The Hon Greg Combet AM
Chair, Independent Expert Panel:
Interim Emissions Reduction Targets for Victoria (2021-2030)

Dear Mr Combet

**Interim Emissions Reduction Targets for Victoria (2021 – 2030)**
Thank you for the opportunity to make a submission to the Independent Expert Panel that was established by the Victorian Minister for Energy, Environment and Climate Change, Lily D'Ambrosio to provide advice on the first two sets of interim targets for 2021-25 and 2026-30.

This submission is by Lighter Footprints, a group of concerned residents (now close to 2000) from Boroondara and Whitehorse municipalities in Melbourne who came together in 2006 to see what we could do about the serious challenge of climate change. Our community recognises that climate change has been scientifically demonstrated for some years, and the extent of the challenges leads us to be impatient for effective action.

Members of Lighter Footprints would welcome the opportunity to further discuss our submission with you. Lighter Footprints can be contacted by emailing the Convenor at admin@lighterfootprints.org or by phone at 0411 115 186.

Yours sincerely

Carolyn Ingvarson
Convenor
Lighter Footprints Inc


# Submission by Lighter Footprints Inc to the Interim Targets Independent Expert Panel

# Interim Emissions Reduction Targets for Victoria (2021 – 2030)

Lighter Footprints is a large climate action group based primarily in the Boroondara and Whitehorse council areas of Victoria. It draws its members from the suburbs of Box Hill, Kew, Hawthorn, Camberwell, Canterbury, Surrey Hill and some parts of Ashburton, Glen Iris and Burwood and encompasses the Federal electorates of Kooyong and parts of Chisholm and Deakin.

Carolyn Ingvarson
Convenor, Lighter Footprints

**Our overall position**

Lighter Footprints strongly supports the concept of targets for reducing greenhouse gas emissions as a central tool to drive the transition to net zero emissions and thereby address the challenge of climate change. We see climate change as an existential risk to all life on earth which necessarily requires decisive, immediate and consistent responses. In recognition of the size of the task that confronts our community, we support interim targets that facilitate an ambitious program of transition based on early and decisive action to cover the period to 2050.

We note that the Victorian Government intends to announce the first two interim targets after the Panel has submitted its report on 22 February 2019. We regret any delay in this process as the need to take prompt and decisive action is becoming more urgent every day. We request the Panel to highlight this urgency in its recommendations to the State Government.

The Panel's Issues Paper poses a broad range of questions on three areas: targets and trajectories, emissions reduction opportunities and benefits and cost. Lighter Footprints has addressed the 16 specific questions posed by Independent Expert Panel on its website and submitted answers via the on
line submission proforma.

We welcome the emphasis placed in the Issues Paper on establishing a framework of principles to guide the work of the Panel and to structure its advice to Government. The six principles the Panel has adopted to guide their decisions are environmental effectiveness, economic efficiency, equity, flexibility, investor certainty and policy coherence.

We consider these six principles extremely important. In applying each of these principles, however, we are concerned that the Panel may reach less than optimal conclusions if it fails to recognise the context in which these decisions are being made.

We also note that there may be times when tension arises in the application of the principles. The potential conflict between specific principles may create quite different outcomes depending on which is given the greater weight. In such instances, we believe that the highest priority should always be given to environmental effectiveness.

**Contextual Issues we believe the Independent Expert Panel should consider in preparing its advice on the Interim Emissions Reduction Target.**

- **The challenge of climate change is one area where we cannot afford to be wrong. It represents a risk that our world will be damaged to such an extent that all life will be irreversibly altered.**

While in most areas of policy making, lessons can be learnt and mistakes can be rectified, climate change is a very different order of problem. If we choose a less than optimal or even wrong path, we will have lost valuable time in addressing the main issues. Any subsequent action will be that much more difficult because we are dealing with very complex natural interactions about which we have only partial understanding and imperfect knowledge on which to base our measurements and predictions.

Interim emissions reduction targets are essential tools in the management of the risks associated with climate change. The uncertainty of the knowledge and gaps in the information surrounding the progress of climate change requires the use of a precautionary principle as the basis on which decisions are made. It is essential, therefore that we retain the flexibility that interim targets will provide.

It is on these grounds that we support the Panel recommending the most ambitious targets in line with what the climate science says and to take stringent action immediately as opportunities arise rather than build up slowly to a long-term target.

- **Our existing political institutions are struggling to deal with such an immense and complex problem.**

Climate change is significantly more complex than any other problem that has yet faced humankind and is beyond the capacity of most people to imagine. It is the consequence of a complicated array of interactions, insidious, difficult to recognise and involving a time frame that is immensely greater than any other problem we have had to address to date. Our current political processes are designed to solve much simpler problems that can generally be articulated in terms of two competing world visions and over a time period that usually has a well-defined end date to which people can relate.

Climate change will affect all areas of Federal, State and Local Governments. Each level will need to find solutions to the problems that fall within their areas of responsibilities. In most cases, local government will be the first responder in dealing with the emergencies arising from the devastating impact of extreme weather events on the community and on local infrastructure. Councils will be responsible for repairing roads, bridges, storm water systems damaged by such events or allocating funds to prepare community assets to withstand such threats.

And yet, many Municipal Councils are unprepared or unwilling to accept their role in adapting to or mitigating the effects of climate change. The State Government should ensure local government understands its role and has the necessary authority and expertise to manage this task effectively and efficiently.

A good step in this direction is the inclusion in the recently released Exposure Draft of the Victorian State Local Government Bill of a number of Overarching Governance Principles and Supporting Principles that a Council '… *must in performance of its role give effect to …'*. These principles included a requirement that *'… the economic, social and environmental sustainability of the municipal district, including mitigation and planning for climate change risks, is to be promoted'.* [1]

We believe the emissions targets should be central to a coordinated suite of policies directed at addressing climate challenge and the transition our economy and our communities will need to go through. An example at the State level would be to include emissions reduction targets in the regular review of the licences for coal fired power stations.

[1] https://www.localgovernment.vic.gov.au/__data/assets/pdf_file/0022/91138/Local-Government-Bill-Exposure-Draft.pdf Part 2, Division 1, Section 8(2)(c )

It is preferable that all levels of government, Federal, State and local work together and adopt targets that are consistent and equally ambitious. Unfortunately, this is unachievable at present because the Commonwealth has proposed a very modest Nationally Determined Contribution (NDC). Furthermore, the target it has proposed for electricity under the National Energy Guarantee is also totally inadequate and will leave the bulk of emissions reduction to other sectors of the economy where savings are harder to find.

To have any genuine impact, much of the heavy lifting will be left to State Governments. Each State will need to adopt ambitious targets for all industry sectors and commit to early implementation so that emissions reductions are timely, cost-effective and lessen environmental risk.

- **At present, climate science is the only area of intellectual pursuit that is capable of giving any meaningful analysis of climate change and its consequences.**

For many years now, climate scientists have fought to inform society and its decision makers of the problem that they have identified through their observations and research. We accept the validity of their work and, subject to the proviso mentioned below regarding 1.5°, support the proposition in the Issues Paper that

> …*'the recommended targets and trajectories should be informed by up-to-date climate science and ensure that Victoria achieves its objective of net zero emissions by 2050 in a way that is consistent with keeping global temperature rise this century to below 2°C above pre-industrial levels*'.[2]

It is unfortunate, however that other fields of intellectual pursuit have not kept pace with climate scientists in contributing to an understanding of this issue. Economists, philosophers, geographers and creative artists are among the many areas of study that could provide important insights into the challenge of climate change and its impacts on human society. Yet they have failed to engage in any meaningful way or to give much guidance on how to communicate the message, unravel the complexities or to suggest potential solutions.

- **Any effective response to climate change will require significant transformation to most aspects of our lives. The transition to new ways of organising our society and economy will bring substantial risks as well as opportunities. However, without government intervention, certain parts of our community will be affected more negatively than others.**

Much of the world is reluctantly facing the reality that they must undergo a radical transition away from an industrialised economy based on coal fired power generation to one powered by clean sources of energy. There needs to be recognition that this is likely to create winners and losers unless governments act to ensure the costs of the transition are shared more equally.

The task of responding to climate change is so large that governments are the only institutions with the capacity to manage this transition and prevent unnecessary pain and dislocation. Emissions reduction targets must be seen as only one part of the total package.

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[2] https://engage.vic.gov.au/application/files/8715/2228/9280/Interim_Targets_Issues_Paper.pdf pp5

Governments at all levels have a duty and a role to put in place measures to ensure that no part of the community is unfairly disadvantaged.

The concept of a 'just transition' is well reflected in the work the Victorian State Government did at the time of the closure of the Hazelwood power station. Consultations with the local community, councils and unions, the provision of funding to diversify and strengthen the local economy and measures to facilitate the relocation of displaced workers have all contributed to sharing the burden and helping the recovery following the closure.

**Targets and Trajectories**

Lighter Footprints believe the Victorian targets should be broadly in accordance with the recommendations by the Climate Change Authority and directed at making a significant contribution to meeting Australia's obligations under the Paris Agreement.

We consider that interim targets should be determined on the basis of what climate science says is necessary to keep warming global below 2° on pre-industrial levels. We understand that this will require setting our goal to reach net zero emissions by 2050. In the absence of any clear guidance on the goal of 1.5°, we recognise that this will require more aggressive action to reduce emissions.

On this basis, targets will need to be ambitious and with much of the work being done up front rather than delayed to a later period.

Using 2005 as the starting point, we advocate adopting:

- The Climate Change Authority target of reducing annual emissions by 36% below 2005 levels by 2025; and
- The most ambitious boundary of the Climate Change Authority range of emissions reduction targets defined by 63% below 2005 levels by 2030.

***What factors should be taken into account in calculating the level and trajectories of the interim targets?***

In determining the level and trajectory of the interim targets, important considerations will include:

- **The policy failure at the Commonwealth level which has seen emissions continue to rise**

We are concerned that Australia has demonstrated so little ambition in the targets it has already adopted and has failed to acknowledge its obligation as a wealthy country to share the burden of reducing emissions. There is a lack of any clear and unambiguous agreement at the Commonwealth level on the action needed to achieve even the modest commitments that Australia has offered up as a signatory to the Paris Agreement.

In its NDC (Nationally Determined Contribution) Australia has committed to reduce greenhouse gas emissions by 26 to 28% below 2005 levels by 2030. That Australia's emissions continue to rise is a cause for shame considering Australia is already one of the highest per capita emitters of greenhouse gases globally.

- **The trajectory should be driven by considerations of intergenerational equity.**

This is a problem that has been created by industrialisation based on the use of fossil fuels over the last 200 years and especially since the 1950s when Australia along with other major developed countries moved away from an agriculture-based economy to one based on manufacturing. Those who have been part of and benefitted from this transition are under an obligation to up-coming and future generations to share the burden that this has created and to contribute to the solution.

- **The prospect that Victoria will benefit from the economic and investment opportunities and leadership kudos over and above other administrations by adopting a consistent and integrated suite of policy measures based on an ambitious set of targets**

***Why early and decisive action is necessary***

Lighter Footprints believes that early action has many advantages including:

- Mitigation of cumulative effect of emissions – e.g. delayed action means more greenhouse gas in the early transition phase and a greater adjustment to temperature excesses later;
- Cost - delay is recognised as the high cost option in that the transition is compressed and opportunities missed;
- Victoria stands to gain advantages in traditional areas of strength – education, technology and advanced manufacturing.

At the same time, there are significant disadvantages associated with delayed action including:

- The intergeneration impost of deferring the task to our children and grandchildren with a distinct possibility of the situation becoming irreversible at any time. We have already created something that would qualify as an emergency.
- Delay is inexcusable given Victoria's access to substantial renewable resources to achieve net zero before 2050.
- Australia will be over reliant on aging fossil fuel power stations to meet demand over the short term. This will likely involve increased intermittency arising from forced outages as plant is operated well past its intended 'use by' date. Furthermore, upgrade and retrofits for ageing fossil fuel power stations have proven overly ambitious, problematic and with limited output in reference cases such as Muja in WA;
- Open cut mines are likely to become increasingly susceptible to catching fire with the heightened risk of bush fire as a consequence of climate change warming. This will limit output, elevate pollution, and carry implicit risk of spreading to the power station infeed.

***How should the targets and trajectories be calculated?***

We support the use of the concept of an emissions budget as an analytical tool to determine targets. Lighter Footprints has taken currently available information about greenhouse gas emissions for Victoria and used these figures in conjunction with Climate Change Authority recommendations to track Victoria's fair share of emissions and emission

reduction targets between 2013 and 2050. Our calculations and conclusions are contained in Attachment A.

**Emissions Reduction Opportunities**

Lighter Footprints considers that decarbonization of the electricity sector offers the quickest and most cost-effective path to reducing carbon emissions in the time frame remaining. As such, we advocate that targets and related measures to achieve this goal be given priority.

***The electricity sector***

The electricity sector is generally expected to be able to reduce emissions at a much lower cost than other sectors due to the existence of many abatement options. In particular, there are many ways to produce electricity with low emissions.

The question of the contribution of the electricity sector to emissions reduction was examined in modelling undertaken for the Climate Change Authority by Jacobs Group Australia Pty Ltd[3] in February 2017. The objective of the modelling was to compare seven alternative policies to meet a common emissions reduction target. They included an explicit carbon price via a carbon tax, an emissions intensity target, three 'technology pull' policies, a regulated closure, and the use of absolute baselines. Amongst other things, they concluded

- Achieving the emissions constraint requires a transformation of the electricity supply sector, with a shift from predominantly coal fired generation to a mix of low emission technologies.
- All policies met, or came close to meeting, the demanding emissions constraint, with the exception of the regulated closure policy
- Emissions pricing policies (carbon pricing and the emission intensity target) have the lowest resource cost.
- To achieve the emissions constraint, each policy had to encourage a high level of investment in low emission technologies, as well as change the pattern of dispatch away from high emissions to low emission sources.

Various industry sectors will undertake changes to their processes and improve their energy efficiency but these will very likely come at much higher cost, with a longer timeframe and with more disruption than in the electricity sector.

The potential for emissions savings are most evident in electricity generation. However, we also consider there are many opportunities in other areas that should not be neglected. In some cases, this involves building on and expanding initiatives already in place and in other instances, it will require new measures. Two areas which we think will yield good outcomes are in the built environment and in transport.

***Opportunities for emissions reduction in the built environment***

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3 http://climatechangeauthority.gov.au/sites/prod.climatechangeauthority.gov.au/files/files/170217%20Jacobs%20Final%20Report%28revised%29.pdf

The Victorian *Planning & Environment Act 1987* establishes a framework for planning the use, development and protection of land in Victoria. It sets out the procedures for preparing and amending the Victorian Planning Provisions and planning schemes. It also sets out the process for obtaining permits under planning schemes and enforcing compliance with such schemes and permits and other administrative procedures.

Planning schemes regulate the use and development of land. One way they do this is by requiring that certain types of use or development can only be carried out if a planning permit is granted. A planning permit is a legal document that allows a certain use or development to proceed on a specified parcel of land.

Lighter Footprints regards the current planning regime as inadequate to address the challenges of climate change. We consider the concepts underlying this process need to be updated to recognise that climate change is an urgent problem requiring an immediate and decisive response and that the built environment can make a significant contribution to adapting to or mitigating its effects.

As part of this failure to give proper recognition to climate change, we have become aware also of criticism directed at failings in the nature and application of the controls.

- Current planning and building controls reflect an outmoded view of environmental policy as being concerned with the need to control pollution, reduce waste and improve energy efficiency.
- The narrow definition and/or application of concepts such as sustainability, sustainable use, ecological processes and genetic diversity results in specific and measurable outcomes that do little to address the broader causes of climate change.
- An apparent desire by State and Federal Governments to 'cut red tape' is a misguided attempt to lighten the so-called regulatory burden on business and improve productivity. In fact, it has led to a vaguer and less precise statement of the control provisions and a poorer outcome for neighbourhoods.

We recommend that the Expert Panel investigate how the scope of the Act to regulate the use and development of land can be extended beyond the current concerns of conservation, sustainability and heritage. This extension would seek to ensure governments at the State and local level have the authority and capacity to address climate change as a factor in planning decisions. The Act and associated regulations and local laws should articulate this extended scope by establishing a link between the planning process and emissions reduction targets.

Planning Permits

A major weakness in the current provisions for planning permits is that they cover only a very limited range of building developments. Applications to the municipal council for a planning permit to construct a single dwelling are only required for sites with a heritage overlay; are subject to flooding, landscape or environmental overlays; or have a land area of less than 500 square metres. Such cases are assessed on the basis of their compliance with the municipal Planning Scheme whereby a local government area is divided into zones of preferred land use.

The criteria for assessing planning permits also ignore many issues that could enhance the capacity of the built environment to respond to the impact of climate change. These include

the massive footprint of many new buildings and poor internal design which contribute to high energy consumption and water usage; the way a new dwelling together with its huge associated underground structures and cramped surrounds interferes with the capacity of rainwater to seep into the water table and increases flows into the storm water system; and the lack of external space to grow trees or other vegetation to ameliorate climate change.

We recommend that the Expert Panel investigate ways that criteria for assessing applications for planning permits can be expanded to include measures that:

- reward innovative design and construction techniques that reduce a building's impact on the environment;
- encourage design measures that enhance the capacity of a building to adapt to extremes of weather;
- clarify the role of local government in achieving emissions reduction targets through the approval of planning permits.

Building Permits

Building permits are different to planning permits. They are issued under the Victoria Building Regulations and generally relate only to the constructional aspects of a building or other development. These Regulations are made under the Building Act 1993.

Local government does not set building regulations but administers them in accordance with the Building Code and planning and building by-laws. The Building Code of Australia (BCA) is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia. The BCA together with the Plumbing Code of Australia forms the National Construction Code (NCC) and is produced and maintained by the Australian Building Codes Board (ABCB). It is reviewed and amended each year to include various technical and regulatory changes.

As it stands at present, the Building Act 1993 lists a range of purposes relating to regulation of building work and plumbing including standards, accreditation and issuing of permits. The implicit framework behind the legislation is to ensure that the built environment meets residents' and occupants' need for a durable, safe, secure and sustainable place to live and work.

Despite climate change representing a growing risk to satisfying this need, the Act makes no acknowledgement of the impact of extreme weather or increased temperatures that will accompany climate change. Neither the Building Code or Plumbing Code address these issues except within the context of energy efficiency. The heating and cooling of buildings is generally seen as synonymous to air conditioning rather than through building design.

Lighter Footprints considers that the building permits process should play a stronger role in encouraging building design, construction techniques and materials that contribute to meeting the challenge of climate change.

We recommend that:

- a further purpose be added to the Building Act 1993 that requires the State Government to establish mechanisms which monitor the impact of climate change on the built environment and require municipal councils to base approvals on the capacity of a building to respond effectively to the demands of that change.

- Victoria work with other State governments to ensure the concept of climate change in the Building Code is not limited to the principles of environmentally sustainable development but is expressed in terms that reflect the urgency of the challenge we are facing and is linked to ambitious and stringent emissions reduction targets.
- Attention be paid to ways that local governments can take a more active role in promoting better design and construction of residential buildings through the issue of building permits.

***Opportunities for emissions reduction in transport***

Some of the more effective policy levers available to reduce emissions in the transport sector are the responsibility of the Commonwealth Government. These include emissions standards for light vehicles and for a common recharging plug for electric vehicles; and fuel excise taxes. The Victorian State Government needs to work closely with other State Governments to bring pressure to bear on the Commonwealth and get such measures implemented or changed.

There are however, a range of other initiatives that the State Government could implement as part of a coordinated suite of policy measures around an emissions reduction target. We support the comment in the Issues Paper that low emission vehicles may present one of the most significant opportunities for emissions reduction in the transport sector.

Measures to encourage the uptake of low emissions vehicles include the replacement of the government fleet of vehicles with electric and hybrid vehicles; incentives such as vehicle registration discounts; appropriate infrastructure such as provision of electric vehicle charging stations; and the expansion of public transport.

Local Government can play a large role in reducing emissions in the transport sector. It is essential that State Government harness this capacity by working side by side with municipal councils implementing coordinated programs or through legislative direction to ensure that the State Government targets are reflected in the policies, laws and actions of local government.

Things that local government can do include the facilitation of community energy initiatives, the replacement of its vehicle fleet with low emissions vehicles, provision of infrastructure and parking incentives for electric vehicles; initiatives that encourage the use of public transport such as the provision of shading and better access for stops.

<u>Electric Vehicles</u>
Australians purchased 701 plug-in hybrid electric vehicles and 668 fully electric vehicles in 2016, making up 0.1 per cent of the total Australian market. In 2015, a total of 1771 were purchased. This low level contrasts sharply with what is happening elsewhere.

Sales of electric vehicles world wide reached 3 million in November 2017. Norway has the world's largest plug-in segment market share of new car sales with 39.2% in 2017; as of December 2017, China had the largest stock of highway legal light-duty plug-ins with over 1.2 million domestically built passenger cars. China's plug-in electric bus stock reached 343,500 units in 2016, out of global stock of about 345,000 vehicles

There are a number of factors mitigating against the purchase of electric vehicles in Australia. These include a lack of supporting government policies, such as vehicle emissions standards and policies to reduce EV costs; anxiety over the lack of a fast charging network especially on long trips outside cities; and the unavailability of cheaper vehicles.

A report by the Electric Vehicle Council suggests that around 50 per cent of Australian consumers would, if in the market for a new car, consider buying an electric vehicle and that this number could increase to almost 70 per cent with the correct policy support.

**Conclusions/Recommendations**

Lighter Footprints welcomes the requirement under the Climate Change Act 2017 that the Government seek independent and expert advice to identify emissions reduction targets. We believe that governments at all levels must respond urgently and in a decisive way to keep global warming below 2° on pre-industrial levels with the goal of net zero emissions by 2050. We see interim and final emissions reduction targets as indispensable tools in achieving this goal.

We recommend that the Panel's advice to the State Government should take into account the following points:

- The interim emissions reduction targets should be determined on the basis of what climate science says is necessary to keep warming global below 2° on pre-industrial levels and that the goal should be to reach net zero emissions by 2050.
- In recognition of the necessary urgency surrounding any response to climate change, the Panel should give priority to the principle of environmental effectiveness over and above the other principles it has identified.
- Governments at all levels need to accept that they have a unique role to play in responding to climate change. In particular, governments have a duty to ensure that the burden of transition is shared equitably.
- Targets should be ambitious and structured so that stringent action is taken immediately as opportunities arise rather than build up slowly to a long-term target. Interim targets for the period 2021 to 2025 should be 36%; for 2026 to 2030 the target should be 63%.
- To identify Victoria's fair share of emissions reductions, calculation of targets and trajectories should be based on an allocation of the national emissions budget that reflects population size. This calculation should also influence the relative contributions the various industry sectors should be expected to make to meeting these targets.
- At the same time, it should be recognised that the electricity sector will be able to reduce emissions at a much lower cost than other sectors due to the existence of many abatement options.
- The built environment provides a range of opportunities for reducing emissions. The Expert Panel should investigate how climate change and emissions reduction targets can be reflected in the legislation and regulation that applies to planning processes and building permits at both the State and local government levels.
- The transport sector is another area where significant reductions in emissions can be achieved. The Panel should investigate how to incorporate the concepts of climate change and targets in measures that would encourage the uptake of electric

vehicles, the replacement of existing fleets of government vehicles and increased use of public transport.

John Gare, Joy Mettam, David O'Neill

**Attachment A**

# Nomination of Targets

John Gare

## National Targets

A relatively small country in terms of population, Australia's prime reason for participating in efforts to mitigate climate change must be to promote international agreement on joint action. Lighter Footprints has adopted the policy that the best way to support such international agreement is to adopt a fair and transparent mechanism for sharing the task, such as that recommended by the Climate Change Authority.

Under this mechanism, called "contraction and convergence", as described in Ross Garnaut's 2008 Climate Change Review (p. 203), each country starts out with emissions entitlements equal to its current emissions levels and then, over time, entitlements converge to equal per capita levels. Emissions entitlements per capita effectively decrease for countries above the global average and increase in countries below the global average per capita level.

The Climate Change Authority's analysis has been spelt out in their report *Towards a climate policy toolkit: Special Review of Australia's climate goals and policies – Report Three*. We quote from pages 29 and 30 of this report:

*"The Special Review Draft Report: "Australia's future emissions reduction targets" (CCA 2015a) focused on Australia's emission reduction targets for the period beyond 2020. In this part of the special review, the Authority drew on its long term national emissions budget for Australia of 10.1 Gt CO2-e for the period 2013 to 2050. This represented the Authority's assessment of Australia's share of global action that is estimated to provide a likely chance (67 per cent probability) of achieving the 2 degree goal, and provides a long term backdrop to setting short- and medium-term targets.*

*Following consultations with stakeholders, the Authority released its final report on Australia's future emissions reduction targets which recommended Australia commit to:*

- *A 2025 target of 30 percent below 2000 levels (equivalent to 36 per cent below 2005 levels)*
- *Further reductions by 2030 of between 40 and 60 per cent below 2000 levels (equivalent to 45 to 63 per cent below 2005 levels)."*

For the year 2005, Australia's national emissions, inclusive of Land Use, Land Use Change and Forestry (LULUCF) are given in the Australian National Greenhouse Accounts and total 604 megatonnes of carbon dioxide equivalent (Mt CO2-e).

In considering the range of emissions reductions recommended by the Climate Change Authority, Lighter Footprints believes that it will be necessary to aim for 63% reduction in order to reach zero emissions by 2050.
The targets we advocate for Australia are:

- For 2025, 36% below 2005 annual emissions, 387 (Mt CO2-e); and
- For 2030, 63% below 2005 annual emissions, 223 (Mt CO2-e).

## Targets for Victoria

Victoria's greenhouse gas emissions for 2005 were 113.9 (Mt CO2-e). (Issues paper p.17)

Lighter Footprints proposes the application of the same Climate Change Authority percentage emissions reductions as recommended by the CCA for national emissions.

The targets we advocate for Victoria are:

- For 2025, 36% below 2005 annual emissions, 72.9 (Mt $CO_2$-e); and
- For 2030, 63% below 2005 annual emissions, 42.1 (Mt $CO_2$-e).