

CKM submission to Marlborough Environment Plan.

08/08/2016

Our submission is:

Climate Karanga Marlborough (CKM) was formed in mid-2015, by a group of Marlborough residents alarmed by the lack of attention being paid by local and national governmental bodies to the impending adverse effects of rapid climate change. CKM is unaffiliated to any political party.

We welcome the opportunity to comment on the proposed Marlborough Environment Plan.

We have the following changes and suggestions to make.

Page 19-1, Paragraph 1

Line 1

As it is now apparent rates of global warming, sea-level rise and frequency of extreme weather events are increasing, we believe the introduction should start with a much stronger statement which reflects the urgency of the situation. We suggest - *“Society currently relies on fossil fuels as an energy source but needs to find alternatives as quickly as possible. The consumption of these fuels and livestock farming are the two major contributors to the large increase in the release of carbon dioxide and other greenhouse gases into the atmosphere over the last 150 years.”*

Line 5

Although it is true that *“Global temperatures are approximately 0.6°C higher than they were in the early 1990s”*, this statement does not fully reflect the scale and urgency of the problem and understates the amount of warming that has occurred, by using a misleading baseline. This matters because understating the seriousness of the situation leads to the mistaken belief that our society does not need to act quickly and decisively to reduce emissions of greenhouse gases (GHG). The Inter-Governmental Panel on Climate Change (IPCC) has stated that in order to avoid dangerous and irreversible effects of climate change, global average temperature must be kept well below 2°C above pre-industrial temperature.

The baseline that matters is therefore the ‘pre-industrial’ average temperature (circa 1850) and according to NASA (<http://climate.nasa.gov/news/2432/2016-had-hottest-march-on-record/>) by March 2016 the planet had already warmed by well over 1°C above this level. In fact the very latest NASA data (<http://m.phys.org/news/2016-07-climate-trends.html>) shows that Jan-Jun 2016 was 1.3°C warmer than the late nineteenth century. Therefore the world is already well over half way to ‘dangerous’ levels of warming and the rate of warming is accelerating, it is not a steady linear increase in temperature anymore and immediate action to drastically reduce GHG emissions is imperative. We would suggest this sentence be re-worded to read *“Global temperatures are approximately 1.2°C higher than pre-industrial levels and 0.6°C higher than in the early 1990s. To prevent dangerous and potentially irreversible impacts of climate change global temperatures must be kept well below 2°C above pre-industrial levels.”*

Line 6

We suggest deleting *“While there is not unanimous agreement”* and simply starting this sentence with, *“There is now strong evidence...”* since there is no longer any serious doubt about human caused global warming and climate change amongst reputable scientists in this field. In fact amongst those climate scientists who are actively publishing peer-reviewed research papers there is a 97% or greater consensus - see link to 2016 paper by Cook et al.

<http://iopscience.iop.org/article/10.1088/1748-9326/11/4/048002/meta;jsessionid=65FC100A032DB82DE827AC021C87AE2C.c2.iopscience.cld.iop.org>

Because the scientific consensus on human caused climate change is overwhelming and since almost all governments worldwide have now endorsed this by signing the COP21 Paris Agreement, it is unhelpful to continue perpetuating the myth that there is “*not unanimous agreement*”, when in actual fact there is almost universal agreement amongst climate change experts that most of the recent warming is due to human activities.

Page 19-1, Paragraph 2

In this paragraph it is stated that “*In Marlborough NIWA predicts that the mean temperature will increase by approximately 1 degree by 2040 and 2 degrees by 2090.*” This statement is meaningless without specifying the baseline date. The NIWA figures use the 1990 baseline but, as mentioned previously, this is not really the appropriate baseline and understates the gravity of the situation. To avoid any misunderstanding of the true situation it would be more helpful to express temperature increases relative to the ‘pre-industrial mean’. The sentence would then read “*In Marlborough it is predicted that the mean temperature will increase by approximately 1.8 degrees C by 2040 and 2.8 degrees C by 2090 above the pre-industrial mean.*” The warming that took place between pre-industrial times and 1990 must be taken into account to give a true picture of the situation.

Council should also be aware that the NIWA projections are based on the latest IPCC assessment report (AR5) published in 2013, which uses data collected from as long ago as 2007. Global warming is now a rapidly changing phenomenon and with each new IPCC Assessment Report published, the projections for warming and sea level rise keep increasing.

For the above mentioned reasons we urge Council take a strongly precautionary approach when making decisions on implementing measures to mitigate and adapt to climate change. We are all in uncharted territory, but the increased rate of temperature rise in recent decades suggests that global warming is now accelerating and will continue to do so without drastic cut-backs in GHG emissions.

We refer Council to the following information from a June 13th 2016 article:

<https://robertscribblers.com/2016/06/13/may-marks-8th-consecutive-record-hot-month-in-nasas-global-temperature-measure/>

"According to NASA, the world has just experienced another record hot month.

May of 2016 was the warmest May since record keeping began for NASA 137 years ago. It is now the 8th record hot month in a row. In other words, since October 2015, every month has been the hottest such month ever recorded (October vs October comparison, November vs November etc). And May’s record is just the most recent high mark during a period that has now vastly exceeded all previous measures for global temperature tracking.

The month itself was 0.93 C above NASA’s 1951-1980 baseline measure. It’s the first month since October that readings fell below the 1 C anomaly mark. A range that before 2015 had never before been breached in the 136 year climate record and likely during all of the approximate 12,000 year period that marks the Holocene geological epoch.

It’s a reading that is fully 1.15 C above 1880s averages. A very warm measure in its own right but one that is thankfully somewhat removed from the 1.55 C monthly peak back during February of 2016. To this point, it’s worth noting that hitting 1.5 C above 1880s temps in the annual measure is the first major temperature break that scientists consider to be seriously threatening to human civilization and the life support systems of planet Earth. And we’re getting close to that mark now. However, considering the fact that El Nino is now

transitioning toward La Nina, it appears that 2016 averages may peak closer to 1.2 C.”

Page 19-1, Paragraph 3

We accept that because of the difficulty in making climate projections there is “*uncertainty*” but we are concerned at the comment in the last sentence. “*...to enable people and communities to respond to the adverse and positive effects created by climate change.*” We do not support any suggestion that adverse and positive effects be given equal weight. There is ample evidence in the scientific literature to indicate that the adverse long term effects of global warming are likely to outweigh any regional short term benefits that may occur and we believe this should be reflected in this statement. Also in terms of adaptation to climate change it is the negative effects such as sea-level rise, ocean warming and acidification, increased droughts, flooding and increased rural fire risk etc. that will be the most challenging to deal with.

Uncertainty should therefore not be allowed to hinder our forward vision and decision making with regard to climate change and we note that in the “Low Carbon Auckland” Plan the Auckland Council is taking a long term approach and aiming to build in the ability to be flexible and make changes as more information becomes available. Their “*action plan sets out a 30-year pathway with a 10-year itemised plan of action that will guide the first stage of Auckland’s transformation towards a low carbon, energy resilient future.*” - see link.

<http://www.aucklandcouncil.govt.nz/EN/planspoliciesprojects/plansstrategies/theaucklandplan/Documents/lowcarbonauckactionplanfullversion.pdf>

We also note that thousands of progressive towns and cities around the world have now joined forces through the ‘Global Covenant of Mayors for Climate and Energy’, to share their ideas and strategies for tackling climate change and we would strongly urge Council to become part of this global initiative – see link. This is the largest global coalition of local government organisations committed to climate leadership and comprises 7,100 cities from 119 countries and six continents.

<http://www.compactofmayors.org/globalcovenantofmayors/>

Page 19-2, Paragraph 1

We think that in recognition of the far greater likelihood of adverse effects from global warming paragraph 1 should be put last in this section. Also it should be recognised that any opportunities are likely to be outweighed by constraints. If indeed a changed climate did suit red wine varieties – which is uncertain - this could be outweighed by the loss of our flagship cool climate varieties, sauvignon blanc and increasingly pinot noir. The distinctly Marlborough flavours may become less intense as the large diurnal temperature fluctuations which maximise varietal flavours are lost. Viticulture also relies on irrigation and the industry could be threatened by reduced rainfall/longer periods in drought. Reduced frosts may also increase pest and disease threats to vines and pasture, including from grass grub, giant willow aphid and South African black beetle that are now spreading southwards throughout NZ as our climate warms (<http://www.stuff.co.nz/business/farming/81745891/mild-winter-feels-good-but-scientists-see-its-downsides>).

Since there is no environmental constraint now to increased generation of renewable energy, it is incorrect to state that this is a new opportunity – it is not. We already have vast solar and wind energy resources in Marlborough that we are not fully utilising, due to lack of investment in these technologies, not lack of wind or sunshine hours!

Page 19-2, Paragraph 2

We note that although the physical health effects of climate change are mentioned there is no recognition of the likely adverse effects on mental health and believe this should be corrected. Environmental impacts linked to climate change, such as more prolonged and frequent droughts, heatwaves and flooding can cause disruption to both individuals and businesses, especially those in the agricultural sector. This can affect people's quality of life and ability to earn a living, leading to anxiety, stress and depression. In New Zealand almost 200 farmers have committed suicide in the last eight years and drought is a known risk factor – see link.

<http://www.stuff.co.nz/business/farming/dairy/79221368/suicide-concerns-rise-for-farmers-as-dairy-downturn-takes-its-toll>

Page 19-2 Paragraph 4

It is very important for Council not to be distracted by any suggestions, particularly from those with vested interests, that uncertainty in the Marlborough context should mean we wait for more information. We are now experiencing the climate change consequences of 25 years of inaction to address our carbon emissions and further delay just makes the situation worse and makes our mitigation and adaptation efforts more difficult and costly in the long run. This paragraph could be removed as it adds nothing of value to the plan.

Objective 19.1 – Mitigation of and adaptation to the adverse effects on the environment arising from climate change

We question the use of the word flexibility in the explanatory paragraph - "*flexibility in the use, development and protection of natural and physical resources....*" This could give the impression that the protection of natural and physical resources for the majority may be sacrificed in favour of maximising short term financial gains for a few. We suggest a stronger emphasis be placed on **ecologically wise** use, development and protection of natural and physical resources.

We are also concerned at the reference to offsetting of carbon emissions. Critics argue that offsets are a false solution designed to allow people and entities to claim carbon neutrality and alleviate a guilty conscience without making any real reductions in their carbon emissions. All our focus needs to be on reducing rather than offsetting.

Policy 19.1.1 – Promoting actions within Marlborough

We commend Council for promoting actions to reduce carbon emissions but strongly discourage 'offsetting' as it does nothing to lower overall GHG emissions and has in fact damaged NZ's clean/green brand upon which our tourism and food export industries rely. Emissions off-setting has cost New Zealand taxpayers millions of dollars for worthless Ukrainian/Russian carbon credits, while our national net emissions increased 42% between 1990 and 2013 and have continued to rise since. New Zealand's per capita emissions are now the fifth highest amongst industrialised nations, which is disgraceful for a country that purports to value and protect its natural environment.

We therefore suggest removing the words "*or offset*" from the policy statement.

Line 6

We also submit that in line 6 of the explanatory paragraph Council should make a clear statement that it "*will assess and then address the carbon footprint....*" instead of saying merely it "*could*" assess and then address the carbon footprint. If we are going to significantly reduce our regional carbon emissions Council has to lead by example and do everything possible to encourage local residents and businesses to do the same. In a letter from the MfE they state "*Broadly speaking, the RMA places responsibility for adaptation to climate change on local councils, but policy on mitigation of climate change is the*

responsibility of central government. Nevertheless, some councils are choosing to support a low carbon transition and are including climate change actions in their long term plans. For example, in July last year the Auckland Council launched the Low Carbon Auckland Plan.” We encourage MDC to be as proactive as possible, by communicating with other local bodies around the country who are taking the issue seriously and to be in the forefront of local body action to reduce carbon emissions. We can't afford to wait for central government to lead on this matter as they seem to be doing everything possible to limit NZ's contribution to reducing emissions.

Policy 19.1.2 - Improving community understanding

We support research to *“better understand the potential implications of climate change in a Marlborough context.”* We do make a plea though that lack of local information or an impression that Marlborough or NZ is likely to be less impacted by the effects of Global Warming are not used as excuses for inaction. Although NZ may initially experience some of the worst effects of Global Warming less severely than other parts of the world, we do not want this to compromise our resolve to do our bit. Every drop counts.

Although this policy aim is laudable there is nothing in the explanatory paragraph, or indeed in the Anticipated Environmental Result 19.AER.1, on how this is to be achieved in practice. There is no mention of any public outreach or education programme or consultative process to get local people and businesses up to speed with the environmental changes we are facing and how to prepare for them and take actions to mitigate them.

Given the gravity of the situation and the urgent need to change our GHG emissions trajectory from rapidly increasing to rapidly decreasing emissions, we recommend that Council establishes a new permanent position of ‘MDC Climate Change Adviser’. The purpose of this appointment would be to provide expert advice, information, training, education and support to Council and local residents/businesses, to help them better understand and respond to climate change.

Policy 19.1.3 - Enable primary industries to adapt to climate change

Line 6 of the supporting paragraph

We do not understand how a positive aspect of warmer oceans could be stressed here in regard to aquaculture, without identifying the much greater threat of adverse effects. Increased ocean temperatures and acidification, coupled with lower dissolved oxygen concentration (because warmer water holds less oxygen) and reduction in phytoplankton, as well as increased algal blooms and disease organisms will be disastrous for pelagic fisheries as well as crayfish, mussels and clams – see link.

<https://www.sciencedaily.com/releases/2015/12/151201094120.htm>

It is important for primary producers to have informed understanding of the likely limits to adaptation that they could be faced with. Phytoplankton is one of the critical foundations of the global food chain providing at least 50% of the world's oxygen and phytoplankton has declined globally by 40% since 1950 – see link.

<http://www.scientificamerican.com/article/phytoplankton-population/>

Research by Craig Stevens, Oceanographer with NIWA (Radio NZ, Nine to Noon, 27/01/2016) shows that the upper layers of the world's oceans have warmed by between 0.9°C and 1.3°C per decade over the last 40 years. The oceans have absorbed 20 times more heat than the atmosphere over the same period, resulting in their heat energy having doubled since 1997. If you took the amount of heat absorbed by the oceans and put it into the atmosphere it would have warmed by tens of degrees Celsius.

<http://www.radionz.co.nz/national/programmes/ninetoon/audio/201786974/the-physics-of-our-oceans,-with-craig-stevens-of-niwa>

We support any moves towards diversification of the primary industries. Too many eggs in one basket might not be a wise strategy in this world of changing climate.

Policy 19.1.4 – Freshwater allocation

We understand that by 2019 Council will have the ability to put restrictions on aquifer use. We recognise that most of the reduced flow in the river and aquifer recharge is due to land use change rather than a changing climate. We support Council continuing to take a precautionary approach to allocation of any additional water resources.

Policy 19.1.5 – Water allocation and use

We suggest that under item (c) the words in bold are added. *“enabling the storage of water **during periods of high river flow** for subsequent....”*

Page 19-4 Methods of Implementation

19.M.1 Council Carbon Footprint

We commend Council for recognising the need to establish its own carbon footprint and take steps to reduce it and suggest improving this sentence by amending it to read *“Investigate Council operations to establish their carbon footprint, set goals for reducing carbon emissions in accordance with New Zealand’s national emissions reduction targets, and develop an action plan to reach those goals”*

By making this simple change MDC can ensure its goals are aligned with international commitments the NZ Government made at COP21 in Paris, which are to reduce New Zealand’s overall GHG emissions 5% below 1990 levels by 2020, 30% below 2005 levels by 2030 and 50% below 1990 levels by 2050.

<http://www.mfe.govt.nz/climate-change/reducing-greenhouse-gas-emissions/new-zealands-greenhouse-gas-emissions-reduction>

According to the IPCC even these commitments are still insufficient to prevent global warming exceeding 2°C above pre-industrial temperatures (dangerous warming) and are likely to result in a global mean temperature 3-4°C higher by the end of the century. However, making these emissions reductions will at least move our country in the right direction and are the absolute minimum that must be achieved globally if we are to have any chance of slowing down the rapid rate of warming.

https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_summary-for-policymakers.pdf

It is of course imperative that the entire Marlborough region takes action to lower its carbon emissions, not just Council, and we therefore encourage MDC to consider promoting regional initiatives such as electrification of transport, converting waste biomass to energy which could support a thriving local renewable energy industry, regeneration of native forests to act as carbon sinks and increasing carbon sequestration in soils by encouraging farms and vineyards to incorporate more use of biochar and composting in their production systems.

19.M.2 Marlborough Regional Land Transport

Given the need to respond quickly and decisively to mitigate global warming we would encourage Council to be more positive in this paragraph and instead of just *‘considering’* provisions to reduce GHG emissions this statement should read *“In the review of the Marlborough Regional Land Transport Plan, Council will include provisions to reduce emissions of greenhouse gases”*. This is crucial since transport accounts for 20% of New Zealand’s GHG emissions and there is huge potential for these to be reduced.

All indications are that uptake of electric cars will explode over the next decade and Marlborough should be proactive in this area by installing rapid charging facilities in the main Marlborough towns and Council could lead by introducing electric cars to its fleet as soon as possible. Other measures could include electrification of local public transport – which is now happening in places such as Wellington with a brand new fleet of zero emission electric buses - see link.

http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11626311

19.M.4 Research

We believe the words “*and support research in Marlborough*” should be added to the end of the first sentence.

19.M.5 Information

We support this section and agree that Council should share information relevant to Global Warming and Climate Disruption with the community whenever possible. For example we understand that Council paid for Tim Naish from the Antarctic Research Centre at Victoria University to come and do a presentation to council staff. Our rates paid for this consultancy but MDC didn't share this info with the community. The meeting could have been opened to the public or Tim could have been asked to do two presentations, one to Council and one public lecture.

In order to motivate the whole community within Marlborough to take more responsibility for tackling climate change it is essential that local citizens and businesses become fully informed about the seriousness and urgency of the situation and are educated about the changes we all need to make to lower our emissions.

19.M.7 District rules

We support Council encouraging the establishment of carbon sinks. For example Council could incentivise establishment of permanent native forests and/or non-invasive exotics on erosion prone and steep land. This would help reduce problems of encroachment by invasive tree species and would reduce loss of top-soil and excessive sedimentation in the Sounds, while at the same time removing CO2 from the atmosphere.

19.M.8 Advisory Group

We suggest that an additional ‘method of implementation’ be included here and that an advisory group be established of science, industry, business and community representatives to work with Council in a collaborative way on identifying climate change threats in Marlborough and on devising appropriate responses.

Page 19-5 Issue 19B – Climate change could affect natural hazards and create a coastal inundation hazard associated with sea level rise

Paragraph 3

We understand why the NIWA sea level rise (SLR) figures based on the AR5 IPCC report are used in this section but we again wish to sound a strong word of caution that these may be underestimating the problem. The IPCC reports are by their very nature conservative. Consensus has to be reached amongst a large number of scientists from a wide range of countries, who may be subjected to differing levels of political influence. Put simply, it suits most governments to take a conservative approach and the NZ government is definitely not an exception to this rule.

The IPCC reports do not take account of feedback loops and tipping points in the climate system. As more research is conducted and more reports are published, all indications are that the effects of global warming are happening more rapidly than earlier projections indicated. Temperature and sea level rise predictions are good examples. The worst case scenario in AR5 (RCP8.5) has SLR at between 0.45 and 0.82 which corresponds with the Ministry for the Environment advice to make assessments of the potential consequences of SLR up to 0.8m. Other research indicating instability in parts of the Antarctic ice sheet indicates SLR could well be considerably more. Here is a quote from leading climate scientist James Hansen: *"We have uncovered information and a partial understanding of feedbacks in the climate system, specifically interactions between the ocean and the ice sheets. These feedbacks raise questions about how soon we will pass points of no return, in which we lock in consequences that cannot be reversed on any time scale that people care about. Consequences include sea level rise of several meters, which we estimate would occur this century or at latest next century, if fossil fuel emissions continue at a high level. That would mean loss of all coastal cities, most of the world's large cities and all their history"*. (http://www.columbia.edu/~jeh1/mailings/2016/20160322_IrreparableHarm.pdf)

James Hansen is one of a growing number of well-respected and influential climate scientists including Stefan Rahmstorf, Michael Mann, Peter Wadhams, David Wasdell, Eric Rignot to name a few, who now publicly support the view that multi-meter sea level rise could occur by the end of the century due to accelerating non-linear warming and ice-sheet collapse in Greenland and Antarctica. Websites such as those listed below here are part of the substantial body of information available on this issue.

<http://www.nasa.gov/jpl/news/antarctic-ice-sheet-20140512/#.V4bMmlk4TrU>

http://www.nytimes.com/2016/03/31/science/global-warming-antarctica-ice-sheet-sea-level-rise.html?_r=0

http://www.joboneforhumanity.org/wmo_global_warming_happening_faster_than_predicted?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+joboneforhumanity%2FrlsZ+%28Global+Warming+Climate+Blog+-+Job+One+for+Humanity%29

NASA figures show that February 2016 was 1.55°C and May 2016 was 0.93°C above the 1951 – 1980 baseline and NASA are now projecting that the 2016 averages may peak at around 1.2°C. This is alarmingly close to the 1.5°C limit that was agreed to at the Paris Climate Talks. The oceans are absorbing huge amounts of energy and slowly heating up. This process will continue for centuries. We submit that Council should at least entertain the possibility that SLR may be considerably more than official projections and start thinking about what the consequences for Marlborough would be. Clearly one of the biggest impacts would be if the sewerage ponds were compromised by SLR. It is very important to remind ourselves that as sea levels rise it will be the extreme events that result in damaging impacts, for example, storm surges and flood events coinciding with high tides.

How will events such as these affect the ponds, the Riverlands area and Blenheim CBD? What are the implications for us? What alternative do we have if the ponds are compromised? Do we have another suitable site? Will stop-banks protecting the CBD have to be raised? At what point would the lower Wairau aquifer be affected by salt water intrusion and what would be the consequences of this happening? What are the implications of SH1 and the main trunk line being closed or severed for long periods as a result of storm events? Which roads and bridges will be affected first? What are the implications for the operation of the Lake Grassmere Saltworks, the Interislander ferry terminal, and Picton and Havelock port areas?

We note in the recently published Marlborough State of the Environment document that *'The flat land of the lower Wairau Plain means there is not much slope on the drains, so they need to be kept clear and hydraulically efficient for good water flow while ensuring habitat for native fish and invertebrates is maintained. Pumping stations are required to remove water when the Wairau and Ōpaoa rivers are both running high and some areas have pumps working when there is a high tide.'* How much SLR can we cope with before this drainage system is overwhelmed? We accept that the level of the Wairau River bar and river mouth efficiency play a big part in this matter but what happens when the bar is breached?

We submit that the word *'potentially'* be removed from the sentence *'This rise potentially increases the risk of inundation at the coast.'* We need to be realistic! Inundation will definitely happen due to sea level rise, particularly during storm events.

Page 19-5 Objective 19.2 - Avoid and mitigate the adverse effects of natural hazards influenced by climate change

Paragraphs 1 and 2

We support acknowledgement that climate change creates a hazard in sea level rise. The wording of this section needs to be taken further to acknowledge the need to support investigations of where and how these effects will be felt, and into future-proofing communities to create resilience to sea level rise.

Page 19-6 Policy 19.2.1 - Monitor flood hazard on an ongoing basis

We support proposed reviewing of flood management overlays.

Page 19-6 Policy 19.2.2 - Avoid any inundation of new buildings...

We encourage Council to be very conservative in regard to decisions on setbacks for building in the coastal marine area. Applying the precautionary principle under these circumstances will be a wise move and pay off in the long run. Council staff must make the effort to keep abreast of new research on climate change and its potential disruptive effects as it becomes available.

Page 19-7 – Anticipated environmental results

We support the 3 Anticipated Environmental Results (AER) but believe we can do better. Every opportunity needs to be taken to improve the community's understanding of the effects of climate change and SLR including running community meetings to help educate local people. Ways need to be found to empower the community and make people feel part of the change.

We suggest that a fourth AER should be included:-

19.AER.4 *"There is a significant reduction in the carbon footprint of the Marlborough District"*.

7) The decision we seek from Council is to:-

- Amend Chapter 19 of the Proposed Plan in accordance with the submission made by CKM in section 6 above.

- Recognise that the regional impacts of climate change over coming decades could be worse than the current official projections and take this into account in future planning.
- Ensure future Council planning and operations reflect the international climate change commitments made by the NZ Government in the COP21 Paris Agreement – specifically to reduce NZ’s greenhouse gas emissions to 5% below 1990 levels by 2020, 30% below 2005 levels by 2030 and 50% below 1990 levels by 2050. *(NOTE added 28/0/2018 – this has already been superseded with the new government making a commitment for NZ to be carbon zero by 2050)*
- Appoint a permanent MDC Climate Change Adviser whose role will be to provide expert advice, information, training, education and support to Council and local residents/businesses to help them better understand and respond to climate change.
- Establish a regional Climate Change Advisory Group comprising representatives from science, business and the local community to work with Council in a collaborative way on identifying climate change threats in Marlborough and on devising appropriate responses.
- Affiliate MDC with the Global Covenant of Mayors for Climate and Energy, in order to ensure Council keeps abreast of the latest strategies for tackling climate change at regional/city level and is at the forefront of supporting innovations to de-carbonise the Marlborough economy.