Public Interest Advocacy Centre

Submission to Sustainability in Residential Buildings: Proposed BASIX Changes

28 February 2022

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About the Public Interest Advocacy Centre

The Public Interest Advocacy Centre (PIAC) is leading social justice law and policy centre. Established in 1982, we are an independent, non-profit organisation that works with people and communities who are marginalised and facing disadvantage.

PIAC builds a fairer, stronger society by helping to change laws, policies and practices that cause injustice and inequality. Our work combines:

- legal advice and representation, specialising in test cases and strategic casework;
- research, analysis and policy development; and
- advocacy for systems change and public interest outcomes.

Energy and Water Consumers' Advocacy Program

The Energy and Water Consumers' Advocacy Program works for better regulatory and policy outcomes so people's needs are met by clean, resilient and efficient energy and water systems. We ensure consumer protections and assistance limit disadvantage, and people can make meaningful choices in effective markets without experiencing detriment if they cannot participate. PIAC receives input from a community-based reference group whose members include:

- Affiliated Residential Park Residents Association NSW;
- Anglicare;
- Combined Pensioners and Superannuants Association of NSW;
- Energy and Water Ombudsman NSW;
- Ethnic Communities Council NSW;
- Financial Counsellors Association of NSW;
- NSW Council of Social Service;
- Physical Disability Council of NSW;
- St Vincent de Paul Society of NSW;
- Salvation Army;
- Tenants Union NSW; and
- The Sydney Alliance.

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Public Interest Advocacy Centre

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The Public Interest Advocacy Centre office is located on the land of the Gadigal of the Eora Nation.

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1. Introduction

The Public Interest Advocacy Centre (PIAC) welcomes the Consultation Paper, '*Sustainability in Residential Buildings: Design and Place* (The Paper). PIAC strongly supports the process to review and upgrade BASIX standards to meet or exceed those of the updated National Construction Code 2022 (NCC).

Improved efficiency of residential buildings will be key to NSW meeting the Government's commitment to cut emissions by 50% by 2030, on the way to a net-zero economy by 2050. Research and modelling from Government, academia, industry and community experts consistently confirms that achieving a zero-carbon energy system and net-zero economy is impossible without signficiant improvements to building energy efficiency.

BASIX is primarily focused on improving efficiency to support reduced household related greenhouse emissions. Emissions from household energy usage are associated with the energy needed to support the health and wellbeing of occupants. New housing has a lifespan of decades and decisions regarding the building envelope, fixtures and energy connections continue to have impacts on the owners, occupants and the energy system for decades. Assessment of BASIX must be based on its impact on ongoing outcomes for occupants.

This is no time for incrementalism. Failure to implement future focussed decisions now has serious ongoing implications for household health, resilience and energy related housing costs over the long term. Failure would also have ongoing implications for the NSW Government's emissions reductions objectives. Insufficient action now reduces the efficiency and flexibility of the energy system in the long term, making the transition more expensive for all.

Poor decisions now will have social equity outcomes, disproportionately impacting future renters and other households facing barriers to energy efficiency retrofits. There is no existing market mechanism to ensure that rental homes are upgraded to improve efficiency standards after construction. Once built and rented out, the performance of rental homes, and the impact on the health wellbeing and costs of households, will be locked in.

Addressing the efficiency and long-term suitability of housing through forward-focussed upgrades to BASIX is vital to climate policy, and the future equity of access to affordable, healthy housing for all NSW households. This upgrade of BASIX is an opportunity to ensure the right decisions are made now. BASIX upgrades should regard expended NCC upgrades as a minimum and set NSW as a leader in housing that is ready for the future, now.

2. Ensuring BASIX supports Government policies and objectives

PIAC strongly recommends the NSW Government consider improvements to BASIX in the context of its wider climate policy, energy transition, health and affordability policy objectives. The proposed improvements to BASIX do not consistently support established Governement priorities and policies to respond to climate change, transition the energy system, and support improved household energy affordability, health and resilience.

Health and household resilience

Efficient housing helps households withstand the more frequent extremes of heat and cold resulting from a changing climate. Importantly, it helps ensure these outcomes require less energy usage. Households in NSW are increasingly vulnerable to winter cold and extreme summer heatwaves. More people die as a result of heat waves than any environmental disaster in Australia[1]. This will only increase with the impacts of climate change. The NSW Government has identified resilience as a key policy consideration in areas such as energy network planning, water, bushfire preparedness and community infrastructure and services planning. However, the importance of the energy efficiency of residences in supporting household health and resilience has not been adequately considered in this process. We believe that the analysis of benefits from BASIX improvements understates the importance of home energy performance to the health, wellbeing and resilience of residents and communities.

Housing affordability

Electricity is an essential service, the cost of which is inextricably linked to the cost of housing for renters and owners alike. Housing affordability in NSW – and particularly the growth areas of Sydney – is at an all-time low, with serious implications for social equity and household wellbeing. The NSW Government has identified housing affordability as a long term policy priority. While influencing housing purchase prices or rents is complicated, housing energy efficiency standards are an opportunity to reduce ongoing costs of housing by reducing the energy required to make homes livable.

Analysis of the proposed BASIX improvements focuses narrowly on the upfront costs of improved efficiency and overstates the impact of these costs on the overall cost of new housing to consumers. Additionally, the analysis does sufficiently recognise the impact of ongoing household cost reductions related to reduced energy usage and the absence of connecting and maintaining a gas network connection. The median price for a detatched house in Sydney is $1.5 million[2], with the median lot-price of land over $500,000[3]. Any potential increased costs associated with the proposed energy efficiency measures are immaterial contributors to the cost of a new homes in relation to these amounts.

Renew recently undertook analysis[4] in response to the National Construction Code update process. This analysis demonstrated that lifting thermal efficiency to the equivalent of NatHERS 7 Stars (and preferably 7.5 stars), ensuring electric only households and introducing a strong energy budget with efficient appliances and solar PV leaves households better off immediately and over the long term through energy cost reductions. Renew modelled the energy use and costs of a medium-large detached home in Sydney. When compared to business as usual (existing BASIX standards with a dual fuel connection), 7 Star all-electric new homes with strong energy budgets reduced annual bills by over $1650. The bill savings enjoyed by households were greater than the potenitial additional monthly mortgage payments required to cover any upfront

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1 Doctors for the Environment Australia 'Heatwaves and health in Australia: Fact sheet' 2020

2 ABC 'Sydneys median house price now over $1.6m but massive growth expected to slow' 27 Jan 2022

3 AFR 'Sydney land prices surge 27% in a year' 27 October 2021

4 RENEW 'Housholds better off: lowering energy bills with the 2022 national Construction Code' August 2021

costs related to efficiency, meaning that households were $85 a month better off from day 1 of their loan. These savings would flow through to rent of these properties, benefiting renters by reducing the owners burden of debt and reducing the running costs of the home, while making it healthier and more liveable.

PIAC has included RENEW's tables presenting the findings in Appendix 1 of this submission.

Emissions reductions

The proposed BASIX update and its 'fuel neutral' approach locks in further, dangerous methane gas emissions. The NSW Government has strong targets for emissions reductions, with an objective of 50% emissions reductions by 2030 on the way to a net-zero emissions economy by 2050. PIAC strongly supports this objective and believes that more is possible.

Methane is a catastrophic greenhouse gas, increasingly recognised to be more a more significant contributor to climate change over a 20 year timeframe than carbon dioxide[5]. Retaining the possibility of of keeping global warming to between 1.5-2 degrees depends on addressing methane emissions as a matter of urgency. Retaining the option for new gas connections locks in increasing methane distribution (and associated fugitive emissions) as well as associated costs and health risks to households[6]. This is not consistent with NSW Government policy on 2030 emissions or its commitment to support the Paris Climate target to keep warming between 1.5-2 degrees.

The creation of Renewable Energy Zones and the implementation of a range of supporting strategies to decarbonise generation are aiming for a rapid reduction in the emissions intensity of the electricity system in NSW. These policies, alongside the accelerated withdrawal of coal fired generation will dramatically reduce the emissions intensity of electricity generation by 2030. The proposed BASIX improvements make incremental contributions, by improving residential building efficiency. But the proposed improvements do not implement the future-focussed measures that will be required in the coming decades. Retaining the option of gas network connections, assuming that methane is less emissions intensive than grid-sourced electricity, is shortsighted and incorrect, based upon static (and overstated) assumptions regarding the emissions intensity of grid-electricity. Modelling undertaken by RENEW[7] shows that ensuring all-electric homes through BASIX substantially lowers residential emissions compared to similar dual fuel homes, even when the existing emissions intensity of grid-electricity and gas are used.

PIAC has included RENEW's table presenting the findings in Appendix 1 of this submission.

Energy transition and energy system efficiency

The proposed BASIX improvements should be considered alongside NSW Government policy to improve the flexibility, efficiency and reliability of the energy system. The NSW Government is currently conducting a process investigating a range of reforms to metering, distributed energy

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5 Nature 'Control methane to slow global warming – fast' 25 August 2021

6 Vox 'Gas stoves generate unsafe levels of indoor air pollution' 11 May 2020

7 NSW Department of Planning & Environment 'Promoting innovation for NSW energy customers: consultation paper' December 2021

resources, stand alone power systems, electric vehicle charging and community batteries through its consumer innovation consultation. This process is examining measures to integrate distributed energy and ensure the system is capable of optimising the usage of that energy for the benefit of households and the energy system as a whole. Better constructed improvements to BASIX should play an important role.

Residents with solar PV face reduced feed-in tariffs and export constraints to support system stability, reducing the benefit they can draw from their solar generation, and potentially 'wasting' that generation capacity needlessly. Through BASIX newly built homes should be all electric, including solar where possible. Requiring the installation of heat pump hot water and reverse cycle air-conditioning ensures households have the maximum opportunity to:

- Utilise their onsite generation when they have solar, deriving the greatest benefit from their investment, most efficiently, or

- Having large, efficient controllable loads (like water heating) available to use excess daytime electricity generation, to help local network stability for instance, while using low/zero cost energy to store in the form of hot water, vehicle charge or home batteries when they become cost-competive.

The proposed BASIX changes do not go far enough and lock in inefficient decisions that will undermine climate change policy repsonses, increase ongoing costs for households and materially reduce the ability of households to benefit from a more efficient, flexible electricity system.

Recommendation 1

That the NSW Government consider improvements to BASIX in the context of optimising contribution to other housing affordability, health, climate, resilience and energy system policy objectives and recognise this in cost benefit analyses.

3. Cost Benefit Analysis Issues

PIAC strongly recommends the Cost Benefit Analysis be revised to more accurately assess the costs and benefits of improved residential energy efficiency. The Consultation Draft indicates the Cost Benefit Analysis (CBA) assessing the proposed BASIX changes follows a similar methodology to that employed for the Consultation Impact Statement (CRIS) for the proposed changes to the NCC. PIAC and other consumer and industry stakeholders strongly disagreed with the assumptions and findings of the NCC's CRIS and highlighted a number of serious concerns in response to it. PIAC is concerned the CBA assessing the proposed BASIX changes has similar issues and contains a range of incorrect and unreasonable assumptions that significantly understate the benefits. The 'qualified' findings of the CBA undermine the ability to make the necessary, robust improvements to BASIX. PIAC is concerned the CBA:

- Undervalues the value of carbon emissions

- Does not fully account for the actual emissions intensity of methane gas and its impact on emissions reductions targets

- Makes static assumptions regarding the emissions intensity of grid-sourced electricity that do not account for the rapid decarbonisation of electricity generation. This does not recognsie that houses built now will be drawing on electricity in 2030 and beyond when emissions intensity will be at least 50% less and declining to zero by 2050.

- Undervalues the health and wellbeing benefits to households enabled by improved housing efficiency

- Utilises an unreasonably a high discount rate of 7%

- Does not consider the value of the impact of efficiency in affordably supporting better household resilience to extreme weather

- Utilises outdated climate data files that do not reflect current or projected increased temperatures

- Utilises an assumed industry learning rate of 0%, which materially overstates the costs of higher efficiency standards

- Utilises unreasonable and unexplained discount rates for key benefits, such as discounting 70-80% of the benefits of deferred energy network costs

- Applies rebound effect discounts to energy usage reductions. This is not realistic for home energy use. Extra energy is not used to heat or cool a home that is already comfortable. If extra energy is used, it is providing a health or wellbeing improvement to the household that should be considered a tangible benefit. This is particularly relevant for low-income and other vulnerable households (such as pensioners) who are known to underconsume, with signficiant negative health and wellbeing impacts.

- Using wholesale prices rather than retail prices for calculations, which understates the benefits to households from improved efficiency. Assumptions that a benefit to a household is a cost to an energy retailer and therefore a net societal neutral is unreasonable and should not be made in isolation from broader government policy.

- Not including the benefits to society of lower wholesale prices as a benefit. This is a major inconsistency that, when rectified, will have a significant effect on the CBA findings.

- The future costs of removing gas connections have not been considered, despite the clear evidence that this will be required to achieve a net zero emissions commitment and retain the possibility of meeting Paris climate targets to keep warming between 1.5-2 degrees.

- The benefits of efficient electrification (including increased load flexibility in response to solar PV generation) have not been appropriately recognized. The opportunity cost of retaining gas connections (including the ongoing fixed costs of maintaining gas network connections, future costs of gas disconnection, and the lost efficiency through inability to utilise large/controllable

loads - such as water heating – to absorb onsite generation or assist with periods of daytime minimum demand) have not been accounted for.

Recommendation 2

That the Cost Benefit Analysis be updated to ensure it correctly assesses the full range of benefits relating to the contribution BASIX improvements make to key Government policy objectives. This update should directly address the concerns raised by PIAC that the current CBA unreasonably inflates costs, does not recognise material benefits and does not consider the long term costs of inadequate action now.

4. Stronger BASIX improvements

PIAC recommends the NSW Government take this opportunity to ensure BASIX supports better outcomes for climate change policy, energy system transition policy and household health, wellbeing and social equity policies. BASIX improvements now should deliver the strongest possible standards in residential energy efficiency and ensure that from 2022 all new homes are fit for the future as well as today.

Fuel neutrality is no longer an acceptable position in relation to new residential construction. BASIX must focus on delivering better long term outcomes for households in line with key objectives to:

- Imediately reduce methane emissions and the health impact of methane in homes
- Improve building energy efficiency as part of delivering zero-carbon ready homes now
- Improve housing cost affordability by delivering better long term household health and wellbeing outcomes through more efficient energy usage
- Support household resilience to the increasing extremes of hot and and cold weather resulting from climate change
- Optimise the capacity of household energy generation and load to contribute to a more flexible, reliable and efficient energy system.

PIAC supports updating the greenhouse emissions factor used when calculating the energy consumption underpinning the models utilised in BASIX. However, considering the extremely long lives of housing assets, and the rapidly acceleration decarbonisation of NSW electricity generation[8], emissions intensity assumptions must be forward looking. That is, they should be based on what the emissions intensity of electricity will be in 2030 and beyond, on the pathway to a zero-emissions electricity grid. The intent should be to reflect the actual path of electricity system emissions and to strengthen the incentive to make long-term decisions that will optimise the benefits (in affordability, efficiency and climate mitigation) for construction decisions made now.

[8] Renew Economy 'Eraring closure will result in more wind, solar and batteries, and less gas' 18 February 2022

Recommendation 3

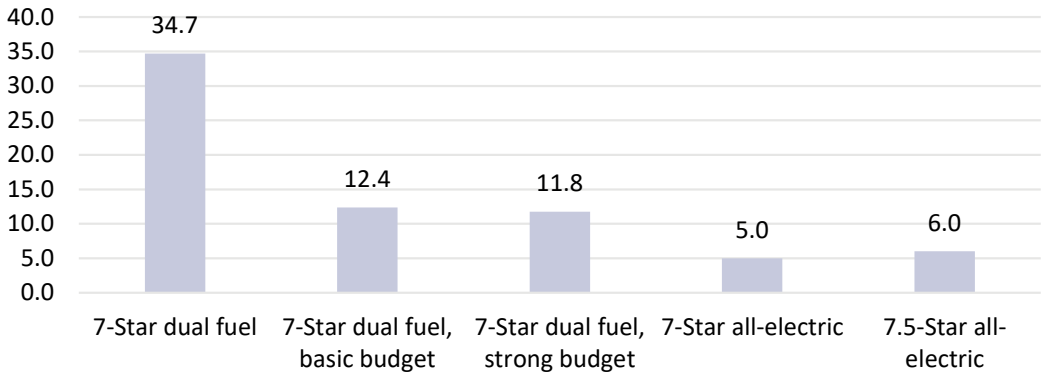
That the NSW Government make further improvements to BASIX to optimise contribution to housing affordability, health, climate, resilience and energy system policy objectives. This should involve removing the option of gas network connections for new homes and providing a platform for 'zero-carbon ready' homes now.

Appendix 1 - RENEW tables

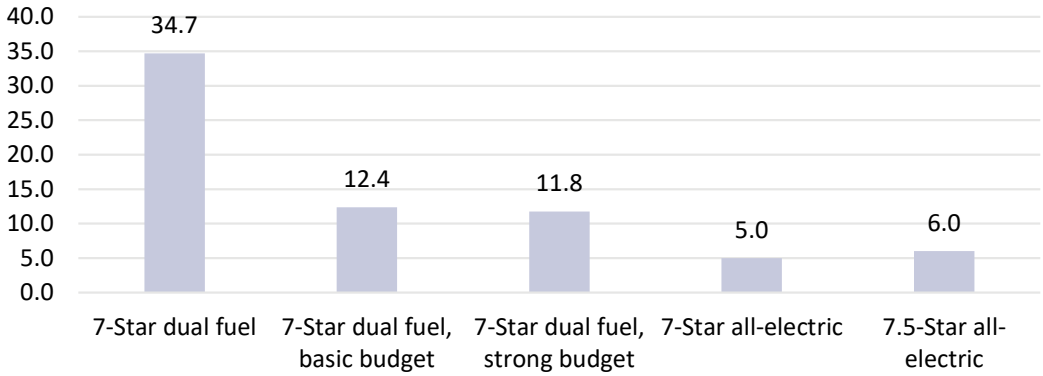
SCENARIO	6-STAR DUAL FUEL	7-STAR DUAL FUEL	7-STAR DUAL FUEL, BASIC ENERGY BUDGET	7-STAR DUAL FUEL, STRONG ENERGY BUDGET	7-STAR ALL-ELECTRIC	7.5-STAR ALL-ELECTRIC
Average daily gas use (MJ)	56.0	51.8	51.8	51.8	0	0
Annual gas bill ($)	$720	$683	$683	$683	0	0
Average daily electricity import (kWh)	11.08	10.84	7.00	6.64	7.65	7.60
Average daily electricity export (kWh)	0	0	9.55	20.13	18.25	18.32
Annual electricity bill ($)	$1,660	$1,633	$956	$638	$699	$692
Total annual energy bill	**$2,380**	**$2,317**	**$1,639**	**$1,321**	**$699**	**$692**
Annual bill savings from business as usual	-	*$64*	*$741*	*$1,059*	*$1,681*	*$1,688*
% savings from business as usual	-	*3%*	*31%*	*44%*	*71%*	*71%*

NPV - 20 Years (2% Discount): Sydney

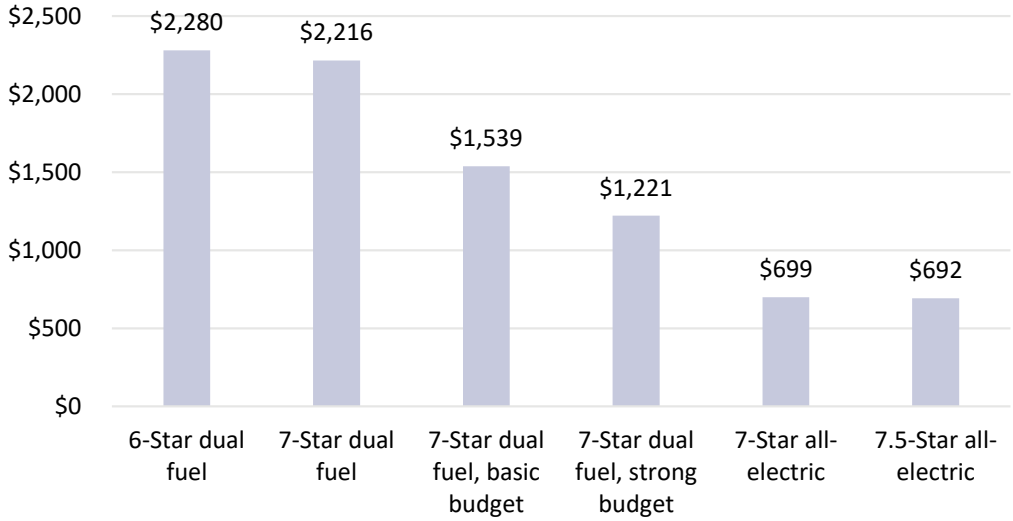
Years to pay back initial investment: Sydney

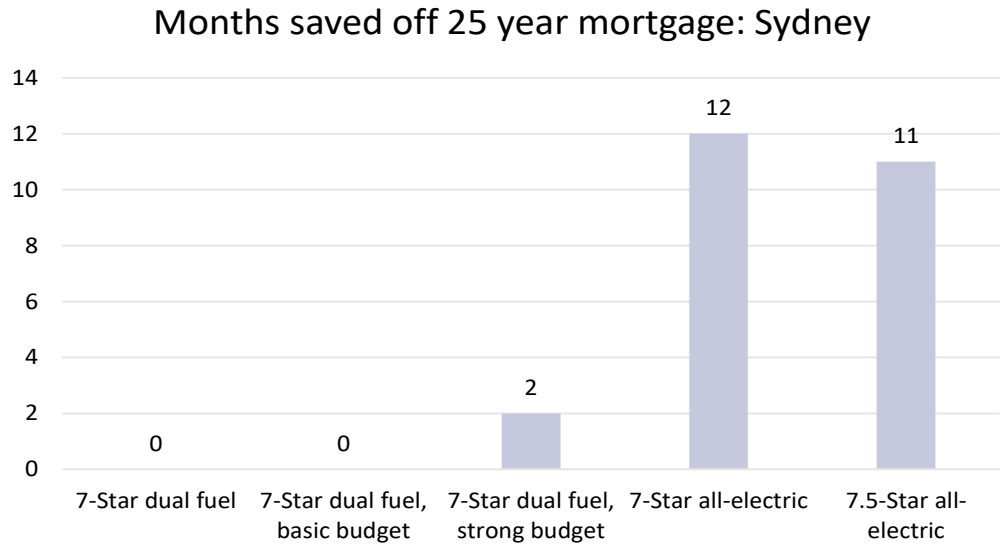


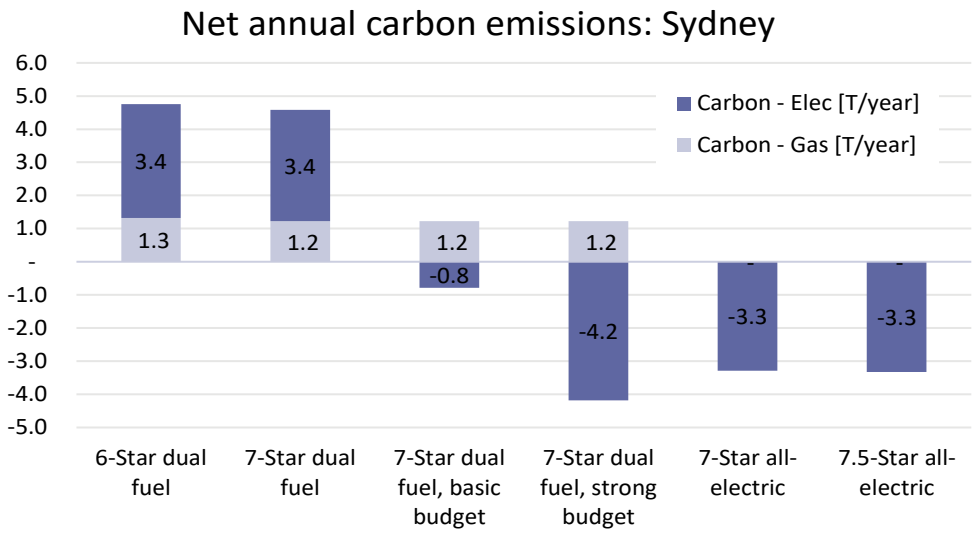
Years to pay back initial investment: Sydney

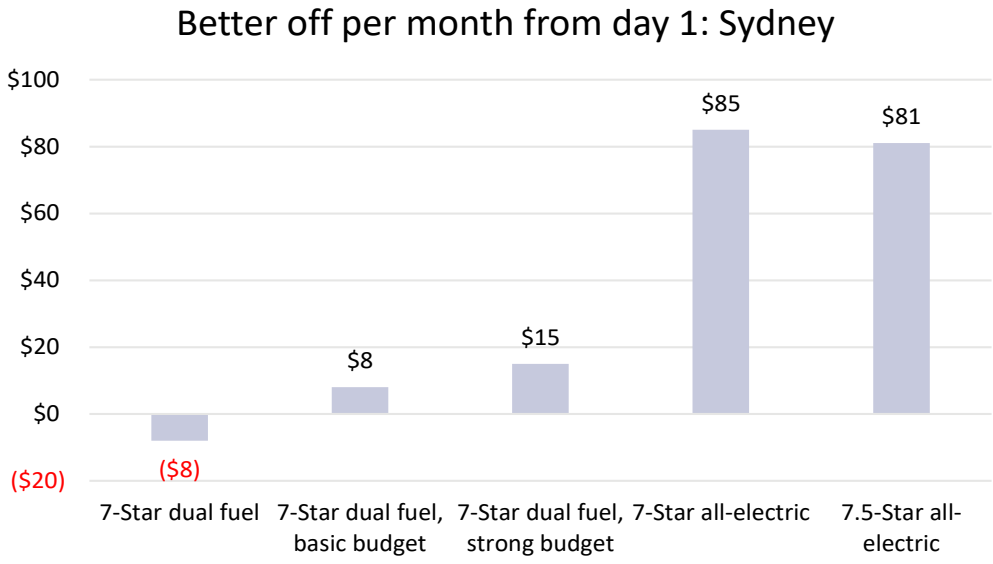


Annual energy bill: Sydney




Months saved off 25 year mortgage: Sydney
14
12
10
8
6
4
2
0
0
0
2
12
11
7-Star dual fuel
7-Star dual fuel, basic budget
7-Star dual fuel, strong budget
7-Star all-electric
7.5-Star all-electric


Net annual carbon emissions: Sydney
6.0
5.0
4.0
3.0
2.0
1.0
-
-1.0
-2.0
-3.0
-4.0
-5.0
Carbon - Elec [T/year]
Carbon - Gas [T/year]
3.4
1.3
3.4
1.2
1.2
-0.8
1.2
-4.2
-3.3
-3.3
6-Star dual fuel
7-Star dual fuel
7-Star dual fuel, basic budget
7-Star dual fuel, strong budget
7-Star all-electric
7.5-Star all-electric


Better off per month from day 1: Sydney
$100
$80
$60
$40
$20
$0
($20)
($8)
$8
$15
$85
$81
7-Star dual fuel
7-Star dual fuel, basic budget
7-Star dual fuel, strong budget
7-Star all-electric
7.5-Star all-electric