

Review of **climate change policies**

Submission by:

Australian Institute of Landscape Architects

May 2017



Contributors to submission;

- **Meredith Dobbie**
- **James Grant**
- **David Martin**
- **Pru Smith**
- **Josh Zeunert**

(The views represented in this submission are the views of practitioners and do not necessarily represent the views of their organisation.)

Contact:

Shahana Mckenzie
Chief Executive Officer

Australian Institute of Landscape Architects

[E] shahana.mckenzie@aila.org.au

[P] 02 6248 9970

[M] 0439 555 764

Contents

1. Submission Overview	4
About the Australian Institute of Landscape Architects	4
Adaptation to the Changing Climate: Building Resilience	4
2. Recommendations	5
Households, small to medium sized enterprises and the built environment.	5
1. Green Infrastructure Strategy	5
2. Mitigation	5
3. Strengthen regulatory measures and provide incentives to promote green cover	6
Transport	7
1. Co-benefits of Active Transport	7
Research, development, innovation and technology	7
1. Measurement of landscape performance	7
2. The role of research in reducing Australia's emissions	7
3. Submission Summary	8
4. Supporting Materials	9



1. Submission Overview

About the Australian Institute of Landscape Architects

The Australian Institute of Landscape Architects (AILA) is the growing national advocacy body representing 3,000 active and engaged landscape architects, and promoting their crucial role in shaping the world around us. Committed to designing and creating a better Australia, landscape architects have the skills and expertise to solve macro issues with innovative integrated solutions. Landscape architects contribute leadership, creativity and innovation as they strive to collaborate to achieve better health, environmental, social and economic outcomes.

From citywide strategies to the redesign of local parks, landscape architects are making places and spaces more sustainable and productive. Communities are demanding more from government and landscape architects are increasingly collaborating with the public and other stakeholders to achieve project outcomes.

AILA congratulates the Government on the release of the 2017 Review of Climate Change Policies discussion paper and welcomes the opportunity to contribute to this important discussion. AILA encourages an integrated 'whole of government' approach to policy making and endorses the Government's commitment to reduce carbon emissions and carbon intensity to meet Australia's Paris Agreement Targets.

AILA supports the submission already made by the Australian Sustainable Built Environment Council (ASBEC) in response to the discussion paper. The submission below will elaborate further on the ASBEC document as it relates to the Landscape Architecture profession.

Adaptation to the Changing Climate: Building Resilience

In response to Australia's commitment to reduce emissions as part of the 2015 Paris Climate Change Agreement, AILA has recently developed a position paper [Adaptation to the Changing Climate: Building Resilience](#).

In response to this challenge, governments are working with their communities to develop resilience strategies to prepare for future change. Committed to designing and creating a better Australia, landscape architects are well placed to play a leading role in developing and implementing these strategies. Landscape architects conceive, reimagine, and transform the natural and built environments, working on streetscapes, parks and playgrounds, transport solutions, tourism strategies, national parks and wilderness landscape. With allied professionals, landscape architects can contribute to landscape-based solutions and integrated ecological outcomes to reduce climate risks and increase resilience.



2. Recommendations

Households, small to medium sized enterprises and the built environment.

1. Green Infrastructure Strategy

AILA believes that the most sustainable, productive, and healthy cities embrace the benefits of green infrastructure – those ecological services that help maintain the natural systems that provide our cities with clean air and water, as well as building resilience within our urban environments and helping us adapt to a changing climate.

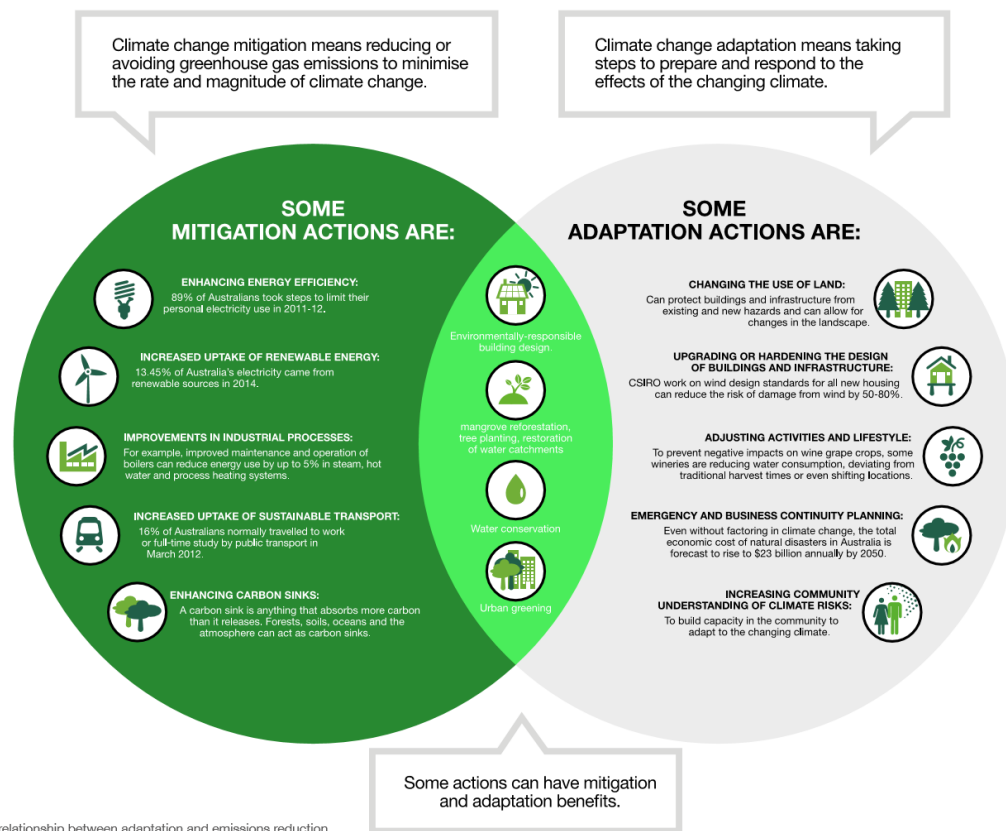
AILA would like to encourage the Government to formally recognise the critical role and co-benefits of living, growing urban green cover systems in Australian cities and settlements defined in AS5334-2013 as 'green infrastructure'. We believe that more research is needed to quantify green infrastructure's contribution to carbon sequestration and would like the government to consider the development of a National Green Infrastructure Strategy as part of its carbon planning.

A National Green Infrastructure Strategy would recognise the dependency of the built and human landscape with the natural landscape in infrastructure development, and would seek to ensure we manage this change in a planned, integrated and considered way by using green infrastructure as a key approach.

This Strategy will acknowledge that nature itself operates as an essential infrastructure, providing important ecosystem services to our communities, whether they are in urban, rural or coastal environments.

2. Mitigation

AILA would like to highlight the linkages and co-benefits between mitigation and emissions reduction policies. We recommend consideration of the [National Climate Resilience and Adaptation Strategy 2015](#) when addressing emission reduction as "some actions (including urban greening) can have mitigation and adaptation benefits." See figure below.



3. Strengthen regulatory measures and provide incentives to promote green cover

There are enormous opportunities to improve energy efficiency in new urban developments and to retrofit existing sites, through greater incentives and regulation. AILA supports the introduction of stronger policy and regulatory measures to ensure higher minimum performance standards for developments and infrastructure including:

- A regulatory framework to support minimum carbon performance standards as part of sustainable development metrics. This includes:
 - Advancing the “National Construction Code energy efficient requirements for new homes, commercial buildings and major renovations and improving compliance with energy efficiency requirements” and
 - “Expanding and improving disclosure of energy performance of homes and commercial buildings”
 - Mandating the expansion of urban green cover through protection of existing urban tree canopy and targeted incentives and programs to promote metropolitan scale ‘Green Grids’, green roofs and green walls.
- Reporting on measures against carbon reduction targets across all levels of government and the business sector
- Ensuring lifecycle assessment, including carbon accounting and future climate impacts, are considered in all capital works projects.

We encourage the Government to recognise the economic co-benefits of urban green cover in terms of mitigating the urban heat island, increasing carbon capture, reducing energy consumption and contributing to healthier community outcomes for built environments.

Buildings are a major energy consumer and account for almost a quarter of total Australian emissions. Green infrastructure (such as vegetation, trees, green roofs and walls) can provide cost effective ways to improve the thermal performance and energy efficiency of buildings.

Research has shown that trees can be used to shade heat-absorbing surfaces of buildings to reduce energy use in buildings. A 10% increase in deciduous tree cover can reduce heating and cooling costs in houses by 5-10%¹. Trees also cool cities during hot periods to mitigate the urban heat island effect which is the build-up of heat in hard surfaces during periods of hot weather². This results in longer sustained periods of heat, particularly during the late afternoon and evening and especially during heatwaves. Shade provided by trees on hot days has been shown to assist in lower temperatures of urban environments by up to 7°C³ and surface temperatures by up to 20°C⁴. If tree planting is accompanied by other vegetation, increased reflective surfaces, and reduced waste heat emissions, temperature reductions of 1-7°C citywide are possible³. This not only reduces building cooling needs and peak energy demand, but also the community’s exposure to hotter temperatures and associated heat related illness, which the National Health and Medical Research Council has estimated will cause 2,500 Australian deaths by 2020⁵. This is almost double the 2016 national road toll (1,290 deaths).

Alternatively, without changing the way we manage the growth of our cities, a Flinders University-led study has found that a 1°C temperature increase boosts cooling loads by 1.5million kWh per year, generating 1000 tonnes in carbon dioxide emissions⁶

Green Walls and Roofs also improve building efficiency and energy savings by reducing heat absorption and reflection, and insulating structures. AILA strongly supports the introduction of policy and regulatory measures to promote Green Wall and Roof implementation. Please refer to the AILA position statement on [Green Walls and Roofs](#).

1 Simpson, J. R. and E. G. McPherson (1996). “Potential of tree shade for reducing residential energy use in California” *Journal of Arboriculture* 22 (1): 10-18.

2 Silva 2010, Rozenzweig 2009, Gober 2010, Adams Smith 2014, GHD, 2011

3 Stone, Fargo & Habeeb (2012), *Managing climate change in cities: Will climate action plans work?.* Elsevier Journal, School of City and Regional Planning, Georgia Institute of Technology, Atlanta US

4 Norton, B., Bosomworth K, Coultts A, Williams N, Livesley S, Trundle A, Harris R, McEvoy D (2013). *Planning for a Cooler Future: Green Infrastructure to Reduce Urban Heat*, Victorian Centre for Climate Change Adaptation Research

5 Brown, Katscherian, Carter, Spickett (2013), *Cool Communities: Urban trees, climate and health*, Curtin University

6 *Blogs.flinders.edu.au*, (2015). *Flinders News > Adelaide Urban Heat Island project*. <http://blogs.flinders.edu.au/flinders-news/tag/adelaide-urban-heat-island-project/>.



Transport

1. Co-benefits of Active Transport

AILA believes it is important to recognise the significant co-benefits of emissions reductions and community health outcomes from increased investment and use of 'active transport' systems (cycling and walking) which reduce high levels of car dependency and provide alternatives for short trip commuters.

AILA would like to draw the Government's attention to its position statements on [Active Travel](#) and [Public Transport](#) which promote lower carbon transport options, lower fossil fuel use, leading to fewer greenhouse gas emissions and reduced air pollution, and improved health and wellbeing, reducing public health costs from a more active population.

Research, development, innovation and technology

1. Measurement of landscape performance

AILA supports increased investment into research for metrics and systems to monitor urban landscape performance such as the role of urban green cover to mitigate extreme weather events, reduce energy consumption and contribute urban carbon farming and capture.

"Landscape performance can be defined as a measure of the effectiveness with which landscape solutions fulfill their intended purpose and contribute to sustainability. No matter how sustainability is defined – zero carbon, net zero water, biodiversity, quality of life – it cannot be achieved without considering landscape." The Landscape Architecture Foundation's [Landscape Performance Series](#) is an excellent resource of information and innovation from research, industry, academia, and professional practice.

The [Clean Air and Urban Landscapes Hub](#) Urban Greening project is another valuable research resource.

The Sustainable Sites Initiative (SITES) rating system is a tool gaining momentum globally. AILA is calling on the government to show leadership and commit to minimum SITES ratings for all federally funded infrastructure projects. This action would align with the outcomes sought in a National Green Infrastructure Strategy, which is to encourage the greater integration of natural and physical infrastructure.

The SITES rating system is the most comprehensive system globally for developing sustainable places, and provides the tools for those who influence land development and management practices, including but not limited to, road and rail development, real estate development, energy and water systems and port development. SITES was created through a collaboration of major industry and non-profit

organisations, and tested around the world, including Australia⁷

Similar to the way the Green Star rating system has been used by governments all across the country to advance green building design and construction, embracing a minimum rating level for federal infrastructure assets can reduce cost, enhance value and create employment opportunities throughout the supply chain.

SITES has been applied to a diversity of projects around the world, including small open space projects a half a hectare in size, all the way up to large industrial projects greater than 10ha in size. AILA recommends that federally funded projects adhere to a minimum SITES rating on all eligible land parcels and corridors within and adjacent to the footprint of the project where federal funds are used. Use of the SITES rating system will further build the resilience of the infrastructure asset, as the criteria within the system responds to a range of urgent global concerns such as climate change, loss of biodiversity, and resource depletion.

2. The role of research in reducing Australia's emissions

AILA's response to the question of the role of research in reducing Australia's emissions is that research is critical to the presentation of independent and unbiased appraisals of how to address climate change, independent of economic or prevailing political interests. Communication of research outcomes is essential, on a regular basis, to inform the public on progress in this regard.

The discussion paper reflects on policies that would increase the efficiencies of existing practices in terms of their emissions. Whilst it is important to consider these efficiencies, AILA feels it is also important to acknowledge that these existing practices (such as coal and gas) are substantial contributors to climate change and alternatives need to be explored and invested in. There are huge economic opportunities to invest in and support Australian research and development in renewable energy technologies that mitigate climate change. It is concerning that there are number of key areas that are not addressed, for example:

- Research and practices of landscape regenerative, sequestration strategies and offsetting (e.g. trees, carbon farming, agriculture);
- Tidal/wave energy and carbon sequestration initiatives;
- Progress in economic investment in carbon capture and storage (CCS) and whether there have been any carbon reductions as outcomes of this investment.

⁷ American Society of Landscape Architects, Lady Bird Johnson Wildflower Center and United States Botanic Garden, 'Sustainable Sites Initiative', See <http://www.sustainablesites.org/>

3. Submission Summary

The recommendations presented above are strategic in nature and collaborative in approach.

We encourage the Government to recognise the critical role green infrastructure can play in addressing climate change. AILA recommends the Government consider the development of a National Green Infrastructure Strategy, and look at strengthening regulatory measures and provide incentives to promote urban green cover. AILA also emphasises the importance of monitoring landscape performance to fully understand the vital role green infrastructure plays in reducing carbon emissions.

We would be happy to discuss further any of the information contained in this submission, and look forward to our ongoing relationship with the Government in the development of climate change policies

4. Supporting Materials

The following additional information has been referenced to support the recommendations contained within AILA's submission.

[Adaptation to the Changing Climate: Building Resilience](#)

[Active Travel v1 published 11/16](#)

[Green Walls and Roofs v1 published 04/16](#)

[Cooling Cities v1 published 04/16](#)

[Public Transport v1 published 04/16](#)

[Green Infrastructure- 2012](#)