

ITEM 3 EMISSIONS REDUCTION TARGET - GLOBAL COVENANT OF MAYORS

Wollongong City Council is one of 26 Councils in Australia to commit to greenhouse gas reduction through the Global Covenant of Mayors for Climate and Energy (GCoM). Under the GCoM initiative Council is required to adopt a science-derived emissions reduction target on behalf of the City of Wollongong.

At its meeting on 23 September 2019, Council considered a report on a proposed target of *net zero emissions by 2050*. Council resolved to defer a decision on the target until after a period of public consultation.

Engagement with the community, businesses and industry was undertaken between 14 October and 8 November 2019. In response, a total of 18 written submissions and 426 online comments were received. Feedback supported the *net zero emissions by 2050* target, however a significant proportion of respondents have urged Council to set a more ambitious target to achieve net zero emissions sooner.

This report proposes that Council adopt an emissions reduction target for the City of Wollongong of *zero emissions by 2050*, consistent with a significant number of other councils, government agencies and corporations across Australia and the world.

In addition, it is proposed a more ambitious “aspirational” emissions reduction target be adopted for Council operations of *net zero emissions by 2030*. This organisational target will demonstrate leadership and support Council’s recent recognition that we are in a State of Climate Emergency that requires urgent action by all levels of government. Working towards an aspirational 2030 target would requirement a whole of Council commitment in potential offset costs depending on the success of Council initiatives.

Following adoption of a target and under the auspice of the GCoM framework, Council is required to develop an action plan to reduce emissions through an investigation and consultation process. The action plan will include a range of actions to reduce Council and the City’s emissions. To assist Council through this process and meeting its commitments under the GCoM it is further proposed to join the Cities Power Partnership Program.

RECOMMENDATION

- 1 A science-derived greenhouse gas emissions reduction target of *net zero emissions by 2050* for the City of Wollongong be submitted to the Global Covenant of Mayors secretariat. Noting that Council is submitting this target on behalf of the community, for the benefit of the entire community and that Council is not solely responsible for the implementation of actions to achieve this target.
- 2 That Council work towards an aspirational greenhouse gas emissions reduction target of *net zero emissions by 2030* for organisational operations and that this commitment be reviewed in five (5) years to enable consideration of progress towards the target.
- 3 That Council develop a Climate Change Mitigation Action Plan in collaboration with key stakeholders to assist all sectors of the community achieve the emissions reduction target for the Wollongong local government area.
- 4 That Council join the Cities Power Partnership Program.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

Authorised by: Linda Davis, Director Planning + Environment - Future City + Neighbourhoods

ATTACHMENTS

- 1 City of Wollongong Science Derived Targets for Greenhouse Gas Emmissions - Report
- 2 Emissions Reduction Target - Engagement Report
- 3 Australian Global Covenant of Mayors Councils Targets

BACKGROUND

In August 2017 Council became a signatory to the GCoM initiative. The GCoM is an international alliance of cities and local governments with a shared long-term vision of promoting and supporting voluntary action to combat climate change and move to a low emission, resilient society.

The GCoM commits Council to respond to the risks and opportunities presented by climate change. The science-derived emissions reduction target must be calculated according to specific protocols derived from the Intergovernmental Panel for Climate Change by an accredited consultant. Wollongong Council's Science-Derived Target for Greenhouse Gas Emissions Report has been completed (Attachment 1).

At its meeting on 23 September 2019, Council considered a report on a proposed emissions reduction target of *net zero emissions by 2050*. Council resolved:

This Item be deferred until after a period of public consultation on the attached reports.

This report presents the outcomes of this consultation and recommends a science-derived greenhouse gas emissions reduction target for consideration by Council.

PROPOSAL

Emissions Reduction Target for the City of Wollongong

As a result of the community consultation work it is proposed that a target of net zero emission by 2050 be set for the community of Wollongong. The proposed target will -

- Incorporate an initial reduction target to extend the carbon budget to 2050
- Beyond 2050 the target will be adjusted to net zero emissions.

The initial reduction target equates to a linear reduction of approximately 2.7% or 74,251 tonnes per year. By 2050 a net zero community emissions target is proposed on behalf of and for the benefit of the Wollongong community. The proposed emissions reduction target is expressed in Table 1 below -

Table 1 – Wollongong's carbon budget and proposed community emissions reduction target

Carbon Budget (t CO ₂ ^{-e})	49,200,000
Pre 2050 target	
Rate of reduction (pa)	2.7%
Annual reduction (t CO ₂ ^{-e})	74,251
Post 2050 target	
Annual reduction (t CO ₂ ^{-e})	Net zero emissions

The proposed target is consistent with all Australian state government targets (with the exception of Western Australia and the Northern Territory). It is also consistent with a growing number of other councils and cities across the world including the City of Sydney and City of Adelaide. A list of the emission targets proposed by other Australian GCoM Councils is provided as Attachment 3.

Under the GCoM framework Council will re-inventory its emissions every two years, this will also provide Council with the opportunity to review and update its target in response to progress and emerging technology.

In order to leverage actions, which yield the highest emission reductions, Council will need to work in partnership with major industry, business and the community. In this regard Council is likely to be responsible for actions associated with advocacy, stewardship, education and engagement for emissions reduction for these sectors, such as supporting the establishment of neighbourhood collaboratives.

Emissions Reduction Target for Council Operations

A significant proportion of community submissions advocated for Council to set a more aggressive emissions reduction target either for the City or Council operations. The percentage breakdown of Council emissions is depicted in Figure 1.

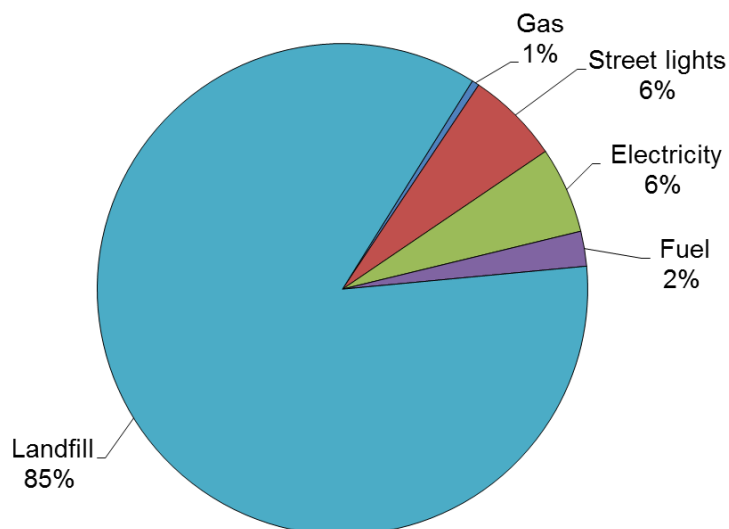


Figure 1 - Percentage breakdown of Council's operational emissions by source

A range of activities are proposed or have the potential to be pursued by Council over the next ten years to reduce its operational emissions, including landfill gas capture, FOGO and conversion to LED street lights. The forecast emissions reductions envisaged by these actions are presented in Table 2.

Table 2 - Forecast emissions reductions for planned and proposed activities.

Planned/proposed activity	Projected Emissions reduction (t CO2-e)	Percentage reduction of Council emissions	Project residual emissions (t CO2-e)
Renewable Energy Facility (1MW power station) Whytes Gully	47,000	32%	
FOGO collection across the City	17,000	12%	
LED street lighting initial roll out	1,488	1%	
Total Planned	65,488	45%	~81,000
Additional 1MW power unit for Whytes Gully	47,000	32%	
Additional LED lighting (planned when technology is available)	4,500	3%	
Purchase of renewable energy (based on residual electricity need if all above are implemented)	17,181w	8%	
Alternate Fuel Vehicles (eg EVs)	Difficult to quantify at this stage		
Increased Solar PV on buildings	Difficult to quantify at this stage		
Total for planned and potential actions	134,169	88%	~18,000

Planned
Proposed by Council staff
Potential Expansion Options

Based on these projections Council will achieve a 45% emissions reduction over the next ten years, through the implementation of planned activities. This does not factor in the possibility of a second 1MW renewable energy unit at Whytes Gully, replacement of high wattage street lighting, increased solar panels on Council buildings, alternate fuel vehicles in Council's passenger and heavy vehicle fleet and other technological evolution. When these proposed activities and the potential for purchase of a renewable energy (through a mechanism such as a Power Purchase Agreement) are considered Council is project to achieve an 88% reduction in its emissions profile.

Despite Council's commitment and future efforts in emissions reduction for its operations, technology does not currently exist to eliminate all emissions from Council operations, for example there will be residual emissions from landfill. Therefore, in order to achieve net zero emissions Council may wish to invest in carbon offsets. Australian offset schemes currently offer offsets for ~\$3.75 per t CO₂-e. The projected residual emissions following implementation of planned activities and planned plus proposed activities are shown in Table 2 above. The cost to offset these residual emissions, based on the current minimum market rate for offset activities in Australia, would be around \$300,000.00 p.a and \$66,000 p.a respectively. It should be noted that Council is not obligated to undertake offsetting. Council may also consider other net positive initiatives to offset residual emissions as they emerge and are validated.

It is recommended that Council work towards an aspirational emissions reduction target for Council operations of *net zero emissions by 2030* to demonstrate leadership and support Council's recent declaration of a State of Climate Emergency. Progress towards this target would be monitored and continuing commitment to the 2030 target could be reviewed in five (5) years.

Climate Change Mitigation Plan and Cities Power Partnership Program

Following adoption of a target and under the auspice of the GCoM framework, Council is required to develop an action plan to reduce emissions through an investigation and consultation process. The action plan will include a range of initiatives to reduce Council's and the City's emissions. To assist Council through this process and in meeting its commitments under the GCoM it is further proposed to join the Cities Power Partnership (CPP) Program.

CPP is administrated by the Climate Council, a climate change communications organisation. It is a network of local government organisations working together to transition to a clean energy future. Participating councils who join the partnership have six months to select five key actions from 39 potential partnership pledges focused around renewable energy, efficiency, transport and advocacy. Many of the pledges involve actions that Council is already committed to progressing such as adopting an emissions reduction target.

The benefits and opportunities offered through the program include -

- Collaboration, knowledge and experience sharing with other councils
- Access to information and international experts in clean energy
- Access to funding, grants and incentives
- Promotion of Council's activities and achievements through media, awards ceremonies and community events
- Access to tailored monitoring tools.

There is nil cost to join CPP and currently 115 councils across Australia are a part of the program including Shellharbour, Shoalhaven, Kiama and Wingecarribee Councils. CPP membership will enable us to work with our fellow ISJO councils on partnership projects for example, a power purchase agreement under the same auspicing program and potentially access to funding for these initiatives.

CONSULTATION AND COMMUNICATION

The methodology, activities and outcomes of the public consultation are represented in the Emissions Reduction Target - Engagement Report (Attachment 2). Direct contact was made with the Illawarra

Business Chamber, i3net and BlueScope Steel, however no formal submissions were received. Council also specifically wrote to 151 organisations, groups and individuals.

In total 444 submissions were received, comprising of 18 written and 426 online submissions. Feedback overwhelmingly supported the *net zero emissions by 2050* target. Only three comments were received objecting to a target.

There was a significant proportion of comments (75%) urging Council to set a more aggressive target of *net zero emissions by 2030* for emissions from the Community and Council operations to support its declaration of a State of Climate Emergency. While an aspirational 2030 target is recommended for Council operations in response to submissions, a Community target of 2050 is considered to be appropriate as it is more realistic and consistent with the targets set by other jurisdictions.

A submission was received from the University of Wollongong, who have offered assistance to Council in achieving the target through the Sustainable Buildings Research Centre and the Smart Infrastructure Facility. South 32 Colliery advised that they are committed to their Climate Strategy, which sets a target of *net zero emissions by 2050*. Healthy Cities Illawarra and the Wilderness Society have urged Council to set a more aggressive target, such as 2030 or 2040 as supported by the latest scientific data.

Feedback was also sought on suggested actions to reduce emissions within the City. An online ideas board was used to enable community members to post ideas for actions to reduce emissions, comment on and vote for other's suggestions.

A large number of ideas for actions to reduce emissions were provided, including renewable energy sources for Council operations, businesses and the community, sustainable transport options, waste and FOGO, trees and Council demonstrating leadership in relation to climate change. These thoughts and suggestions will be used to inform the development of the Climate Change Mitigation Plan and Adaptation Plan.

PLANNING AND POLICY IMPACT

This report contributes to the delivery of Wollongong 2028 Goal 1 – 'We value and protect our natural environment', Goal 2 – 'We have an innovative and sustainable economy', Goal 6 – 'We have sustainable, affordable and accessible transport'. It specifically delivers on the following objectives -

Objective 1.1 - Our natural environment, waterways and terrestrial areas are protected, managed and improved

Objective 1.2 - We practice sustainable living and reduce our ecological footprint

Objective 1.5 - Set targets and reduce our greenhouse gas emissions through our participation in the Global Covenant of Mayors for Climate and Energy.

Objective 2.2 - The regions industry base is diversified

It specifically delivers on the following Strategies and Actions –

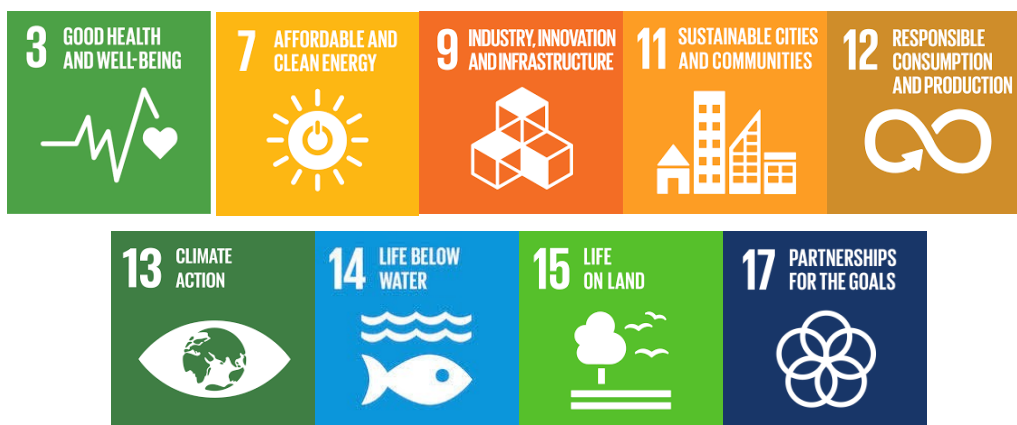
Community Strategic Plan	Delivery Program 2018-2021	Operational Plan 2019/20
Strategy	5 Year Action	Operational Plan Actions
1.2.1 Reduce our ecological footprint, working together to minimise the impacts of climate change and reduce waste going to landfill	1.2.1.1 Develop and implement a range of programs that encourage community participation in reducing Wollongong's ecological footprint	1.2.1.1.1 Coordinate community environmental programs including: Rise and Shine, Clean Up Australia Day, World Environment Day, National Recycling Week, International Composting Week and other waste education activities
	1.2.1.3 Methods to reduce emissions are investigated and utilised	1.2.1.3.3 Monitor and report on organisational water, energy and greenhouse gas emissions trends
		1.2.1.3.4 Implement and review annual water and energy saving actions

Community Strategic Plan	Delivery Program 2018-2021	Operational Plan 2019/20
Strategy	5 Year Action	Operational Plan Actions
1.2.2 Government and community work together to mitigate the impacts of climate change on our environment and future generations	1.2.2.1 Our community is proactively engaged in a range of initiatives that improve the sustainability of our environments	1.2.2.1.3 Develop a project and work with partners to further explore the United Nations Sustainable Development Goals and how they align to the community's goals with funding to be considered through the business proposal process
		1.2.2.1.4 Implement resourced priority actions from the Environmental Sustainability Strategy 2014-22
		1.2.2.1.5 Review the Environmental Sustainability Strategy
1.5.1 Participate in the Global Covenant of Mayors and set emissions reduction targets for the City	1.5.1.1 Set an emissions reduction target and carry out actions to reduce greenhouse gas emissions through the Global Covenant of Mayors	1.5.1.1.1 Complete a Climate Change Vulnerability assessment
		1.5.1.1.2 Set an emissions reduction target that is in alignment with the Global Covenant of Mayors compliance requirements
		1.5.1.1.3 Develop a Climate Change Adaptation Action Plan and an Emissions Reduction Action Plan
2.2.1 Further diversify the region's economy through a focus on new and disruptive industries and green technology	2.2.1.1 The development of renewable energy products and services is supported	2.2.1.1.1 Seek out opportunities to incorporate green technologies in Council's projects and contracts

Reducing greenhouse emissions is also a priority in the Environmental Sustainability Strategy 2014-2022 -

- Focus Area 2 - Reducing our ecological footprint - Reducing emissions from Council operations
- Focus Area 5 - Demonstrating Sustainable Leadership and Governance – Complying with Global Covenant of Mayors requirements, which includes setting emissions reduction targets and developing an action plan to achieve the target.

The adoption of an emissions reduction target will support the achievement of the following United Nations Sustainable Development Goals -



Ecological Sustainability

Compliance with the GCoM requirements will mean that Wollongong is contributing to avert the impacts of climate change. These impacts will significantly affect vulnerable communities, infrastructure and asset viability and management, biodiversity and water availability. Setting an emissions reduction target for Wollongong will support Council's August 2019 Climate Emergency Declaration.

RISK ASSESSMENT

There will be significant environmental and social risks associated with not addressing climate change. Council is the owner of significant assets including roads, bridges, coastal infrastructure, buildings and facilities that will be affected by the impacts of climate change.

There is a reputational risk if Council does not adopt an emissions reduction target following the recent Climate Emergency declaration. Council will also be non-compliant with the GCoM requirements and will need to reconsider its commitment to the GCoM.

FINANCIAL IMPLICATIONS

Whilst there is nil cost associated with adopting an emissions reduction target, the cost of implementing actions to reduce emissions is yet to be determined. Council is only directly responsible for 5% of community emissions and therefore the role of Council in achieving a target for the City is mainly one of advocacy, stewardship, education and engagement. Efforts to secure grant funding will be a focus of Council staff in collaboration with ISJO councils, particularly through the CPP Program, should Council become a member.

Funds will be required to deliver on actions associated with emissions reductions for Council operations regardless of whether Council adopts an emissions reduction target specific to its operations or chooses to just be a part of the City-wide target. A range of emissions actions have already been identified for implementation through the current Delivery Program, such as gasfire capture at Whytes Gully landfill. These actions are likely to result in cost savings to the organisation associated with reduced energy consumption and associated costs and there is the opportunity to reinvest these savings into further emission reduction actions.

CONCLUSION

Adoption of a science-derived greenhouse gas emissions reduction target on behalf of the City of Wollongong is a requirement for the GCoM. Public consultation has been undertaken seeking feedback on a proposed emissions reduction target of *net zero emissions by 2050*. As a result of the consultation

444 submissions were received communicating overwhelming support for the target in addition to urging Council to consider setting a more aggressive target.

Based on the Paris Accord and GCoM protocols it is proposed that Council, on behalf of and for the benefit of the Wollongong community, set an emissions reduction target of *net zero emissions by 2050*. Noting that achieving the target is not the sole responsibility of Council. It is further proposed to set an emissions reduction target of *net zero emissions by 2030* for Council operations. The adoption of the proposed targets will demonstrate leadership and support Council's recent declaration of a State of Climate Emergency.

Should Council resolve to adopt a target, Council staff will proceed to action the subsequent commitments associated with the GCoM, which includes the development of a Climate Change Mitigation Plan in consultation with key stakeholders. In this regard it is recommended that Council join the Cities Power Partnership Program to assist Council and the City in achieving the emissions reduction targets.



City of Wollongong

Science-Derived Targets for Greenhouse Gas Emissions



Prepared for

Wollongong City Council

Version	Author	Date	Description of changes
V0a	Hannah Snape	20/05/2019	First draft
V0b	Alexi Lynch	25/05/2019	Review
V1a	Hannah Snape	31/05/2019	Final report for Council
V1b	Hannah Snape	30/09/2019	Revised report for Council

Prepared by

Ironbark Sustainability

Suite 8, 70-80 Wellington St, Collingwood 3066

ABN: 51 127 566 090

Ph: 1300 288 262 | info@realaction.com.au | <http://www.realaction.com.au/>

© 2019 Ironbark Group Pty. Ltd.

The information contained in this document produced by Ironbark Group Pty. Ltd is solely for the use of the client identified on this page for the purpose for which it has been prepared and Ironbark Group Pty. Ironbark undertakes no duty to or accepts any responsibility to any third party who may rely upon this document. All rights reserved. No section or element of this document may be removed from this document, reproduced, electronically stored or transmitted in any form without the written permission of Ironbark Group Pty. Ltd.

About Ironbark Sustainability

Ironbark Sustainability is a specialist consultancy that works with government and business around Australia by assisting them to reduce energy and water usage through sustainable asset and data management and on-the-ground implementation.

Ironbark has been operating since 2005 and brings together a wealth of technical and financial analysis, maintenance and implementation experience in the areas of building energy and water efficiency, public lighting and data management. We pride ourselves on supporting our clients to achieve real action regarding the sustainable management of their operations.

Our Mission

The Ironbark mission is to achieve real action on sustainability for councils and their communities.



Ironbark are a certified B Corporation. We have been independently assessed as meeting the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose.



Contents

1. Background	4
1.1 Role of Targets	4
2. Methodology	6
2.1 Global Carbon Budget.....	6
2.2 National Carbon Budget	6
2.3 Municipal Carbon Budget	7
2.4 Scaling the Budget	8
2.4.1 SEIFA Scaling.....	8
2.4.2 Scaling for Growth	8
3. Targets	9
3.1 Science-Derived Target for Wollongong	9
4. Next Steps	10
4.1 How to Use a Science-derived Target	10
4.2 Monitoring a Science-derived Target	10
4.3 Action Planning for Community Emissions Mitigation	10
4.3.1 Ironbark's Community Action Planning Tool.....	11
4.4 Further Resources	12

Tables

Table 1: Scaled science-derived target for Wollongong, as calculated in October 2018	9
--	---

Figures

Figure 1: Historical emissions and trajectory to recommended target	7
---	---



1. Background

At the United Nations Framework Convention for Climate Change (UNFCCC) Paris Conference in 2015, the Australian Government signed an international agreement between 195 countries to keep any temperature rise “well below 2°C”, and to drive efforts to keep warming below 1.5°C higher than pre-industrial levels. This Paris Agreement, entered into force on 4 November 2016, explicitly recognises and engages local and subnational governments and their critical role in supporting the transformation, including setting goals and strategies aligned with the science.

Climate science tells us that warming beyond 1.5°C threshold is likely to have increasingly severe social, economic and environmental impacts, especially on a water scarce continent like Australia. As of October 2018, the IPCC announced that there were no longer any scenarios for remaining within this temperature increase-range without the use of carbon removal technologies.



In becoming a signatory to the Paris Agreement, Australia now has a limited, established carbon budget within which to operate in order to meet its commitment. The development of science-derived targets for councils enables us to understand the scale of action that is required at a municipal level to stay within this budget.

An emissions reduction target for an organisation, entity or community is considered “science-derived” or “science-based” when it is aligned with the broader emissions reduction required to keep global temperature increase below 2°C compared to preindustrial temperatures, as described in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

1.1 Role of Targets

In considering science-derived targets for reducing greenhouse gas (GHG) emissions at the community level, it is useful to explore their role and application. In application with carbon mitigation strategies, there are three key types of target:

1. Aspirational – a ‘call to action’

The *Aspirational Target* is set according to political or other considerations and will typically involve something memorable or easy to communicate. It may not consider if this target is necessary, or what is needed to achieve the target. The primary motivation for this target is to establish a common rallying point and encourage all stakeholders to get motivated. An example of this type of target is, “We will achieve 20% carbon emissions reduction by 2020”

2. Top down – what needs to be achieved (Science-Derived Targets)

The *Science-Derived Target* is determined from an external requirement (in this instance, the recommendations of the IPCC to avoid catastrophic climate change). It may be better thought of as a limit, rather than a target. It is independent of political or other considerations and does not consider how difficult (or otherwise) the target will be to achieve. The primary motivation



for this target is to avoid some negative outcome. An example of this type of target from other fields is, "Do not descend below 8,000m otherwise the submarine will implode".

3. Bottom up – what we can achieve (Action-plan Based)

The *Action-plan Based Target* is one that is constructed from what can be achieved from the actions being considered in a council's action plan. It can be ambitious; however, its scope is directly derived from planned actions. An example of this type of target is, "Our factory will produce 10,000 widgets this quarter".



2. Methodology

2.1 Global Carbon Budget

The IPCC, the leading authority on current climate change scientific knowledge, has developed long-term emission scenarios which show a range of potential emissions trajectories and impacts based on highly detailed and rigorous modelling. These scenarios indicate the maximum total emissions allowable to limit the increase in global average temperatures to 2°C, which is considered the threshold for avoiding dangerous climate change. The IPCC reports that for climate stabilisation to occur (2°C), industrialised countries need to reduce their greenhouse gas emissions by approximately 85% by 2050.

Based on the above, the world's "carbon budget" is the total volume of greenhouse gases that can be emitted while providing a degree of confidence that temperature rise will be limited to a relatively safe and manageable 2°C. The accepted global carbon budget established by the IPCC is 1,701 Gt CO₂-e for the period 2000-2050.

2.2 National Carbon Budget

There is no international agreement on the division of the global carbon budget between countries. In apportioning a national carbon budget, there are a number of approaches. The Australian Climate Change Authority (CCA) has used an approach that they consider fair and equitable. This approach ensures that:

- developing countries are initially allowed an increased per-capita carbon budget to allow for additional emissions whilst they grow their economy; and,
- high per-capita emitters (such as Australia) are allowed time to adjust to their reduced carbon budget, rather than setting them up to fail with an allowance that is considerably lower than their current emissions.

Based on this methodology, CCA recommended a national carbon budget of 10.1 Gt CO₂-e for the period 2013-2050. As at September 2018, 7.26 Gt CO₂-e of this budget remains.



Australia's current targets for reducing greenhouse gas emissions are 26-28% reductions on 2005 levels by 2030. In its 2015 reports to the Minister for the Environment on Australia's future greenhouse gas emissions reduction targets, the CCA recommends Australia commit to the following science-based targets:

- a 2025 target of 30% below 2000 levels; and
- further reductions by 2030 of between 40 and 60% below 2000 levels.

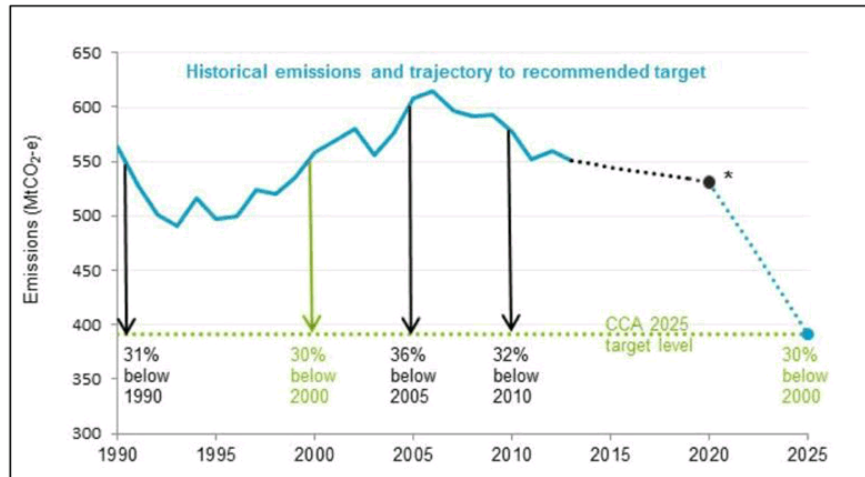


Figure 1: Historical emissions and trajectory to recommended target

Source: CCA 2015, *Final Report on Australia's Future Emissions Reduction Targets*, <https://goo.gl/s4CYvb>

2.3 Municipal Carbon Budget

In determining a municipal budget for greenhouse gas emissions, there are again a number of methodologies that can be employed. Most simply, it is possible to divide the national carbon budget according to population so that a municipality with a bigger population would be given a larger budget than a smaller municipality. However, this neglects a number of important factors that influence a municipality's ability to reduce emissions.

In developing a science-based target for Wollongong, Ironbark has applied the following considerations:

1. Australia's current carbon budget at September 2018 is calculated as 7.26 Gt CO₂ -e. This is the CCA's national carbon budget minus all emissions that have occurred since the budget was derived, per the National Greenhouse Gas Inventory.
2. The carbon budget is adjusted to account for the sources considered in Wollongong's community emissions profile (stationary energy, transport, agriculture, solid waste and wastewater). This is done by applying the proportions of each sector from the most recent National Greenhouse Gas Inventory.
 - This means that sectors which have not yet been modelled (land use change and forestry, industrial processes and product use) are not included in the budget, but can easily be added as the data become available.
3. This adjusted national carbon budget is then scaled down to the municipal-level based on the percentage of emissions for the included sector that occurred in Wollongong according to the most recent data.



2.4 Scaling the Budget

Once a total carbon budget for Wollongong was calculated, further scaling factors are applied. This is to ensure the allocation of budgets across Australian municipalities is fair and provides the greatest chance of success.

2.4.1 SEIFA Scaling

The municipal carbon budget is scaled to account for socio-economic differences using the Socio-Economic Index for Areas (SEIFA) as follows:

- Municipalities with a higher than average SEIFA score are allocated a larger share of the national carbon budget.
- Municipalities with a lower than average SEIFA score are allocated a smaller share of the national carbon budget.
- This allows us to account for the fact that councils with a highly disadvantaged community are expected to find it more difficult to reduce emissions.

2.4.2 Scaling for Growth

The municipal carbon budget is then scaled to account for projected population growth as follows:

- Municipalities with a higher than average growth rate are allocated a larger share of the national carbon budget.
- Municipalities with a lower growth rate are allocated a smaller share of the national carbon budget.
- This accounts for the fact that councils experiencing higher growth rates are expected to find it more difficult to reduce emissions.



3. Targets

3.1 Science-Derived Target for Wollongong

In October 2018 Wollongong's science-derived target was calculated by Ironbark. The outcomes are in Table 1.

Table 1: Scaled science-derived target for Wollongong, as calculated in October 2018

Remaining budget for Wollongong (kt CO ₂ -e)	49,185
Remaining years without change (years)	18.2
Required linear annual reduction (t CO ₂ -e)	74,251
Required linear rate of reduction (p.a.)	2.7%

The *Remaining budget* for Wollongong is 49,815 kt CO₂-e.

The *Remaining years without change* (18.2 years) calculates how long this carbon budget would last, based on the emissions released in the 2017/18 financial year.

The *Required annual reduction* and *Required rate of reduction* shows that Wollongong's emissions need to reduce by 74 kt CO₂-e (2.7%) per year until 2050, if the carbon budget is to be used in a linear fashion over this time period. To give an idea of the scale of action required, Sunshine Coast Council's 15MW solar farm has saved just under 30 kt CO₂-e in the 1.5 years since its installation.

When re-calculated in 2019, the remaining budget in tCO₂-e had changed. This is due to reductions in the overall budget available based on emissions released nationally drawing from the Australian carbon budget. It is also because of changes to data sources, data sets and methodologies. Ironbark is committed to ensuring methods are regularly updated to remain in line with best practice and to utilise the more relevant, accurate and transparent data available. These changes applied to all municipalities.

Whilst the numbers for the carbon budget are quite different, the remaining years without change and % reduction required are similar. This is because the updates that have been applied to the calculation of the science-derived target also apply to the calculation of the Wollongong community emissions profile.



4. Next Steps

4.1 How to Use a Science-derived Target

The methodology that Ironbark uses to develop science-derived targets has been designed to allow all municipalities the greatest possibility of success. Whilst the targets are challenging, they are targets that *must* be met in order to avoid catastrophic climate change and represent the true scale of action that is required within each community. This target should not be considered aspirational, rather it should be considered essential to avoiding the negative effects on Wollongong's community, environment and economy.

Whilst understanding the necessity of meeting this target, it is also important to understand Council's level of accountability. Reducing greenhouse gas emissions must be a whole of community effort and actions taken by state and federal governments and emissions intensive industries will be key in ensuring Australia stays within its national carbon budget. Council may advocate for and support these actions or engage in collaborative planning with key stakeholders, but ultimately is not solely responsible for meeting the full municipal emissions target.

In engaging with stakeholders, it is important that the communication of the science-derived target is undertaken strategically. Whilst aspirational targets have been used to educate and motivate for many years, the science-derived target can be most useful as a tool for climate planning and understanding relevant carbon budgets and timeframes.

4.2 Monitoring a Science-derived Target



Historically, success in achieving action towards targets may have been measured by the reduction of a municipal greenhouse gas profile. However, this is not the approach that we currently recommend, due to the potential fluctuation of the emissions profile related to factors entirely outside of Council's influence, such as the state electricity emissions factor. Instead, targeted monitoring on specific greenhouse gas mitigation activities can provide Council with a measure of success in the effectiveness of programs and greenhouse gas emissions reductions.

4.3 Action Planning for Community Emissions Mitigation

The community emissions profile previously developed by Ironbark Sustainability for Wollongong, coupled with the science-derived target presented in this report are important tools for climate planning. Used together, they allow Council to understand the scale of the impact of their municipality, the breakdown of sectors responsible for the emissions and the magnitude of the reductions needed. They provide the necessary foundation that advances and



enables Council to engage specific sectors or stakeholders in actions to reduce emissions and develop a plan to reduce emissions.

When considering community emissions mitigation against a science-derived target, it is clear that the scale of reductions required is exceptionally high. For this reason, it's important for Council to carefully consider how best to leverage resources. Most often, direct action by Council will not be the most efficient way towards achieving the target. However, there are a number of ways that Council can engage and work with stakeholders and other levels of government to facilitate the required emissions reductions.

In Ironbark's experience, there are twelve key interventions that councils can employ to support the reduction of community emissions. These are:

1. Administration and strategy
2. Advocacy
3. Development of new policy or regulation
4. Education
5. Facilitation
6. Monitoring and reporting
7. New implementation of policy or regulation
8. Performance or supply contracting
9. Provision of incentive schemes or grants
10. Provision of loan schemes
11. Purchase and deployment
12. Strategic planning

4.3.1 Ironbark's Community Action Planning Tool

Ironbark has developed a Community Action Planning Tool (CAPT), which allows us to develop a list of actions that will target a specific emissions source and sector. CAPT is a natural extension to the work we have been doing to develop community emissions profiles and provides a more complete solution to the community-scale carbon management system. CAPT is capable of:

- Calculating the best action list for a specific municipality, down to the estimated spend (or in reverse, if councils have a predetermined budget, CAPT will be able to estimate how much abatement can be achieved)
- Representing uncertainty of outcome, a critical component for mutually aggregate actions that can have either a guaranteed outcome (such as installing solar on councils' own assets) to ones that cannot be certain at all (such as advocacy for closing down coal power plants). This uncertainty is represented in a "descending confidence" table, that maps the amount of carbon a program will mitigate against the probability of achieving success.



- Grouping of all identified activities into “actions”, which are activities that actively reduce emissions, and “interventions”, which are activities that a stakeholder undertakes to effect the action. Examples of an action is “install EV charging infrastructure in public-accessible locations”, and corresponding interventions may be “finance and deploy”, and “facilitation”.

CAPT is specifically designed for councils, and our intent is for the tool to quantify all the interventions currently being planned or implemented by councils across Australia. As we expand this resource, more and more of the initiatives we are seeing across the country will be available for objective comparison and application to your municipality. Please get in touch to find out more about how to be involved.

4.4 Further Resources

The following resources may also be useful in developing and assessing actions for Wollongong’s community emissions mitigation planning:

- The Rocky Mountain Institute’s website (www.rmi.org) has a number of useful resources, including The Carbon-Free City Handbook (2007), which reveals 22 actions and associated resources for cities globally to move toward climate-neutrality and see results within a year.
- The World Bank’s CURB Tool is an interactive tool that is designed to help cities take action on climate by mapping out different action plans and evaluating their cost, feasibility, and impact. See <https://bit.ly/1SeZoS2>.
- Beyond Zero Emissions is an Australian think tank that has a number of publications covering municipal-wide emissions reduction solutions (<https://bit.ly/2QDcoWz>), as well as a Local Government Climate Review (2018).
- Energy Innovation LLC (www.energyinnovation.org) is an energy and environmental policy firm based in the United States with a number of useful resources on designing carbon solutions. Among other things, they have developed free online computer model to help design packages of policies to reduce carbon emissions (<https://www.energypolicy.solutions/>). Although it is not yet pre-populated with Australian data, the model provides a good visualization of key policy settings and their impacts in other regions like the US and Canada.
- The Global Covenant of Mayors is beginning to collate data on emissions, targets and actions at: <https://www.globalcovenantofmayors.org/global-covenant-cities-data>

OUR PLACE our voice OUR FUTURE



Emissions Reduction Target

ENGAGEMENT REPORT

November 2019

Table of Contents

Background.....	3
Methodology.....	4
Results.....	5
Engagement Participation	5
Feedback Results	6

The information in this report is based on data collected from community members who chose to be involved in engagement activities and therefore should not be considered representative. This report is intended to provide a high-level analysis of the most prominent themes and ideas as expressed by those who participated. While it's not possible to include all the detailed feedback we received, feedback that was relevant to the project has been provided to the project manager for review and consideration.

Background

Wollongong City Council is one of 26 Councils in Australia to commit to carbon reduction through the Global Covenant of Mayors for Climate and Energy (GCoM). Under the GCoM initiative, Council is required to adopt a science-derived emissions reduction target on behalf of our community.

Council has completed an inventory of local government area (LGA) wide emissions, with the majority of emissions identified as being derived from the industrial sector. The inventory determined that the Wollongong Local Government Area has a carbon budget of 49 Mt CO₂-e, which it must stay within in order to contribute its fair share in avoiding catastrophic climate change. If the city of Wollongong continues to emit carbon at the current rate our carbon budget (49 Mt CO₂-e) will be exhausted in just over 18 years.

On 12 August 2019, Council resolved to declare a State of Climate Emergency.

A report to Council on 23 September recommended the adoption of an emissions reduction target of Net Zero Emissions by 2050 concurrent with targets that have been adopted by a range of agencies and organisations including the NSW State Government. It should be noted that Council is attempting to establish this target on behalf of the community, for the benefit of the entire community and that Council is not solely responsible for the implementation of actions to achieve this target. The proposed emissions reduction target will strongly support Council's Climate Emergency declaration.

Following consideration of the report Council resolved to defer consideration of the target until after a period of public consultation on the proposal.

In response to the Council resolution of 23 September community and business engagement was undertaken from 14 October to 8 November 2019. Feedback was sought on the proposed emissions reduction target as well as suggested actions to reduce emissions within the City.

This report summarises the feedback received and the results of this engagement process.

Methodology

Engagement Period – 14 October to 8 November 2019

Methods	Details
Communication Methods	
The Advertiser	Details about the engagement were made available in Council's Community Update pages.
Media release	A media release was distributed.
Frequently Asked Questions	A series of FAQs were developed which provided an overview of the project and how people could get involved.
Email	An email was sent to identified external stakeholders informing them of the exhibition and how they can provide feedback. The list of stakeholders is provided in Appendix 1.
Register of Interest	An email was sent to all participants with registered interest in Environment.
Info packs	FAQ and hardcopy surveys were made available at libraries and customer service.
Social Media	Posts about the engagement were made to Facebook, LinkedIn and Twitter.
Engagement Methods	
Engagement HQ Website	An online 'ideas' tool was used to capture participants' ideas and allowed community members to comment and vote for ideas that they supported. The page also hosted background info and supporting documents.
Feedback Form	A hard copy feedback form was developed and made available at libraries and engagement activities.
Direct Contact	Teleconferences were held with i3net and the Illawarra Business Chamber in relation to obtaining comments from member businesses and industry. Staff attended the BlueScope Community Consultative Committee meeting and liaised with BlueScope staff.

Results

This section provides details on the participation at engagement activities and the feedback received during the engagement period.

Engagement Participation

Details of the number of participants for each engagement activity are presented in Table 2.

Table 2 - Engagement participation results

Engagement Activity	Participation
Teleconferences/meetings	3 organisations
Online ideas and comments	227
Emissions Reduction Target	199
Actions to Reduce Emissions	
Written submissions	17
Online Participation	
Aware - Total number of users who viewed the project page	811
Informed - Total number of users who opened a hyperlink or read a document	465
Engaged- Total number of users who have actively contributed to the project	277

Feedback Results

By Stakeholder

Group/ Individual	Summary of response
How many community members and what did they say in general	227 responses were received. Approximately 75% of respondents supported a 2050 target but urged Council to set a more ambitious target. Conversely 1% of community respondents did not agree with establishing a target.
Paul Scully MP	Supports the proposed target of net zero emissions by 2050, noting it is consistent with NSW Government and international agreements. Recommends that Council set a target for its own operations. However, Council should consider options and prepare a plan prior to establishing a scientifically credible and practically deliverable target.
University of Wollongong	Are committed to climate action but have not set a target. Offered assistance to Council in achieving the target through the Sustainable Buildings Research Centre and the Smart Infrastructure Facility.
Illawarra Coal - South32 Colliery	Committed to Climate Strategy and will review its emission reduction approach every five years from 2021, in line with IPCC updated scientific reports, to ensure transition toward the global goal of achieving net zero emissions by 2050.
Regional Development Australia – Illawarra	Not in a position to make official comment or provide response until following next meeting in December.
Neighbourhood Forum 5	Support the setting of targets: net zero emissions from the community by 2050 and net zero from Council operations by 2030. Request that Council develop action plans focused on mitigation and adaptation and take a leading role in the community to implement climate action strategies.
ClimateWorks Australia	Asked a number of questions on the target but didn't provide a definitive response.
Renew Illawarra	Provided no comment on the target however they held a workshop with their members to identify actions to reduce emissions in the community. They will submit these actions in December.
Food Fairness Illawarra	Supports the emissions reduction target of net zero emissions by 2050, including the need for urgent action by all levels of government, industry and the community. Makes several recommendations for actions involving community support and education around food security, food waste and sustainability.
Healthy Cities Illawarra	Support the target but indicate that a 2040 target is achievable. They also indicated that many of their programs focus on areas of high vulnerability to climate change.
Wilderness Society Illawarra	Support a more aggressive target such as zero 2030, which is supported by the latest scientific data.

Emissions Reduction Target

The following key points were raised by the community in responding to the emissions reduction target:

- Support and commendation for Council for taking steps to combat climate change in the absence of strong Federal and State political direction.
- The 2050 target is not in alignment with Council's recent declaration of a State of Climate Emergency.
- Approximately 75% of respondents requested that Council act with greater urgency and adopt a 2030 net zero emissions reduction target for the community and for Council operations to reduce the impacts of climate change on Wollongong and the rest of the world.
- Scientific evidence supports the need for more urgent action to be taken.
- A number of respondents believed that scientific data used in the calculation of the carbon budget and target may be out of date since the IPCC has since scaled down the global carbon budget and there may be significantly less time to reduce emissions.
- As Wollongong is a coastal city that is also bush fire and flood prone the impacts of climate change will be felt with greater intensity and severity than other cities.
- First nations countries have a very low capacity to adapt to climate change and many may become climate change refugees.

Suggested Actions to Reduce Emissions

Respondents were asked to offer suggestions on the actions that could be taken by Council and the city to reduce emissions and respond to climate change. The suggested actions have been summarised below and grouped into theme areas.

Renewable Energy Sources

- Increased investment in renewable energy sources and projects, including:
 - Installation of solar panels on all Council facilities
 - Council purchase green power or participate in a Power Purchase Agreement
 - Council replace current street lights with LEDs
 - Installation of solar panels on residential, government and commercial buildings
 - Provision of rebates or subsidies, low interest payment plans for renewable uptake
 - Replacing gas with solar energy
 - Requiring minimum solar power systems for new developments.
- Leveraging the uptake of renewables by the community and businesses.
- Investigating opportunities for the development of green industry and green jobs, including the installation of community batteries.

Sustainable Transport

- Installation of EV infrastructure to support the uptake of electric vehicles, to combat range anxiety - a major barrier to people purchasing an EV.
- Connectivity and better access to wide cycle paths and shareways around the City
- Providing access and adequate facilities in the CBD to complement public transport and alternatives to motor vehicles.
- Improvements to public transport access, timetables and infrastructure (including expansion of the Gong Shuttle) to reduce cars in the CBD.
- expand and allocate parking for ride/car share schemes in the City.

Leadership

- Council allocate additional staffing and budget resources to properly address climate change issues such as establishing a Climate Change Unit
- Council join the Cities Power Partnership Program.
- Council 'immediately elevate climate change issues and risks (environmental, economic and social) in decision-making processes', so that every section of Council is operating and planning in the context of a climate crisis.
- Improvements to planning controls to provide for EV charging, solar panels, improved design outcomes and 'energy positive' buildings.
- Install a climate/emissions monitor for the City
- All buildings be required to have a building energy rating.
- Council should do all that it can to reduce emissions before considering offsets.

Waste

- Institute FOGO and keep organics out of landfill
- reduce waste to landfill
- Reduce plastics use and create/encourage recycling industries.
- Gas capture from landfill.

Trees and Vegetation

- Plant trees to sequester carbon
- Revegetate pocket parks and unused land to reduce emissions and improve the quality of urban environments.
- Accelerate implementation of the Urban Greening Strategy
- Additional funding for coastal wetland activities.
- Increase stock and access to Greenplan at the Botanic Garden to assist community members to revegetate private land.

Water

- Increased investment in water conservation, tanks and water recycling to reduce the impacts of climate change and assist in adaptation.

Appendix 1

External stakeholders contacted through the exhibition process -

Lee Evans MP
Stephen Jones MP
Ryan Park MP
Paul Scully MP
Gareth Ward MP
Hon Sharon Bird MP
Anna Watson MP
University of Wollongong
Illawarra First
Ports Authority of NSW
Wollongong Coal
Peabody Metropolitan Mine
Illawarra Coal - South 32
Urban Development Institute of Australia
Illawarra Business Chamber
Property Council
Regional Development Australia - Illawarra
i3net
Bluescope
Neighbourhood Forums
Sustainable Illawarra
Wollongong Climate Action Network
Surfrider Foundation
Australian Youth Climate Coalition
Helensburgh & District Landcare Group
Tullimbah Land Care
Landcare Illawarra
ClimateWorks Australia
Food Fairness Illawarra
Stop CSG Illawarra
Illawarra National Parks Association
Renew Wollongong
Wilderness Society Illawarra
Stop CSG Illawarra
Bella and the Break Free Illawarra Climate Coalition
All primary and high schools within the LGA
Healthy Cities Illawarra
Wilderness Society Illawarra
Sustainable Illawarra

Attachment 2: Australian GCoM Councils Emissions Reduction Targets

Council	Emissions Reduction Target
ACT	Net zero emissions by 2045
Adelaide	Matching state target of zero net emissions by 2050
Byron	30% by 2020
Darebin	Carbon neutral by 2020
Glen Eira	Net zero emissions from the community by 2050 Net zero emissions from council operations by 2030
Hobart	Zero net carbon emissions by 2020
Hobsons Bay	Zero net greenhouse gas emissions by 2020 Zero net emissions community by 2030
Joondalup	Corporate target: Reduce net greenhouse gas emissions by 5% per capita below 2012/13 emissions by 2018/19
Mandurah	Carbon neutral 2020
Manningham	Council: 100% carbon neutral by 2020 Community: 20% GHG reductions
Maribyrnong	No target found
Melbourne	Zero net emissions by 2020
Melton (Australia)	Zero net emissions from council operations by 2025
Melville (Australia)	48% emission reduction from council operations by 2025
Moreland	Zero carbon community by 2040
Mornington Peninsula Shire (Australia)	Zero net carbon emissions for council operations by 2021 Minimum community greenhouse gas emission reductions target of 2.9% annually
Mount Barker (Australia)	No target found
Newcastle (Australia)	30% carbon footprint reduction by 2020 for council operations 30% reduction in per capita carbon emissions below 2008 levels
Penrith	40% reduction in greenhouse gas emissions by 2030
Perth (Australia)	Reduce City of Perth operational emissions by 30% by 2030 Work with the community to achieve 30% reduction in city-wide GHG emissions by 2030
Port Phillip (Australia)	Zero net council carbon emissions by 2020 50% reduction in per capita community carbon emissions by 2020
Sydney	Net zero emissions by 2050
Tweed Shire (Australia)	The goal of reducing corporate greenhouse gas emissions to 20% below 1996 levels by 2010 The goal of reducing community greenhouse gas emissions per capita to 20% below 1996 levels by 2010.
Wyndham (Australia)	Reduce councils corporate GHG emissions by 12% by 2020 Reduce councils corporate GHG emissions by 95% by 2040 At least 55 000 tonnes of GHG emissions avoided from residential and business sectors by 2020 Zero net GHG emissions from electricity use by 2040
Yarra	No target found