RENEWING PUBLIC & COMMUNITY HOUSING

Transforming lives through better social housing

Solar panels and energy efficiency retrofits

Retrofitting and repowering Australia's ageing stock of public and community housing with clean energy is one of the most exciting opportunities to reduce carbon pollution, improve the lives of low income renters, and make properties cheaper to run and more comfortable to live in.

The Greens recognise Australia's lowest income households are the most vulnerable to the rising cost of living and to the impacts of global warming, with hotter, longer summers becoming the norm. Targeting public and community housing represents one of the greatest opportunities to reduce pollution and dramatically increase the quality of life and cost of living for some of the most vulnerable Australians.

There are more than 800,000 Australians living in over 421,000 public and community housing dwellings across the country. Much of Australia's public and community housing stock is ageing, with 65% built before 1980, and is very expensive to heat and cool[i].

Australians living in public and community housing are disproportionately affected by increases in power and utility bills, but are the least able to enjoy the benefits of solar panels and other items that improve the energy efficiency, comfort, and sustainability of their homes. Low income tenants are the people least able to access the clean energy and efficient housing revolution – yet stand to benefit the most from homes that are cheaper to run and more comfortable and secure to live in. It's time to change that.

> OUR PLAN

The Greens' plan has the simple objective to deliver clean power, lower electricity bills, and homes that are cheaper to run and more comfortable to live in, through a nationwide upgrade program for Australia's 421,000 public and community housing dwellings.

Our proposal is to upgrade Australia's entire public and community housing stock by 2030. We will provide a $2000 capital upgrade for every dwelling to:

- Put solar on every roof with 2kW rooftop solar PV systems[ii];
- Retrofit homes with energy efficient appliances, LED lighting, window glazing, smart meters, water efficient appliances and shower heads, roof and wall insulation, ceiling and ventilation fans, efficient heating and cooling, low cost sensors, and draught proofing;
- Add secure screen doors and window fittings for cross ventilation
- Provide energy efficiency assessment, education and advice to tenants on how they can make behavioural changes to help save energy in the home
- Provide a training, employment and education package for tenants interested in developing skills in clean energy, to employ at least 5000 tenants over the rollout of this package[iii]

The least energy efficient housing would be prioritised first.

> BUDGET IMPLICATIONS

Using independent Parliamentary Budget Office costings, the Greens estimate this initiative to cost $60 million per year over 14 years to 2030.

The total cost over forward estimates is $240 million.

> INACTION OF THE OTHER PARTIES

The Coalition promised one million additional solar energy roofs over 10 years as one of its 2013 election promises, and two days before the federal election Minister Hunt committed to providing solar PV installation rebates for up to 100,000 low-income households a year[iv]. The Coalition's first horror budget in 2014 allocated no funds to the program and it later confirmed the program had been scrapped.

Even the Coalition's hand-picked expert panel headed by a climate sceptic admitted that clean energy drives down power prices.[v] Despite this, the Coalition has ruthlessly attacked the Renewable Energy Target, making Australia the only nation on earth to roll back a clean energy target. The number of jobs in the Australian solar industry has almost halved under the current government, falling by 48% as a direct result of its attack on renewable energy.

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Figure 1: There are around 421,000 social housing dwellings in Australia, providing a home for 406,600 households

	Australia	NSW	Vic	Qld	WA	SA	TAS	ACT	NT
Public housing (no. households)	**321 627** (314 963)	110 241	64 404	51 248	33 361	39 428	7 234	10 833	4 905
Community housing	**72 105** (69 171)	28 214	12 689	11 585	6 608	5 942	6 109	663	295
State-owned and managed Indigenous housing	**10 035** (9732)	4 641	-	3 355	-	1 817	222	-	-
Indigenous community housing*	**17 529** (12 775)	4 730	1 966	5 013	2 493	1 102	73	-	2 152
Total	**421 296** (406 644)	**147 826**	**80 059**	**71 201**	**42 462**	**48 289**	**13 638**	**11 496**	**7352**

Source: Table 17A.3 Number of social housing dwellings, at 30 June 2015, *Productivity Commission Report on Government Services 2016*
*Figures for 2015 not available, figures for 2014 used

Disappointingly, the Labor party voted with the Abbott government to cut our Renewable Energy Target and to scrap the effective, low-cost Energy Efficiency Opportunities scheme which cut energy use and power bills.

Labor's election promise of 50 per cent renewable energy by 2030 compares dismally with the Greens' plan for 90% by 2030 and their plan includes much lower levels of funding for low-income households[vi].

> WHO WILL THIS HELP?

This initiative will help about 800,000 Australians living in 421,000 public and community housing dwellings over the next decade[vii].

The CEFC estimates annual savings of up to $1075 per household can be made from improving insulation in walls and floors, adding double glazing, LED lighting instead, induction stoves in place of gas stoves, installing secure screen doors to improve ventilation, and in-home energy monitoring.

A 2kW rooftop solar PV unit alone would save each household around $780 per year on average[viii].

Public and community housing tenants are more vulnerable to the effects of poorly performing housing. Older single people currently make up the highest proportion of household types, with the median age of tenants in public housing being 54 years[ix]. A high proportion of public housing tenants are aged 65 years and over (32%), and 43% of all tenants reported a disability.

> CHEAPER TO RUN, MORE COSY TO LIVE IN

Energy efficiency measures and insulation can help reduce bills and make homes dramatically more comfortable to live in. Yet older public and community housing is thermally inefficient, and difficult and costly to heat.

Health problems are exacerbated by living in cold, draughty and damp houses in the south, and hot, humid houses in the north[x]. Over 2,400 deaths each year in Australia are associated with periods of cold weather (or 6.5% of deaths) – higher than the percentage of deaths linked to cold weather in Sweden (3.9% of deaths).[xi]

Evidence indicates that low-income households tend to live in buildings with poorer energy efficiency, leading to higher energy costs, which in turn has significant financial and health effects on the households[xii]. For example:

- Low-income tenants are twice as likely to be living in an uninsulated home compared to owner-occupiers
- According to a 2011 survey more than half of all community housing dwellings did not have any insulation and nearly one third had inefficient electric hot water systems
- Low income households spend three times what high-income households spend on home energy
- Low income earners also pay a disproportionate amount of their income on utility bills. ABS data shows households receiving most of their income from a government pension spend close to 10% of their income ($61 per week) on total energy costs[xiii]

Between 2008-2014, household energy prices increased by 61%[xiv]. An Anglicare study found electricity bills are relatively inflexible and low income households have very limited capacity to reduce their consumption. Power bills are also a significant expense. In 2010 the ABS found nearly 40% of low income earners were unable to pay power, gas or phone bills on time that year, and research shows Age pensioners will cut back on their food intake in order to pay their power bills[xv].

> REDUCING EMISSIONS

An average rooftop solar PV unit displaces about 2 tonnes of carbon per year, meaning **our measure would reduce pollution by as much as 800,000 tonnes[xvi].**

The Grattan Institute estimate the electricity generated from Australia's installed solar PV will reduce pollution by about 4 million tonnes of CO2 each year - or 66 million tonnes by 2030. This represents 10% of the abatement required to achieve Australia's 2020 pollution target[xvii]. It has also reduced the amount of electricity that needs to be produced, representing a benefit of $7 billion of avoided generation costs.

> BOOSTING AUSTRALIAN INDUSTRIES & JOBS

This initiative would significantly boost local jobs in Australia's renewable energy, and energy and water efficiency industries.

The Australian solar industry (including rooftop solar PV modules and hot water systems) currently directly employs 7,480 people full time. **However as a direct result of the Abbott-Turnbull government's attacks on the renewable energy industry, this number has fallen by almost half (48%)** from the peak of 14,300 jobs in solar in 2011-12 [xviii].

Environment Victoria estimate that upgrades of Victoria's entire housing stock (1.6 million dwellings by 2025) could "reasonably expected to support between 7000 and 13,000 jobs per year[xix]".

The rebate program for solar hot water systems has been closed down by federal and state governments, which led to a drop of over 50% in the number of installations nationwide since the peak in 2009; as a result this long-standing part of Australia's manufacturing base is in decline but could easily be reversed with the right assistance. Rheem Australia for example employs 700 Australians, including 200 manufacturing workers and 15 in Research & Development[xx].

This package also proposes a jobs and training package for 5000 tenants – with a large portion aimed at Aboriginal and Torres Strait Islander employment in the regions which could benefit from large scale installation and maintenance of smart meters and solar PV.

SOLAR PV

In 2013 Australia passed the milestone of having one million solar PV systems installed on rooftops and there are now over 1.5 million rooftop solar systems installed across the country[xxi].

The potential for growth is massive, but we can't leave renters behind. The Greens believe the next million solar houses should be targeted to our most disadvantaged, as well as provide a boost for the green economy.

This program would bridge that gap. The Australian solar industry is well regulated and safe, and has the capacity to install the extra 40,000 PV panels each year proposed in this initiative.

INSULATION

About 200,000 new and existing dwellings are fitted with ceiling insulation every year in Australia. 75% are in new dwellings and 25% (about 40,000) are retrofits of existing dwellings.

A report by the Insulation Council of Australia found insulation alone to be one of the most effective measures in reducing energy bills, increasing the comfort of a home, and fighting climate change.

It's estimated the 1.27 million houses retrofitted with insulation as part of the federal government's Home Insulation Program (HIP) introduced in 2009 saved just under one tonne of greenhouse gas pollution and $300 in energy costs each house, each year[xxii]. By 2020 this amounts to a reduction of $4 billion in household savings and 10 million tonnes of carbon dioxide[xxiii].

The former federal retrofit scheme was scrapped due to the tragic dangers involved in being implemented too hastily. In the first year of the HIP, 1.2 million existing dwellings were retrofitted – a 500% increase in the level of delivery the industry had managed prior to the scheme.

The Greens scheme proposes a retrofit program of an additional 40,000 homes per year – representing a safe and manageable increase of 20% compared to business as usual.

Given a large proportion of the insulation used in Australia is manufactured here, as well as all installation and associated employment being local, this sector is a significant job creator[xxiv].

ENERGY AND WATER EFFICIENT APPLICANCES

Appliances such as fridges and ovens contribute to about a third of home energy use. ClimateWorks research found that purchasing highly efficient appliances at the time of natural replacement could cut Australia's energy bills by $471m and save over two million tonnes of pollution per year[xxv].

Around 70% of the most disadvantaged households live in dwellings more than 20 years old, which are less likely to be designed with energy efficiency features. The average 3-star home costs about $2230 a year to heat, compared to a 5-star home of $1270.

Replacing halogen globe with LED lights can save up to 84% off a lighting bill[xxvi]. Simply changing the showerheads in 483 households in a Tasmanian government program targeting low income tenants resulted in average water saving of 129 litres per day, which equates to a cumulative saving of 38,537 kL/year valued at around $35,000, or $72 per household.

> CASE STUDIES

CEFC

The CEFC recently launched a $250m financing program to construct up to 1,000 new high-performing energy efficient

community housing dwellings across Australia. This builds on a previous $60 million loan to St George Community Housing in NSW develop over 200 high performing homes in Sydney's south built to minimum seven-star NatHERS ratings[xxvii].

UK

In 2011 a scheme to install free solar panels on 200,000 council and housing association homes was introduced over four years. The program is worth £1.2 billion and was expected to create up to 3000 jobs and reduce tenants' power bills by as much as 50%[xxviii].

SA

The SA government launched a scheme in late 2015 to install solar panels on 400 community housing homes, estimated to save tenants at least $150 annually from their electricity bills. The aim of the pilot is to help create "more energy efficient, comfortable homes for public housing tenants" and provide a boost to SA solar panel suppliers and installers[xxix].

TASMANIA

In 2012 the Tasmanian government introduced a *Cost of Living through Energy Efficiency Strategy* scheme which invested more than $8 million to improve energy efficiency for up to 3000 public housing properties[xxx]. It included education and energy efficiency strategies such as installing ceiling and floor insulation, draught-proofing, upgrading heaters, water efficient shower heads, and replacing electric hot water units with solar. It also invited tenants from 100 properties to become 'Energy Champions' to share their experiences of changes and energy savings with other tenants.

Since being implemented the Energy Champions project has delivered energy efficiency service to 3300 Housing Tasmania properties, benefitting 7062 residents, including 928 people over 65 years.

Benefits included water savings of 127,000 kL per year (worth $120,000), and average household energy savings of 3.3kWh per day (worth $262 per household per year).

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[i] http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=60129549033

[ii] A discount is applied to the cost of PV given the scale of the program. At January 2016 the price of 2kW solar system ranged from about $2100 to $5700 fully installed. The International Energy Agency forecasts that rooftop solar PV costs could fall by 25 per cent by 2020.

[iii] *Cost of Living through Energy Efficiency Strategy* invested more than $8 million to improve energy efficiency for up to 3 000 public housing properties, as part of the Housing Tasmania (2011) Energy Efficiency Strategy.

[iv] ABC FactCheck – Promise check: One million additional solar energy roofs over 10 years. Updated 8 May 2016 at http://www.abc.net.au/news/2014-11-07/one-million-solar-roofs-over-ten-years-promise-check/5731272

[v] RET Review Report Available at http://webarchive.nla.gov.au/gov/20150403183612/http://retreview.dpmc.gov.au/ret-review-report-0

[vi] http://www.alp.org.au/renewableenergy

[vii] As at 30 June 2014, there were 393,844 households in social housing, with the majority in public rental housing (317,000), 9,800 in state managed and owned Indigenous housing (SOMIH) and 67,000 in mainstream community housing. Although Indigenous community housing (ICH) data do not allow for number of households, as at 30 June 2014 there were 17,500 ICH dwellings. http://www.aihw.gov.au/housing-assistance/haa/2015/social-housing-tenants/ The average household size in social housing is 2 people. AIHW (2011) Housing Assistance.

[viii] Figure adapted from 2.5kW system so reduced by 1/6 at http://www.solargain.com.au/how-much-does-solar-energy-save-you

[ix] AIHW (2010) A profile of social housing in Australia.

[x] Vallance, S., 2011 *Living in The Country: Consumer Perspectives on Energy Supply in Rural Tasmania*, TasCOSS, Hobart.

[xi] Gasparrini A. et al (2015) 'Mortality risk attributable to high and low ambient temperature: a multicountry observational study', *The Lancet,* Vol 386, No. 1991, p367-375.

[xii] Clean Energy Finance Corporation (CEFC) (2016) *Financing energy efficient community housing.* February 2016

[xiii] ACOSS and Urmee et al cited in Clean Energy Finance Corporation (CEFC) (2016) *Financing energy efficient community housing.* February 2016

[xiv] Household energy prices increase despite drop in usage, Australian Bureau of Statistics says 10 Feb 2016, at www.abc.net.au/news/2016-02-10/abs-energy-stats-show-61-per-cent-increase/7153660

[xv] Anglicare Tasmania (2011) *The Price of poverty – the cost of living for low income earners* https://www.anglicare-tas.org.au/sites/anglicare-tas.org.au/files/The%20price%20of%20poverty%20-%20The%20cost%20of%20living%20for%20low%20income%20earners.pdf

[xvi] https://www.solarmarket.com.au/carbon-reduction-solar-panels/

[xvii] Grattan Institute (2015) *Sundown, Sunrise – How Australia can finally get solar power right.* p15 http://grattan.edu.au/wp-content/uploads/2015/05/822-sundown-sunrise4.pdf

[xviii] ABS (2016) *4631.0 - Employment in Renewable Energy Activities, Australia,* 2014-15 Issued 15/03/2016

[xix] http://environmentvictoria.org.au/efficiency-leadership

[xx] Clean Energy Council (2013) Building on the employment benefits of clean energy

[xxi] Clean Energy Regulator at 1 June 2016 at http://www.cleanenergyregulator.gov.au/RET/Forms-and-resources/Postcode-data-for-small-scale-installations

[xxii] Note: In an average year, approximately 200,000 new and existing dwellings are fitted with ceiling insulation (75% new dwellings or about 160,000 and 25% retrofit of existing dwellings or about 40,000) in Australia. In the first year of the HIP, 1.2 million existing dwellings were retrofitted – a six-fold increase in the level of delivery previously managed by the industry. See http://www.icanz.org.au/pdf/2011_ICANZ_Report_-_V04__final_260911.pdf

[xxiii] Key saving strategy bounces back after a pink battering SMH, WA Today 24th March At http://www.smh.com.au/environment/earth-hour/key-saving-strategy-bounces-back-after-a-pink-battering-20120323-1vnyj.html

[xxiv] Clean Energy Council (2013) Building on the employment benefits of clean energy

[xxv] ClimateWorks Australia research cited in Clean Energy Finance Corporation (CEFC) (2016) *Financing energy efficient community housing.* February 2016

[xxvi][xxvi] http://www.yef.org.au/infoforhomes/

[xxvii] Clean Energy Finance Corporation (CEFC) (2016) *Financing energy efficient community housing.* February 2016

[xxviii] www.solarbuzz.com/industry-news/solar-europa-plans-council-and-housing-association-solar-program

[xxix] http://www.thefifthestate.com.au/innovation/planning/adelaide-to-install-solar-panels-on-community-housing/79145

[xxx] Housing Tasmania (2011) Energy Efficiency Strategy