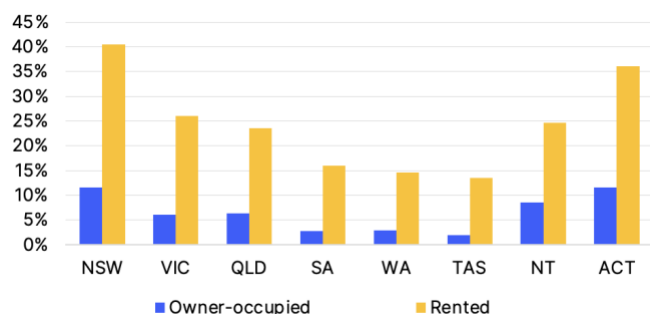
This means that, aside from a small number of impermanent solutions available to tenants, the full responsibility of investing in home energy upgrades typically rests with landlords or rental providers, who have no financial incentive to make the upgrade.

## The odds are stacked against renters

While the split incentive problem is arguably the most structural and limiting barrier facing renters, it unfortunately is not the only one.

Renters are disproportionately likely to live in apartment buildings (Figure 1), where there are additional barriers to undertaking household energy upgrades. Some are physical or technical – such as the challenge of electrifying centralised gas hot water systems, or installing heat pumps where outdoor space is limited.<sup>10</sup> Others could be more readily solved through policy reform – for example, where owners corporation laws block certain upgrades.

**Figure 1: Apartments as a share of dwellings**



Source: ABS Census 2021 – Dwelling structure (STRD) and Tenure type (TEND).

Innovative solutions have emerged in other countries to enable renters to access solar power or home energy storage. This includes plug-in solar systems that can be installed in backyards or balconies, and can be easily removed when a renter vacates.<sup>11</sup> Some manufacturers have produced portable plug-in home battery systems with space-saving designs suitable for apartments.<sup>12</sup> While Australian apartment dwellers could make use of some portable power stations, other technologies that connect directly to the dwelling's power supply are often unavailable due to strict wiring standards.<sup>13</sup> Work is under way to investigate and unblock some of these barriers.<sup>14</sup>

<sup>9</sup> NSW Government. [Rental bond refund data for year 2024](#). Accessed 6 May 2025.

<sup>10</sup> Data from NSW suggests more than half of new apartment buildings include centralised hot water systems ([ABCB 2024](#); Page 3), and a national study found about a quarter of advertised apartments lacked a balcony ([Realestate.com.au 2025](#)).

<sup>11</sup> Euro News. [Germany has become a leader in plug-in solar. What's taking other European countries so long?](#) 4 April 2026.

<sup>12</sup> For example, [Smartizer's Battery Pod](#).

<sup>13</sup> SolarQuotes. [Can I Use A Balcony Solar Panel System To Power My Apartment?](#) 29 February 2024.

<sup>14</sup> RenewEconomy. [Moves afoot to bring balcony solar to Australia, and new wave of products has batteries included](#). 12 February 2026.

Beyond these physical barriers, a significant power imbalance exists between landlords and tenants. Many tenants report anxiety about engaging with their landlords over potential property improvements, for fear of rent rises or eviction.<sup>15</sup> In most cases, there is no direct relationship between landlords and tenants. Management of rental properties is often contracted to third parties, such as professional property managers, who arguably have even less motivation to address issues affecting the comfort or energy affordability of tenants.<sup>16</sup>

## The rental dilemma cannot be solved through incentives alone

Numerous government initiatives have attempted to increase the energy performance of rental properties via targeted incentive programs or concessional finance schemes, with limited success.

For example, the federal Low Emissions Assistance Plan for Renters (LEAPR) program introduced in 2008 aimed to support insulation upgrades in 700,000 rental properties via a AU\$1,000 rebate. It ultimately paid only 5,625 claims.<sup>17</sup> Solar Victoria's Solar for Renters rebate program has tended to undershoot its target uptake, which is much smaller than the equivalent target for owner-occupier homes.<sup>18</sup> Landlords are eligible for many of the incentives available to owner-occupiers – including the Small-scale Renewable Energy Scheme (SRES) established in 2011 – but this has not led to commensurate uptake of supported technologies for rental properties.

The limited success of these initiatives is not surprising as they have focused only on reducing the capital cost of home energy upgrades.<sup>19</sup> However, a critical aspect of the split incentive problem is not only the scale of the upfront costs but the lack of direct financial benefits for landlords.

It could be argued that undertaking home energy upgrades delivers value to landlords by enabling them to charge more rent. However, this is not compelling in a rental market characterised by an undersupply.<sup>20</sup> Controls on the level of acceptable rent increases in Australia are generally weak, and most rental providers have been able to significantly increase rents in recent years without undertaking property improvements, even during periods of low or falling interest rates.<sup>21</sup>

---

<sup>15</sup> Just Change Australia. [Just Change Evaluation Report: Energy Efficiency for Low-income Renters in Victoria](#). 2010. Page 8; CPRC, Anika Legal and Consumer Action Law Centre. [Too Hot, Too Cold, Too Costly: Victorian Renters Pay the Price for Energy-Inefficient Homes](#). 11 December 2024. Page 15.

<sup>16</sup> The Conversation. [‘I’ve never actually met them’: what will motivate landlords to fix cold and costly homes for renters?](#) 18 August 2022.

<sup>17</sup> Australian National Audit Office. [Performance Audit: Home Insulation Program](#). 2010. Page 58.

<sup>18</sup> The target was undershot by 78% in the program's first year (Victorian Auditor-General's Office. [Delivering the Solar Homes Program](#). 24 June 2021) and by 39% in FY2025 (Victorian Department of Energy, Environment and Climate Action [DEECA]. [Annual Report 2024-25](#). 27 October 2025. Page 44.). The target was overshot in FY2024. However, this was attributed to the launch of the Solar for Apartments program, which provided larger rebates than the Solar for Renters program alone (DEECA. [Annual Report 2023-24](#). 29 October 2024. Page 44.

<sup>19</sup> Energy Policy. [Solar for renters: Investigating investor perspectives of barriers and policies](#). Hammerle M. et al. Vol 174. March 2023. Page 8.

<sup>20</sup> SBS News. [Inside Australia's rental crunch – and what the numbers say about 2026](#). 28 December 2025.

<sup>21</sup> Based on analysis of rental contributions to the consumer price index (ABS) and home loan interest rates (Reserve Bank of Australia/RBA).

It could also be argued that landlords benefit from home energy upgrades via an increase to the value of their property. However, this does not appear to have motivated significant numbers of landlords to undertake upgrades. Notably, vendors are not required to disclose the energy performance of their properties in any jurisdiction outside the ACT.<sup>22</sup>

The magnitude of the split incentive problem is highlighted in a case study by Green Energy Group. This project aimed to engage with landlords and property managers to provide an opportunity to upgrade their properties for free, but reported being “stonewalled by every real estate company and industry body we encountered”.<sup>23</sup> In other words, there is a demonstrable lack of motivation for landlords to make home energy upgrades, even when the cost is significantly lowered or removed.

An alternative approach is to regulate minimum energy-efficiency standards for rental properties. Minimum standards are a normal regulatory lever applied to providers of essential services. While all states and territories have some form of minimum standards that apply to rental properties, few cover the energy performance features of the property ([Table 1](#)).

**Table 1: Minimum rental energy-efficiency standards in Australia**

State/territory	Minimum energy-efficiency standards
<b>Vic</b>	New energy-efficiency standards will require rental properties to have: <ul style="list-style-type: none"> <li>• Energy-efficient electric heating</li> <li>• Energy-efficient electric cooling</li> <li>• Energy-efficient electric hot water</li> <li>• Energy-efficient showerheads</li> <li>• Ceiling insulation</li> <li>• Draught-proofing</li> </ul> Appliance-based standards apply when old appliances reach their end of life. All standards come into effect in March 2027, except for draught-proofing in July 2027. <sup>24</sup>
<b>ACT</b>	Rental properties must have ceiling insulation with an R-value of R5 or higher, unless ceiling insulation of R2 or higher is already present. <sup>25</sup>
<b>NSW</b>	No minimum energy-efficiency standards for rental properties, but they are under consideration by the state government. <sup>26</sup>
<b>Tas</b>	A fixed heater is required, with no energy efficiency requirement. <sup>27</sup> The state government is consulting on the option to introduce energy efficiency standards. <sup>28</sup>
<b>Qld, SA, WA and NT</b>	No minimum energy-efficiency standards for rental properties. (A 2024 bill to introduce minimum energy efficiency standards for rentals was debated in South Australia's parliament but defeated. <sup>29</sup> )

<sup>22</sup> Department of the Prime Minister and Cabinet. [Home energy upgrades: Empowering homeowners to make informed decisions](#). December 2024. Page 6.

<sup>23</sup> Green Energy Group. [Better Homes and Carbon: Final report](#). December 2024. Page 10.

<sup>24</sup> Consumer Affairs Victoria. [New minimum energy efficiency standards](#). 15 May 2026.

<sup>25</sup> ACT Government. [Minimum housing standard for ceiling insulation in rental properties](#). 3 September 2025.

<sup>26</sup> NSW Department of Climate Change, Energy, the Environment and Water (DCCEE). [Investigation into minimum energy efficiency rental standards](#). April 2026. Page 1.

<sup>27</sup> Consumer Building and Occupational Services (CBOS). [Types of minimum standards for rental properties](#). 18 August 2022.

<sup>28</sup> CBOS. [Modernising the Residential Tenancy Act: Discussion Paper](#). April 2026. Page 12.

<sup>29</sup> The Guardian. [As Melissa's rental swelters in Adelaide's heatwave, she is confined to her bedroom – the only bearable part of the house](#). 27 January 2026.

## Upgrades could halve renters' energy bills

In a previous report, IEEFA analysis highlighted that the single most impactful solution to reduce Australian energy bills was upgrading dwellings. We found that a combination of efficient electric appliances, rooftop solar and household batteries could reduce a typical home's energy bill by 82-94% in most Australian capital cities.<sup>30</sup>

In this report, we have extended our analysis to examine the impacts of home energy upgrades across Australia's stock of rental properties, based on 2,160 home archetypes (see [Appendix B](#) for details). The overall findings were consistent with our previous work – the combination of these upgrades could deliver savings of well over 80% for the vast majority of rental properties.

Our analysis aimed to explore the large-scale implications of an upgrade program that would deliver meaningful benefits to renters – we chose to examine the impacts of targeting a 50% reduction in energy bills for renters living in poorly performing homes.

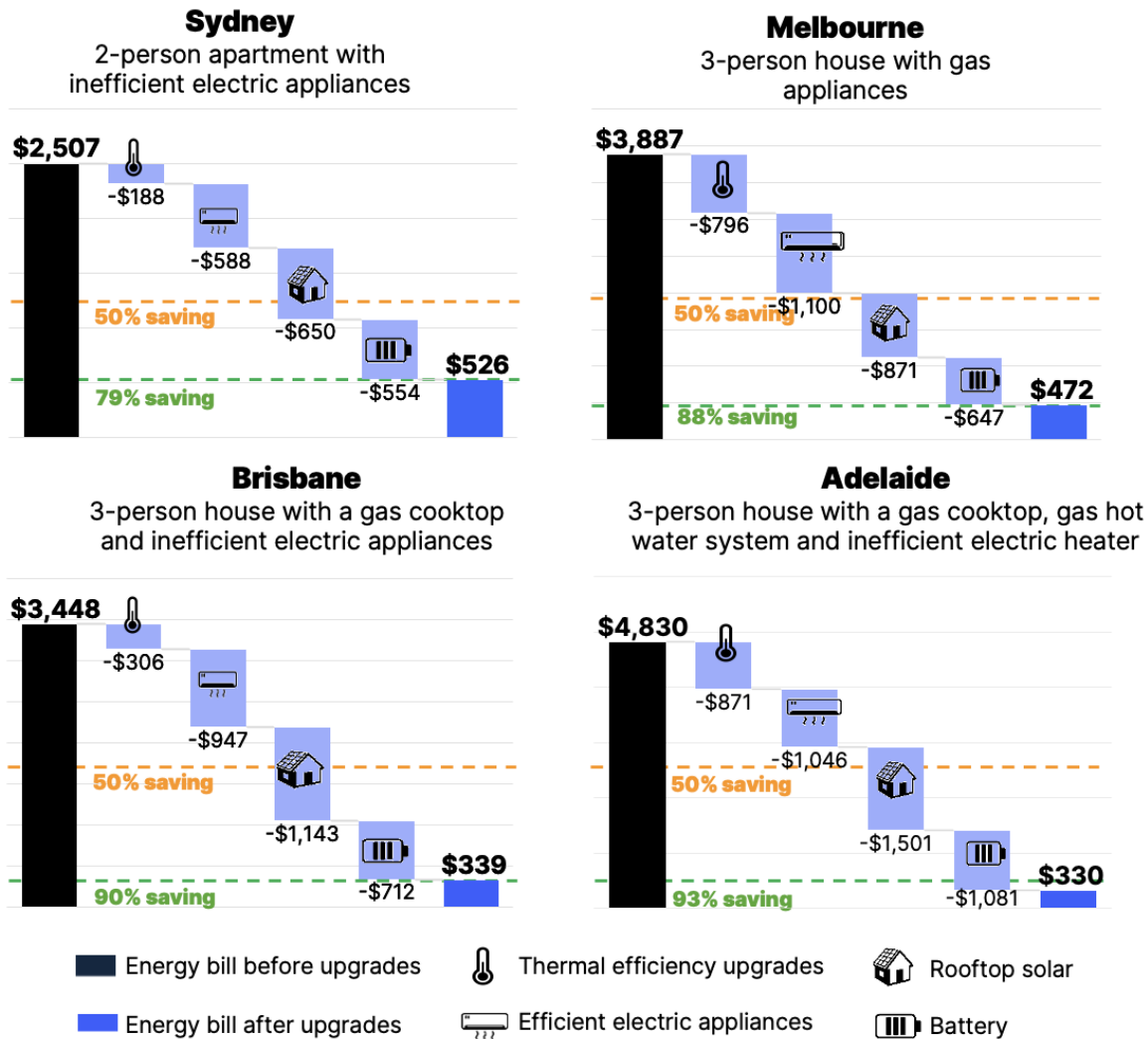
In the vast majority of scenarios, we found this target could be delivered via a combination of thermal efficiency upgrades, efficient electric appliances and some rooftop solar (see Figure 2 for examples).

Our modelling was based on a particular sequence of upgrades that we determined was likely to make financial sense for many households, and could be readily modelled using available data – thermal efficiency upgrades (ceiling insulation for most dwellings, or draught-proofing for some apartments), efficient electric appliances, rooftop solar and batteries. However, other solutions exist that are likely to be cost-effective for many dwellings, and these upgrades could be structured in any number of ways to achieve a similar outcome.

---

<sup>30</sup> IEEFA. [A focus on homes, not power plants, could halve energy bills](#). 9 July 2025. Page 6.

Figure 2: Energy bill savings for four household energy upgrade case studies



Source: IEEFA. Note: Based on an 8 kilowatt (kW) rooftop solar system plus 10 kilowatt-hour (kWh) battery for a separate house, and a 2kW rooftop solar system plus 5kWh battery for an apartment. Costs are in 2026 AU\$.

For example, ceiling insulation is a generally cost-effective thermal-efficiency upgrade that could be readily modelled using available data. However, many other thermal upgrades exist that are frequently cost-effective, including other forms of insulation, gap-sealing and window coverings.

For some households, it may make sense to undertake a broader range of these thermal efficiency upgrades instead of installing rooftop solar. Conversely, some households may face additional barriers to some thermal efficiency upgrades – including lack of access to the roof space – and may find that similar savings could be achieved by installing a larger rooftop solar system.

### **Box 1: What happens to avoided network costs?**

Network costs make up nearly 40% of an average household electricity bill.<sup>31</sup> Electricity networks have high sunk costs – mostly as depreciation on their large asset base – which are recovered from consumers via both fixed and per-unit charges.

As more households install rooftop solar and batteries, some have raised concerns that these households are avoiding network costs, which will increase network prices for all consumers.<sup>32</sup> Arguably, this could also happen as homes become more energy efficient.

IEEFA's modelling shows that households that are energy efficient, or have rooftop solar and batteries, usually have lower grid electricity demand at peak times.<sup>33</sup> This raises questions about how electricity network costs should be shared between energy system participants. The Australian Energy Market Commission (AEMC) has suggested shifting more network costs to the fixed component of network tariffs.<sup>34</sup> However, this could increase energy bills for low energy consumers (including low-income households), and significantly reduce incentives to take up energy efficiency, solar or battery upgrades, which can help to reduce peak demand.<sup>35</sup> The federal energy minister is hesitant to support this change.<sup>36</sup>

In IEEFA's view, this issue cannot be resolved by simply reallocating network costs among residential customers. Distribution networks have already been built to a capacity that exceeds consumer needs, and consumers who take up energy-efficiency upgrades, rooftop solar and batteries may decrease their utilisation of networks even further.<sup>37</sup>

Concurrently, electricity networks have received returns that far exceed risk-free rates, making AU\$15 billion in excess profits above the regulator-approved allowance between 2014 and 2022 alone.<sup>38</sup> There is a growing case to suggest networks, rather than consumers, should bear the risks of network underutilisation. A first-principles review of the regulation of distribution networks should be undertaken to tackle this issue.<sup>39</sup>

Even if network costs were reallocated between consumers, those in thermally efficient homes with modern appliances, solar and batteries will almost always benefit from lower energy bills than those without. This underscores the importance of ensuring renters have equal access to energy upgrades.

A similar situation exists for gas networks, which may increase tariffs as consumers switch from gas to electricity. The AEMC is considering a series of rule change requests in response to these risks.<sup>40</sup>

## Upgrading rental properties would save renters \$107bn by 2050

In addition to our household-level modelling, IEEFA examined the aggregated costs and benefits of a co-ordinated effort to upgrade Australia's rental stock, following a rollout of ambitious minimum energy-efficiency standards across the states and territories commencing in 2027.

Specifically, we looked at the actions that would be necessary to target a 50% reduction in energy bills for renters, relative to a poorly performing home. From 2027, we assumed that gas or inefficient electric appliances in rental properties would need to be upgraded to efficient electric alternatives at their end of life, the most economic time to upgrade. We also assumed that from 2027, a phased approach would commence to undertake other upgrades – including thermal efficiency or rooftop solar – in newly leased rental properties. A backstop date of 2033 is assumed, by which time all rental properties are required to undertake non-appliance-related upgrades.

We exempted some dwellings that may face physical barriers to some upgrades, and some dwellings that may already have energy-efficiency features. (See [Technical Appendix B](#) for full details of our modelling.)

It is worth acknowledging that some of the benefits we modelled will likely be realised through the minimum rental standards already implemented in Victoria and the ACT (Table 1). However, the upgrades we modelled go well beyond the requirements in those regions.

Household energy upgrades deliver permanent energy bill savings, which grow strongly over time. Figure 3 shows that upgrading rental properties could deliver AU\$107 billion in cumulative real energy bill savings for renters by 2050. We have not assumed that avoided network costs are redistributed to other consumers, which, as discussed in Box 1, could decrease the savings. However, we have also not accounted for any increase in wholesale electricity or gas prices, which could significantly increase the savings.

<sup>31</sup> Australian Competition and Consumer Commission. [Inquiry into the National Electricity Market: December 2024 report](#). 3 December 2024. Page 66.

<sup>32</sup> Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW). [National Electricity Market wholesale market settings review: Final report](#). December 2025. Page 258; ECA. [The pricing review: Electricity pricing for a consumer-driven future](#). Submission to Australian Energy Market Commission. 10 July 2025. Page 18.

<sup>33</sup> IEEFA. [A focus on homes, not power plants, could halve energy bills](#). 9 July 2025. Page 15.

<sup>34</sup> AEMC. [Draft report: The pricing review – Electricity pricing for a consumer-driven future](#). 11 December 2025. Page 36.

<sup>35</sup> IEEFA. [Network tariff shake-up could create more problems than it solves](#). 25 February 2026. Pages 4, 7 and 10.

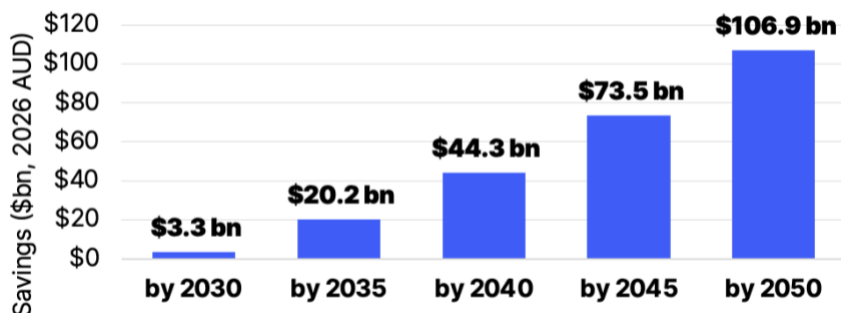
<sup>36</sup> Australian Financial Review. [Bowen slaps down \\$3000 bill hike for battery owners](#). 28 April 2026.

<sup>37</sup> Australian Energy Regulator. [Electricity and gas networks performance report 2025](#). 18 December 2025. Page 36.

<sup>38</sup> IEEFA. [Taming electricity price inflation starts with addressing network supernormal profits](#). 5 November 2024.

<sup>39</sup> See IEEFA. [Reforming the economic regulation of Australian electricity distribution networks](#). 31 May 2024.

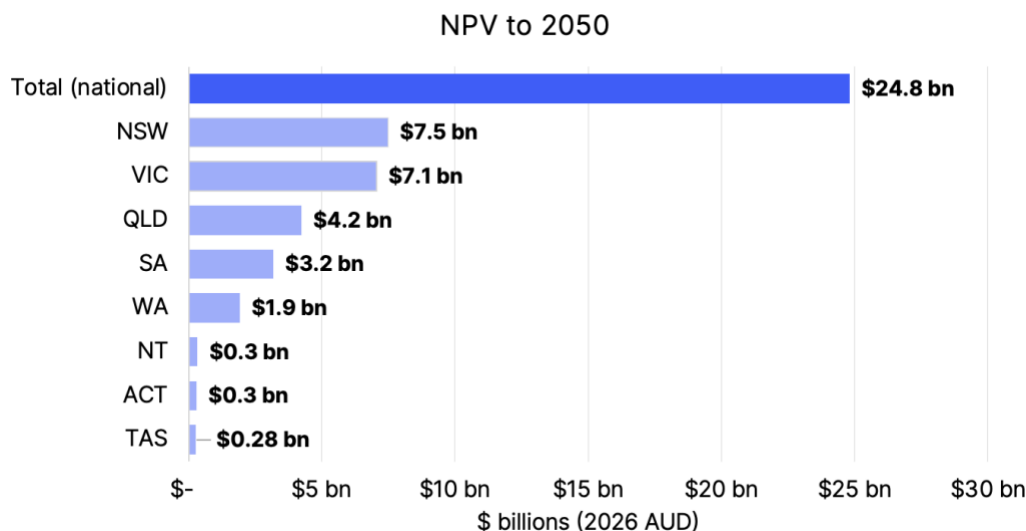
<sup>40</sup> AEMC. [Directions paper: National Gas Amendment \(Gas Networks in Transition\) Rule](#). 19 March 2026. Page ii.

**Figure 3: Cumulative energy bill savings from upgrading rental properties**

Source: IEEFA. Note: State- and territory-specific results are available in Appendix A.

These energy bill savings would predominantly be realised by renters, who may respond by increasing their energy consumption – for instance, by heating or cooling their homes to healthier or more comfortable levels. This is often described as the “rebound effect”.<sup>41</sup> We have chosen not to adjust our results to account for this effect, as it can effectively be viewed as a reinvestment in savings that still benefits renters and broader society – for example, by reducing healthcare costs.<sup>42</sup>

When the upfront capital costs of the upgrades are accounted for, we found that upgrading rental properties would deliver a net present value (NPV) of AU\$24.8 billion by 2050 nationally, with consistently positive NPVs in each state and territory (Figure 4).

**Figure 4: Net present value of rental upgrades, nationally and by state/territory to 2050**

Source: IEEFA. Note: A discount rate of 5% is assumed reflecting the long-term societal nature of the benefits. Government rebates are excluded from costs.

<sup>41</sup> Fondazione Eni Enrico Mattei. [The Rebound Effect and Energy Efficiency Policy](#). Gillingham K., et al. 1 January 2014.

<sup>42</sup> For example, Sustainability Victoria. [The Victorian Healthy Homes Program](#). August 2022. Page 5. Study found healthcare costs over winter were reduced by AU\$887 on average for households with energy-efficiency upgrades, compared with a control group.

## Renters would benefit from day one with appropriate financing

While renters accrue the direct benefits of these upgrades, the responsibility to invest capital rests with landlords. Like owner-occupiers, they have access to government incentives to reduce the costs of certain home energy upgrades. This includes SRES incentives for rooftop solar, batteries and heat pump hot water systems. It also includes a range of state government incentives, such as the Victorian Energy Upgrades (VEU) scheme, and Energy Savings Scheme (ESS) in NSW. IEEFA has highlighted the benefits of more consistent incentive schemes across states and territories.<sup>43</sup>

While some landlords could choose to pay upfront for necessary rental property upgrades, many may decide to amortise the costs over a long-term loan, similar to the loan most landlords have on the property. This could be via accessing funds within a loan offset account, or a dedicated loan.

Personal or home renovation loans typically demand higher interest rates than a standard home loan. However, the Clean Energy Finance Corporation (CEFC) has a fund to provide discounted finance on household energy upgrades for owner-occupiers and landlords.<sup>44</sup> So far, it has been activated through partnerships with private financiers. However, the final products offered to home owners generally have substantially higher interest rates than a typical home loan, or are only open to existing home loan holders with that institution.<sup>45</sup> Since its establishment in May 2024, the fund has reached only 4,100 households.<sup>46</sup>

This doesn't have to be the case – and a more well-designed concessional financing scheme could be developed to allow landlords to amortise the costs of their upgrades over a long period at reduced interest rates. For example, financial products offering discounted interest rates are more widely available for electric vehicles, many of which are supported by the CEFC.<sup>47</sup>

Critically, accessible financial solutions for landlords could ensure that even if the costs of upgrades are passed on to tenants, they could be spread out in such a way that tenants receive a net benefit. Figure 5 shows the annualised capital costs and benefits of upgrading rental properties if the costs are amortised over a 15-year loan at a nominal interest rate of 6.33%.<sup>48</sup> We have accounted for existing government rebates in these costs. A net annual benefit occurs from the year the upgrades commence, and grows over time, reaching AU\$5.6 billion by 2050.

<sup>43</sup> IEEFA. [A focus on homes, not power plants, could halve energy bills](#). 9 July 2025. Page 41.

<sup>44</sup> CEFC. [Household Energy Upgrades Fund](#). Accessed 7 May 2026.

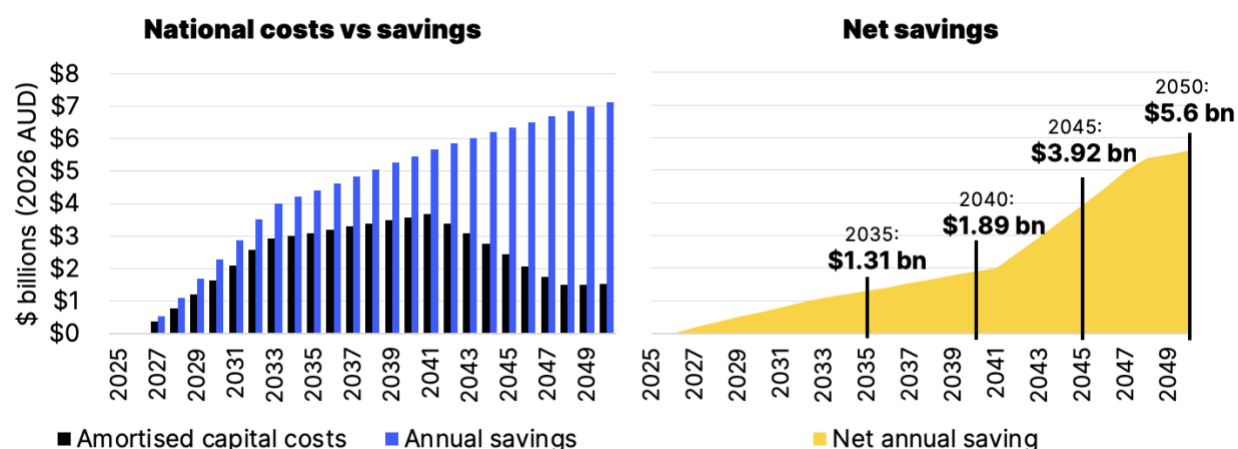
<sup>45</sup> For example, [Brighte](#) offers a comparison rate of 9.49%, and [CommBank](#) offers 8.29-9.77% for non-home loan customers as of 21 May 2026. Where reduced rates are offered (such as [Westpac's](#) 4.49% and [CommBank's](#) 4.24%) they are usually conditional on the home loan being financed through the same lender. Most loans are limited to 10 years; shorter than the lifetime of most upgrades.

<sup>46</sup> DCCEE. [Household Energy Upgrades Fund reaches 10,000 installations](#). 29 April 2026.

<sup>47</sup> As of May 2026, [Canstar](#) lists 15 lenders offering green car loans with comparison rates below 7%.

<sup>48</sup> Based on the average new investor principal & interest rate offered by lenders as of February 2026 ([RBA](#)), assuming the passthrough of two 0.25% basis point cash rate increases that occurred in [March 2026](#) and [May 2026](#).

Figure 5: Amortised costs vs annual energy bill savings from upgrading rental properties



Source: IEEFA. Note: For state and territory results, see Appendix A.

This demonstrates that even if the full annualised cost of upgrades were passed through to renters, renters could be better off from day one.

## Rental upgrades could deliver system-wide benefits

Many household energy upgrades are effective at reducing grid electricity demand at peak times.<sup>49</sup> Peak demand is a key driver of wholesale electricity prices and network capacity requirements, and reducing peak demand is an important strategy to minimise overall electricity system costs.

Most of mainland Australia experiences peak electricity demand during summer. However, winter peak demand will grow in importance as more heating loads are electrified. We have therefore analysed the likely impacts of upgrading rental properties on peak demand for an average day in January and July. While average-day peak demand is lower than absolute peak demand conditions, it can still provide insights into the likely direction and relative scale of changes to peak demand.

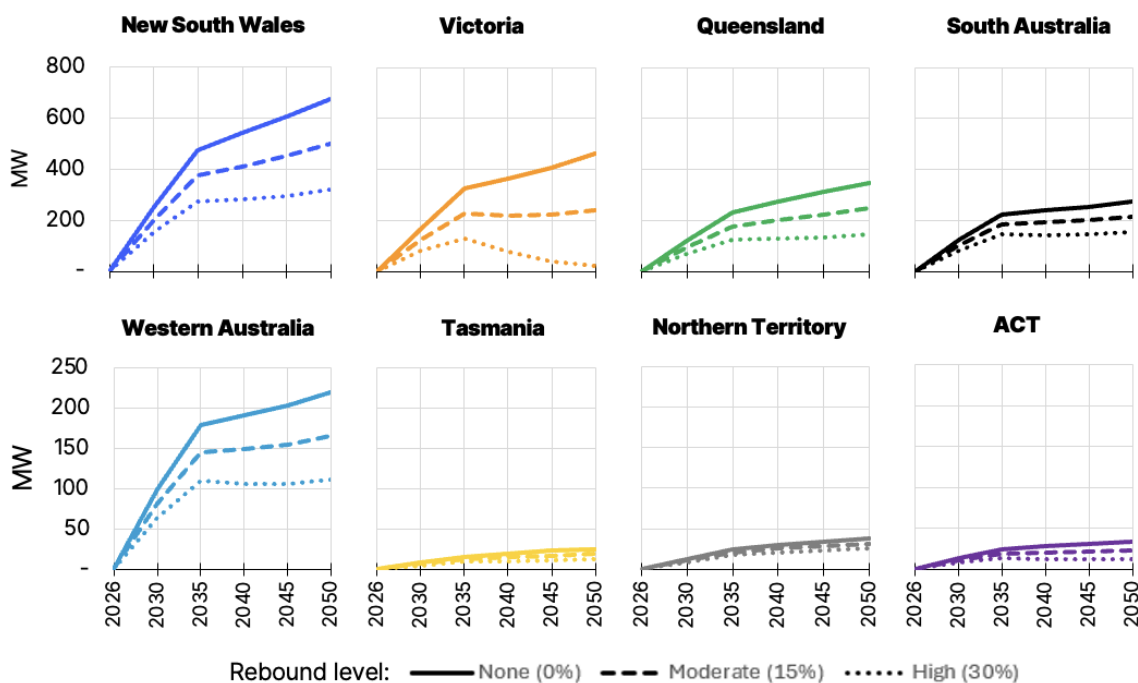
As discussed above, some renters may choose to increase their energy consumption in response to these upgrades – for example, by heating or cooling their homes to a healthier level that was not previously affordable. To account for this, we have modelled two sensitivities representing cases where renters reinvest 15% or 30% of their energy bill savings in increased electricity consumption.<sup>50</sup>

<sup>49</sup> IEEFA. [A focus on homes, not power plants, could halve energy bills](#). 9 July 2025. Page 16.

<sup>50</sup> Energy Policy. [Empirical estimates of the direct rebound effect: A review](#). Sorrell S., et al. 2009. Page 1362. "For household energy services in the OECD, [...] the direct rebound effect should generally be less than 30%."

Our analysis found that the large-scale roll-out of upgrades we modelled (thermal-efficiency improvements, efficient electric appliances and rooftop solar) would universally result in a net reduction in average-day peak demand in January (Figure 6).

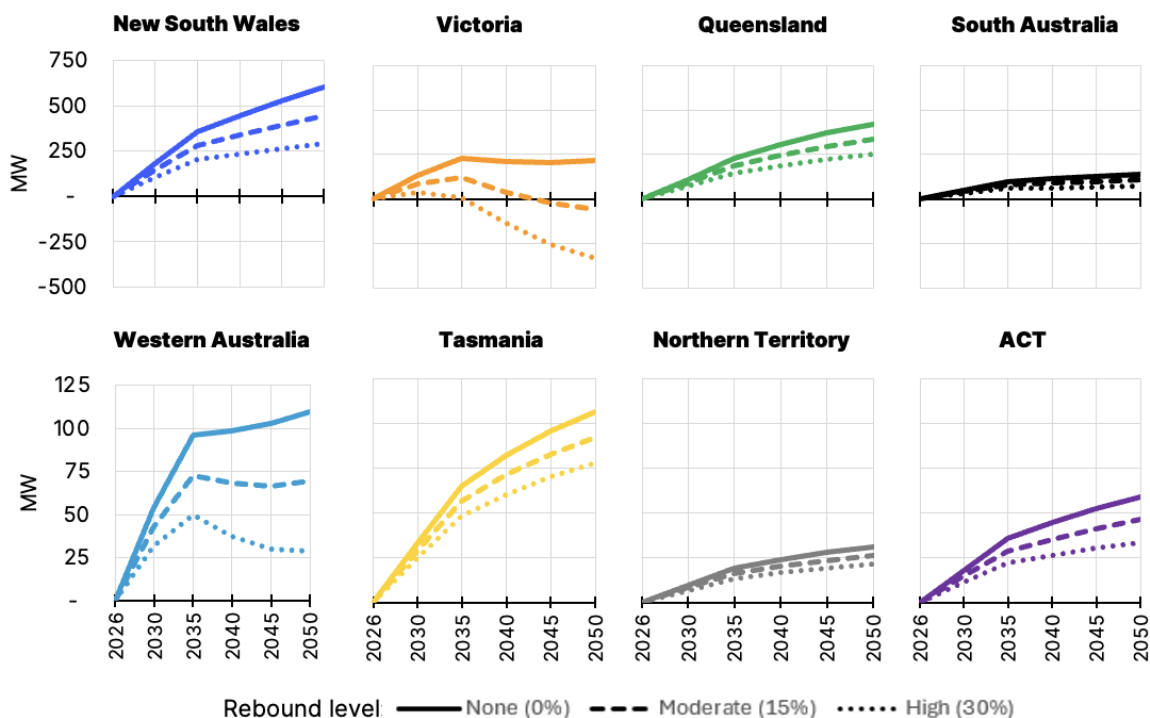
**Figure 6: Reduction in average-day peak electricity demand from rental upgrades, January**



*Note: Peak demand defined as maximum average-day demand between 3pm and 9pm in January.*

In July, all regions would experience a reduction in average-day peak demand under all rebound scenarios, except Victoria, where average-day peak demand increases in the long term under a moderate and high rebound scenario – up to 345 megawatts (MW) by 2050 under the high scenario (Figure 7).

Figure 7: Reduction in average-day peak electricity demand from rental upgrades, July



Note: Negative values represent peak demand increases. Peak demand defined as maximum average-day demand between 3pm and 9pm in July.

These results show that across most of Australia, upgrading rental properties ought to deliver a reduction in peak electricity demand, benefiting all electricity users. This would hold true even if 30% of the savings from these upgrades were reinvested in increased grid electricity consumption.

The most notable exception is Victoria, where the electrification of residential gas appliances may lead to a long-term increase in peak electricity demand in winter. In most regions, this effect is fully offset by other actions, such as upgrading inefficient electric appliances; however gas appliances are particularly widespread in Victoria.

Further measures not included in our modelling could mitigate some of these peak-demand impacts – for example, an increased roll-out of residential batteries that are able to import grid electricity in the middle of the day, or deeper thermal efficiency upgrades.<sup>51</sup>

However, it is worth acknowledging that this increase in electricity demand enables a very substantial reduction in gas consumption. Victoria has a particular imperative to reduce gas demand, as production from Bass Strait fields is in decline and the state faces gas supply shortfalls from 2029.<sup>52</sup>

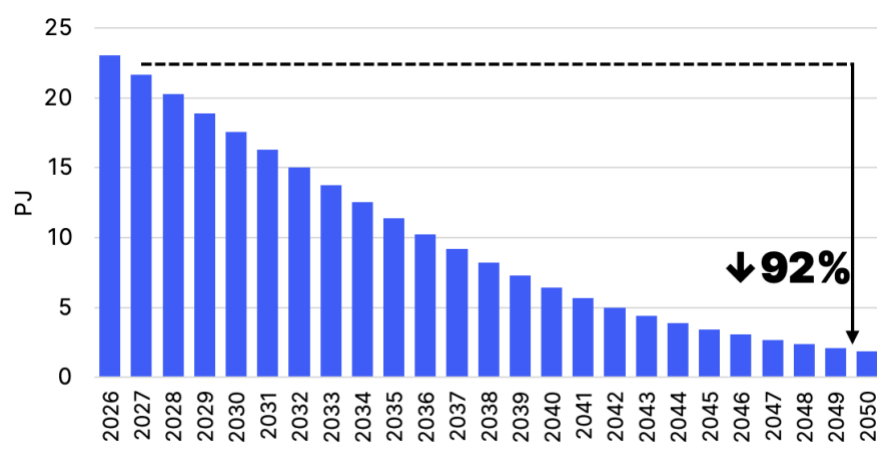
<sup>51</sup> IEEFA. [A focus on homes, not power plants, could halve energy bills](#). 9 July 2025. Page 23.

<sup>52</sup> AEMO raised the risk of gas supply shortfalls in its [2023 Gas Statement of Opportunities](#) (GSOO). Page 4; [Recent GSOO releases](#) have deferred this risk for several reasons, including an observed increase in electrification.

This is one factor that has motivated the Victorian government to take a leading stance on some of the measures discussed in this report to phase out the use of residential gas appliances.

IEEFA has previously analysed the impact of phasing out gas appliances on overall gas demand in Victoria.<sup>53</sup> Figure 8 shows a simplified version of this analysis scaled down to represent the 28% of Victorian households that are rented.<sup>54</sup> This should be treated as indicative only – but illustrates the scale of the gas demand reduction opportunity that could be achieved through the upgrades modelled in this report.

**Figure 8: Potential reduction in gas demand from electrifying rental homes in Victoria**



Note: Based on [previous IEEFA modelling](#), scaled down to estimated gas demand in rental properties based on data from the [Australian Energy Market Operator \(AEMO\)](#), [DCCEEW](#) and [ABS](#).

## Minimum standards needed to unlock rental upgrades

Rental properties occupy a large share of Australia's housing stock, but structural barriers prevent renters from accessing household energy upgrades that are increasingly cost-effective and popular among owner-occupiers.

The structural nature of the split incentive barrier means that existing approaches to incentivise landlords to upgrade their properties have had limited success. Regulatory solutions, such as minimum energy-efficiency standards for rental properties, are needed to address this issue, but do not exist in most states and territories ([Table 1](#)).

There are several ways minimum energy-efficiency standards for rental properties could be implemented to accelerate the uptake of home energy upgrades modelled in this report.

<sup>53</sup> IEEFA. [Electrification regulations in Victoria would lower energy bills and reduce gas supply gaps](#). 2 April 2025.

<sup>54</sup> ABS. [Victoria: 2021 Census All persons QuickStats](#). Accessed 13 May 2026.

## The growing case to phase out gas and inefficient appliances

Previous IEEFA analysis has highlighted that the continued installation of gas appliances and inefficient electric appliances is locking Australians into AU\$3.4 billion in lifetime costs every year.<sup>55</sup> This risk exists across Australia's housing stock. However, it is arguably most pressing for rental properties, where those responsible for purchasing the appliances are not exposed to the costs.

The fragile economics of gas distribution networks present a particular imperative for a managed phase-out of residential gas appliances.<sup>56</sup> The AEMC is progressing a series of rule change requests in response to the risk that an acceleration in electrification will significantly increase gas bills for remaining users of the gas network (many of whom are likely to be renters). However, the AEMC has repeatedly observed that there are limits to what can be achieved through regulations alone, and this matter warrants policy attention.<sup>57</sup>

Victoria is the only jurisdiction to have introduced explicit regulations to phase out certain types of gas appliances – focusing initially on gas water heaters in most dwellings, and gas space heaters in most rental properties.<sup>58</sup>

Analysis by IEEFA found that phasing out gas appliances in new and existing Victorian homes could save consumers AU\$6.3 billion over 10 years. The benefits were strongest when all gas appliances (including cooktops) were included, as this would enable more households to cease paying for a gas connection altogether.<sup>59</sup>

Ideally, state, territory and/or federal governments should set a clear timeline for the phase-out of gas or inefficient electric appliances in homes, encouraging a switch to efficient electric alternatives.

In lieu of an approach that encompasses all dwellings, phasing out the use of these appliances in rental properties should be a priority, given renters' inability to avoid the resultant cost lock-in. Specifically, minimum energy-efficiency standards for rental properties should include a requirement that gas or inefficient electric appliances are replaced with efficient electric alternatives at end of life. This not only avoids cost lock-in for renters, but is also far less costly for landlords than if they were required to upgrade these appliances before the end of their useful life.

## Flexible approach may be appropriate for other energy upgrades

While there is a particular and specific case to ensure gas and inefficient appliances in rental properties are upgraded, other types of upgrades may lend themselves to a more flexible approach.

<sup>55</sup> IEEFA. [Appliance standards are key to driving the transition to efficient electric homes](#). 23 April 2024. Page 5.

<sup>56</sup> This fragility is already leading to the abrupt closure of smaller regional gas networks – including in [Esperance](#) and [Albany](#) in Western Australia, and 10 [regional gas networks in Victoria](#).

<sup>57</sup> AEMC. [Directions Paper: National Gas Amendment \(Gas Networks in Transition\) Rule](#). 19 March 2026. Page 86.

<sup>58</sup> Victorian Department of Transport and Planning. [Building Electrification Regulations Summary](#). June 2025. Page 6.

<sup>59</sup> IEEFA. [Electrification regulations in Victoria would lower energy bills and reduce gas supply gaps](#). 2 April 2025. Page 2.

For example, in some dwellings it may be more economical to undertake deeper thermal efficiency upgrades, rather than install rooftop solar. Conversely, other dwellings – such as those with flat roofs – may be more costly to insulate. Installing a larger rooftop solar system could be a viable alternative that would allow renters to warm or cool their homes affordably, if they have an efficient electric appliance for that purpose.

For this reason, IEEFA considers a prescriptive approach to phase out gas or inefficient appliances in rental properties could be combined with a more flexible approach to encourage a range of other home energy upgrades.

A flexible approach could be implemented by setting a benchmark standard for rental properties under an energy ratings scheme. However, it could also be implemented under a flexible features-based approach, where landlords are able to select from several upgrades, weighted based on the energy savings they are expected to deliver.

## Incentives and financing complement but can't replace standards

Earlier in this report, we highlighted that incentive-only approaches to upgrading rental properties typically don't work alone, due to the severity of the split incentive problem.

However, incentives and concessional financing may still have a role in enabling the implementation of rental minimum standards, and to reduce the upfront capital burden for landlords, at least in the initial years of the standards.

IEEFA's modelling found that upgrading rental properties would be cash-flow positive if the costs of upgrades were amortised over 15 years, at an interest rate similar to investor home loans. This implies that well-designed financing schemes could ensure that the implementation of minimum standards benefits renters from day one.

In addition to the rebates offered to all home owners, some states have incentives targeted at rental properties – such as Solar Victoria's AU\$1,400 rebate on solar panels for rental properties.<sup>60</sup> There may be a case for governments to consider additional targeted rebates. A review of the Energy Security Safeguard by the NSW government sought feedback on introducing sub-targets for priority households under the state's certificate schemes, which could feasibly include rental properties.<sup>61</sup>

It is also important to recognise that rental properties in Australia are often treated as a form of passive investment. While this has arguably raised numerous housing challenges, it presents unique opportunities to incentivise rental providers.

<sup>60</sup> Solar Victoria. [Solar rebates for rental properties](#). 16 October 2025.

<sup>61</sup> IEEFA. [Submission: Energy Security Safeguard policy reform](#). 20 February 2026. Page 6.

In its May 2026 budget, the federal government made two significant changes affecting property investors: removing the 50% capital gains tax (CGT) discount on assets held for more than a year; and restricting the use of negative gearing investment strategies to newly built properties.<sup>62</sup>

Both reforms include “grandfathering” measures. Investors can continue to claim the CGT discount on gains realised up to July 2027, and landlords can continue to negatively gear properties they owned at the time the budget was released. The latter, in particular, is a very broad and arguably generous exemption. However, the federal government could tweak these settings to better support renters' rights by introducing a new eligibility requirement for negative gearing on both new and existing dwellings: that they must meet minimum energy-efficiency standards.

Other federal taxation levers could incentivise or lower the cost burden for landlords to meet minimum standards. Economic modelling commissioned by Solar Citizens found that accelerating the depreciation on rooftop solar and battery installations could deliver AU\$14-23 in benefits for every dollar of forgone tax revenue, recommending it be combined with the implementation of minimum energy-efficiency standards for rentals.<sup>63</sup> The Australian Council of Social Services (ACOSS) has also recommended that landlords' ability to depreciate capital expenditure on major appliances should be limited to accredited efficient electric appliances.<sup>64</sup>

## Conclusion and recommendations

Household energy upgrades – such as thermal-efficiency improvements, efficient electric appliances, rooftop solar and batteries – are one of the most effective options to lower energy bills. However, rental properties comprise more than 30% of dwellings in Australia, and there is no reliable pathway for most renters to access home energy upgrades.

This is not a new problem – numerous government programs have attempted to address it by lowering the cost of upgrades for landlords, or providing more appealing financing solutions. These programs have not had large-scale success on their own, because they do not address the structural nature of the split incentive problem, which requires a regulatory solution.

IEEFA's analysis found that household energy upgrades would be a highly effective way to reduce energy bills for renters. A concerted effort to upgrade Australia's rental property stock could deliver AU\$107 billion in savings to renters by 2050, with a net present value of AU\$24.8 billion over that period. Even if the costs were passed on to renters, if they were amortised over 15 years at a reasonable interest rate, renters would be better off from day one.

<sup>62</sup> Australian Government. [Budget 2026-27: Negative Gearing and Capital Gains Tax Reform](#). 12 May 2026.

<sup>63</sup> Rennie Advisory for Solar Citizens. [Solar for Renters: Closing the Gap with Accelerated Depreciation](#). May 2026. Page 3.

<sup>64</sup> ACOSS. [Funding and Financing Energy Performance and Climate-Resilient Retrofits for Low-income Housing](#). January 2024. Page 40.

**Recommendation 1: State and territory governments should aim to halve renters' energy bills via minimum energy efficiency standards**

State and territory governments should implement minimum energy-efficiency standards for rental standards where they do not exist. This could align with a commitment to halve renters' energy bills (relative to a typical poorly performing home).

Jurisdictions that already have minimum energy-efficiency standards should plan to ratchet them up over time to meet the above aim, while ensuring appropriate compliance of existing standards.

These standards should be accompanied by other rental law reforms to protect renters from adverse impacts. This could include controls on rent increases to guarantee that reforms leave renters better off.

Upgrading to efficient electric alternatives is a critical enabler for the savings modelled in this report, mitigating the risk of cost lock-in while ensuring renters are best-placed to benefit from thermal efficiency upgrades or rooftop solar.

**Recommendation 2: Rental minimum energy efficiency standards should mandate the installation of efficient electric appliances**

State and territory governments should consider broader regulations to phase out the installation of gas or inefficient electric appliances across the full housing stock.

In lieu of such a broad approach, jurisdictions should embed a specific **features-based** requirement in their rental minimum energy efficiency standards that prohibits the installation of new gas or inefficient electric appliances in rental properties.

For non-appliance-related upgrades, a wide range of combinations – including thermal-efficiency improvements, rooftop solar and batteries – could be deployed. For these types of upgrades, a more flexible approach makes sense. This could be implemented either by setting a benchmark for rental properties to meet under a scheme such as the Nationwide House Energy Rating Scheme (NatHERS) for existing homes (**performance-based**), or by establishing a **flexible features-based** approach.

**Recommendation 3: Rental minimum energy-efficiency standards should include a flexible component that can be met through a number of home energy upgrades**

In addition to appliance requirements, rental minimum energy-efficiency standards should include a flexible requirement that can be met through various upgrades.

This could be implemented via a **performance-based** approach, utilising ratings schemes such as NatHERS for existing homes. However, it could also be implemented via a **flexible features-based** approach, where landlords can choose from a number of features, weighted based on the energy savings they can achieve.

Initially, these requirements could apply to some or all rental properties before a new lease commences. However, a backstop should be introduced such that all properties are required to meet the standards by a particular date.

Meeting these minimum standards will incur upgrade costs for landlords. While it may be appropriate for some costs to be absorbed by landlords, others may be passed through to renters in the long term. Critically, IEEFA's analysis found that even if this were the case, tenants could gain a net benefit from day one – provided those costs were amortised over a loan period commensurate with the lifetime of the upgrade. Concessional financing for home-energy upgrades already exists through a dedicated CEFC fund via partnerships with financial institutions; however the fund has had a limited reach, and the terms of these products are not optimal.

**Recommendation 4: The federal government should make discounted financing available for rental property upgrades via the CEFC**

This could be implemented as a redesign and/or extension of the existing Household Energy Upgrades Fund. Specific financial products should be provided that offer useful loan terms (e.g. 15 years or more) and discounted interest rates that would ensure rental property upgrades are cash-flow positive from day one.

Landlords who upgrade their properties to meet the minimum standards will have access to a range of existing incentives – including via the federal SRES, state schemes such as the VEU and ESS, and other targeted programs such as those offered through Solar Victoria.

To facilitate a smooth implementation of the minimum standards, jurisdictions could consider introducing targeted rebates for rental properties, either via existing certificate schemes, or more direct instruments. Such incentives could scale down over a transitional period, encouraging landlords to undertake the required upgrades earlier rather than later.

**Recommendation 5: State and territory governments should consider targeted transitional financial incentives to support landlords to upgrade their properties**

As a transitional arrangement, state and territory governments should consider introducing targeted financial incentives to lower the upfront capital cost burden for landlords undertaking upgrades to meet the new standards.

This could be through measures built-in to existing white certificate schemes (for example, a sub-target under NSW's ESS), and/or separate programs (such as Solar Victoria's solar rebates for rental properties).

The federal government's reforms to negative gearing and the CGT discount include generous grandfathering measures that allow existing investment property owners to continue their negative gearing strategies, and to receive the CGT discount on gains accrued up to July 2027. As a further reform measure, the government should consider making negative gearing and/or the CGT discount conditional on properties meeting specified minimum rental standards.

**Recommendation 6: Federal tax incentives should be made conditional on properties meeting minimum standards**

This should include landlords' eligibility to negatively gear properties or claim the 50% CGT discount, in cases where this is still allowed following recent tax reforms. This could be implemented with a reference to any relevant jurisdictional minimum standards, or an explicit set of minimum standards as defined by the federal government.

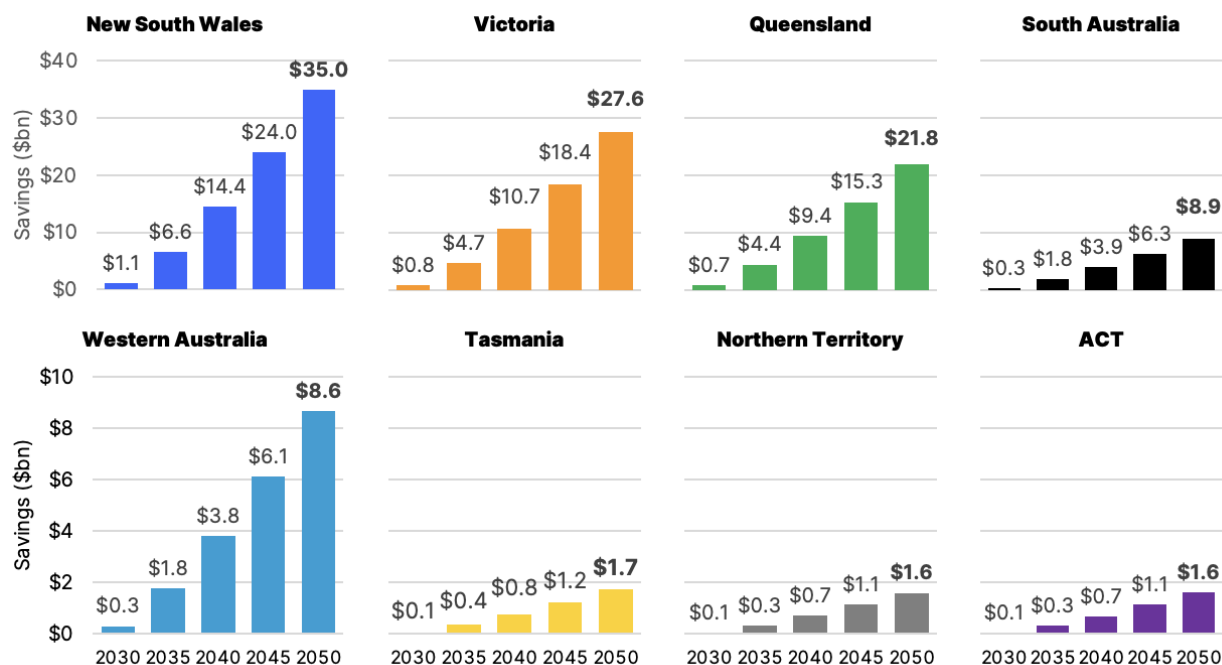
Additionally, the government should allow landlords to depreciate capital expenditure on new major appliances only if those appliances are efficient and electric. Instant asset write-offs or accelerated depreciation should be considered for compliant household energy upgrades.

## Appendix A: Results by state and territory

Note: Technical Appendix B can be found [here](#).

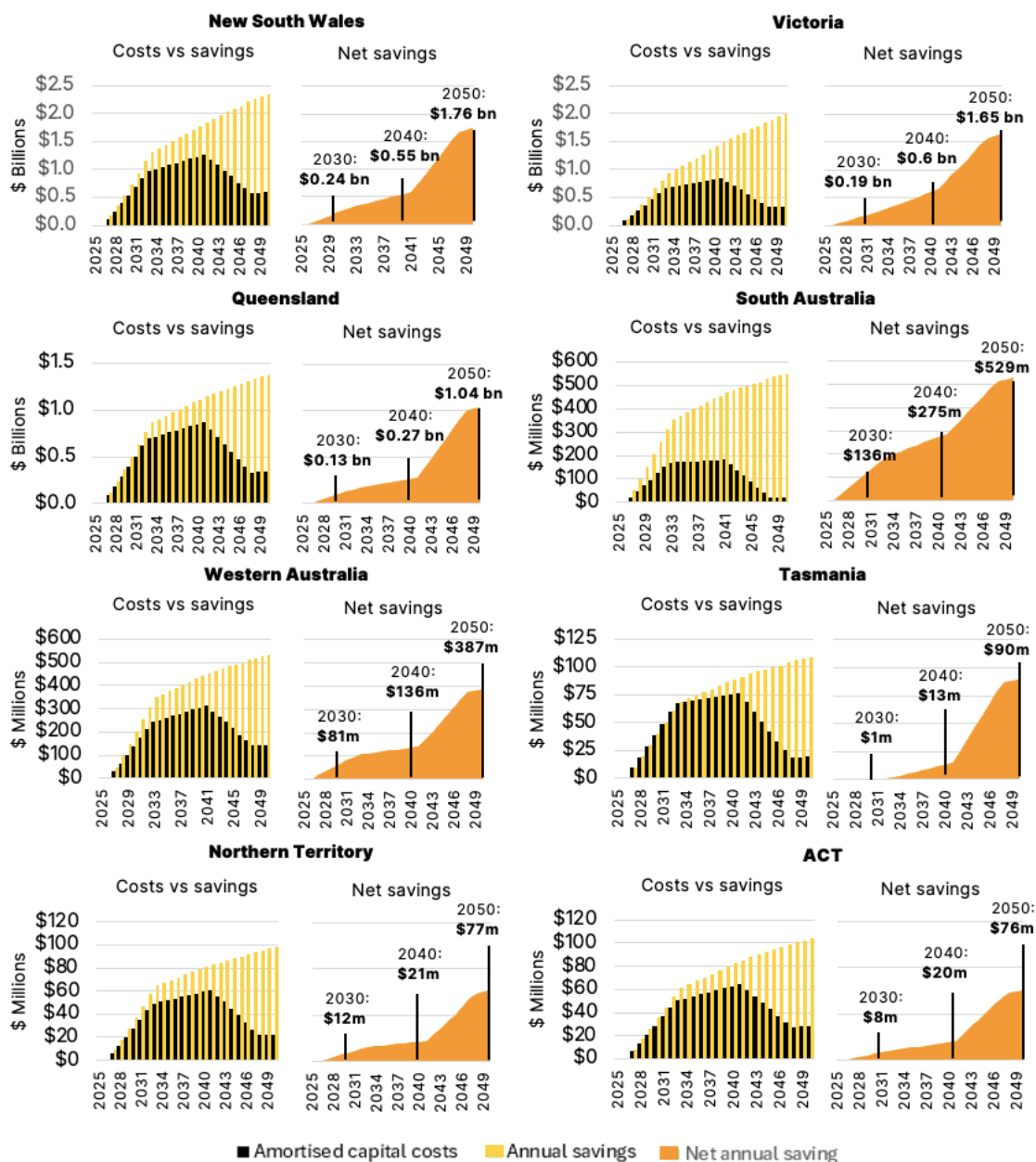
### Cumulative energy bill savings for renters

Figure 9: Cumulative energy bill savings from rental property upgrades (2026 AU\$ billion)



## Amortised costs vs savings of upgrading rental properties

Figure 10: Amortised costs vs savings, and net savings, by state and territory (2026 AU\$)



## About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. [www.ieefa.org](http://www.ieefa.org)

## About the Author

### Jay Gordon

Jay is an Energy Finance Analyst at IEEFA, focusing on the Australian electricity sector. He brings experience in modelling Australia's energy system transition, including investigating the role of the electricity sector in helping the broader economy transition towards a net-zero future.

[jgordon@ieefa.org](mailto:jgordon@ieefa.org)

**This report is for information and educational purposes only. The Institute for Energy Economics and Financial Analysis ("IEEFA") does not provide tax, legal, investment, financial product or accounting advice. This report is not intended to provide, and should not be relied on for, tax, legal, investment, financial product or accounting advice. Nothing in this report is intended as investment or financial product advice, as an offer or solicitation of an offer to buy or sell, or as a recommendation, opinion, endorsement, or sponsorship of any financial product, class of financial products, security, company, or fund. IEEFA is not responsible for any investment or other decision made by you. You are responsible for your own investment research and investment decisions. This report is not meant as a general guide to investing, nor as a source of any specific or general recommendation or opinion in relation to any financial products. Unless attributed to others, any opinions expressed are our current opinions only. Certain information presented may have been provided by third parties. IEEFA believes that such third-party information is reliable, and has checked public records to verify it where possible, but does not guarantee its accuracy, timeliness or completeness; and it is subject to change without notice.**



**Institute for Energy Economics  
and Financial Analysis**