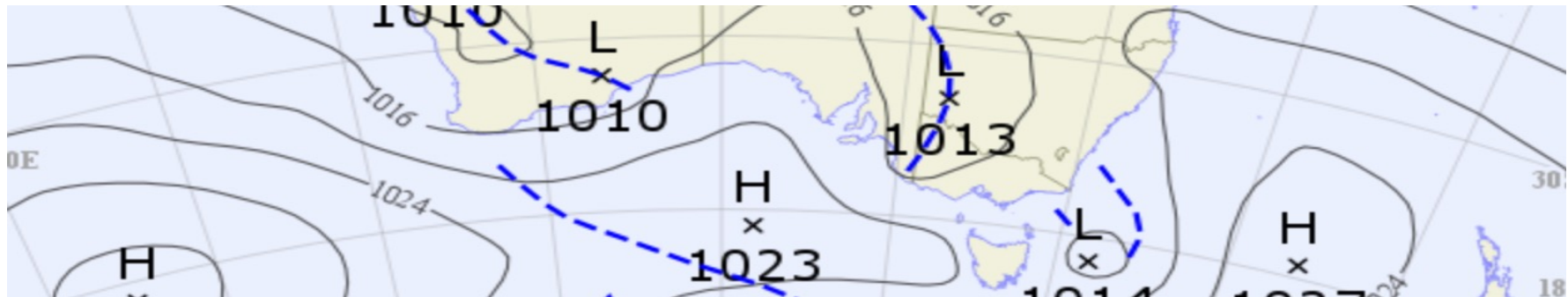


# Building resilience in the leisure industry in the face of climate change

Dr Ken Marriott

PLA Vic/Tas Conference, June 2023

[ken.oz@me.com](mailto:ken.oz@me.com)



# HOUSEKEEPING

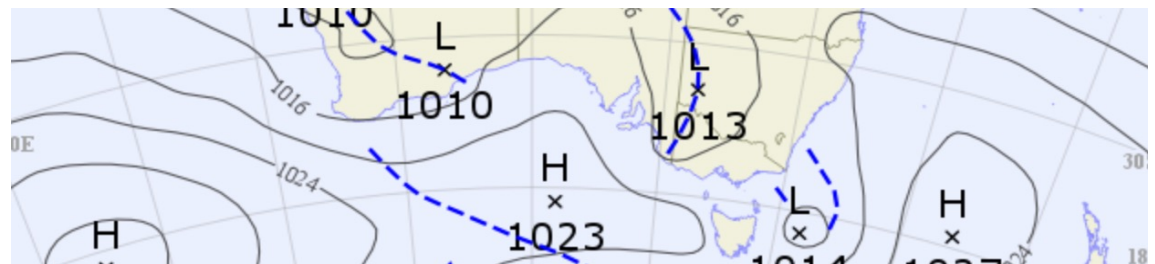
- PLA has endorsed the use of this session to promote climate change issues and to establish a PLA working group on the topic. If you are interested, put your name and email on the sheet going around. The list also records a background paper I prepared in 2021 & our Powerpoint material for today so tick the boxes if you would like copies.
- Make sure you get a raffle ticket... for a surprise at the end
- The time breakdown for the morning is expected to be around an hour from myself and Amy and then a workshop session on a range of topics followed by feedback
- Amy and I are happy for you to use our material for your professional work so long as the sources are acknowledged **ken.oz@me.com**

# Acknowledgements:

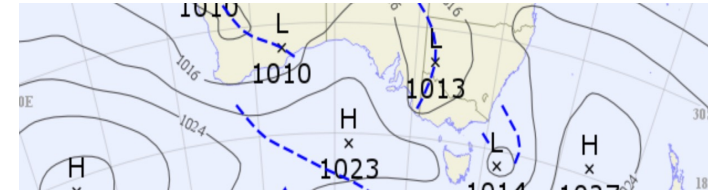
- Dr Hans Chen, Assistant Professor, Department of Space, Earth and Environment at Chalmers University of Technology, Gothenburg, Sweden
- Australian Bureau of Meteorology
- Dr Portia Odell, Director, Cities Power Partnership, Climate Council of Australia, the wider Climate Council organisation and Elizabeth Gleeson, the Program Collaboration Coordinator of the Cities Power Partnership
- Staff of Mornington Peninsula, Canning and Cockburn Councils, who have supported the session by providing case study material for the discussion and question session, and in particular, Yarra Ranges Council's **Amy Gregorovich**, Energy Resilient Communities Officer, Sustainable Environment & Facilities, Upper Yarra Shire. Amy has joined us today to present material from Yarra Ranges

# Session objectives

1. To assert that climate change **has** happened and that change is intensifying
2. To stress the importance of leisure professionals responding to climate change
3. To propose an action framework for use in responding to climate change
4. To discuss the work of the Climate Council of Australia relevant to Council action
5. To discuss the actions of local government in addressing climate change
6. To workshop the elements in 4-5 to map out a strategy for action by the leisure industry



# Climate & weather *change* are here



The climate and weather of Melbourne, Victoria, Tasmania, Australia and the world *have changed*.

*Climate* change is not coming, it is ***here*** and *weather* change is what hits us

Unless sufficient action is taken, by 2050 and certainly by 2075 and 2100, changes to our climate will be severe, will last for thousands of years, and will threaten life as we know it for the vast proportion of the global population.... of humans, animals and plants. The planet too, will be physically changed by flooding, fire, erosion, ice cap melting and more

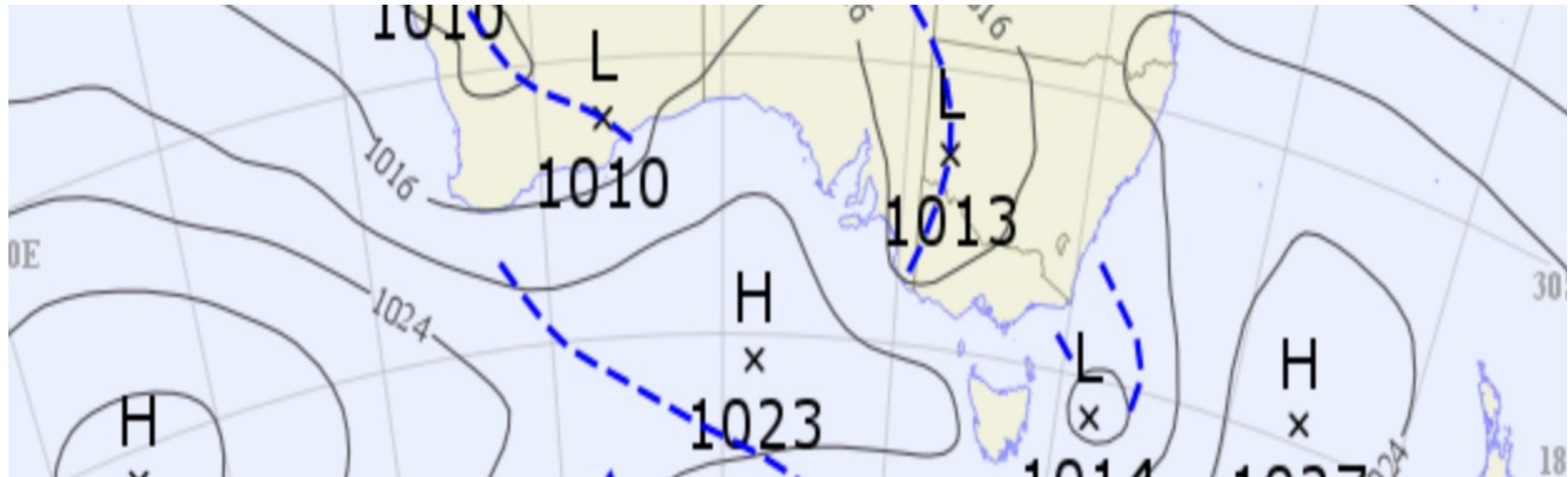
## **Intergovernmental Panel on Climate Change : *Synthesis Report of the IPCC 6<sup>th</sup> Assessment Report (AR6)* March 2023**

“A.1 Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming, with global surface temperature reaching 1.1°C above 1850–1900 in 2011–2020. Global greenhouse gas emissions have continued to increase, with unequal historical and ongoing contributions arising from unsustainable energy use, land use and land-use change, lifestyles and patterns of consumption and production across regions, between and within countries, and among individuals (*high confidence*)”. (p. 4)

# Why is this relevant to the leisure industry...?

- Leisure and recreation are relevant to every human while climate & weather change will seriously damage many of the opportunities our communities benefit from
- Leisure is one of the major investments made by local government: 2020-21, \$6.5 bn., or 15 % of total expenditure of \$43 bn. That is \$65 bn. every decade. Only Transport and Communications, \$10.3bn. and “General Public Services”, \$9.6bn. were larger
- KPMG (2020) for the Victorian government, found the annual value delivered and supported by “community sport and active recreation infrastructure in Victoria” was \$7.1bn. - \$2.1bn. of economic value, \$2.3bn. of health benefits & \$2.6bn. of social benefits. Across all leisure and recreation, the \$7.1bn. could be multiplied 3-4 fold to a total annual value of \$21-28bn for Victoria alone
- Extrapolated nationally, the annual value of sports-focused leisure and recreation could be put at \$25 – 32bn. and valuing all leisure and recreation at \$100-130bn. *annually*.

## A bit of background meteorology....





# Climate and weather...

**Climate** is the long term average (usually over a minimum of 30 years) of daily, monthly & annual weather events. Overall, the earth's climate does not appear to have changed greatly. Some places have got a bit warmer, others wetter or dryer. Because we use 30 year averages, the situation doesn't look too bad...especially as some years are 29, 30 years ago!! But an average change of + 1.7 deg., which we have now reached, is SERIOUS. Importantly, climate change impacts on weather... the *daily* conditions we experience AND it also generates long term issues of food security, health, coastal erosion, heat islands and more

**Weather** is a daily, weekly or monthly set of atmospheric events and the associated consequences that when averaged, make up "climate". *The weather has changed dramatically in many parts of the world and is doing so more rapidly, dramatically and to greater extremes that "climatic" data would suggest. Weather change impacts our daily lives, security and safety*

# Determinants of climate & weather in Australia

Heat and water in the atmosphere : huge changes due to CO2 & other gases

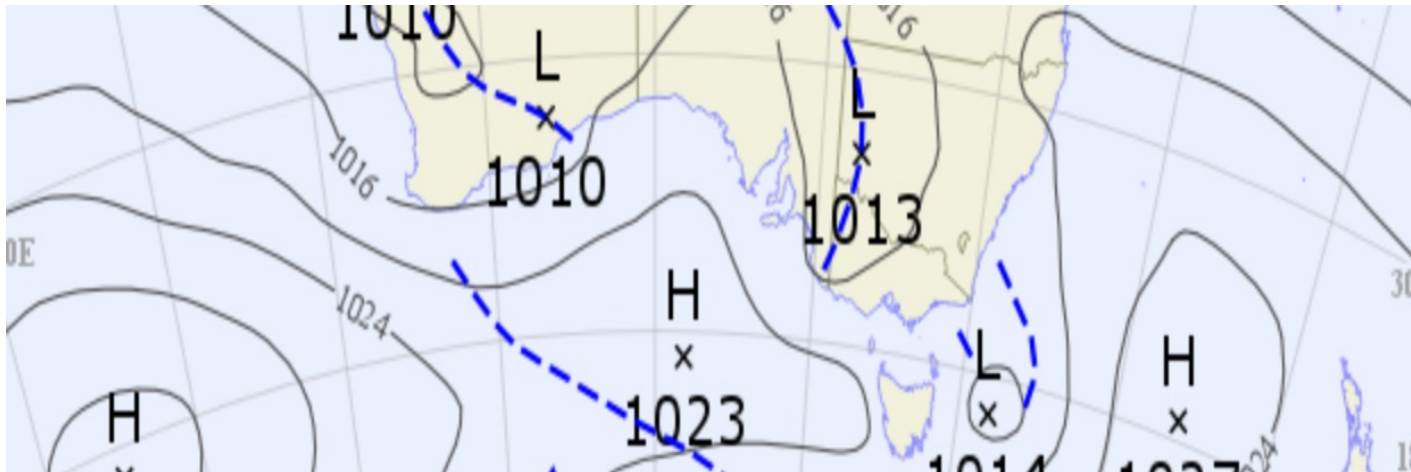
Permanent pressure processes & systems : radical changes due to excess heat, water

- Coriolis force
- Southern Ocean highs and lows from as far south as Antarctica
- Mid latitude high and low pressure systems
- Tropical and sub-tropical low pressure systems
- High altitude jet streams

Cyclical oceanic/atmospheric mega-variations : severe intensification

- La Nina / El Nino
- Indian Ocean Dipole
- Southern oscillation/ Southern Annular Mode

# Climate change: Melbourne



# Koppen's climate classification

**Cfb** Mild winters, all year rain, cool summers

**Cfa** Mild winters, all year rain, warm to hot summer

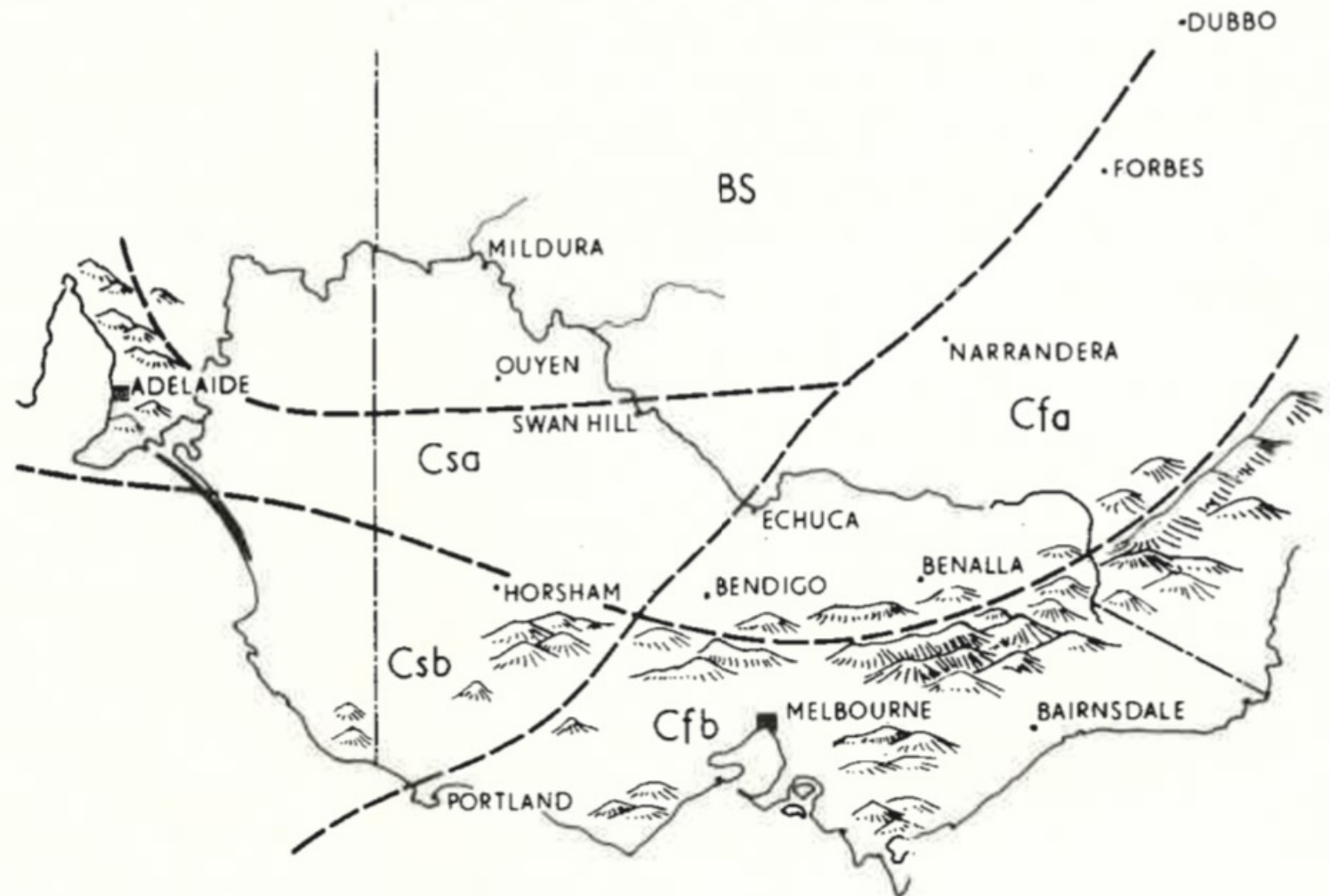
**Csa** Mild rainy winters, hot dry summers

**Csb** Mild rainy winters, cool to hot, dry summers

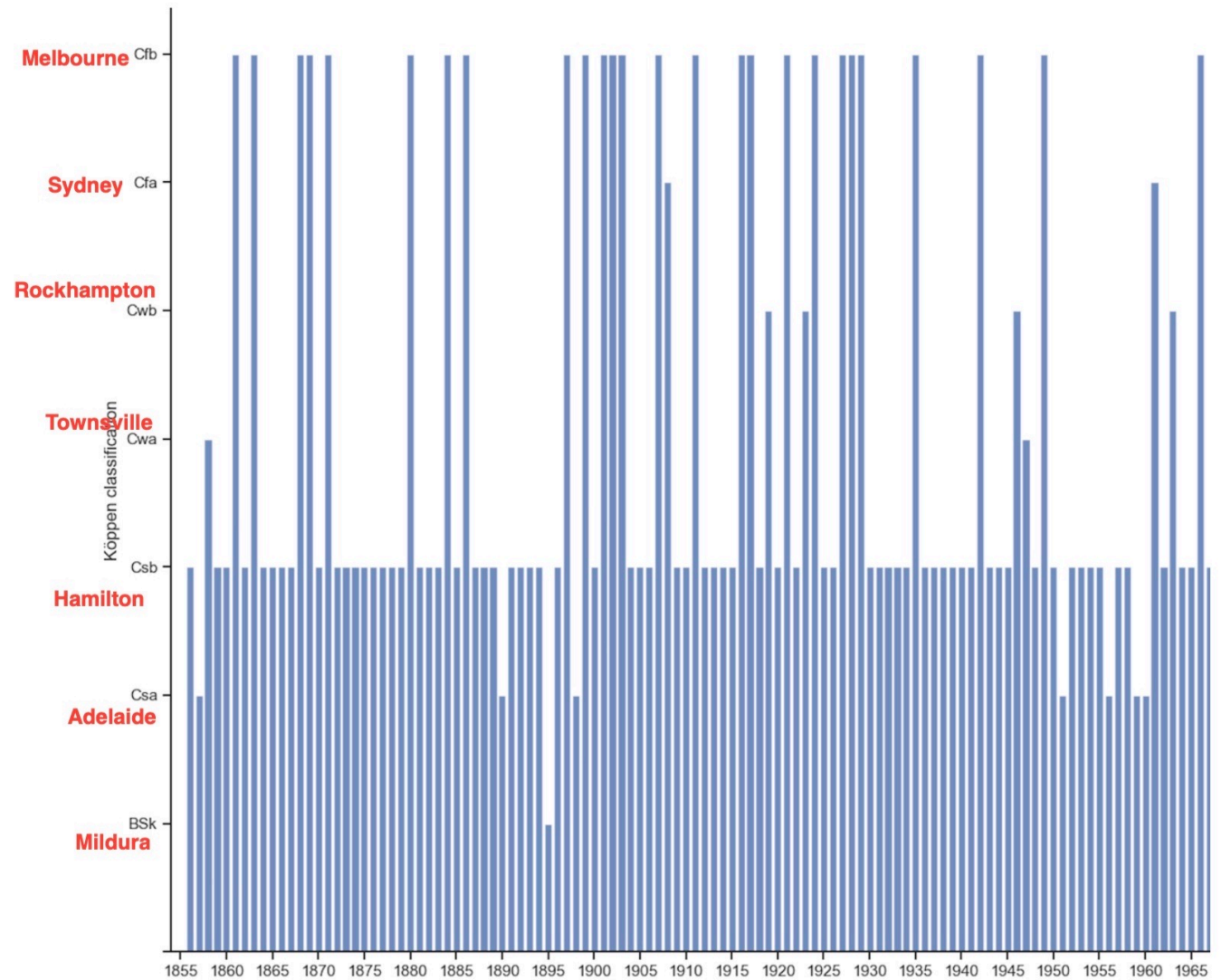
**Cwa/b** Mild dry winters, rainy summers (sub-tropical)

**BS(k)** Inland, low rainfall, cool to hot semi arid

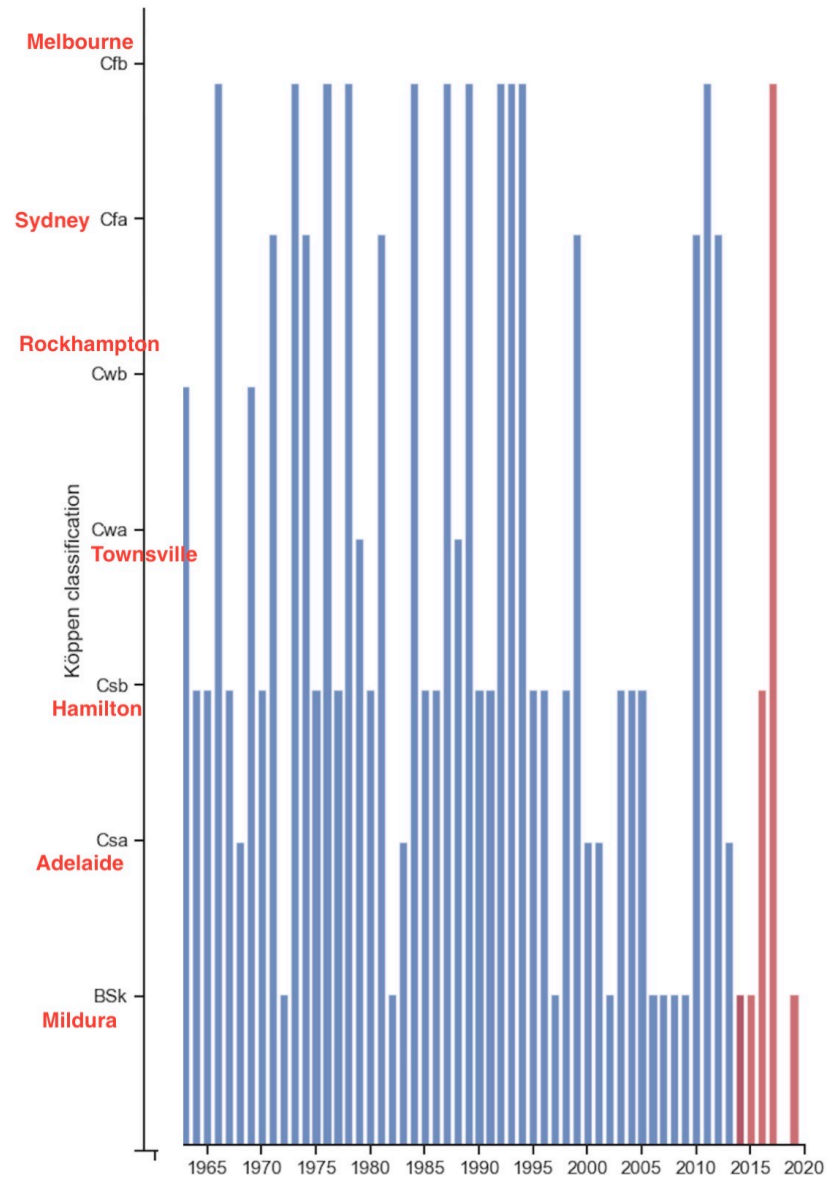
**Note:** all of Tasmania is Cfb, the same as the average for Melbourne. Whereas Melbourne is near the northern limit of Cfb, Hobart is nearer the southern limit and closer to a Cfc classification



# Melbourne's Köppen classification 1856-1965



# 1965-2019



# 165 years... and climate change

Classification & Comparable city	1856-1965 (111 yrs) Number	1856-1965 Percent	1966-2019 (54 Years) Number	1966-2019 Percent	1995-2019 (24 Years) Number	1995-2019 Percent
Cfb MELBOURNE	26	23.4	12	22.2	2	8.3
Cfa SYDNEY	2	1.8	6	11.8	3	12.5
Cwb ROCKHAMPTON	4	3.6	2	3.7	0	0
Cwa TOWNSVILLE	2	1.8	2	3.7	0	0
Csb HAMILTON	68	61.3	18	33.3	7	29.2
Csa ADELAIDE	5	4.5	5	9.6	3	12.5
BSk MILDURA	1	0.9	11	20.4	9	36.0

# From climate change to *weather* change...

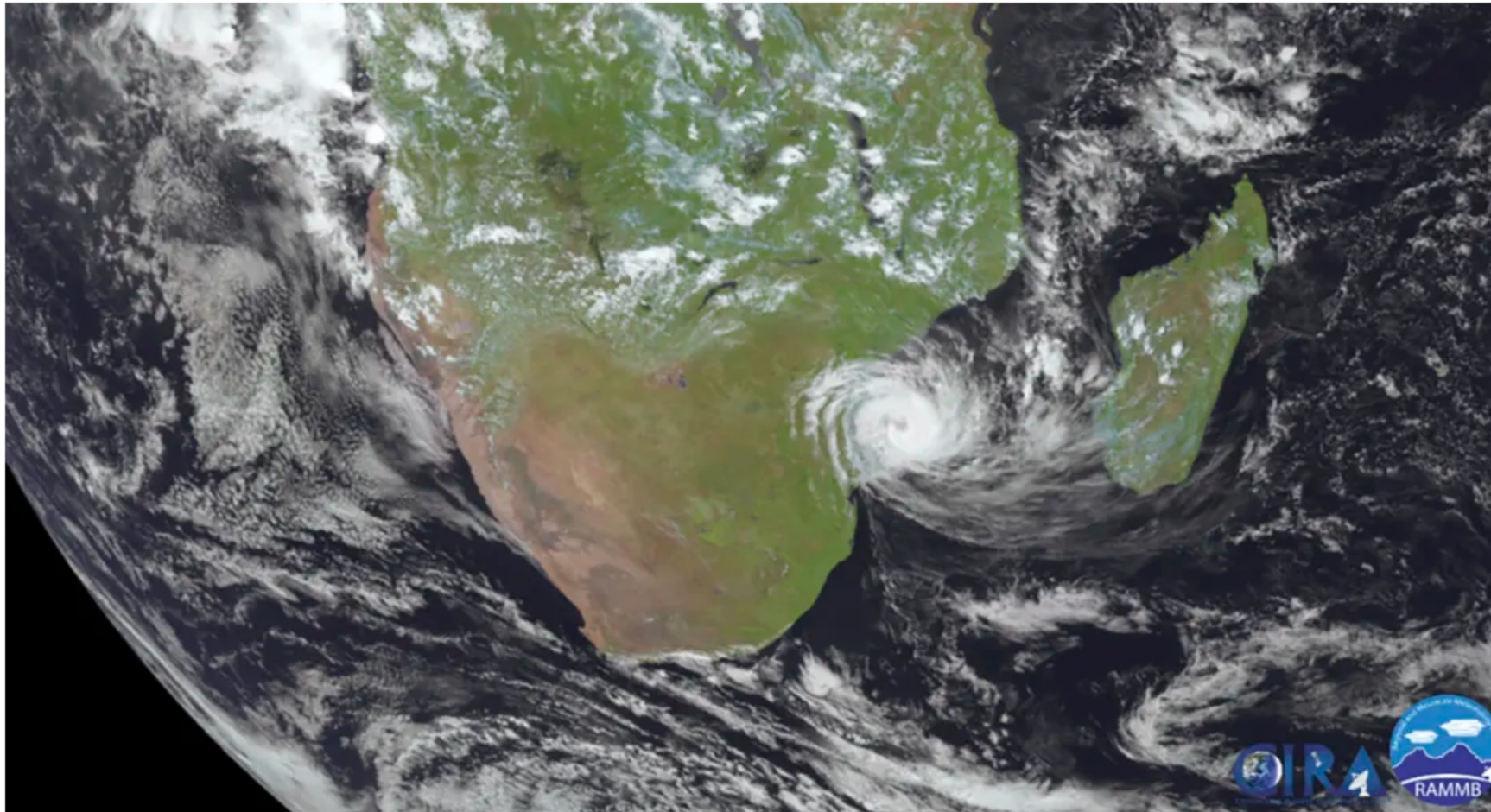
The extent of climate change and the massive additional level of heat and energy in the atmosphere and oceans has led to the intensification of all atmospheric processes. This has led to:

- More severe droughts... and consequent bushfires
- More and more severe rainstorms... and consequent flooding
- More intense cyclones/ hurricanes... and stronger storms, rainfall, flooding and property damage
- Rising sea levels and coastal flooding and erosion
- Rising land and ocean temperatures, marine heatwaves & ecosystem damage & destruction

PLUS storm erosion; urban heat islands; alpine resort decline; water shortages; river decline; biodiversity decline; tourism impacts; timing, duration & seasonality of competition.... ALL ARE THREATS TO LEISURE OPPORTUNITIES



# Weather change: Cyclone Freddy



Weather  
change:

Auckland's  
"atmospheric  
river"

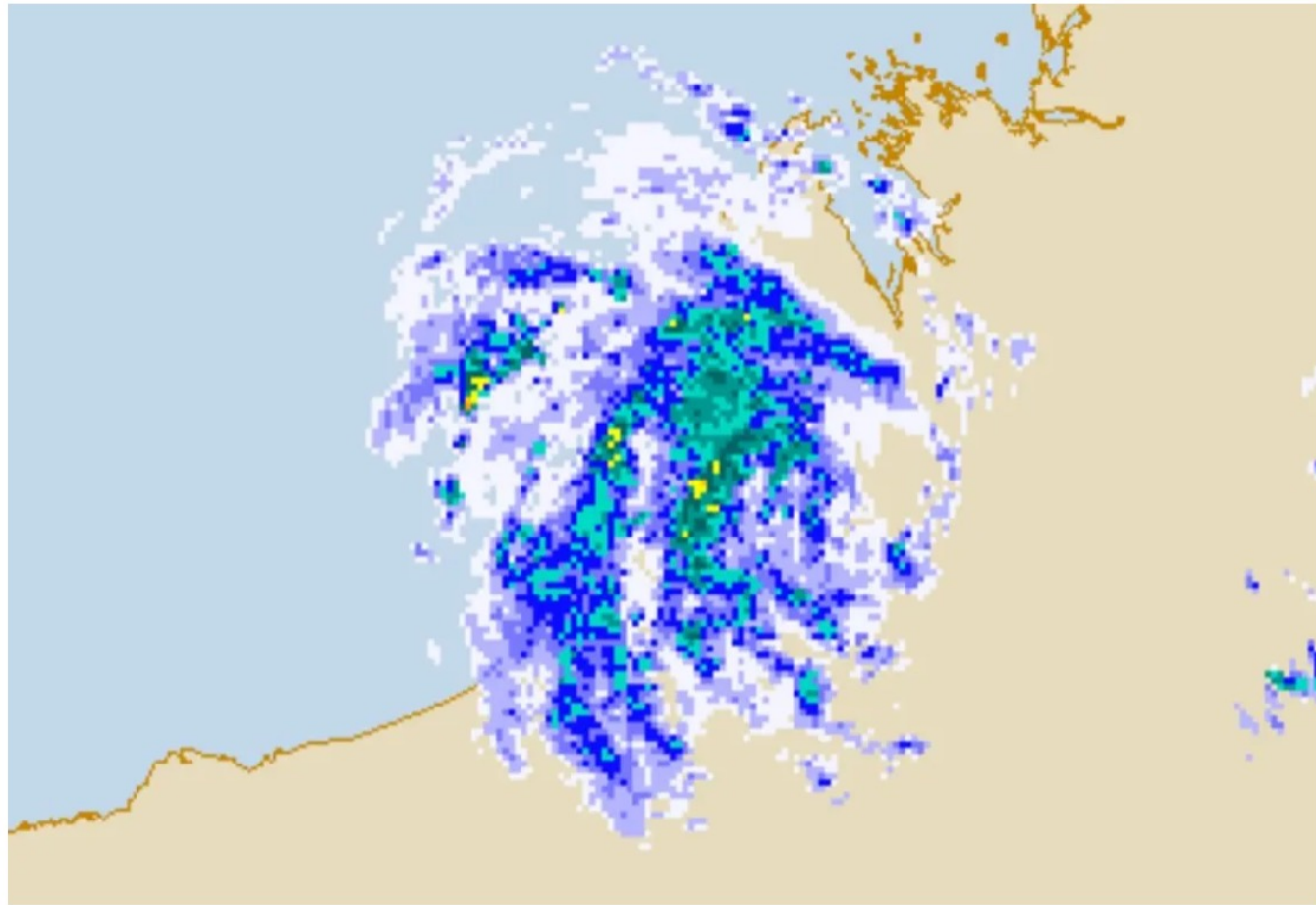


7:32 AM • Jan 28. 2023

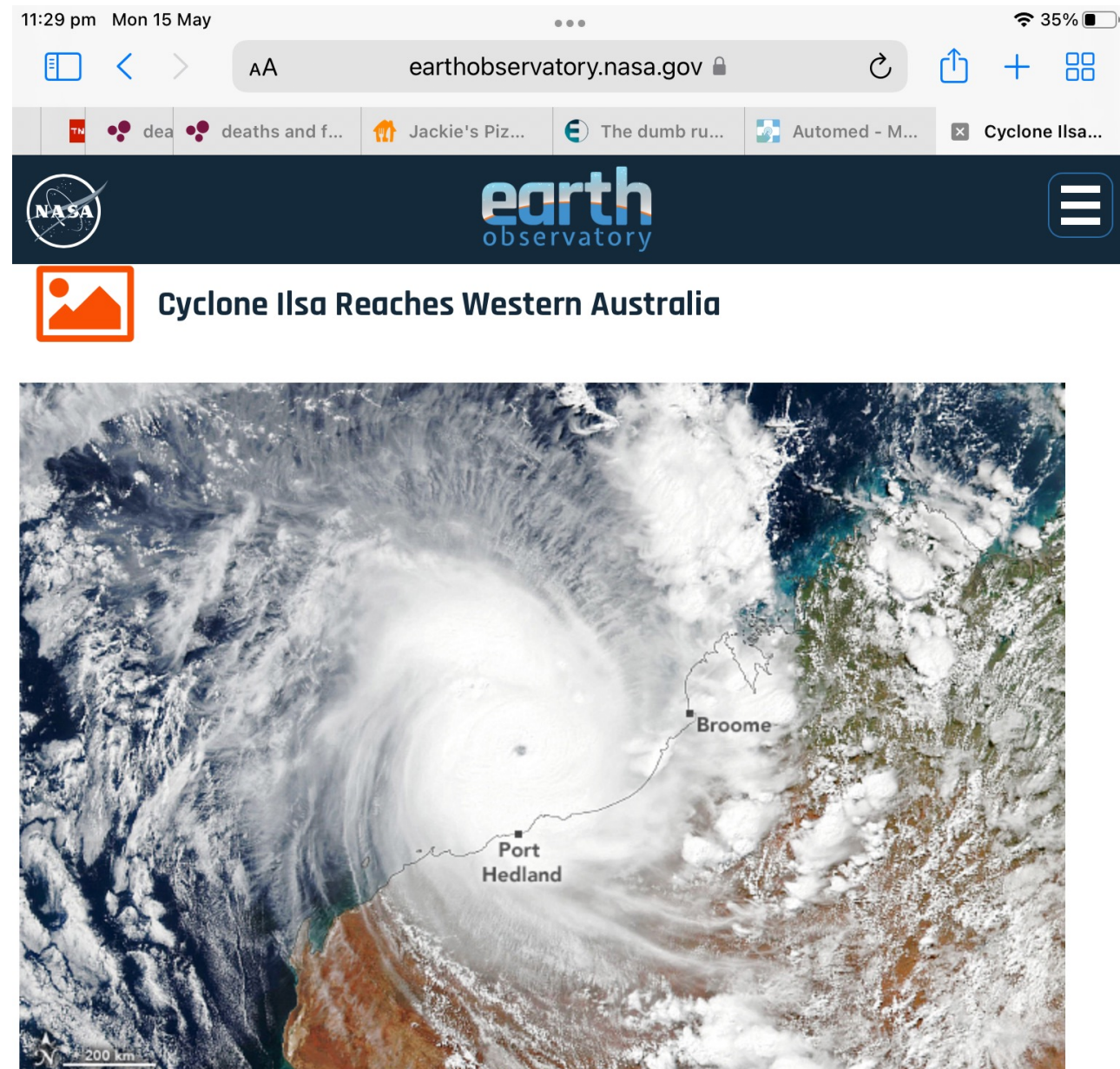


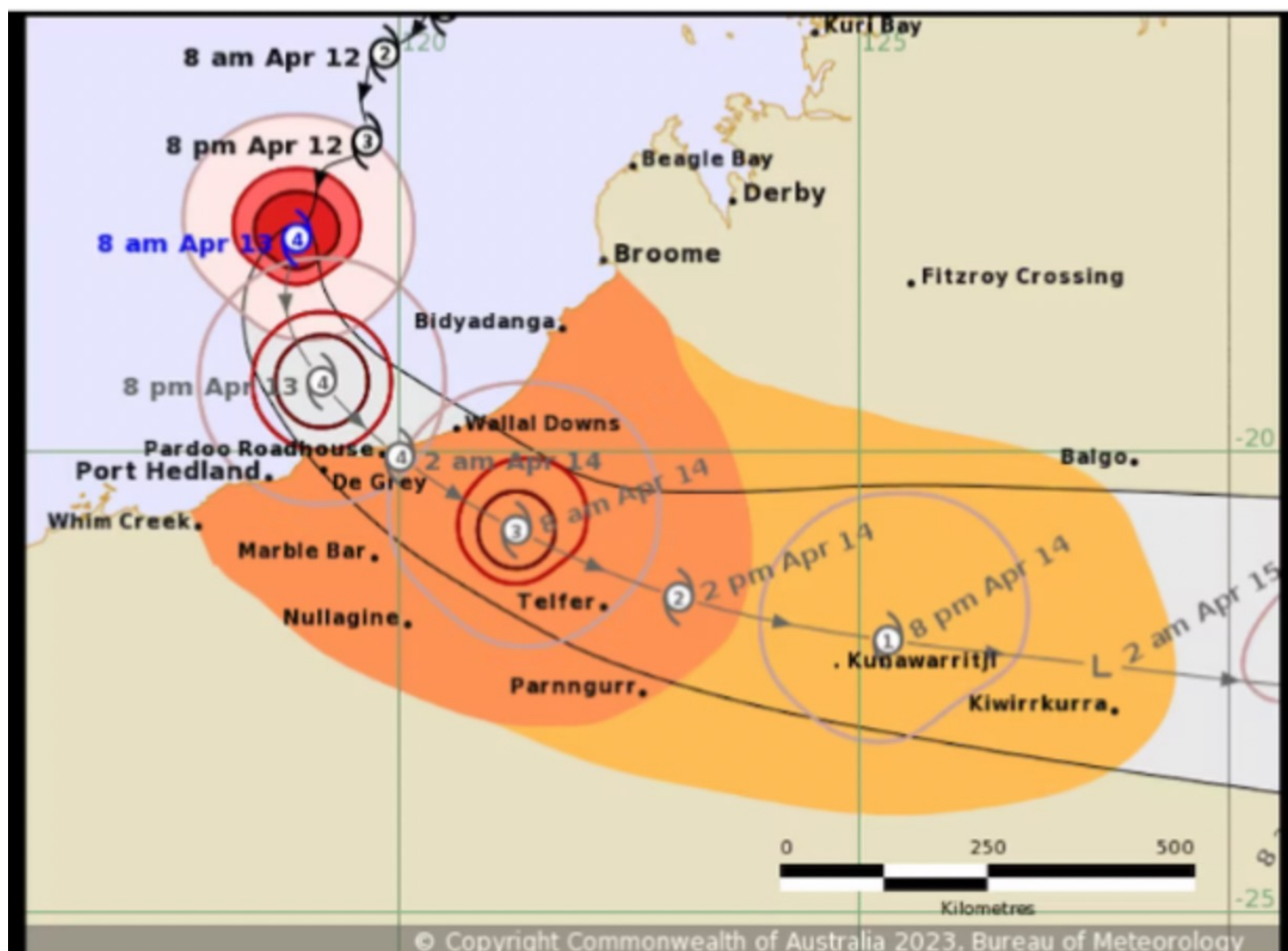


Weather change: Ex Tropical cyclone Ellie: Fitzroy River/ Kimberleys, Jan 2023



# Tropical cyclone Ilsa: Broome-Port Headland April 13, 2023





# Taking action (see p. 9-10 of full paper)

1. Establish an organisation-wide planning and action group, engage with other organisations and the community to ensure an effective scope of action
2. Work with key agencies to identify local & regional climate and weather change challenges & potential crises: Met Bureau, Climate Council, Floodplain Management Aust; CSIRO; natural disaster resilience assessment organisations
3. Develop an action, crisis preparedness & performance monitoring plan
4. Engage with the community and other organisations and groups to inform/advise/guide them
5. Implement strategies to adapt existing facilities, programs and services and to avoid crises
6. Implement avoidance and mitigation strategies that ensure that new facilities, programs and services make minimal or no climate/weather change contribution and/or which reduce or eliminate the causes of climate and weather change
7. Monitor & evaluate the processes & outcomes of the actions, promote the findings & adjust the action plan.

# Climate Council of Australia

A major independent body of experts researching & promoting climate change action

Cities Power Partnership (CPP) offers strong support to Australian Councils

CPP has 175 of approx. 550 Aust. Councils as members covering 69% of Australia's population

CPP resources include:

- Access to the Council's "knowledge hub"
- Monthly webinars
- Free action and progress reporting tools
- Networking events
- Expert training
- An on-line forum
- Monthly newsletter, and
- Opportunities to be part of regular media and advocacy work
- **Action pledge system**

# CPP Pledge Topics

## **Renewable energy** (15 pledge” areas):

- install renewable energy infrastructure on Council buildings

## **Energy efficiency** (6 pledge” areas):

- adopt best practice energy efficiency measures across all Council and community facilities

## **Sustainable transport** (9 “pledge” areas):

- support cycling through provision of adequate cycle lanes, bike parking and end of ride facilities

## **Work together and influence** (9 “pledge” areas):

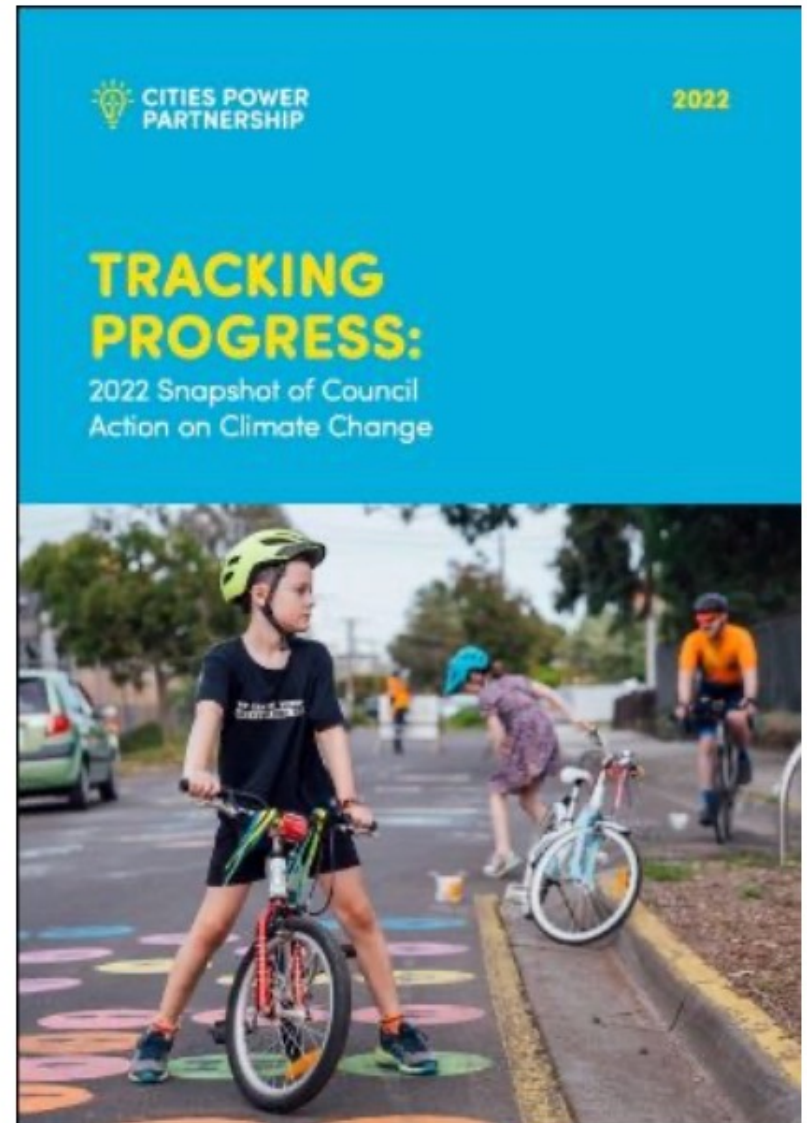
- support the local community to develop capacity and skills to tackle climate change

Cities Power Partnership is presently undertaking a major project to fill in the details and these will be featured through the regular Q&A on line sessions and will be uploaded to the Resource Library



## MUST READ: Our Tracking Progress Report

Last year we surveyed our member councils to ask how you're all progressing on your climate action initiatives. We heard from 158 councils and we've culminated the findings into a report, titled [Tracking Progress: 2022 Snapshot of Council Action on Climate Change](#). Find out our top 5 insights from the report,



# Council initiatives

- City of Cockburn, Western Australia. Julia Christensen, Acting Head of Sustainability and Environment Sustainability and Environment
- City of Canning, Western Australia. Rachel Williams, Leader Sustainability Development
- Mornington Peninsula Shire, Victoria, Nicci Tsernjavski, Climate Change Partnerships Officer
- **Upper Yarra Shire, Victoria, Amy Gregorovich, Energy Resilient Communities Officer, Sustainable Environment & Facilities**

# Cockburn, Canning & Mornington Councils: An overview

- A strong emphasis on solar and wind powered electricity and with excellent outcomes
- Limited action specific to individual Council settings
- Limited action specific to leisure and recreation
- Something of a focus on “showpiece” initiatives
- Limited action in keeping with the framework recommended earlier
- Limited , but important, evaluation of outcomes.

YOU MAY WISH TO CONSIDER USING THESE STATEMENTS TO CHALLENGE OR TO BENCHMARK WHAT IS HAPPENING IN YOUR OWN COUNCILS.

# Yarra Ranges Shire Council Case Study

**Amy Gregorovich, Energy Resilient Communities Officer, Sustainable Environment & Facilities**



# Climate Action in the Yarra Ranges

Amy Gregorovich  
Energy Resilient Communities Officer  
[a.gregorovich@yarraranges.vic.gov.au](mailto:a.gregorovich@yarraranges.vic.gov.au)



# The Yarra Ranges



# What guides our work?

...



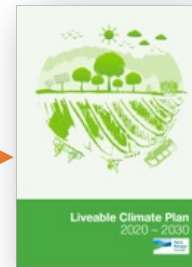
**COUNCIL PLAN  
2021-25**

*“Protected and Enhanced Natural Environment: A healthier environment for future generations”*



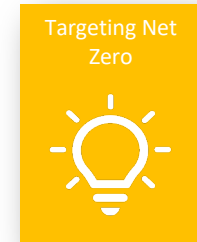
**ENVIRONMENT  
STRATEGY  
2015-2025**

*“Our communities are resilient in the face of a changing climate and more extreme events.”*



**LIVEABLE  
CLIMATE PLAN  
2020-2030**

*“Reduce emissions with as many co-benefits as possible using an evidence based approach in line with international efforts to limit global warming to 1.5°C”*



**DRAFT ENERGY  
TRANSITION PLAN  
2023-2040**

*“Shaping the investment and projects undertaken by Council to reach the 2040 LCP targets of net zero emissions and net zero operational spend.”*

# Liveable Climate Plan 2020 - 2030



## Guiding Principles



**Reduce emissions with as many co-benefits as possible** using an evidence based approach in line with international efforts to limit global warming to 1.5°C.



**Prepare for a changing climate** by recognising the risks, planning ahead and working with others to achieve more together.



**Demonstrate responsible climate leadership** by doing our fair share, and inspiring others to play their own part to restore a safe climate.



**Integrate broader principles of sustainability**, especially drawing on the knowledge of Indigenous Australians and their deep connection with country.



# Liveable Climate Plan 2020 - 2030



## Guiding Principles



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**Demonstrate responsible climate leadership** by doing our fair share, and inspiring others to play their own part to restore a safe climate.



**Integrate broader principles of sustainability**, especially drawing on the knowledge of Indigenous Australians and their deep connection with country.

## Targets



**Reduce** greenhouse gas emissions by 60% on 2005 levels by 2025

**Transition** all council services and infrastructure to 100% renewable energy by 2030.



**Net zero** emissions by 2040

**Zero** operational energy expenditure by 2040



# Liveable Climate Plan 2020 - 2030



## What council will do

### Renewable Energy

All our energy is sourced from renewables. From solar panels on our rooftops, to larger projects within and beyond the municipality.



### Resilient Buildings

Our buildings are energy efficient and climate ready. Our key facilities make best use of local resources, and provide robust support to our community through challenging times.



### Zero Emission Fleet

Our vehicles and equipment are zero-emission. From mowers to peplemovers, we've made the switch to clean, renewable fuels.



### Climate Thinking

We consider climate in all our strategies, policies, programs and services. We look for climate risk, and make sure we're part of the solution, in every aspect of our business.



### Sustainable Design

All our assets are designed, built and managed using a sustainable lifecycle approach. We think long term, globally and locally to make sure our assets have a positive impact before, during and after their useful life.



# Liveable Climate Plan 2020 - 2030



## What council will do

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## How we will collaborate with community

### Thriving Yarra Ranges

Local community, business and industry are climate-ready and energised. Access to secure water supplies, affordable renewable energy and the benefits of a circular economy.



### Adapting Together

No one in Yarra Ranges is left behind in the shift to our low carbon future. Everyone has access to practical support—meaning we can all play a role, reap the benefits, and move forward together.



### Living Landscapes

Our townships and suburbs are leafy green oases. Providing summer shade, year-round beauty and walkable neighbourhoods.



### Food Security

Local food initiatives take root and flourish. Improving food security and nutrition, through grass roots action, resilient agriculture and a flourishing local food economy.



### Sustainable Transport

Low-carbon options are integrated throughout the region, to keep everyone active and moving. Improving health and reducing emissions by making sure walking, cycling, public transport and electric vehicles are fully supported throughout Yarra Ranges while ensuring equitable access is the norm.



# Liveable Climate Action Plan 2020 - 2030



## Renewable Energy

All our energy is sourced from renewables. From solar panels on our rooftops, to larger projects within and beyond the municipality.



## Action 1.3 – Explore new opportunities, such as **Power Purchasing Agreements**, to source affordable renewable energy

### Yarra Ranges Council signs on to VECO

Published on 21 May 2021

Yarra Ranges Council is one of forty-six Victorian Councils to sign on to VECO, the Victorian Energy Collaboration, the largest ever emissions reduction project by local government in Australia.

VECO, led by Darebin City Council in Melbourne's north, will provide 45 per cent of all Victorian Councils' electricity requirements with 100 per cent renewables, reducing greenhouse emissions by 260,000 tonnes of CO<sub>2</sub>-e every year.

Provided by Red Energy, the 240GWh of clean power is equivalent to powering 48,000 homes with renewables or removing the emissions from 90,000 cars every year.

Initiated by and facilitated with the Victorian Greenhouse Alliances, VECO recognises the benefits of renewable energy for the environment and the economy.



# Liveable Climate Action Plan 2020 - 2030



## Resilient Buildings

Our buildings are energy efficient and climate ready. Our key facilities make best use of local resources, and provide robust support to our community through challenging times.



Action 3 – Our buildings are energy efficient and resilient in a changing climate

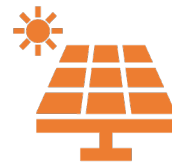
Upgrades to over 70 community facilities, including leisure/recreation buildings



Batteries



Generator  
plug-in  
points



Solar



Energy  
Efficiency  
Measures



# Liveable Climate Action Plan 2020 - 2030



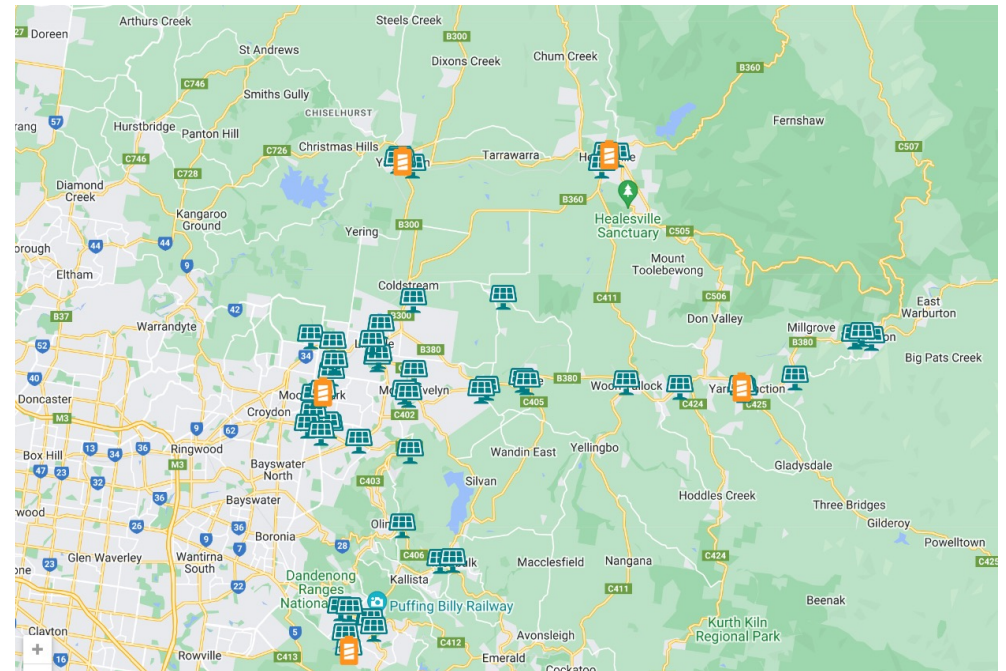
## Resilient Buildings

Our buildings are energy efficient and climate ready. Our key facilities make best use of local resources, and provide robust support to our community through challenging times.



## Action 3 – Our buildings are energy efficient and resilient in a changing climate

Upgrades to over 70 community facilities, including leisure/recreation buildings




# Liveable Climate Action Plan 2020 - 2030



**Climate Thinking**

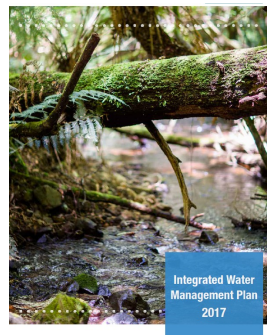
We consider climate in all our strategies, policies, programs and services. We look for climate risk, and make sure we're part of the solution, in every aspect of our business.



**Action 5.2 – Update key Council Policies & Strategies to promote economic, social, environmental sustainability & mitigate/plan for climate risks**



**HEALTH & WELLBEING PLAN  
2021 - 2025**



**INTEGRATED WATER  
MANAGEMENT PLAN**



**Yarra Ranges Council  
Procurement Policy  
2021-2025**

Version 1.0	Approved by Council 14 November 2021
Responsible Officer	Director Corporate Services
Deputy Officer	Executive Director
Control Officer	Executive Officer - Strategic Procurement

**PROCUREMENT POLICY  
2021 - 2025**



Version	1.1
Approved by Council	14 August 2022
Responsible Officer	Chief Executive Officer
Deputy Officer	Executive Director
Control Officer	Coordinator Risk & Resilience
Review	Within 6 months of Council meeting or by 30 June the year after, whichever is the later

**RISK MANAGEMENT  
POLICY**

# Liveable Climate Action Plan 2020 - 2030



## Living Landscapes

Our townships and suburbs are leafy green oases. Providing summer shade, year-round beauty and walkable neighbourhoods.



**Action 6.1 – Develop and implement a tree strategy to grow a healthy and resilient treescape**

## Draft Tree Canopy Strategy 2022-2042

The Draft Tree Canopy Strategy sets Council's objectives and targets for the long-term protection, management and planting of trees in the Yarra Ranges.

[+ Follow](#)





# Liveable Climate Action Plan 2020 - 2030



## Thriving Yarra Ranges

Local community, business and industry are climate-ready and energised. Access to secure water supplies, affordable renewable energy and the benefits of a circular economy.



## Action 7.4 – Work with traditional owners, local growers, peak bodies and land managers to promote Resilient Land Management practices



Mail Community

<https://mountainviews.mailcommunity.com.au/news> :

### Healing the country, healing people

27 Jan 2021 — The **Firestick** Program has been recognised as **Yarra Ranges** Council's Environmentalist of the Year following a year where bushfires had a ...



# Liveable Climate Action Plan 2020 - 2030



## Food Security

Local food initiatives take root and flourish. Improving food security and nutrition, through grass roots action, resilient agriculture and a flourishing local food economy.



## Action 10.1 – Expand and improve the Community Gardens infrastructure throughout the region

### Gardens for harvest

Are you interested in growing fruit and vegetables at home? We've partnered with Knox City Council to bring you the Gardens for Harvest program.

Join the Gardens for Harvest for free and receive:

- a welcome kit and home growing guide
- a monthly email newsletter with tips on what to plant, how to care for your garden, seasonal recipes, and lots more
- exclusive access to events and workshops
- access to the Gardens for Harvest Facebook group
- opportunities to meet other gardening enthusiasts from our growing member network.

Growing your own food can help you save money and is healthier for you because you control pesticides used and it gets you outside doing exercise. You don't need a large garden to participate, if space is an issue try growing in containers.



EXTREME WEATHER

# Climate impacts & energy resilience

...



The photos used in this presentation come from a variety of sources and in some cases the copyright owner is unknown.



**EXTREME WEATHER**

# June 2021 - Storms

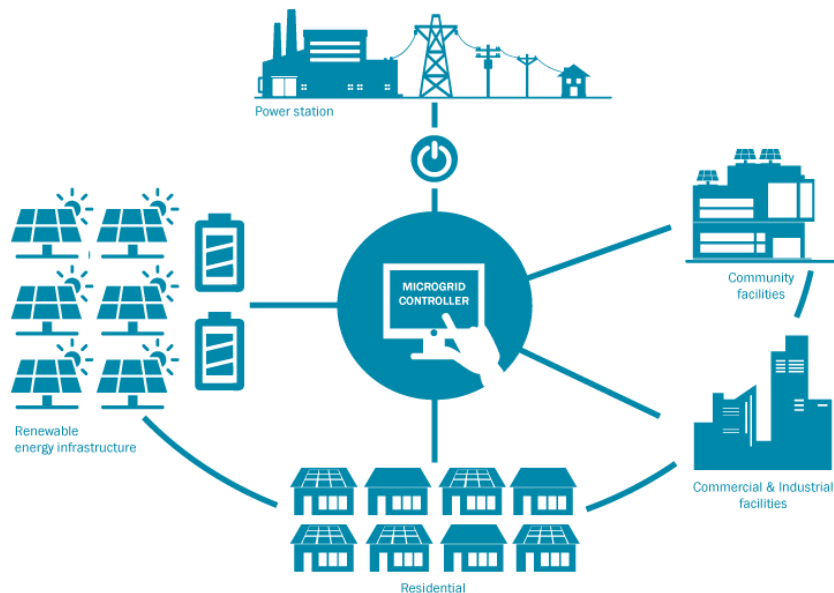
...



- 25,000 trees down
- 1,000 properties damaged by storm debris
- 5,000 properties damaged by floods
- 3,000 homes with no power/internet for a month

## BUILDING ENERGY RESILIENCE

# Microgrid feasibility studies



## LOCALISED ENERGY GRIDS

- Connecting businesses and homes to nearby energy resources such as solar panels and battery storage
- Physical connections between 'hub' locations (community facilities) – resilience priority
- Virtual connections between homes and businesses – BAU priorities of cost & Net Zero
- Microgrids currently being investigated in 3 towns in YRC



MONASH University



**birdwood energy**

# A collaborative approach

Internal and external collaboration needed to continue progress on existing actions & monitor/evaluate as the climate continues to change

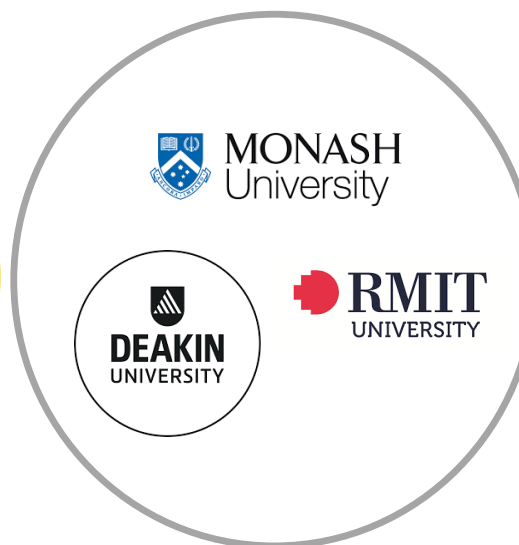
## Community groups



## Advocacy groups



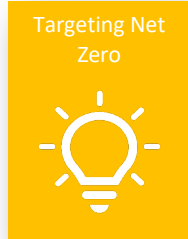
## Research bodies



## Industry



# What is next?



## **DRAFT ENERGY TRANSITION PLAN 2023-2040**

*“Shaping the investment and projects undertaken by Council to reach the 2040 LCP targets of net zero emissions and net zero operational spend.”*

### **Sustainably Designed & Sourced**

Best practice standards for sustainable procurement & built environment projects

### **Efficiency Measures**

Reducing need for energy in the first place

### **Electrification**

Changing equipment for electric alternatives

### **Onsite & Offsite Renewable Energy**

Meeting energy needs onsite and abating residual needs via offsite generation

### **Carbon Offsets**

Abating residual emissions through carbon offsets





# Questions?

Amy Gregorovich  
Energy Resilient Communities Officer  
[a.gregorovich@yarraranges.vic.gov.au](mailto:a.gregorovich@yarraranges.vic.gov.au)



# Workshop & Reporting Back

1. What specific real-world climate and weather change issues have you and your Council/ organisation faced or expect to face? What actions have you taken or need to take? What resources/skills/information are needed to deal with them? Draw up a three column chart so you can report back: Issue/Actions taken/Actions needed or reason/barriers for inaction
2. How could the framework for action be improved or added to? Is your organisation neglecting some areas? List the elements for improvement, suggested improvement & additional elements
3. Do you feel that PLA and other professional leisure associations could/should play a stronger role on climate and weather change? What strategies/actions could/should be taken, what are the priorities?
4. Are there other climate and weather change topics that need attention by leisure professionals? What are they and what actions are needed?
5. What can you learn from the Yarra Ranges experience? Discuss with Amy

# Conclusion

Climate and weather have changed

Unless leisure professionals act on the causes and the consequences, leisure as we know it will be a thing of the past

It is incumbent on the leisure and recreation profession to be directly involved in driving action for change, otherwise we will have failed our communities and we will start to lose resources

There is must-read material available from the Cities Power Partnership of the Climate Council and that is a great starting point

Councils have tended to pick and choose easy options with these not necessarily being the most important locally or those which have the most impact. It seems there has been a tendency to “greenwash”: this must stop

Evaluation of the outcomes of most actions does not occur and it may be that eventually, legislative regulations, guidance and assessments will be needed.

# Recommendations

- Leisure professionals take action to encourage the adoption of the proposed framework or a revised version of it
- PLA initiates a process of strong advocacy for action on climate and weather change
- PLA members work together and with other agencies in the development of action plan models
- PLA initiates/facilitates a process to establish a “clearing house” of effective climate and weather change abatement initiatives
- [ken.oz@me.com](mailto:ken.oz@me.com)