



GREEN BUILDINGS PLAN

Harnessing the efficiency and innovation revolution

Zero carbon buildings by 2040

The Greens will harness the massive opportunity to reduce carbon pollution and create healthier places to work through the establishment of a Green Buildings Fund. By investing in innovation and refurbishment, we create jobs, drive innovation, and cleaner, greener cities.

The Greens recognise the massive opportunity to reduce carbon pollution, drive innovation and new jobs, create more comfortable, healthy places to work, and transform our cities to cooler, more liveable places to live, work and play through a large scale Green Buildings program.

Green buildings are also cheaper to run and good for business. Recent data shows green buildings consume as much as 80% less energyⁱ after energy efficiency retrofits.

Australia's commercial buildings account for about 10% of our national energy consumptionⁱⁱ, and offer some of the most significant pollution reduction potential using the lowest cost using technologies that are already availableⁱⁱⁱ.

In 2014 just 8% of Australian buildings were rated at the highest NABERS (National Australian Built Environment Rating System) category, and just 18% of all CBD office space had achieved a Green Star rating^{iv}.

> THE GREEN BUILDINGS PLAN

To keep global warming within 1.5° degrees and support the Greens' plan to double energy efficiency by 2030, and reach net zero carbon pollution by 2040^v the Greens will introduce:

- **A national target of 100% zero carbon buildings by 2040**
- **A new \$100m annual loan facility through the CEFC for large scale retrofits of commercial buildings** with a focus on mid-tier commercial buildings (small and medium size businesses)
- **A new \$50m annual grant funding for new buildings** to achieve 'world leadership' 6 Star Green Star certification or an equivalent rating
- **A new \$10m Green roofs and walls fund** and a requirement for any buildings receiving government funding to include green walls or roofs
- An urgent review and upgrade of the **National Construction Code** energy performance standards with a trajectory to net zero emissions by 2040, and an amendment of the Code to include the provision of end-of-trip facilities for bicycle users

- Incentives for local governments, worth \$10.1 million over forward estimates, to enroll commercial building owners in Environmental Upgrade Agreements.

> BUDGET IMPLICATIONS

The Parliamentary Budget Office has estimated this plan to cost \$62.1m per year over ten years.

The cost over forward estimates is \$258.4 million.

> RETROFITTING COMMERCIAL BUILDINGS

The Greens propose that the Clean Energy Finance Corporation (CEFC) introduce a new annual loan facility worth \$100million per year to enable large-scale retrofits of our commercial building stock.

It's proposed the focus is on Australia's 'mid-tier buildings', including offices, shopping centres, schools, hospitals, hotels, and small to medium sized businesses and organisations.^{vi} This is because, according to the Australian Sustainable Built Environment Council (ASBEC), offices and retail buildings represent the largest share of opportunity in the commercial sector, and owners face significant barriers to refurbishment programs and realising energy savings.

The opportunity is significant.

It's estimated there are 80,000 mid-tier buildings across Australia, and mid-tier offices account for about 52 million square meters of the 64 million square meters of office space in Australia^{vii}.

The *Beyond Zero Emissions Buildings Plan*^{viii} includes a number of case studies that modelled the impact of retrofits on various types of commercial buildings, and found

- 80% overall energy reduction in a pre-1945 Brisbane office building
- 78% reduction in a 1980's era Sydney office block;

- 83% reduction in a Melbourne school, and
- 63% reduction in a large Sydney shopping center.

Case study: Brisbane

Brisbane's **Norman Disney Young** building spent \$980,000 on an extensive retrofit, which refurbished all of its mechanical services and electrics, and replaced all appliances and equipment to the most energy efficient possible. The entire refurbishment occurred over just one weekend, and lifted the NABERS energy rating from 0 to 5 stars, reduced energy use by 54%, carbon emissions by 300,000 tonnes annually, peak demand on the grid by 33%, and is saving \$64,000 on



energy bills each year^{ix}.

> WORLD LEADERSHIP IN NEW BUILDINGS

To really kick-start the green building revolution in Australia, we need to provide stronger incentives and regulations to Australia's new buildings. Australia is rated 17th in the world on the Global Innovation Index, and we lag behind most OECD countries when energy efficiency and sustainability requirements in building codes for new buildings are compared^x.

Australia is lagging globally in energy efficiency. In 2014 we were ranked 10th out of the world's 16 largest economies, and we have been nominated as having one of the highest energy intensities in the commercial building sector, only underperformed by Italy^{xi}.

Yet world leadership in green buildings can be achieved for the same or minimal extra cost. Data from 34 Green Star projects over the last 12 months shows that projects can deliver a Green Star rating for between 1% and 3% of their project budget^{xii}.

This is why the Greens propose a new funding stream of \$50 million per year to offer an 'innovation top up fund' of up to 2% of total construction costs, to cover the cost to achieve world leadership such as 6 Star Green Star buildings.

Case study: Sydney



Sydney's new Science and Graduate School of Health Building at the **University of Technology Sydney** opened in 2016 and achieved a 6 star-Green star rating.^{xiii} Architects utilised recycled materials and natural light, installed solar

hot water technology, and a green roof which not only provides insulation and improves air quality, but also doubles as an outdoor recreational space.^{xiv}

> GREEN WALLS AND ROOFTOPS

Melbourne University urban planning Professor Brendan Gleeson said the first stage of a "green renovation" of our cities would be the widespread installation of green roofs. Rooftop and vertical gardens can reduce carbon and air pollution, act as thermal insulation for buildings, can help prevent flooding by absorbing heavy rain, and reduces the urban heat island effect.

Case study: Toronto

In 2009, Toronto became the first city in North America to mandate green roofs on all new developments including commercial, institutional and many residential. The city's initiative is a wonderful success story, with 260 green roofs and 196,000 square metres of green roof area created since 2010.



Image: Edible rooftop garden in Toronto. Source: coolearth.ca



Image: Green roof on Toronto's Mountain Equipment Co-op store.

> ENVIRONMENTAL UPGRADE AGREEMENTS

The proposal would pay \$5.00 per tonne of carbon abatement achieved through Environmental Upgrade Agreements (EUAs) to local councils as an incentive for them to signing up commercial building owners for agreements. The payment would occur over the 10-year life of the projects and would only be available for premises that are not owner-occupied.

EUAs are a financing mechanism, facilitated by councils, which improve access to funding for building upgrades to improve energy efficiency and reduce waste and water use. Banks and other lenders provide funds to building owners for upgrades with the council collecting loan repayments through their rates system. This arrangement increases the security of the loan, therefore reducing the risk born by lenders and potentially improving the terms of the loan for the building owner.

At present several councils across Victoria and New South Wales have engaged in EUA schemes, with Victoria recently having amended the Local Government Act (1989) to allow all councils to engage in such schemes.

> INACTION FROM OTHER PARTIES

The Coalition's first budget abolished the National Urban Policy which was driving innovation and sustainability of the built environment and discontinued the Liveable Cities scheme which provided funding for world class new build demonstration projects. Disappointingly, Labor voted with the Coalition when

they scrapped the effective, low-cost Energy Efficiency Opportunities Scheme which helped business cut energy use and power bills.

ⁱ Green Building Council Australia 2012

ⁱⁱ Green Building Council (2015) *Mid-Tier Commercial Office Buildings in Australia: A national pathway to improving energy productivity* at <https://www.gbca.org.au/uploads/97/36449/Mid-Tier%20Commercial%20Office%20Buildings%20Pathway%20report.pdf>

ⁱⁱⁱ ClimateWorks and Allen Consulting Group research, cited by Green Building Council submission to the ERF, 2014

^{iv} <http://theconversation.com/green-building-revolution-only-in-high-end-new-cbd-offices-24535>

^v The Greens post-2020 targets announced in April 2015 are for a 40-50 per cent emissions reduction on 2000 levels by 2025; a 60-80 per cent reduction by 2030; and net-zero pollution by 2040.

^{vi} This is also because many premium or 'A-grade' buildings have already undertaken upgrades and are moving towards Green star certification – but the rest of the commercial building sector have lagged in implementing energy retrofits and have much lower energy efficiency ratings, if any at all. Green Building Council (2015) *Mid-Tier Commercial Office Buildings in Australia: A national pathway to improving energy productivity* at <https://www.gbca.org.au/uploads/97/36449/Mid-Tier%20Commercial%20Office%20Buildings%20Pathway%20report.pdf>

^{vii} Australian Sustainable Built Environment Council (2016) *Low Carbon, High Performance. How buildings can make a major contribution to Australia's emissions and productivity goals*. May 2016.

^{viii} http://media.bze.org.au/bp/bze_buildings_plan.pdf

^{ix} See www.ndv

^x American Council for an Energy-Efficient Economy (2014) *2014 International Energy Efficiency Scorecard* at <http://aceee.org/files/pdf/summary/e1402-summary.pdf>

^{xi} 2014 International Energy Efficiency Scorecard at <http://www.thefifthestate.com.au/innovation/energy/australia-lagging-globally-on-energy-efficiency/65342>

^{xii} Green Building Council (2016) Green Building Day presentation

^{xiii} <http://www.uts.edu.au/about/faculty-science/news/innovation-meets-sustainability-inside-uts%E2%80%99s-six-star-green-rated-building>

^{xiv} <http://www.sustainabilitymatters.net.au/content/sustainability/news/uts-opens-6-star-science-and-health-building-496763694>