

Your Roadmap to a Net Zero Carbon Community in Geelong



Acknowledgement of Country

The Committee for Geelong acknowledges the Wadawurrung People as the Traditional Owners of the lands, waters, seas and skies on which we operate. We pay our respects to their Elders past and present. We acknowledge Aboriginal and Torres Strait Islander people as Australia's First Nations people.

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“I love a SUNBURNT country, a land of sweeping plains,
of RAGGED mountain ranges, of DROUGHT and FLOODING rains.”

‘My Country’
Dorothea McKellar



Image:
Hamish Weir
via Unsplash

Executive Summary

We love our Country, **Australia**.

It is our home, and for years beyond measure it has been subject to dramatic shifts in temperature, and climatic events that never cease to challenge the resilience of the people and animals that adorn this land.

But we can no longer ignore science. As the climatic events get more extreme, as more people lose their homes and their lives, **we can no longer do nothing**.

This report and its contributors, acknowledge and appreciate the extensive research that has been completed and published in regards to climate change, and its impacts on us – as a World, as a Country, as a Community, and as Individuals. It accepts that there is a climate emergency, a threat even more immediate, widespread and pronounced than a pandemic or a war. It also understands that this is not something that can be stopped or fixed, it is something that needs to be slowed and rectified, and that it is EVERYONE’S responsibility.

But we hope to provide a different approach, and tell a different story. We hope to bring some light to the conversation and show you what you, your friends, family and workplaces can do, to make a real difference.

We have developed a Roadmap to a Zero-Net Carbon Community in Geelong and in doing so hope to set you on the path to reducing carbon emissions and making a tangible and practical step in the direction of a safer and more sustainable home, workplace and lifestyle.

Without spoiling the fun, after reading this report (or the parts that relate to you at least) you will be able to identify where you fit in our 5-step plan, and what you can do to progress to the next 'level'. You may not get a gold star, a treasure-chest of gold, or even a pat on the back, but you will be granted the title of a Zero-Hero if you can make it to step-5, being 100% engaged and implementing a zero-carbon plan – GOOD LUCK!

In delivering this project, we completed research and collaborated with local community groups to ensure we could produce a report, and a roadmap, that is relatable, practical and achievable. In particular, a survey was conducted to understand the community's understanding of zero-carbon targets and their appetite to achieve them. The data collected has been included in this report in its raw form at Appendix 2.

The key findings from this survey, discussed at pages 9–10, informed the project direction and scope. Some key outcomes were:

1. **100%** of respondents believe zero-net carbon is achievable;
2. **44%** of respondents do not have a plan for achieving zero-net carbon;
3. The dominant barriers to achieving net-zero carbon are financial and resource based;
4. **56%** of respondents have invested in renewable energy – mostly in solar power initiatives.

Based on the research, collaboration, and resultant discussion, we produced this report, and importantly the roadmap, which primarily aims to get you on track to contributing in a meaningful way toward the COGG strategy to achieve a zero-net carbon community by 2035.

The report then applies the roadmap principles to real-life examples by exploring how different community groups, organisations, and households have responded to the challenge of achieving net-zero carbon, by identifying a need or implementing plans to keep them on track and accountable, and working together to serve the community as effectively as efficiently as possible.

Ultimately we hope that you will be better informed but more importantly understand where you fit in the puzzle, so that we can all come together and achieve a zero-net carbon community in Geelong.

Our Project

Our Purpose and Objectives

By utilising existing literature, research and ideas, we set out to educate households, business, industry and authorities and empower them to develop a coordinated approach for Geelong to become a Zero Carbon Community by 2035.

In doing so we aimed to support Geelong Sustainability to educate all our stakeholders on the significant social and economic benefits of a Net-Zero Carbon Community and how it will improve and respond to the needs of the entire community now and into the future.

Guided by the Beyond Zero Emissions, Zero Carbon Communities initiative, we highlighted the following key intentions:

- 1. Community engagement** – Create a forum to effectively engage the community;
- 2. Emissions reduction target** – Educate the community about the benefits of emission reduction targets and how each stakeholder can take action to help achieve them and contribute to a Net-Zero Carbon Community.
- 3. Transition Strategy** – Encourage a commitment to specific actions from key stakeholders and identify where those actions fit in the coordinated transition to a Zero Carbon Community.

From the beginning it was clear we had to narrow our scope to ensure the project would be achievable within our parameters, so we honed in on our wonderful region. We focused on the fact that becoming a Net-Zero Carbon Community assists Geelong to achieve its goal of being a sustainable and liveable city, including:

- General benefits to all community by committing to sustainability
- More opportunities for collaboration between research groups and local businesses
- The creation of jobs with the community energy revolving fund projects
- More affordable power for the region
- Developing the skills of local labour
- Creating opportunities for the expansion of local businesses
- Becoming an innovative technology hub – attracting creative, innovative business to Geelong
- Increase in community engagement to net zero targets
- Ultimately will establish Geelong as a more liveable, productive and sustainable city
- Saving local flora and fauna
- Creating an eco-tourism destination

This report will summarise our key findings and share our Roadmap to a Net-Zero Carbon Community in Geelong.

Geelong Sustainability

Geelong Sustainability are a dynamic and passionate community group focused on sharing information building community resilience, advocating for the environment, and supporting effective action. They are managed by a committee elected by members with a dynamic, inspiring and driven president - Vicki Perrett – as a born and bred local she is “committed to our region decarbonising, localising and equalising”.

The mission of Geelong Sustainability is “empowering people to protect and regenerate or planet” and their vision is “for people and our planet to thrive within sustainable limits”.

They have recently drawn up their ‘**Strategy 2025**’ which focuses on 4 key goals

1. Climate Action: to take urgent action to combat climate changes and its impacts;
2. Renewable Energy: to ensure access to affordable reliable, sustainable and modern energy;
3. Circular Economy: to ensure sustainable and consumption and production patters;
4. Sustainable Cities: to make cities safe, resilient and sustainable.

On their website Sustainability Geelong have a quote from Margaret Mead that resonated with our project group, which says “Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it’s the only thing that ever has”

We will now introduce the project group contributors.

The People Behind the Project

There are six contributors to this report, introduced below so that you may get to know them a little better and their motivations.



Sophie Harris is the Partnerships Manager at **Give Where You Live Foundation**, she is passionate about climate change and social justice. As well as the environmental impact Sophie also sees the economic and social opportunity for Geelong that will come from achieving net zero by 2035. She is excited about the opportunity for the Geelong region to be a driving force in developing and building new sustainable technologies which provide sustaining jobs and help create a cleaner, fairer and more sustainable region for us all to live in. She hopes that the roadmap gives us all a nudge to DO something NOW (and includes herself in that—she's just got solar panels!)



Rohan Lovell is the Director of Property Services with **Fire Rescue Victoria**, having transitioned from his previous role at Barwon Health in 2022. Rohan has fantastic graphic and IT skills that assisted greatly when interpreting the data from the project team's survey. He also has an exceptional ability to remain calm and work through challenges logically and constructively. Rohan's motivations to achieve a net-zero carbon community in Geelong changed substantially over the course of this project. Initially it was to demonstrate the financial viability and champion the health benefits of living a sustainable lifestyle. But ultimately it became an altruistic motivation driven by the realisation that we need to do something now, otherwise future generations won't have the same or better lifestyle choices that we have today.



Justine White is a Production Specialist Z2 at the **Geelong Refinery**. Her main motivation to achieve a net-zero carbon community is to protect our planet for future generations to come, and to minimise the very real impacts of climate change that we are currently experiencing. She also thinks it is an exciting opportunity to develop some really innovative solutions to address our current climate change crisis. There are a lot of progressive ideas being implemented globally, particularly in certain parts of Europe, and she believes it is a good chance to show that we are also capable of developing new technologies in order to thrive as a net zero carbon community.



Matt Crowley is the Program Manager at **Bellarine Catchment Network** and brought an immeasurable amount of experience and knowledge about environment and the importance of working toward a zero-net carbon community in Geelong, to the project. In all elements of his life Matt demonstrates real action toward achieving this goal. This is driven by the fact that this issue is inherently important to Matt and that compels him to work actively toward change. From liveability; sport and recreation; quality of life; and protecting threatened ecosystems and biodiversity, these things he values and enjoys most are threatened by the process of climate change. His mantra is, “if this is not the time to act, then when is?”



Nicole Carter is a Senior Legal Manager at the **Transport Accident Commission**. She is encouraged by the proactive approach of leaders within the Geelong Region to work toward a net-zero carbon emission target by 2035. Her organisation and leadership skills have been essential in keeping the project group focused and task-orientated. She hopes that the environment we enjoy today, in particular the diverse and unique flora and fauna of our beautiful country, will be enjoyed for many generations to come.



Richard Lunz is a Doctor working within **Healthcare** through the Geelong Region but also across the State of Victoria. His passion for action toward a net-zero carbon community in the Geelong region was evident from the beginning of the project and kept the group motivated throughout. His aim in participating was to ensure that his beliefs overlap with the current climate science reality.

Situation Analysis: What is Our Baseline?

Conducting Research and Gathering Data to Inform our Project

As mentioned above this report summarises the data collected as a result of a series of community surveys conducted within the Greater Geelong and Bellarine communities during October, November and December 2021 as part of the project development process.

When the project team began to understand the community's current sustainability maturity levels, it was decided that a focused survey would be a big piece of the project. The team engaged with local community partners and identified participants, while developing and testing questions that would be included within the survey to ensure a comprehensive mix of both quantitative and qualitative data would be obtained.

The survey was conducted by the project team in collaboration with Geelong Sustainability and the Committee for Geelong. The opinions expressed are those of the participants, and project group members, and do not necessarily reflect the views of their usual workplaces or either organisation.

Developing the Survey

In deciding to undertake a survey, multiple options were considered, including using in-person interviews and paper surveys. It was considered that the benefits of using a digital survey software to administer this survey research would far outweigh the other options. The speed of responses, the ease in which the data could be analysed for its intended purpose, and the potential to maximise responses from a wide geographical area, were all relevant considerations that ultimately lead to the decision to undertake the survey electronically (that and the pandemic limiting our options).

The 10-minute, voluntary survey was based on collaboration from all group members along with Geelong Sustainability, and drew of experience of previous community surveys conducted in other areas.

The survey was reviewed by Geelong Sustainability prior to implementation and 'go-live'.

Publishing the Survey

The survey was promoted and completed online while most residents and community organisations worked and studied remotely due to COVID-19 related restrictions. On reflection, one of the limitations of this survey is the smaller sample size of respondents in the pool. This was due to timing and outreach limitations during the end of year period.

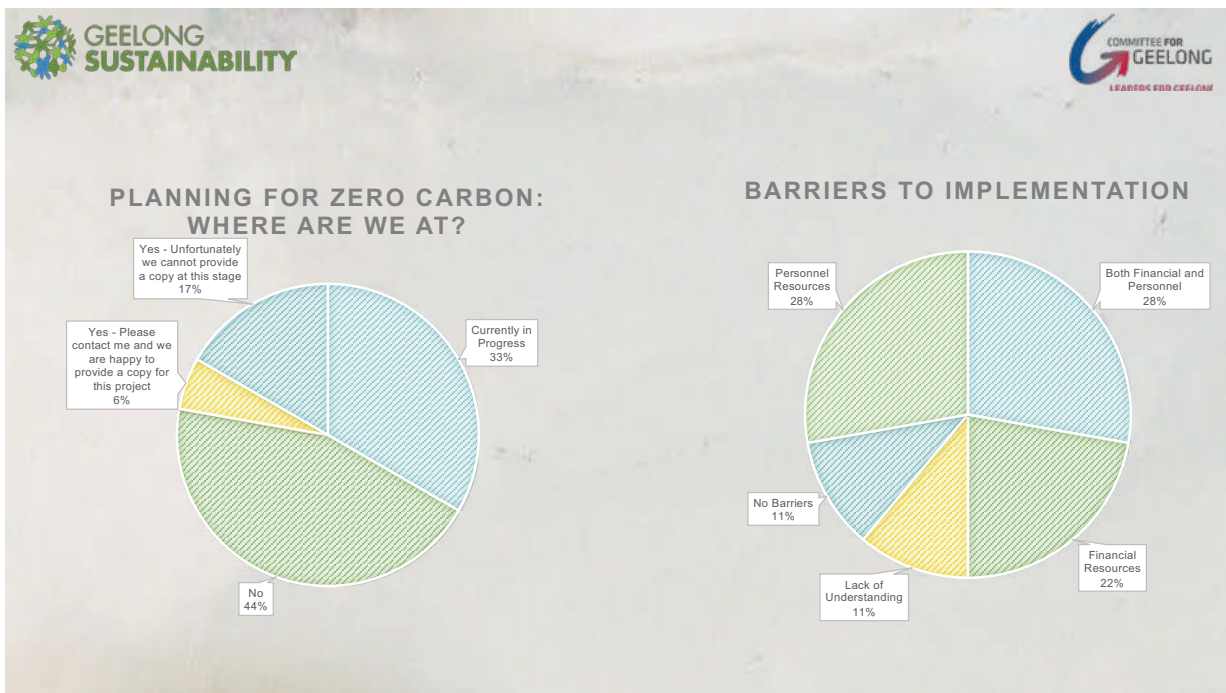
The limited online survey was conducted using a digital resource template. A total of 49 survey responses were collected throughout the 90 days of the survey being live.

The Results

Overwhelmingly 100% of respondents believe that achieving a Net-Zero Carbon target for Geelong and surrounding areas, is achievable. The majority of respondents represented large to medium sized organisations, 61% (29), and 39% (20) were from residential communities. Of the organisational responses, the health sector was well represented with all 7 of the Regional Health Services providing responses to the survey.

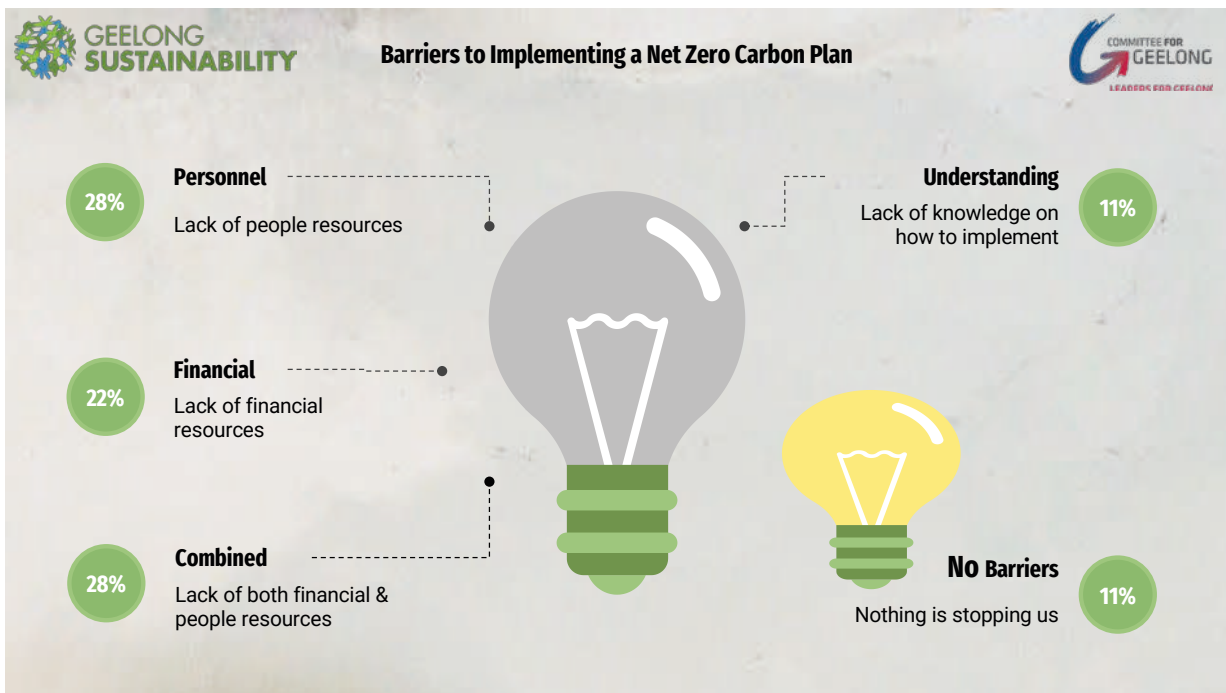


The survey posed questions to the respondents that intended to gage their current levels of understanding of 'Net-Zero Carbon', the benefits of achieving that, and the barriers to their personal or organisational ability to achieving the target.



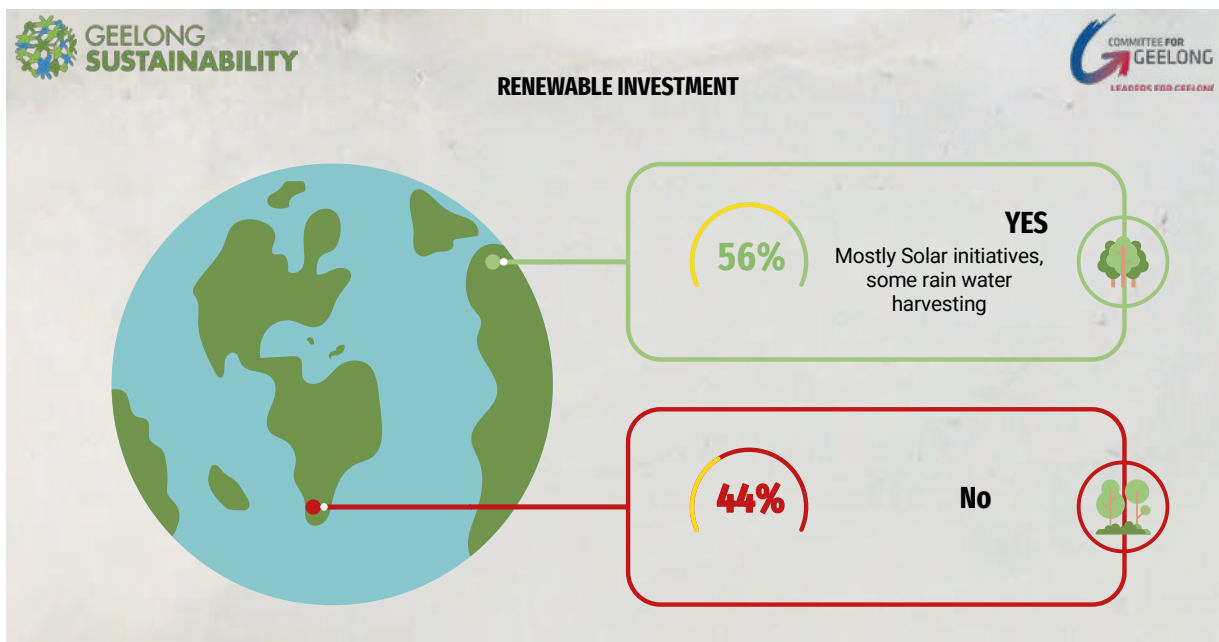
We also engaged the respondents to provide information on the types of support they would like, to enable them to take the next steps to achieving a 'Net-Zero Carbon' Community.

Notably, 44% of respondents indicated that they had no plan for achieving 'Net-Zero Carbon' and overwhelmingly the major barriers to implementation of a 'Net-Zero Carbon' plan were a combination of financial and personal resourcing, according to 78% of respondents.

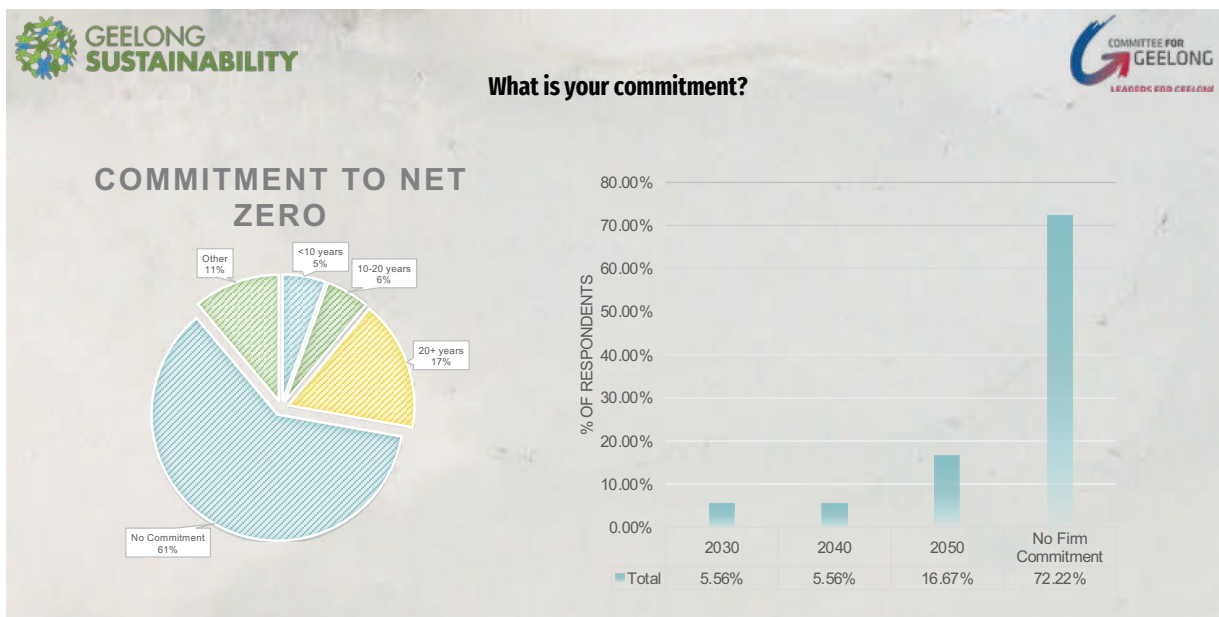


When asked what types of actions they were currently undertaking in the sustainability space, most indicated solar power (56%) as being their most common form of engagement.

44% of respondents currently indicated no investment in renewable energy.



Finally, we considered understanding the current levels of commitment to a future 'Net-Zero Carbon' Community to be vital. We found 61% of respondents indicated no current level of formalized commitment within either their organisation or households.



In summary, the data collected from this survey demonstrated that although the Geelong community have a positive outlook on the future, and our ability to achieve a net-zero carbon community, not a lot of us are doing anything to reach that goal.

The next section of this report aims to show you where you fit in the overall roadmap, and what you can do to advance this common objective.

Your Roadmap to Net-Zero Carbon

Our research demonstrates that there are varied levels of sustainability maturity throughout the Geelong Community, and we want to ensure that everyone understands where they fit and what the next step can be for them.

Below we outline **5 steps** toward becoming a zero-hero and contributing meaningfully to a net-zero carbon community in Geelong.

We all start somewhere – whether you are at step 1 or step 5, identifying what you can do next is important.

Good luck!



Step 1 – What Does Net-Zero Carbon Mean?

If you have been reading this report thinking, I don't even know what Net-Zero Carbon means or why it matters, you are probably at Step 1.

At this stage your focus should be on increasing your knowledge and understanding, this could be through reading existing articles, case studies, graphs, plans etc. (whatever takes your fancy) or having conversations.

To give you a leg-up we will give you an overview and point you in the right direction.

Firstly we will cover what net zero carbon is...

Essentially we are looking at achieving a balance between the greenhouse gas emissions produced (from burning fossil fuels,) and the greenhouse gas emissions taken out of the atmosphere.

This means that overall we are not adding new emissions to the atmosphere.

Net-zero carbon still means that some emissions may be produced, as long as they are completely offset by activities that reduce greenhouse gases already in the atmosphere (achieved by actions such as planting trees and carbon capture and storage.)

New emissions however should be as close to zero as possible, with offset activities only being relied on when absolutely necessary.

Some of you may be wondering why achieving net zero is important for you.

Essentially due to the existing amounts of CO₂ in the atmosphere, the global temperature is continuing to increase, leaving us exposed to unsustainable temperatures in future. This impacts everyone, as the planet will become uninhabitable for future generations if we don't make drastic changes to our current emissions.

Our current generation is already experiencing the impacts of climate change first hand, with more severe weather systems being observed. The 2022 floods in Brisbane QLD and Northern NSW and the 2020 bushfires in Victoria are a few examples of the very real impacts of climate change. The impacts of climate change can also manifest in more indirect ways, such as threatening our food and water supply due to extreme weather events, and also threatening recreational activities due to hotter temperatures (i.e. heat policies impacting sporting events being able to go ahead.) This is also a threat to community health, with heat stress becoming a major risk to the population.

The effects of climate change are also felt on the local wildlife.

Please see below a case study related to the orange-bellied parrot.

If you think you are at step 1, these resources might be helpful for you to further understand the concept of zero carbon:

- <https://plana.earth/academy/what-is-difference-between-carbon-neutral-net-zero-climate-positive/>
- <https://www.climatecouncil.org.au/resources/what-does-net-zero-emissions-mean/>
- <https://theconversation.com/net-zero-carbon-neutral-carbon-negative-confused-by-all-the-carbon-jargon-then-read-this-151382>



“Net-zero carbon is where the amount of greenhouse gas produced is the same as the amount removed from the atmosphere. We reach net zero when the amount of greenhouse gas produced (e.g. by cars) is no more than the amount taken away (e.g. by planting trees.)”

Step 2 – I Understand Now. What Next?

If you're aware that global temperatures impact the way we live and the health of our flora and fauna, but are unsure how it impacts you, and what you can do about it, you are probably at step 2 of the roadmap. At this step we explore what you can do to help contribute to meeting our goal of net-zero carbon.

There are many small changes we can make to help the community meet the net-zero carbon target. The ways you can contribute will vary based on whether you're a household or a business, however regardless of who you are, the most effective way of making sure you are doing your bit is to **make a plan**. This will help you establish measurable actions you can do to contribute to reducing our emissions in the community.

If you haven't seen any zero carbon plans in the past, there are a few examples of good plans at [Appendix 2](#).

Here are three of many simple solutions we identified that can help:

1. Reduce emissions across the whole value chain;
2. Tackle the root causes;
3. Don't automatically defund high-carbon business.

With regards to the time commitment and cost associated with implementing your own plan, this is completely up to you. The benefit of coming up with your own plan is that you can tailor it to ensure the actions you're taking are both achievable and relevant for you, meaning you'll be more likely to stick to it. We explore this more at Step 3.

Step 3 – I Want To Create a Plan. What is the Best Way to Go About It?

When creating a plan it is helpful if you keep your actions specific. Like any plan it is more likely that you'll stick to it if you make it both detailed and realistic.

Tips for things you can add to your plan as a household to reduce emissions:

- Save energy at home by lowering heating and cooling, and using more energy efficient appliances. Hang your washing out instead of using a dryer
- Walk or ride to work. If you live further away you can do this once or twice a week
- Eat more vegetables. Eating less meat and dairy can lower your environmental impact. Consider implementing a meat free Monday in your household
- Be mindful of your waste, and commit to things like writing a grocery list each week and meal planning to ensure you don't over cater. This can also help you save money!
- Look at changing up your electricity to a greener alternative. This can be by installing solar panels on your roof, or if this is too much of a cost commitment you can also explore options such as chatting to your utility company to see if you can switch to renewable sources such as wind and solar.
- Reduce the amount of things you buy. Try buying second hand clothes from op shops or recycling where possible

If you're a business, your plan is going to look a little different. For businesses, a key first step in creating an effective plan is to firstly understand your emissions. To explore this, there are three key areas you should consider:

- Direct emissions: These are emissions directly produced by your company, for example company cars, and on site equipment such as boilers
- Indirect emissions: These are emissions that aren't directly produced at your facility, but are still a part of your energy footprint. Examples of this are electricity and heating used for offices/buildings (which factors in the emissions from your electricity company in supplying power)
- Supply chain emissions: This one is a bit more abstract, however this is all about understanding emissions across your supply chain. An example of this looking at the emissions from any shipping you may use to source raw materials/deliver finished products

Investors are often tempted to increase their portfolio of low-carbon activities by simply rebalancing their allocation of capital. However, a more effective approach when it comes to actually incentivising reduction is to invest in activities that currently cause high carbon emissions, while setting out a clear and urgent pathway to change.

Our research found that of the more than \$100 trillion investment the transition will require, 70-80% needs to go into some of the hardest-to-abate sectors. Some activists also now recognize this logic and are shifting from demanding divestment to demanding a managed transition of high-carbon businesses.

Green mortgages?

We found an example of this in the mortgage sector. Selling mortgages for homes that are already energy efficient improves the carbon metrics of a bank's mortgage book, but "green mortgages" don't reduce emissions. They are a first step that may draw consumers' attention to energy efficiency. The next step is to finance home retrofits, which will have a much greater decarbonisation impact.

Similarly, lending can be used to finance effective transition plans. Some banks are continuing to lend to fossil fuel companies with the view that they will transition with their clients, and that transition will require capital. It will of course be vital for the credibility of these initiatives that the path of change delivers the pace and scale required by the science.

The lesson is that the easiest, most-obvious ways to reduce a company's carbon footprint will not lead all the way to net zero. Too much focus on these low-hanging fruit might distract from more fundamental measures. To get to a net-zero world, companies need to engineer emissions out of their entire business system, including their supply chain and customers' use of their products."

The World Economic Forum outlines 3 ways for companies to get to net zero and stay profitable. Put simply, when companies look to reduce their carbon emissions, they often focus on easy cuts and short-term solutions. In order to meet carbon reduction targets, **a much more ambitious and wide-ranging approach will be necessary.**

www.weforum.org

There are a number of good resources available to assist with understanding your carbon footprint as a business:

- <https://eco-act.com/carbon-reporting/how-to-calculate-a-carbon-footprint-for-your-business/>
- <https://clevercarbon.io/quiz/>
- <https://www.epa.gov/climateleadership/ghg-inventory-development-process-and-guidance>

There are also a number of not for profit organisations which assist businesses in understanding their carbon footprint. A couple of good examples of this are Climate Neutral, and Cooler.

- <https://www.climateneutral.org/>
- <https://www.cooler.dev/>

Step 4 – I Have a Plan. How Do I Turn It Into Action?

Once you have a good understanding of your emissions as a business or household, and have started on a plan the next step is to look at where your biggest emissions are and how you can reduce them. As mentioned above it's helpful to keep these targets specific, and have annual commitments (i.e. that you'll reduce your emissions by a certain percentage each year,) to ensure you're on track to meet your long term zero carbon goal.

These tools can help with your analysis:

- <https://carbon-view.com/>
- <https://www.carbonfootprint.com/calculator.aspx>
- <https://carbonpositiveaustralia.org.au/calculate/>
- <https://shinehub.com.au/>

Given each business is different your focus areas are likely to differ, however below are a few more general examples of ways to reduce emissions across your business:

1. Look at switching your electricity and heating to 100% renewable energy. This can be organized by looking at power purchase agreements with utilities companies, and also by installing solar panels on your buildings, Including Virtual Power Plant (VPP) option allows you to extend and maximise your investment in solar and battery technology.
2. Connect where possible with initiatives and schemes that provide support through technical advice and financial support to assist. Programs such as Shinehub (<https://shinehub.com.au/>) are good examples where they provide functions such as vetting suppliers, products and installers and are supported by reputable organisations such as Geelong Sustainability Group and Local Government.
3. Focus on making your buildings as energy efficient as possible. This can be achieved by implementing changes such as buying more efficient appliances, and installing LED lights
4. Look at more sustainable transport options, and encourage employees to get on board by walking/cycling to work
5. Commit to no waste by encouraging employees to recycle, and removing single use cups/plates
6. Invest in a carbon offset scheme to offset your company's carbon footprint. A good example of this is ClimateCare, which funds a number of carbon reduction programs across the globe using funding from a number of companies looking to offset their carbon footprint.

<https://www.climatecare.org/>

Step 5 – I Am 100% Engaged and Implementing i.e. a Zero Hero

At stage 5 business has commitment to net zero emissions and 100% renewable energy as part of their current corporate strategic plan.

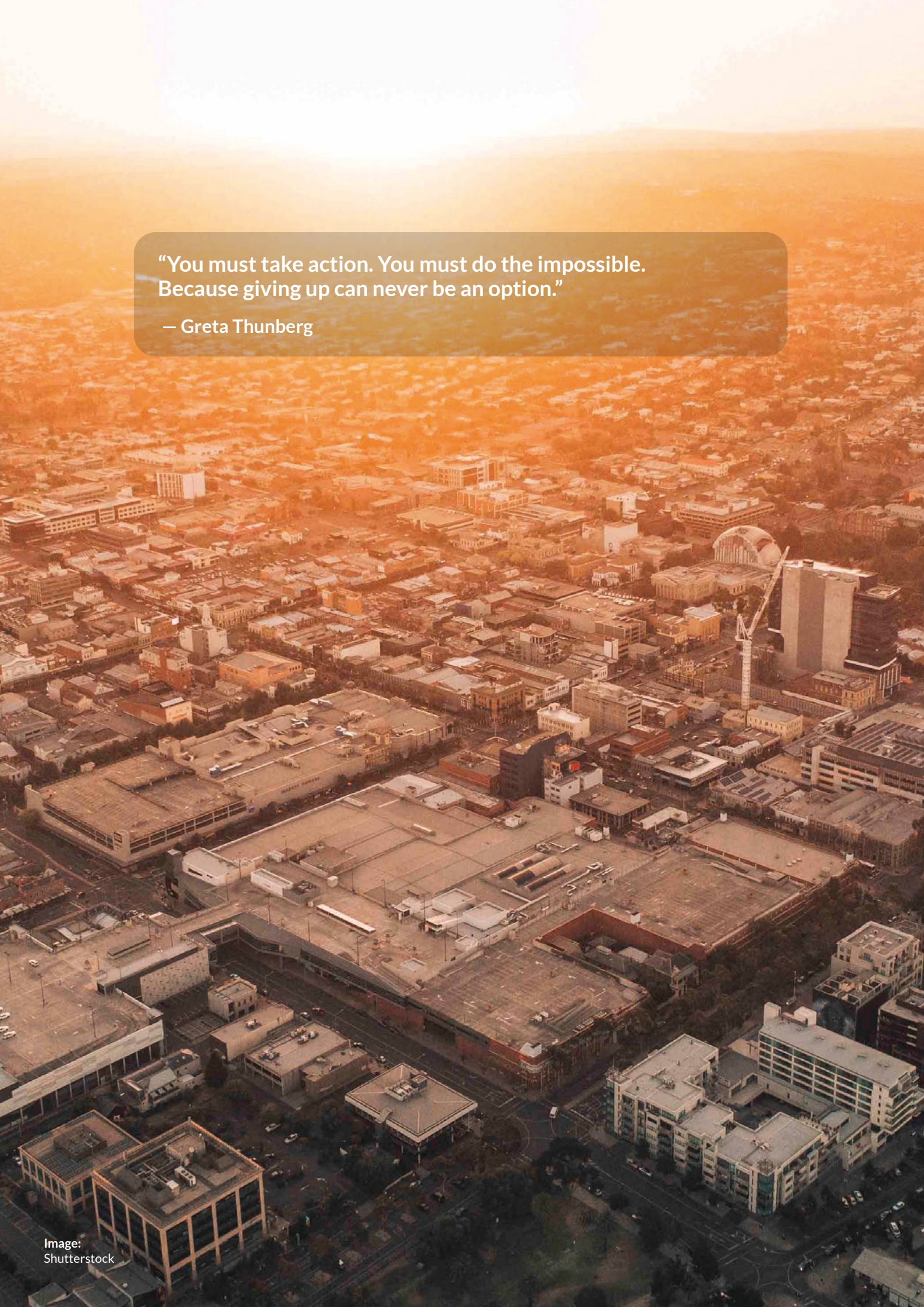
Success – Success can be measured by having a clearly outlined set of goals and priorities that can be assessed. Setting timebound and realistic goals is important and will allow you to chart your progress, learn and develop continuous improvement strategies.

Maintain Momentum – once you have reached this stage its important to stay connected to broader programs and initiatives. Technology and information in this dynamic area changes regularly, therefore staying informed and up to date about these changes can be difficult. By joining a like-minded group like Geelong Sustainability Group, they can keep you up do date on these changes in real time.

Continuous Improvement – Once you are set up with a solar system further options become available. A Virtual Power Plant (VPP) is a collection of home solar batteries that are connected together that provide extra income, power to the grid and provide grid support in times of high demand. Various programs and opportunities are available to make this next step

Community Engagement – it is important where possible to engage with and involve the local community. This can be through sharing information in the form of your policy, learning and success on your road map to zero carbon. Also consider linking with local community environment groups for projects such as revegetation. This helps to provide a tangible connection for staff, households and volunteers for carbon storage projects.

Mentoring and Partnerships – mentoring is important for businesses and individual households that are willing to take the first step, but maybe lacking the confident, resources and direction to make a start. By having mentors that have tried and tested the road to Zero Carbon it can assist by providing a more achievable and targeted approach to a Zero Carbon Plan. Developing partnerships with other likeminded businesses or households can assist through shared learnings, efficiencies and resources.

An aerial photograph of a city, likely Los Angeles, taken during the golden hour of sunset. The sky is a deep orange, and the city's buildings and streets are bathed in a warm, golden light. A large, semi-transparent dark orange rounded rectangle is overlaid on the upper left portion of the image, containing a quote in white text. The city below shows a dense urban landscape with various building styles, including a prominent modern skyscraper and a large stadium-like structure with a distinctive roof.

“You must take action. You must do the impossible.
Because giving up can never be an option.”

— Greta Thunberg

The Roadmap in Action

This section aims to consider the principles and actions outlined in our 5-step roadmap, and apply them to real-life examples of how community groups, organisations and individuals have started their journey toward net-zero carbon communities.

It also includes some real-world examples of why this is important for our region.

Background

When we consider how Geelong measures up to a broader context, it is notable that Greenpeace's analysis of the 80 highest-polluting ASX200 companies reveals that 41 companies have set a net-zero (or carbon neutral) target. This is slightly higher than the 40% of companies in Geelong who completed our survey and confirmed they had a net-zero plan, with targets. However, only 14 of those ASX200 companies have also set 100% renewable electricity targets, meaning almost two-thirds of companies with net-zero carbon emissions targets have not made a commitment to switch to 100% renewable electricity. In 2021 fossil fuels accounted for 76% of all energy produced in Australia. It therefore seems incomprehensible that companies can achieve net-zero carbon emissions without making a commitment to moving to renewable energy, we seemingly need both to succeed in this target. This reflects our findings that although a net-zero carbon target is identified and considered achievable by many, the actions required to achieve same are more difficult to implement.

As discussed above, the survey results demonstrate that respondents from Geelong and the surrounding areas have varied levels of sustainability maturity, including those with a plan containing clear targets, to those who have no plan at all - but everyone respondent considered the net-zero carbon target to be important and achievable.

A notable strength of the Geelong community is the opportunity for collaboration. From businesses creating opportunities for individuals to purchase affordable renewables at community level, building community solar networks, to the partnership between Deakin University, local industry and government - to ensure that Geelong is at the forefront for the sustainable jobs of the future. We undoubtedly live in a clever, creative city, and by committing to and working towards net zero emissions by 2035 we can keep it that way for future generations.

Below are some examples of local case studies at different stages of their journey on the road map, as well as examples of the collaboration and innovation that is taking place in Geelong. We hope when reading this section you will see what is possible and be inspired!

Geelong Region Companies

Give Where You Live is a local Foundation that exists to create a fairer Geelong where all people and places thrive. Although the impacts of climate change are experienced by all of us it is the most vulnerable in our community and globally who experience the impacts the most. We do not currently have a plan to Net Zero emissions, however we have recently set up a committee to start the process. We have recently installed solar panels on the roof of our offices. There were no calculations on our energy carbon emissions, the main motivator for us was the sustainability and environmental impacts of moving to renewables. Moving to renewables was easy. We sourced quotes from local installers and chose the best one for us! The cost to the Foundation was \$950 – the total cost of installation was just under \$19,000, however we received a sustainability grant from the City of Greater Geelong of \$10,000 and a rebate from the Victorian State Government meaning the only outstanding cost to us was \$950. Reach out to our local installers, they know all about the rebates and will help you and talk to your electricity retailer about ‘buy back’ schemes they have as- you may be able to sell unused power back into the grid.

genU – is committed to sustainability to ensure they protect and improve the environment for future generations, enable sustainable economic growth and build inclusive communities. They have solar systems in place and are planning to install a micro grid as part of a property re-development as well as choosing energy retailers who have a focus on renewable energy. They are working on updating their current sustainability plan with key emission targets and dates and hope to have it completed within 2022.

The above are examples of those at stage 2–3 of the roadmap.

Wadawurrung Traditional Owners Corporation strategy is outlined in Paleert Tjaara Dia -Lets make country good together 2020–2030 (Paleert-Tjaara-Dja_2020-2030_Healthy-Country-Plan-compressed.pdf (ccnetglobal.com)) The plan outlines how Wadawurrung see Country being cared for and managed over the next 10 years. As the Chair Patrick Fagan states in his foreword “our connection to culture and country continues to provide us with the strength to practice and pass on tens of thousands of years of knowledge as Wadawurrung people”

Barwon Health has integrated Net Zero emissions into their Corporate Strategy Plan; Future Ready. Barwon Health Strategic Plan 2020–25 ([view here](#)) and has sustainability as one of its core values. The report states the target is net zero emissions by 2050 in line with the Victorian Government target.

Barwon Water has integrated Net Zero carbon emissions and zero waste into its corporate strategy document; Barwon Water Strategy 2030 ([view here](#)) This document outlines climate change as a driver for change and recognises that action needs to be taken to ensure Barwon water “can continue to be a relevant and valuable organisation to our community”. Strategy 2030 commits Barwon water to achieving net zero emissions by 2030, outlines what that means and identifies measures of success. Furthermore, Barwon water noted that more than 80% of their emissions came from the use of electricity sourced from the grid and have committed to 100% renewables by 2025.

City of Greater Geelong has developed their Climate Change Response Plan 2021–2030 ([view here](#)) which details how they will support coordinated and collective action to achieve net zero community emissions and increase the resilience of our region to the impacts of climate change. Key targets in the plan are for all City managed operations to reach net zero emissions by 2025 and the municipality to reach net zero emissions by 2035. In 2021 the City was already using 100% renewable energy and committed to 100% zero emission vehicles by 2027.

The above companies are examples of those who have achieved step 4–5 of the roadmap.

Regional Strategic Partnerships

Together we are stronger than the sum of individual parts - Examples of regional strategic partnerships.

In our region there are many examples of strong, innovative and collaborative partnerships driving an increase in use of renewables, reducing carbon emissions, and delivering value for residents and customers.

Regional Innovation for Circular Economy (RICE) was established in 2019 through the interest of several key partners from our Region. Their vision is to lead the growth of a thriving circular economy in the Barwon South West region of Victoria which will reduce pressure on the environment, boost economic growth and create jobs.

Viva and Barwon Water – In March 2022, Partnerships with Viva and Barwon Water announced a new \$43.3 million project which will incorporate a two megawatt electrolyser for the generation of renewable hydrogen using recycled water from Barwon's Northern Water Plant.

Barwon Health, Geelong Port and Barwon Water – In March 2021, a strategic partnership was created between Barwon Health, Barwon Water and GeelongPort who came together to form the Barwon Region Renewable Energy Project (BRREP) with the aim of moving to 100% renewable electricity and zero net emissions.

Zero Emissions water started as a joint project between 13 Victorian water utility companies (including Barwon Water) to buy renewable energy from Kiamal solar farm, purchasing as a group reduces the cost, each company benefits from lower emissions and consumer benefit from an environmental and hip pocket perspective.

Geelong carbon fibre precinct / Carbon Nexus – The Carbon Nexus research facility is located on the Waurn Ponds Campus of Deakin University. Carbon Nexus is a purpose-built research facility designed to accommodate the diverse needs of international manufacturing organisations that require the cost-effective resolutions of carbon-fibre related projects that are strategic and complex. It lies at the heart of a growing carbon fibre and composites manufacturing precinct. Together with Deakin, CSIRO and the Geelong Manufacturing Council, a group of local companies have formed the Geelong Advanced Fibre Cluster, with the goal of improving competitiveness of member companies.

Barwon South-West Community Power Hub – The hub is led by Geelong Sustainability and connects and collaborates with organisations, energy groups and the broader community to increase the access and involvement in community renewable energy. It will also enable local economic benefits through cost saving for communities and support for local renewable energy jobs.

The above are examples of those at step 5 of the roadmap.

“It doesn’t have to be a complex plan. Just commit to action.”



Geelong Household – Case Study #1

“As a family it is only recently we understood we are living in a **climate emergency**, and this caused us all to look at what we are doing and review our impact.

3 of our 4 kids completed a project on the environment and the facts were shocking – around 150 million trees are cut down each year just to produce clothing, 17% of the Amazon rainforest has been cut down, 10,000 marine mammals globally have died from plastic thrown into the ocean.

An associate bought the issue home directly in regards to the impacts on our local environment, on the Bellarine, where the effects of climate change can be seen on the critically endangered Orange Bellied Parrot and the Coastal Saltmarsh vegetation eco-system.

A quick internet search took us to **Geelong Sustainability** and a community forum for solar panels. GS then provided access to a consultant who came out and assessed our roof, and we became part of the community solar buy. Our panels are due to be fitted in April 2022, they have sorted out everything for us.

We have also implemented some other positive choices toward our goal of contributing to a net-zero carbon community, including:

- Started a compost;
- Committed to stop buying fast-fashion;
- Going a year without buying new stuff.

Our journey has just started, but we are committed to **doing what we can** in our household to achieve net zero.”

This example sits between steps 2–3 of the roadmap.

Geelong Household – Case Study #2

We asked this household to answer some helpful questions about their plan and how they are working toward net-zero carbon:

Q. Why is net zero important to you?

A. I believe it matters to the vast majority of Australians, and this belief is only heightened each and every year with local and world events that can be attached to climate change. What has been the missing ingredient, so to speak, is the means in which an individual is able to afford and invest in renewables. Government incentives, rebates and support will only heighten the uptake of renewables, leading to increased adoption and making zero carbon an achievable reality.

Q: What does your net Zero Plan look like / What actions have you taken?

A: Our plan comes in 5 stages and elements;

1. **Solar power** for the house backed by battery storage (See image attached)
2. **Solar Passive Designed House** – in designing a new house we set about prioritising a solar passive design. This was crucial in our family reducing our home fossil fuel foot print, utilising elements of north facing building design, skillion roof, solar passive elements with warmer in winter and cooler in summer, and Phase Change Technology in the walls for insulation
3. **Electric Vehicle (EV)** – planned for 2025 or before.
4. **Incidental Changes to Lifestyle** – decisions and positive impacts that can be made every day and proving that everyone can make a difference every day. These include:
 - a. Organic and local veggie patch and orchard;
 - b. Ensuring low food miles for our family and health benefits;
 - c. Property garden tools including lawn mower, chain saws, hedges, drills etc. all battery powered and therefore charged through solar power rather than fossil fuels;
 - d. Alternative transport options – ride walk, skate, etc. where practical and possible
5. **Plant local indigenous vegetation** – this has the advantage storing carbon in the vegetation as well as providing habitat and biodiversity functions for flora and fauna.

Q. What 3 things can we all do now?

1. **Start small and achievable.** Start by doing what is possible now, this has benefits of feeling like you are making an immediate difference while planning and positioning for future initiatives.
2. **Link up / connect** with local community groups and organisations that can assist you by providing technical advice and in some cases financial incentives.
3. **Advocate, lobby, talk** with state, federal and local politicians. This will make zero carbon transition affordable and achievable.

This example sits at step 5, when the roadmap is considered.

Local Flora and Fauna Example: The Plight of Coastal Saltmarsh Vegetation and the Orange-Bellied Parrot

The Orange-bellied Parrot is listed as Critically Endangered in Australia. This is the highest ranking of conservation status and protection under Federal laws, however we continuously fail to take necessary measures to protect it.

To understand why it is so imperative that we work toward zero-carbon and contribute to sustaining this unique fauna, it is important to note that it is one of only three parrot species in the world to migrate. It does this in winter, making the arduous journey from South West Tasmania, catching the roaring forties across to the mainland to areas like Swan Bay and Lake Connewarre on the Bellarine Peninsula. Here it overwinters, where Coastal Saltmarsh forms the entirety of its diet, before returning to Tasmania in the summer to breed. Put simply, if the Coastal Saltmarsh Vegetation Class disappears through sea level rise inundation from the effects of climate change, then so too does the Orange-bellied Parrot and the feeding grounds for the 10's of thousands of migratory wader birds.



Coastal Saltmarsh vegetation is listed as a Threatened Vegetation Class within Victoria. It occurs around Ramsar Wetlands of International significance including Limeburners Lagoon, Lake Connewarre and Swan Bay

This habitat is so important because it supports diverse life forms and migratory wader species that utilize the East Asian-Australasian Flyway. In particular, tens of thousands of birds use this flyway, take fuel and rest stops on the way down to places like Swan Bay on the Bellarine

To help you relate, think of it like a road trip to Sydney - you need to fuel up at a servo along the way. No good if that servo is not there on your way back.

The Red Necked Stint weighs no more than a Mars Bar, but makes the 12,000 KM Journey each year from Siberia to the bottom of Australia. So what do the Orange-bellied Parrot and Migratory Waders have in common? They rely on Coastal Saltmarsh Vegetation!



East Asian-Australasian Flyway

How does this work in practice and why does it matter?

Coastal Saltmarsh Vegetation forms around low lying coastal wetlands, which act like a sponge, expanding to mitigate impacts from heavy rain fall and floods, filtering nutrients and sediments from catchments and act as carbon sinks by sequestering carbon from the atmosphere. Swan Bay sequesters carbon, tying it up in these ecosystems.

All this is threatened by climate change. Low Lying coastal wetlands like those described are the first to go under modelling for sea level rise. Water levels will rise, inundating Coastal Saltmarsh therefore removing the ability for OBP's to feed. So too will the feeding grounds for the Migratory Wader bird species. Water levels will increase inundating the mudflats and removing the ability to feed.



The Harsh Realities of Climate Change

Above we have outlined 2 examples of the harsh realities of how Climate Change will impact on the natural environment. Of course every ecosystem and the life forms they support will be affected.

However, to relate we need examples, tangibles - and this is the purpose of these two local yet important examples.

Conclusion

We hope after reading this report you will better understand our motivations, our process, and where you fit within our roadmap toward a net-zero carbon community for Geelong.

But we want to reiterate that this is not a future problem, the devastating impacts of climate change are being witnessed and experienced in Australia right now. We started our project in 2021, almost one year after the horrifying bush fires of the 2019–2020 season, also known as Black Summer. 3000 homes were destroyed, 24 million hectares of land were burnt and 33 people lost their lives¹.

As we finalise our report we are witnessing the extreme weather events and flooding in Queensland and New South Wales which has resulted in damage to more than 20,000 homes and businesses in Queensland and more than 5000 homes in New South Wales, as well as sadly the deaths of at least 23 people, and uncounted animals, since the flooding began in late February². Whilst Geelong and our region have not experienced these devastating events directly, yet, the impacts of climate change are clear to see and we must act now to reduce our emissions and reach net-zero by 2035.

In its August 2021 climate report the (the IPCC 2021 report) UN Secretary General Antonio Guterres described the report as “a code red for humanity”³ but went on to say “if we combine forces now, we can avert climate catastrophe. But... there is no time for delay and no room for excuses.”

Our concluding remarks reiterate Mr Guterres’ sentiment - we have the knowledge, resources, skills, and experience in Geelong to make a difference, and most significantly our survey demonstrated that as a community **we are committed** to a net-zero target and understand its’ importance. We hope that our roadmap to net-zero will provide our community with a framework to work within, to develop and build our plans to net-zero Geelong by 2035, so that together we are a **region of Zero Heroes**.

Now it’s your turn – we implore you to consider where you fit in our roadmap and to take the next step toward becoming a ZERO HERO!



¹ <https://www.9news.com.au/national/australian-bushfires-black-summer-one-year-anniversary/4b61f48a-9b80-44b8-8f35-a57249f924ab> (Wood, R. 13 November 2020)

² <https://disasterphilanthropy.org/disasters/2022-australian-flooding/> (read 19 April 2022)

³ <https://www.bbc.com/news/science-environment-58130705> (McGrath M, Climate Change: IPCC report is ‘code red for humanity’ 09 August 2021)



Appendices

The background of the page features a series of overlapping, curved bands in various shades of green, ranging from a dark forest green to a light, almost white green. These bands curve from the top right towards the bottom left, creating a dynamic, layered effect.

Appendix 1 – More Info and Other Examples of Zero-Carbon Initiatives

- Strategy 2030 Barwon Water. https://www.barwonwater.vic.gov.au/_data/assets/pdf_file/0027/19638/Strategy-2030.pdf
- Telstra Corporation Ltd, Public Disclosure Statement 2020 2021. Climate Active Program <https://www.climateactive.org.au/sites/default/files/2020-07/Telstra%20PDS%202020.pdf>
- Hero to Zero - uncovering the truth behind Corporate Australia's climate action claims' https://www.greenpeace.org.au/wp/wp-content/uploads/2021/09/Hero_to_Zero2021_FF_Digital.pdf
- New Geelong Collective striving for net zero emissions. Powell A. August 05 2021 <https://www.energymagazine.com.au/new-geelong-collective-striving-for-zero-net-emissions/>
- Barwon Water and Viva renewable hydrogen project is an exciting opportunity for water industry and region (01 March 2022) <https://www.barwonwater.vic.gov.au/about-us/news-and-events/news/barwon-water-and-viva-renewable-hydrogen-project-is-exciting-opportunity-for-water-industry-and-region>
- Future Ready. Barwon Health Strategic Plan 2020-25. https://www.barwonhealth.org.au/images/11295_StrategicPlan2020-25_vFINAL.pdf
- Barwon South-West Community Power Hub - Community Power Hub (downloaded 13/03/2022)
- The City of Greater Geelong CLIMATE CHANGE RESPONSE PLAN 2021-30 <https://www.geelongaustralia.com.au/common/Public/Documents/8d9b3d6e2bec4ce-climatechangeresponseplanfinal.pdf>
- https://www.woolworthsgroup.com.au/content/Document/WoolworthsGroupSustainabilityPlan2025_Final.pdf
- <https://www.deakin.edu.au/research/impact-stories/carbon-nexus-revolutionising-manufacturing> (downloaded 13/03/2022)
- Wadawurrung Traditional Owners Aboriginal Corporation. Paleert-Tjaara-Dja_2020-2030_Healthy-Country-Plan-compressed.pdf (ccnetglobal.com) (downloaded 13/03/2022)
- <https://www.worldgbc.org/advancing-net-zero/case-studies-0>
- <https://www.wsaa.asn.au/sites/default/files/publication/download/Towards%20Resilience%20Case%20Study%20-%20Zero%20Emissions%20Water.pdf>

Appendix 2 – Survey Data

How well do you understand the meaning of 'Zero Carbon Community'?	How beneficial do you think it is for your organisation?	Does your organisation have a plan for Zero carbon?	Does your organisation current invest in renewables?	Please provide additional Information on current renewable investment	Are you aware of grants or incentives available to transition to renewables?	What are the barriers to your organisation achieving / creating a net Zero plan?	What would need to happen for your organisation to be more inclined to invest in renewables?	What is your organisations current sustainability commitments?	Are you collaborating with any other business / industry / community with your zero carbon?
5	4	Currently in Progress	Yes	Our organisation has invested in solar arrays on all of our acute-care campuses, and more recently at all our day occupied community health and community mental health facilities. We have also recently moved to fully electric community health centres, removing LPG at two sites which had been used for heating and hot water.	Yes	Cost. After installing solar and upgrading lighting, and targeting ageing gas fired boilers, there are real cost barriers to retrofitting ageing buildings. With the commitment of the Victorian government to purchasing 100% Green power for hospitals by 2025, our focus will need to turn to gas and fleet opportunities, as well as relevant scope 3 emissions. Targeted advice from DHS will drive our efforts here. COVID restrictions have been another short-term barrier, delaying contractor access to sites for substantial periods of time in 2021	Our organisation has taken every feasible opportunity for grant / no interest loan funding to commence investment in renewables.	Our organisation is contributing to the Department of Health commitment to be net zero by 2050, by working towards continual declines in overall energy use. Please see our Environmental Management Plan 2020-24 for further detail.	Participation in the regional solar collaboration with other publically funded health agencies in the south west was a fantastic means of sharing information and working at scale. SWH has networks with other large energy users in our area to share knowledge, but haven't participated across industries on any infrastructure activity.
5	5	Yes - Please contact me and we are happy to provide a copy for this project	Yes	Solar Investments, Renewable Power Purchasing, Low emissions lighting	Yes	Resources, both financial and personnel	Ensure that the idea of Zero Carbon is imbedded into every decision	Net Zero by 2040	Yes. Barwon Water, Geelong Port
3	4	No	No	We have received approval to invest in Solar in the last couple of months. The project will see a 99kwh solar array placed on our main facility.	Yes	We are a small organisation with a large administrative burden and limited resources to dedicate to this type of activity	Leadership from the region	Not documented	No

How well do you understand the meaning of 'Zero Carbon Community' ?	How beneficial do you think it is for your organisation?	Does your organisation have a plan for Zero carbon?	Does your organisation current invest in renewables?	Please provide additional Information on current renewable investment	Are you aware of grants or incentives available to transition to renewables?	What are the barriers to your organisation achieving / creating a net Zero plan?	What would need to happen for your organisation to be more inclined to invest in renewables?	What is your organisations current sustainability commitments?	Are you collaborating with any other business / industry / community with your zero carbon?
3	5	No	Yes	solar power	No	staff resources	education	to reduce our carbon footprint to the best we can	No
3	5	Currently in Progress	Yes	Solar Energy South West Program	Yes	Resources	Resources - business cases. \$\$\$\$	Currently reviewing Environmental Management Plan. Strategically environmental sustainability is very important to our organisation.	Progressively collaborating. Internally Environmental Sustainability working group is in infant stages formed in 2019/20, but gaining momentum.
4	5	Yes - Unfortunately we cannot provide a copy at this stage	Yes	100% Green Power through an AGL contract	No	We will have a Carbon Neutrality Plan developed by year end 2021, with the aim of having net zero emissions by 2024. No barriers	Already done	We have many sustainability commitments including a Carbon Neutrality Plan developed by year end 2021, with the aim of having net zero emissions by 2024.	Yes, Barwon South West Climate Alliance
4	4	Currently in Progress	No		No	Staff resources to implement	Applicable renewables available	3 Year Environmental Management Plan 10 objectives	Yes, still a work in progress.
4	4	Currently in Progress	No	We have a new sustainability plan we are transitioning to now	No	Time and resources to make it happen	We already have a plan to invest 100% renewable	Investing in 100% renewable energy, water and energy efficiency strategies, waste targets, sustainable procurement policies, carbon neutral	Not yet
4	4	No	Yes	We recycle as much as we can and our suppliers are always looking at using renewable products in their flooring/carpets/underlays	No	small business, time constraints, cost of recycling	information on how	we recycle when we can	a lot of our suppliers use renewable resources

How well do you understand the meaning of 'Zero Carbon Community' ?	How beneficial do you think it is for your organisation?	Does your organisation have a plan for Zero carbon?	Does your organisation current invest in renewables?	Please provide additional Information on current renewable investment	Are you aware of grants or incentives available to transition to renewables?	What are the barriers to your organisation achieving / creating a net Zero plan?	What would need to happen for your organisation to be more inclined to invest in renewables?	What is your organisations current sustainability commitments?	Are you collaborating with any other business / industry / community with your zero carbon?
3	5	Currently in Progress	Yes	Solar panels; energy efficient fleet vehicles; partners with Port Fairy Smart Energy Precinct Project; greener procurement	No	Human resources to design & deliver; funding; government directives DoH guidelines	Better awareness of opportunities for grants; sharing of best practice across organisations	Statement of priorities target for Environmental Sustainability Plan;	partners with Port Fairy Smart Energy Precinct Project ; Dept of Health zero % solar power loan; procurement process includes supplier "green" assessment
4	5	No	No		Yes	Really just time, money and understanding. Mostly time though. Because it is not a core part of what we do, adding something like this in to the daily workload is difficult, particularly in a small business.	Depends on what you mean by invest. If you mean invest in infrastructure to ensure we are using renewables. Not a lot. We will do that in 2022. We're hoping for a grant but if unsuccessful we will invest regardless.	We have no formal commitments.	Nope!
4	5	Currently in Progress	Yes	Significant solar array on our roof	Yes	Competing priorities - but will get there	Nothing - we need to free some time but are committed	Limited but will commit in our plan	Limited at this stage
4	5	Yes - Unfortunately we cannot provide a copy at this stage	Yes	BRREP program	Yes	Capital investment	We're very much inclined but financial incentives always help	We have an Environment Strategy which is published on our website. We have an annual ESG audit and a range of activities.	Barwon Water and Barwon Health
3	3	No	No		No	Not understanding how to begin understanding what	Understanding what this might look like	Aiming to be paperless;	No
5	5	Yes - Unfortunately we cannot provide a copy at this stage	No	As a consultancy firm we do not directly invest but we actively engage with large scale businesses that invest in renewables.	Yes	No barriers. We are committing to a net zero plan to be finalised in 2022.	Clients (large businesses in property) also committing/mandating net zero initiatives for procurement.	We have a forthcoming net zero policy and we commonly advocate for sustainability within a vast array of projects in the property/development sector.	Yes - some clients and industry partners across development sectors.
4	2	No	No	The only energy saving initiative is solar.	No	Time, knowledge of product. Cost	Make it easier to do. Grants to bring a commercial return over two years.	Minimise electrify usage through solar and other methods.	No

How well do you understand the meaning of 'Zero Carbon Community' ?	How beneficial do you think it is for your organisation?	Does your organisation have a plan for Zero carbon?	Does your organisation current invest in renewables?	Please provide additional Information on current renewable investment	Are you aware of grants or incentives available to transition to renewables?	What are the barriers to your organisation achieving / creating a net Zero plan?	What would need to happen for your organisation to be more inclined to invest in renewables?	What is your organisations current sustainability commitments?	Are you collaborating with any other business / industry / community with your zero carbon?
4	5	No	Yes	solar, rain water storage	No	cost; ease of transition, user friendly information to support transition, risk it becomes a distraction when compared to other client related priorities, most of all though, probably not too much other than complacency	simply an attitudinal shift, greater acceptance we have a shared responsibility to the climate crisis, move from complacency and complicity to action	we don't have any current stated sustainability commitments	no
3	5	No	No		No	Consideration of both office and transmitter sites	Minimal impact on cost, assurance of no interruption to the business.	Apart from the standard recycling and waste program in the office, more could be done by way of electricity usage, heating and cooling (which is controlled by building management).	No

“Net zero carbon is where the amount of greenhouse gas produced is the same as the amount removed from the atmosphere. We reach net zero when the amount of greenhouse gas produced (eg. by cars) is no more than the amount taken away (eg by planting trees.)” After reading the above, what does achieving Zero Carbon mean to you?	What do you think the benefits would be if we reached net Zero Carbon?	Do you think striving for net Zero-Carbon is achievable?	How much have you heard of net Zero Carbon or discussed it, before now?	What are you currently doing to help us reach net Zero Carbon?	How interested are you in achieving net Zero Carbon?	Would you benefit from assistance or more information about net Zero Carbon	If you answered 'yes' above what assistance or information would you like?	What would you like to do more of? (eg. Recycle more, turn lights off, ride to work)	Have you heard of renewable energy?	If so, do you use it?	If yes, what type of renewable energy?	Are you aware of resources available to help you use renewable energy more? If so which resources?
It is very significant as the impacts of Global Warming are becoming extremely evident	A future for my children	Yes	3	Reducing the amount of electricity our household uses by installing solar.	4	No	.	Ride to work	Yes	Yes	solar	
We compensate for the carbon we produce by conducting an equal amount of carbon-reducing activities.	Environmental, climatic, health benefits, as well as longevity of our natural resources.	Yes	5	Working on ResourceSmart School accreditation	3	No	The College has a specialist liaison officer for this purpose.	Solar/batteries.	Yes	Yes	Solar panels.	Yes - grants - LEDs, solar rebates etc.
Everything if we want to protect our unique eco systems for future generations	happier, simpler lives focused on real things	Yes	5	Net zero energy at home, lots of recycling and home food production and investigating an EV	5	Yes	Switching to induction cooking	Cycling on safe roads and trails	Yes	Yes	Rooftop solar	Solar Vic rebates, Powerpal, GS RE projects
An equilibrium where we aren't producing more carbon than we are taking away.	Decreased climate change - less natural disasters, less rise in temperature and rising sea levels	Yes	3	Plant trees, recycle, try not to buy new items - go to op shop before Kmart, eat local and seasonal, rarely fly, car pool where possible, reduce electricity use - turn off appliances/ lights, use LEDs,	5	Yes	More ways individuals can reduce their carbon footprint,	Have better access to recycling avenues - places to dispose of batteries, medication foil slips etc. Be more able to fix things rather than throw them out	Yes	No		Solar rebate
mostly, reducing emissions very significantly	we will stabilise climate change and be in a position to start drawing down carbon	Yes	4	solar panels, divesting from fossil fuel supporting investments	5	No	No	use renewables (buy battery and or electric vehicle)	Yes	Yes	solar, plus buy renewables from Powershop (electricity retailer)	
The cessation of adding extra greenhouse gases to the atmosphere	Reduce the likelihood of damaging our climate even more	Yes	5	Ethical investment, walk or ride for transport wherever possible, recycle, advocate	5	No	none required		Yes	Yes	Solar PV	Batteries, EV's

“Net zero carbon is where the amount of greenhouse gas produced is the same as the amount removed from the atmosphere. We reach net zero when the amount of greenhouse gas produced (eg. by cars) is no more than the amount taken away (eg by planting trees.)” After reading the above, what does achieving Zero Carbon mean to you?	What do you think the benefits would be if we reached net Zero Carbon?	Do you think striving for net Zero-Carbon is achievable?	How much have you heard of net Zero Carbon or discussed it, before now?	What are you currently doing to help us reach net Zero Carbon?	How interested are you in achieving net Zero Carbon?	Would you benefit from assistance or more information about net Zero Carbon	If you answered 'yes' above what assistance or information would you like?	What would you like to do more of? (eg. Recycle more, turn lights off, ride to work)	Have you heard of renewable energy?	If so, do you use it?	If yes, what type of renewable energy?	Are you aware of resources available to help you use renewable energy more? If so which resources?
Working out an estimate of what my own CO2 emission is and planning how i can bring it to net zero	If achieved globally the rate of climate change would be slowed	Yes	5	Have installed PV and home battery, now getting our house completely off gas. Bought EV. Have become primarily vegetarian.	5	Yes	Access to a low cost practical way of calculating and tracking personal (family) CO2 emissions. A local support group.	Ride more... but need safe routes for comuting	Yes	Yes	Home PV and purchase green prod power	My sustainable electric home website. Geelong Sustainability forums, newsletters etc
Returning to beinf responsible for our humam effects in environment and aiming to improve it	Hope for healthier planet for all fauna and flora	Yes	4	Support at home level all beong responsible eliminating waste. Using ekec bike more tjan car locally. Planting trees	5	No	Na	Continue all. And support local govt initiatives too	Yes	Yes	Solar hws and solar panels a nd bije	Gerlong sustainability and emails
We need to reach a point where are not putting any more carbon into the atmosphere than what can be taken out	a safe world for future generations	Yes	5	being careful with my use of energy. working towards going all electric and increasng the number of solar panels on my house. Using Greenpeace research have chosen an electricity provider that scores the best on renewalble energy.	5	Yes	Information on resources/ services that can assist on reducing personal carbon footprint. Forum to engage with others who are futher down the track and are willing to share their thoughts.	Recycle if there were more opportunities to do so. Not all waste is currently recyclable in Geelong.	Yes	Yes	Walking (powered by food) instead of using transport. Solar panels to run my house. electrical provider who uses renewal energy resources such as hydro, solar and wind	Geeong Sustainabilty organisation. Energy Victoria. Facebook: My Efficient Electric Home; Australian Nissan Car Owners

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Absolute zero carbon emissions is a better target, since that focuses on cutting the essential problem - GHG emissions - to zero. Planting trees is a temporary measure that deposits carbon in an unreliable bank - one subject to bushfires and eventual GHG-releasing decomposition. (Urban and farm trees are, however, an important adaptation measure, in providing a shade offset the the urban heat-island effect, and restored habitat for biodiversity.	Gradual reduction in the frequency and severity of natural disasters (reducing rainfall and run-off, long and severe droughts, bushfires, flooding, and coastal intrusions from rising sea level - and reducing risks to human health and a serious loss of biodiversity. A major benefit for regional Australia in all States is the massive impetus to employment and high added-value exports offered by investing in our low-cost renewable energy and key mineral resources	Yes	5	Actively involved in advancing the Green policy agenda at all levels of Government - including Greater Geelong. Upgrading the thermal performance of our quite old home in Geelong (significant expenditure). Progressively switching away from domestic gas. Sold our second car (4WD) - single small car only, with a plan to replace it with battery-electric when affordable. Using public transport and walking rather than driving as much as possible. Meetings now are more often video-conferencing rather than face-to-face - likely to continue. Eating very little red meat, and growing / eating more vegetables.	5	Yes	Assurance that CoGG will do everything it can to facilitate an 'electrify everything' program for Greater Geelong, i.e. no new gas storage or reticulated gas, with incentives to improve the thermal efficiency of our old housing stock, and to replace gas heating indoor space and water with heat-pump / solar technology. Ensure that there is an adequate distribution of renewables-based battery recharge stations within Geelong and along the major arterials leading in and out of the city.	A pressing recycling need is for mixed sft plastic film packaging - a small fortnightly or even monthly bin would be a useful CoGG initiative, together with local recycling plants to minimise transpire emissions and to provide employment. A more comprehensive pattern of shared paths for cyclists and walkers would have many health benefits, as well as reducing car travel	Yes	No	Planning to fit solar PV when heat-reflective roof painting is complete.	Yes - Commonwealth and Vic Govt grants to offset up-front costs

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It is probably the most important decision to make. I think it is not just about short term solutions but making changes for the long term too.	Well given evidence nothing for the first 20 or so years as our planet starts to recover but after that hopefully some reversals of the negative impacts of climate change. But who knows? but we can definitely do much better	Yes	5	So many things that makes it hard to mention but a couple are we have massively reduced the packaging we by, massively reduced purchases in general, Solar panels and energy efficient devices where possible, getting off gas where possible going vegetarian and home permaculture	5	Yes	Community funded energy, eg community owned wind turbines on the bellarine	reduce packaging from retails and container deposit scheme	Yes	Yes	Solar Panels and grow timber for wood fire for heating	Unsure

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	Less respiratory disease, therefore freeing up the health care system and reducing the cost of the health care budget. Cleaner water for drinking, livestock, flora and fauna. Reduced heating of the planet Health Care system with less respiratory diseases therefore healthier more productive work force and saving health care staff/hospitals, healthier more productive work force, able to see scenic views without smog. New work opportunities	Yes	4	Our Home - 5Kw solar panels installed, use renewable electricity, removed gas from the property, installed 26000l of water storage, grow fruit and veg. 26,000l of water storage installed, roof and walls insulated, windows double glazed of rain water storage, double glazed windows, walls and ceiling insulated in the last 2 years. About to install recharging facility for electric	5	Yes	proposed projects for the future from the Aust government eg hydrogen, subsidies for electric vehicles, greater roll out of recharging stations, plans for no more coal development. In general a plan not B/S from the federal govt. government e.g. hydrogen, electric vehicles, reforestation, decisions Aust government. e.g. hydrogen,	Gardening	Yes	Yes	Solar power	Some Solar power and batteries
It means net zero is not enough because at this point in time we need to remove the high levels of greenhouse gases	More stable climate, saving low-lying countries from inundation, healthier people and planet	Yes	4	Solar power, looking into electric vehicle, riding a bike for short trips, repairing, minimising consumption, reducing meat consumption	5	Yes	Solar vehicle information	Shop locally	Yes	Yes	Solar	

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The survival of the planet. I feel it's so important for all of us to play our part in achieving this.	A cleaner world, a cleaner and quieter local area and environment. More diversity. Greater happiness	Yes	5	Retrofitting our leaky old house with sustainable and secondhand items. Solar panel, battery and water tanks. Joining environment groups. Trying to help with general knowledge.	5	No	Not required	Recycle more and never be confused about whether it's recyclable or not. Safely ride my bike more.	Yes	Yes	Solar panels and battery	Books such as Your Home and websites
This is essential and is achievable with some changes to how we do things.	The preservation of a liveable (and beautiful) planet. The benefit is we don't suffer catastrophic climate change!	Yes	4	Live simply, eat plant based, plant trees, public transport when possible (very poor in Geelong) grow and own vegetables and some fruit, zero waste bulk food shopping,	5	Yes	I could be “assisted” if Geelong had better recycling and better public transport!	I'd like to used my car less and be able to recycle ALL household waste rather than just selected recycling which Geelong offers	Yes	Yes	Solar	
I need to reduce my carbon consumption because I'm not planting enough trees (offsetting)	Healthy environment, healthy life, functioning community, generational climate leadership	Yes	3	Slowly making changes to my home carbon consumption - insulation, lighting, solar all added recently.	5	Yes	Simple infographics that help me change/prioritise efforts to make a meaningful positive change. eg: how to zero carbon my home, how to zero carbon my commute, how to zero carbon my travel, how to zero carbon my consumption (food)...	reduce my reliance on grid energy.	Yes	Yes	I have solar on my home, and use 'green' grid energy.	somewhat, it changes so regularly I'm not sure.

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Human activities are not adding greenhouse gases to our atmosphere	Numerous but particularly a safer climate and cleaner atmosphere	Yes	5	Assisting small to medium sized businesses in the climate change, energy and circular economy transition	5	Yes	Case studies of businesses aiming for net zero	Energy efficiency and transitioning off gas	Yes	Yes	Electricity from solar	Vic government, Renew Economy
Not producing carbon at all	My grandchildren and future generations MAY have a life	Yes	3	Have installed solar panels, replaced all gas appliance with electric connected to solar. Will invest in a battery next few years and electric car when they become more affordable	4	No	I answer "No"	I bicycle tour for my holidays. Would like to use my bicycle for shopping, going out etc.	Yes	Yes	solar	Yes
drastically reducing our greenhouse gas emissions is essential. trees can burn so offsets are not the best option. Real zero carbon is essential, offsets are a way for artificial accounting if not done right.	Avoiding ecosystem collapse. Livable conditions in Australia. Increase in biodiversity and general health.	Yes	5	Composting, growing my own food, using active and public transport, home solar PV system, solar hot water, removing gas appliances, not flying anywhere for holidays,	5	Yes	I would like to hear about how Geelong businesses are moving to net Zero Carbon and sharing with others.	Better public transport is needed, bus services. I ride to work but the paths are very worn and need upgrading. are too infrequent during the day. I would like to remove my last gas appliance.	Yes	Yes	solar PV system, solar hot water	yes, as above and choosing power companies that use green energy.
A balance between the carbon we put into the atmosphere and the carbon we take out.	Keep temperature rises at 1.5	Yes	5	We have solar panels, we are frugal with energy consumption, our next car will be EV, plant trees, walk where we can, vote for intelligent politicians	5	Yes	How to pressure local, state and Federal politicians more successfully	Our heating is gas. Make our home more energy efficient and carbon neutral.	Yes	Yes	Solar	

Appendix 3 – Plans and Resources

- <https://www.yourhome.gov.au/live-adapt/zero-carbon>
- <https://www.geelongsustainability.org.au/projects/geelong-microvillage-project/>
- <https://www.modscape.com.au/blog/building-a-carbon-neutral-home-in-4-steps/>
- <https://zeroenergyproject.org/2020/05/20/four-steps-to-zero-carbon-homes-and-buildings/>
- <https://www.sustainability.vic.gov.au/energy-efficiency-and-reducing-emissions/in-a-business/by-sector/zero-net-carbon-homes>
- <https://www.sustainablelivingguide.com.au/make-your-business-carbon-neutral>
- Make your business carbon neutral - Sustainable living guide
- With environmental concerns taking centre stage, businesses and organisations are realising the benefits of setting their business on a carbon neutral target.
- www.sustainablelivingguide.com.au
- <https://startups.co.uk/sustainability/carbon-neutral-business/>
- How to run a carbon neutral business - Startups.co.uk
- Way back in 2015, the United Nations made a pact to actively reduce greenhouse gas emissions. This pact is known as the Paris Agreement and is a clear sign that cutting carbon is a top priority on a global scale.
- startups.co.uk
- <https://www.herts-iq.co.uk/10-tips-to-help-your-business-reach-carbon-net-zero/>
- 10 tips to help your business reach net zero carbon - Hertfordshire Innovation Quarter - herts-iq.co.uk
- Why? The sale of new petrol and diesel cars will be banned in the UK from 2030. Although the upfront cost of an electric vehicle (EV) can be more than the equivalent petrol or diesel model, EVs have lower fuel cost per mile, lower maintenance costs due to fewer moving parts, lower road tax and are exempt from the London congestion charge.
- www.herts-iq.co.uk
- <https://applied.economist.com/articles/how-do-you-go-carbon-neutral>
- How do you make your company carbon-neutral? - The Economist
- Amazon says it will be carbon-neutral by 2040. Apple says it will get there by 2030. Microsoft even says it will be carbon-negative by 2030—in other words, the company will start removing carbon dioxide from the atmosphere, and it plans to have removed all its historical carbon emissions by 2050.
- applied.economist.com
- <https://www.weforum.org/agenda/2021/09/3-ways-companies-net-zero-stay-profitable/>

