

# HUME

## Regional Climate Change Adaptation Strategy

November 2021



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Environment,  
Land, Water  
and Planning

The development of the Hume Regional Climate Change Adaptation Strategy was supported by the Victorian Government and funded through the Sustainability Fund – Supporting Our Regions to Adapt program.

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Our Hume community is mobilising, determined to do everything it can to prepare for and minimise the impact of climate change on current and future generations.

In key sectors such as health, transport, built and natural environment, water, agriculture and energy in households and boardrooms, climate change is informing the way we think, plan, live and work.

This strategy recognises, builds on and helps unify work already underway. Examples include the Goulburn Murray Regional Resilience Strategy, Regional Catchment Strategies and Municipal Health and Wellbeing planning.

It is structured under these themes:



*THEME 1: PREPARING FOR AND RECOVERING FROM EMERGENCIES*



*THEME 2: CARING FOR OUR NATURAL ENVIRONMENT*



*THEME 3: EMBRACING RENEWABLE ENERGY*



*THEME 4: IMPROVING HEALTH AND WELLBEING*



*THEME 5: ENHANCING NEIGHBOURHOODS AND THE BUILT ENVIRONMENT*



*THEME 6: STRENGTHENING THE ECONOMY AND WORKFORCE*

# TRADITIONAL OWNERS' ACKNOWLEDGEMENT

We acknowledge and respect Victoria's Traditional Owners as the original custodians of Victoria's land and waters, and for their unique ability to care for Country, with a deep spiritual connection. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partnering and meaningfully engaging, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



## Please note

For the purposes of this document, a Traditional Owner refers to an Aboriginal person, family group or Aboriginal organisation who has traditional connections to an identified, geographical area. This includes all groups regardless of their legal recognition status. The term Aboriginal is used to refer to both Aboriginal and Torres Strait Islander peoples. They may have connections in and outside of Victoria.

Artwork by David Dunn



# A VICTORIA-WIDE APPROACH, A TARGETED, LOCAL FOCUS

This strategy is locally-led and focussed. It forms part of a broader suite of interdependent documents which are presented in the graphic below.

## Victorian Government Adaptation Program

State, regional and local scales

### VICTORIA'S CLIMATE CHANGE STRATEGY - ADAPTATION PRIORITIES AND OBJECTIVES

#### STATE



Supporting state-wide sector based Adaptation Action Plans in seven key sectors.

- Built environment
- Primary production
- Education and training
- Transport
- Health and human services
- Water cycle
- Natural environment

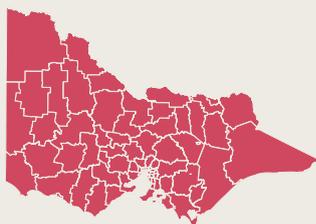
#### REGIONAL



Supporting regional adaptation capacity development and action.

- Barwon South West Regional Adaptation Strategy
- Greater Melbourne Regional Adaptation Strategy
- Grampians Regional Adaptation Strategy
- Hume Regional Adaptation Strategy
- Gippsland Regional Adaptation Strategy
- Loddon Mallee Regional Adaptation Strategy

#### LOCAL



Supporting strategic action to build adaptive capacity of local government and enable local level adaption action.

- Community climate change adaptation grants
- Training and guidance materials for local government
- Targeted support and collaboration with local government adaptation programs and projects

#### CLIMATE DATA AND INFORMATION

Climate Science Report

Climate change communication resources

Vulnerability assessments

Victorian climate change projection data

# REGIONAL INTRODUCTION

Welcome to the Hume Region Climate Change Adaptation Strategy (Hume Strategy).

Victoria's climate is changing, and its effects are being experienced across our state. Rising average temperatures, decreasing average rainfall, and more extreme weather events are changing our natural, agricultural, economic and social systems.

The impact of climate change varies across regions, communities, and households. That's why the Hume Strategy focuses on local action and embracing the diversity, perspectives and values of our region.

The Hume Strategy is part of Climate Ready Hume, a project that brings people together and supports them in taking action. For two years Climate Ready Hume has supported dozens of projects, activities, and events. Examples include mini-grants to schools and community organisations, streaming of the film '2040' during COVID lockdowns, business risk planning, local food networks, street art, photo competitions, puppet shows, renewable energy projects, bushfire recovery and better emergency messaging for culturally and linguistically diverse communities. Thousands of people have been involved.

A highlight for me has been the enthusiastic participation of young people and fantastic collaboration with the agriculture, health, environment, education, emergency management, energy and economic sectors while incorporating the values of our Traditional Owners.

This report reflects the great work underway, a growing consensus on what needs to be done, and mobilisation of our community to create a better and more sustainable future for our beautiful region.

The things we must do to tackle climate change go to the heart of how we live. The good news is that by being gentler on the environment and on each other we will also be healthier, happier, and better connected.

I commend this thoughtful and important document to you and encourage you to join us in taking action.



**Clare Kiely**  
**Regional Director, Hume Region**  
**Department of Environment,**  
**Land, Water and Planning**  
**(Climate Partners Advisory**  
**Group Chair)**

↓ Farming landscape at Dookie. Photo provided by Goulburn Broken Catchment Management Authority.



# A STRATEGY DEVELOPED BY OUR COMMUNITY, FOR OUR COMMUNITY

This strategy captures lived experience, local knowledge and climate change adaptation ideas and solutions, initiated by our local community. It shows how local efforts are impacting everyday challenges brought on by climate change.

The strategy's goals have been developed following 18 months of consultation, workshops and other engagement activities, most of them undertaken by Climate Ready Hume, a three-year climate change engagement and capacity building program.

*The development of this strategy was supported by the Department of Environment, Land, Water and Planning (DELWP) and funded through the Sustainability Fund - Supporting Our Regions to Adapt program.*

Some of the adaptation priorities outlined in this strategy can be addressed directly by North East Victorian communities, and others will require broader efforts and cooperation from governments, agencies, statutory bodies and the private sector.

A broad cross section of our community members looked for and assessed current and future Hume region needs and priorities, identified and facilitated engagement opportunities and facilitated the required connections.

Ultimately, this strategy is a snapshot of the priorities of our healthy, vibrant and connected community, at a point in time. Our region's climate change adaptation story doesn't start or finish with this strategy and we will continue to evolve and share our stories, efforts, challenges and achievements as we progress.

Photo: Eldorado Off-Grid Living Festival, Eldorado.



# OUR VISIONS, THEMES & PRIORITY ACTIONS

Our five-year priorities are summarised below. They connect current climate initiatives and community drivers, while recognising the fundamental risks and actions required to address the challenges of our changing climate future over the next five years.



## Theme 1: Preparing for and recovering from emergencies

With better preparedness and coordination, emergencies will have less impact on our communities and environment.

### Vision

**Our communities are prepared for more extreme weather events.**

### Priority actions (next five years)

- Prepare all communities for extreme disruptions – including culturally and linguistically diverse programs.
- Merge emergency services education and information programs and investigate dedicated climate education hubs for community resilience across all emergencies.
- Embed a “build back better” approach into asset management policies and procedures.

**We recover quickly and learn from emergencies.**

- Expand coordinated emergency service organisations and programs for pandemic and disaster recovery.
- Support communities in development of resilience strategies for all emergency response situations and recovery.
- Drive continuous improvement programs with communities to prepare for future events.
- Install self-sufficient community refuges incorporating heat and smoke safety standards, green infrastructure and reliant renewable energy and telecommunication systems.

**Our businesses, infrastructure and lifestyles are designed for a changing climate.**

- Improve planning systems to meet anticipated climate impacts and implement these systems with integrated governance.
- Improve access to climate data and modelling specific to emergency agency and service provider requirements - preparedness, response and recovery.
- Improve access and equity to funding for climate change adaptation initiative (eg. rotating funding models).
- Upgrade critical and alternative communications, energy, digital, water and wastewater infrastructure to reduce loss and disruption pre and post emergency events.



## Theme 2: Caring for our natural environment

Our natural environment is healthy, water is used wisely, and farming systems are transformed to suit the changing climate.

### Vision

**Our community is increasingly connected to, and caring for nature.**

### Priority actions (next five years)

- Improve community health and wellbeing through programs that connect people with nature including those which support volunteers, citizen science and vulnerable people.

**Traditional Owners' experience and knowledge helps heal and manage Country.**

- Support Traditional Owners to document and use ecological and cultural knowledge to lead natural resource and land management projects.
- Expand ecological knowledge and practices, such as cultural burning, in partnership with Traditional Owners.

**Natural environments are protected and managed.**

- Implement integrated water management programs, preparing for a future with less water.
- Natural environments are supported to adapt to climate change impacts through investment and community programs.
- Increase community participation in water, biodiversity and natural resource management programs.
- Improve planning systems and environmental regulation to reduce biodiversity degradation caused by urban growth and climate impacts.

**Agricultural and land management practices are transformed to maximise climate friendly opportunities.**

- Increase shade and shelter in urban and rural landscapes to improve the liveability and sustainability of our towns, cities and rural areas.
- Facilitate opportunities for local and urban food production and sales to improve liveability and sustainability of our towns and cities.
- Grow soil and carbon regeneration programs in support of health, biodiversity and landscape transformation.



*Theme 3:*  
**Embracing renewable energy**

Our energy comes from local and renewable sources.

 **Vision**

**Our region has a quick and well considered transition to renewables.**



**Priority actions (next five years)**

- Provide opportunities for communities to participate in major renewable energy projects such as those provided by renewable energy zones and transmission upgrades.
- Strengthen renewable energy literacy programs to promote understanding and foster the region's transition to a renewable energy future.
- Integrate renewable energy into agricultural systems.
- Develop renewable energy partnerships with industry to support a growing circular economy.
- Foster Traditional Owner energy investment programs.
- Identify "ready to advance" renewable energy projects through feasibility studies.
- Ensure the renewable energy transition has a net positive benefit for local business, the economy and biodiversity.
- Continue to implement the Hume Renewable Energy Roadmap.

**Disadvantaged and vulnerable people live comfortably and have access to clean, affordable, reliable energy.**

- Expand and increase awareness of energy efficiency programs.
- Upgrade public housing energy efficiency across our region.
- Advocate renewable energy investment that provide benefits to youth, multi-age and multicultural communities.



*Theme 4:*  
**Improving health and wellbeing**

Our mental and physical health is improved by healthy environments and neighbourhoods.

 **Vision**

**Sustainable food systems support environmental and health benefits.**



**Priority actions (next five years)**

- Establish local and affordable food networks and projects in collaboration with communities, agencies, agribusiness and business.

**Our community is equipped and involved in delivering environmental, health and wellbeing initiatives.**

- Empower young people to respond to the health, environmental, economic and social impacts of climate change through targeted programs.
- Expand services and programs that link sustainability and health (eg. physical and mental health, wellbeing, food security, social and cultural inclusion, and family violence).
- Engage and inform local medical practitioners about the health and wellbeing opportunities provided by the natural environment.

**Our neighbourhoods are connected and enhanced through urban green spaces.**

- Include liveability principles in built and natural environment programs and planning guidelines (eg. Municipal Health and Wellbeing plans).
- Enhance urban green spaces to increase connection to the natural environment and promote health benefits.



*Theme 5:*  
**Enhancing neighborhoods and the built environment**

Our community is strengthened through sustainable transport, tourism and urban design.

 **Vision**

**Our transport is sustainable, reliable and accessible.**

 **Priority actions (next five years)**

- Invest in sustainable transport infrastructure (eg. EV charging, rail, hydrogen and green freight).
- Implement affordable green transport developments and investments for vulnerable communities.
- Enhance walking and cycling networks throughout the region with particular attention to vulnerable communities.
- Improve public transport and ride share services in towns and across the region.

**Our region is based on sustainable tourism.**

- Promote climate smart business opportunities arising from changing demographics and social and economic infrastructure.
- Sponsor cultural and art programs that support climate adaptation and tourism growth.
- Support local government and tourism agencies to adopt sustainable urban design.

**Our growth is based on sustainable urban design.**

- Build technology hubs and corresponding transport networks to support a flexible, local economy.
- Strengthen building codes to improve the sustainability and liveability of housing.
- Address social and gender equity gaps through cross border and state governance programs for family health and culturally diverse programs.



*Theme 6:*  
**Strengthening the economy and workforce**

Our financial prosperity comes from innovative and sustainable development and growing our skilled population.

 **Vision**

**Smart specialisation enhances education and workforce development.**

 **Priority actions (next five years)**

- Ensure the Hume Regional Growth Plan and skills development strategies reflect the needs of our changing climate.
- Develop a circular economy prospectus including alternative business models and climate adapted investments.

**The economy is strengthened and diversified through inclusive and climate smart enterprises.**

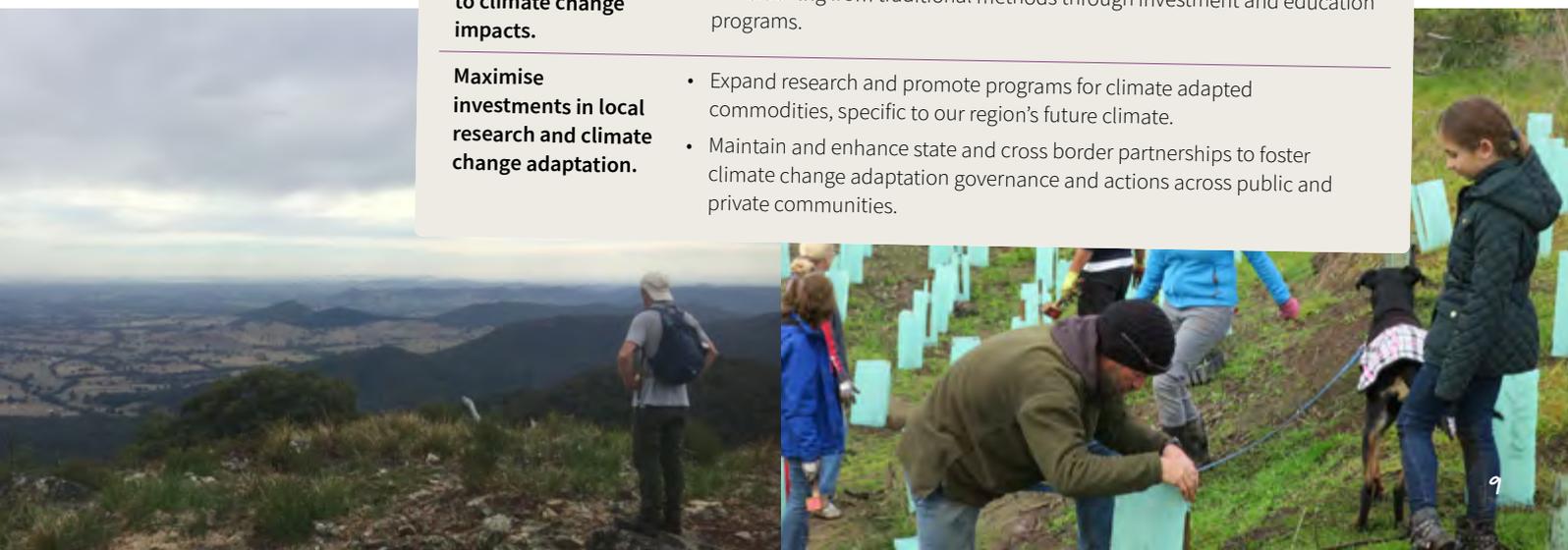
- Grow local workforce and economic development programs through equitable circular and green economy principles.
- Funding models to support local economies.
- Design employment and training programs for youth and culturally sensitive adult learning pathways for locally climate adapted opportunities.
- Build local industry's capacity to ensure outputs are utilised to support a circular economy.
- Adopt a culturally inclusive and gender safe economy through equitable financial programs based on social and ecological justice .

**Generate local employment in agriculture, general industry and manufacturing to support adaptation to climate change impacts.**

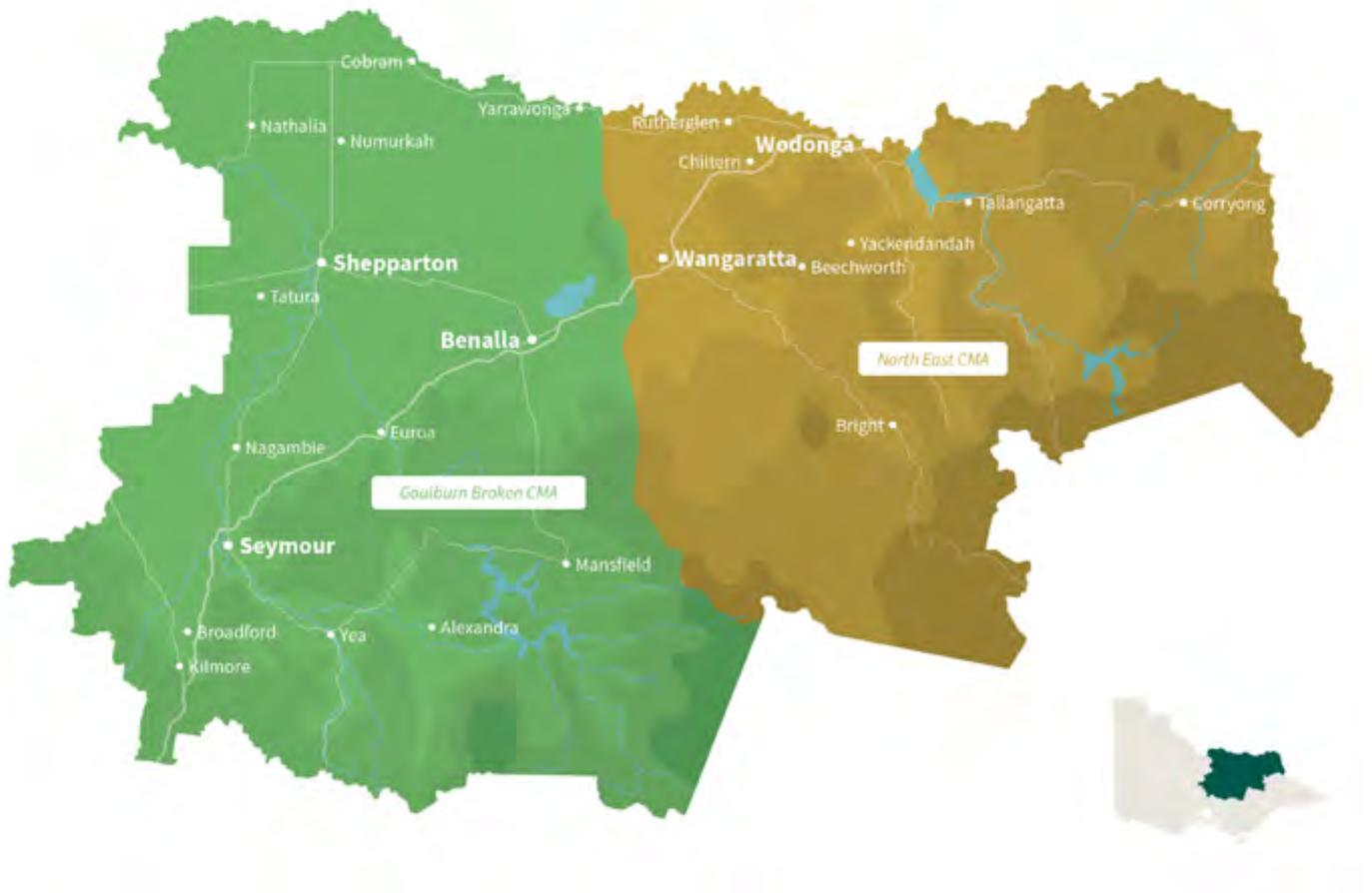
- Grow digital marketplaces to increase accessibility to local services and commodities.
- Provide training to improve access to virtual marketplaces, and participation in the digital economy.
- Adapt sustainable transport alternatives for industry and community, transitioning from traditional methods through investment and education programs.

**Maximise investments in local research and climate change adaptation.**

- Expand research and promote programs for climate adapted commodities, specific to our region's future climate.
- Maintain and enhance state and cross border partnerships to foster climate change adaptation governance and actions across public and private communities.



# HUME REGION - ABOUT US



## WHO WE ARE

We are a diverse community of about 180,000 people, working across numerous sectors including agriculture and forestry, manufacturing, hospitality and tourism, healthcare and social assistance. Our region extends across 40,000 square kilometres and our main cities are Wodonga, Wangaratta and Shepparton. Our landscape is urban, rural and alpine, covering mountains, forests, grassy woodlands and floodplains. A significant portion of Australia's "food bowl" is sourced from Hume. About 45 per cent of our land is used for agriculture, mostly grazing and about 50 per cent consists of conservation and natural environments. Water is a precious resource which flows through our region's forested catchment areas, and our region provides about 50 per cent of the inflows into the Murray-Darling Basin system. Hume also contains major transport thoroughfares including the Hume and Murray Valley highways.

## OUR LANDSCAPE

- Mountains, alpine forests, grassy woodlands and floodplains
- Forested water catchment areas (50 per cent of the inflows into the Murray-Darling system)
- A significant portion of Australia's "food bowl"
- Major transport thoroughfares including the Hume and Murray Valley highways
- 45 per cent agriculture, mostly grazing (ABARES 2016).
- Approximately 50 per cent conservation and natural environments

# OUR POSSIBLE FUTURE CLIMATE

Climate change in our region has been modelled in relation to global greenhouse gas levels (VCP 19).

Climate change scenarios are ‘possible futures’ and not predictions – they help us make decisions on how we live and how to reduce our impact on the planet.

Possible future scenarios for temperature and rainfall are created using many different models as well as historical information. Changes to temperature and sea level rise have a high level of certainty. Wind and rainfall levels are harder to model.

## 2020-2039

### HOW MUCH HOTTER WILL IT BE?



Normal days may be 0.7– 1.9°C hotter than now on average.  
Night temperatures will be warmer by about 0.9°C.

### HOW MANY VERY HOT DAYS WILL WE GET A YEAR?



Currently the average number of days per year over 35°C for Shepparton is 14.8, and may increase to 22. The current number of days for Wodonga is 20.5 and may increase to 30.

### HOW MUCH RAINFALL WILL WE RECEIVE?



Rainfall is one of the hardest changes to measure. Victoria may have 20 per cent less rainfall annually. Greatest changes in rain may be in spring.

### WHAT WILL EXTREME RAINFALL EVENTS BE?



Less rainfall means a dryer climate adding to hotter (extreme) days more often.  
Clouds can hold more rain at higher temperatures.  
Heavier downpours more likely but less rain overall.  
Rainfall may be more scattered and less predictable.

## 2040-2059

### HOW MUCH HOTTER WILL IT BE?



Normal days may be 1.3–3.1°C hotter than now, especially during summer months.  
Night temperatures will be about 1.6°C warmer.

### HOW MANY VERY HOT DAYS WILL WE GET A YEAR?



Average number of days per year over 35°C may increase to 30 for Shepparton and 44 for Wodonga, double the amount of hot days currently.

### HOW MUCH RAINFALL WILL WE RECEIVE?



North East Victoria may have 20 per cent less rain annually. Less rain may fall in spring and winter, with more summer storms instead.

### WHAT WILL EXTREME RAINFALL EVENTS BE?



Less rainfall means a dryer climate adding to hotter (extreme) days more often.  
Heavier downpours more likely but less rain overall.  
Rainfall may be more scattered and less predictable.

## 2080-2099

### HOW MUCH HOTTER WILL IT BE?



Normal days will be 2.8–6.5°C hotter than now, especially during summer months.  
Night temperatures will be warmer by about 3.3°C.

### HOW MANY VERY HOT DAYS WILL WE GET A YEAR?



Average number of days per year over 35°C will increase to 50 for Shepparton and 65 for Wodonga.

### HOW MUCH RAINFALL WILL WE RECEIVE?



Less rain may fall in spring and winter, with more summer storms instead – 30 per cent less rainfall on average. Mountain regions may have higher rainfall compared to the valleys and plains.

### WHAT WILL EXTREME RAINFALL EVENTS BE?



Less rainfall means a dryer climate adding to hotter (extreme) days more often.  
Heavier downpours more likely but less rain overall.  
Rainfall may be more scattered and less predictable. Hourly and daily rainfall averages may increase. More intense winds may be experienced.

These possible future scenarios are based on ongoing high greenhouse gas emissions (Victorian Climate Projections Goulburn and Ovens Murray reports).



*Theme 1:*

# PREPARING FOR AND RECOVERING FROM EMERGENCIES



*With better preparedness and coordination, emergencies will have less impact on our communities and environment.*

Shifts in our climate are increasing the severity of flood, fire, storm and intense rainfall events. The frequency of events and altered seasonality of our weather are expected to increase (Victorian Climate Projections 2019). Reduced rainfall and increased temperatures are already altering how we live with, prepare for and respond to emergencies.

Victoria's emergency management agencies and councils implement a network of emergency preparedness, response and recovery programs in partnership with local communities.

Our 2020 global pandemic experience has further highlighted vulnerabilities with our digital infrastructure,

local economy and industries, fresh food supply, and mental and physical health services. These extend to transport, infrastructure, planning and emergency warning systems.

Our communities can further prepare for all emergency events through centralised education programs so critical decisions are made consistently and clearly. Towns can connect to identify their resilience strategies and build relationships with emergency services and staff to deal with emergency events together.

We must be united and prepared. We must learn from history, share knowledge and experiences, adapt and make change now.

## VISION

**Our communities are prepared for more extreme weather events.**

**We recover quickly and learn from emergencies.**

**Our businesses, infrastructure and lifestyles are designed for a changing climate.**

## PRIORITY ACTIONS (NEXT FIVE YEARS)

- \* Prepare all communities for extreme disruptions – including culturally and linguistically diverse programs.
- \* Merge emergency services education and information programs and investigate dedicated climate education hubs for community resilience across all emergencies.
- \* Embed a “build back better” approach into asset management policies and procedures.
- \* Expand coordinated emergency service organisations and programs for pandemic and disaster recovery.
- \* Support communities in development of resilience strategies for all emergency response situations and recovery.
- \* Drive continuous improvement programs with communities to prepare for future events.
- \* Install self-sufficient community refuges incorporating heat and smoke safety standards, green infrastructure and reliant renewable energy and telecommunication systems.
- \* Improve planning systems to meet anticipated climate impacts and implement these systems with integrated governance.
- \* Improve access to climate data and modelling specific to emergency agency and service provider requirements - preparedness, response and recovery.
- \* Improve access and equity to funding for climate change adaptation initiative (eg. rotating funding models).
- \* Upgrade critical and alternative communications, energy, digital, water and wastewater infrastructure to reduce loss and disruption pre and post emergency events.

From 1980 to 2015, 91 per cent of the recorded 15,700 natural disasters in Australia were weather related (DELWP 2020). Climate change is projected to increase risks such as longer and more extreme heatwaves, doubling of hot days (above 35 degrees) and severe storms and floods (Victorian Climate Projections 19).

Victoria approaches emergency preparedness through shared responsibility. This includes partnerships between state and local emergency services, and with communities, which acknowledges their “on the ground” ability to mitigate and manage risk.

Emergencies are defined by the Victorian State Emergency Management Plan 2020 as “an actual or imminent occurrence of an event which in any way endangers or threatens to endanger the safety or health of any person in Victoria”. These events include flood, storm, extreme rain, fire, heat waves, pandemics, cyber-crime and terrorisms events, and biosecurity and stockpiled waste.

Major historic emergency events in Victoria include Ash Wednesday (1983), Eastern Victorian Alpine bushfires (2003), Black Saturday fires (2009), Victorian heatwave (2009), locust plague (2010), severe thunderstorms (2011), Northern Victoria tornado (2013), blue green algae outbreak (2016), Ross River Virus (2017), and extreme temperatures 2019 (Emergency Management Victoria Strategic Action Plan 2019-22).

## FIRE

Hume has a long history of large and intense fires, some involving significant loss of life and property. Major fire events in the region include a total of 1.27 million hectares burnt in the 1939 Black Friday fires, more than 503,000 hectares in the 2003 Alpine fires, 444,000 hectares in the 2006/07 Great Divide fires, 247,000 hectares in the Black Saturday fires (2009), 36,000 hectares in the Harrietville fire (2013) and 320,120 hectares in the 2019/20 Black Summer fires.

The regions bushfire risk is influenced by weather, soil moisture and fuel levels.

Preventing and controlling bushfires in a warming climate is a major challenge for emergency management organisations. Well targeted planned burning to reduce fuel loads, construction of strategic fuel breaks along with rapid detection and response will help reduce the incidence, intensity and spread of bushfires. Under extreme weather conditions however the risk of severe, uncontrollable fires cannot be eliminated.

The primary effects of extreme weather events are well known and include loss of life, injury, loss of ecological systems and ongoing damage to land and water resources. But secondary impacts such as damage to roads and transport, infrastructure and personal property, fauna and flora future health, and ongoing community mental health from fires, storms and pandemic events can cause equal or greater challenges. They also place strain on service personnel and health services.

Understanding these impacts, locally and individually, can minimise negative, longer-term outcomes to our health, towns, jobs and regional economy (DELWP 2020).

Across the approximately 19 weeks of intense bushfire emergency during the 2019/20 fires, medical records estimate bushfire smoke directly cause 417 deaths and 1,124 hospital visits for cardiovascular, respiratory and related health conditions (Medical Journal of Australia, March 2020). Community, services and resource preparation can reduce these impacts.

### We will experience increased frequency and intensity of:



**Floods and flash flooding**



**Storms**



**Fires**



**Heatwaves**



**Biosecurity risks**



**Pandemic links**

### We need to plan now to:



**Be safe during events**



**Reduce health impacts**



**Ready buildings and infrastructure**



**Improve communication**

*Adapted from the Emergency Management Victoria Strategic Action Plan 2019-22.*



## LOCAL FOOD SOURCING BUILDS RESILIENCE

When the 2019/20 bushfires devastated substantial parts of Victoria, community members in the Ovens Murray Region saw an opportunity to create future, local food supply security. The result was the Acres and Acres CO-OP.

Created to connect a network of market gardens across the Upper Murray and North East Victoria, the Acres and Acres CO-OP produces and sells fresh food locally, sharing knowledge, tools and skills and practices (such as soil regeneration) and establishing financially viable, sustainable opportunities for community members to grow their own food.

Acres and Acres promotes opportunities for growers, customers and retailers to become involved. The CO-OP sells produce at a weekly market in Corryong and at other regional farmers markets.

The CO-OP's network continues to expand and links the local food economy, reducing transport and greenhouse emissions, while building knowledge and capability.

*Photo: Members of the Acres and Acres CO-OP share their knowledge on local plants and soil regeneration.*

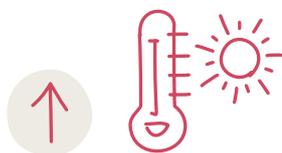


*Adaptation = working together to prepare for any emergency.*

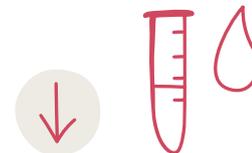
## THE ROLE OF RAINFALL

Natural hydrological cycles within a catchment are influenced primarily by rainfall. Rainfall has declined more over the last two decades than anticipated, and is predicted to become more variable due to complex land and atmosphere conditions.

Understanding climate science, future rainfall patterns is integral to community resilience and emergency preparedness, response and recovery functions.



**Victoria is warmer now** than the 1961-1990 average



**Average rainfall** is expected to reduce by 20-30%



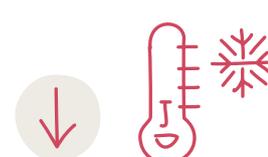
**Heavy rainfall events** are becoming more frequent



**Low rainfall days (<20mm)** are becoming less frequent



**Heat waves** are becoming more frequent



**Cold snaps** are becoming less frequent



**Average runoff is declining** with a 20-30% reduction in streamflow

*"Help young people look positively into the future - my teenagers say that all their friends have underlying concerns about climate change and what it will mean to their lives."*

*EngageVic Community Survey 2020*





*"Work with traditional owners to manage forest/grassland fire risks, firestick burning."*  
EngageVic Community Survey 2020

## IMPACT OF 2019/20 BUSHFIRES ON NORTH EAST VICTORIA

In 2019/20, our region was significantly impacted by bushfires which burnt 1.5 million hectares across the state, including 1.39 million hectares of forests and parks. These impacts included:

- 450,000 hectares of conservation land
- 163,000 hectares of agricultural land
- 9,000 kilometres of priority roads in Hume and Gippsland

Extreme dryness, coupled with an estimated 30 per cent increase in high fire danger days that bushfire season, contributed to the development of a large, complex fire across Victoria and along the north east border with New South Wales. This fire event was so extreme that vegetation and fuel load control, grazing and other methods of fire management would not have been effective in limiting its breadth (Biodiversity Response and Recovery Plan 2020).

## CRITICAL CONNECTIONS THROUGH DIGITAL INFRASTRUCTURE

Robust, digital infrastructure to keep people connected day to day and during emergency events is critical, particularly for isolated communities in our region.

The climate benefits of reliable, regional, digital technology include reduced need for travel, reduced emissions, improved safety for wildlife on road corridors, reduced requirements of freight transport (as local producers and businesses are connected digitally) and expanded local, social and employment opportunities.

Digital energy hubs or "nodes" in townships create a locally-owned and interconnected energy generation network that is also low carbon emission. Concept development in the Upper Murray from energy-led bushfire recovery shows how public infrastructure can become hubs for community gatherings during emergencies, and supply energy to the township (Totally Renewable Yackandandah 2020).

National Broadband Network and satellite connections offer secure digital connectivity and social inclusion opportunities, providing additional investment and employment benefits to local businesses. These secure connections also significantly improve community resilience during emergency events. NBN infrastructure for farming systems in Australia is estimated to increase gross production by \$15.6 billion per year by 2030 (NBN 2020).



*Adaptation = staying connected to support members of our community to access emergency help and services.*

## SUPPORTING CULTURALLY AND LINGUISTICALLY DIVERSE (CALD) COMMUNITIES AS PART OF EMERGENCY EVENT RECOVERY

During the 2019/20 Ovens and Upper Murray fires, local DELWP and Country Fire Authority (CFA) crews noticed anxiety and confusion among Culturally and Linguistically Diverse (CALD) communities around Wangaratta and Albury-Wodonga. Some community members were having trouble understanding warnings and advice, creating safety and isolation risks.

While existing warnings and advice information (used in the VicEmergency app) can be directly translated into other languages, the content of the messages can be confusing.

CALD communities can also lack contextual understanding of emergency events in Australia, such as bushfire behaviour, flood, storm and pandemic advice.

For CALD communities in Albury-Wodonga there is also cross-border confusion, for example, with different messaging from VicEmergency and the NSW Rural Fire Service.

To address these challenges, a small multi-agency working group produced a plain language warnings and advice fact sheet, easily translated into multiple languages and dialects.

Working with the CFA, Wangaratta Digital Hub, North East Multicultural Association (NEMA) and Albury-Wodonga Ethnic Communities Council (AWECC), Climate Ready Hume engaged with regional CALD communities on this issue. These conversations led to community training sessions, and to warnings and emergency advice notifications being translated into more than 15 different languages.

*"An annual emergency planning event with a range of providers means people know who and what is available."*

*EngageVic Community Survey 2020*

## BUILDING RESILIENCE THROUGH RENEWABLE ENERGY INDEPENDENCE

Access to reliable, sustainable and preferably renewable energy sources is a critical component for our community to continue to build resilience. Establishing a standalone power supply is one way to achieve energy independence and in 2020 the Walwa community received nearly \$200,000 worth of funding under the Victorian State Government's New Energy Jobs Fund.

The funding was used to set up a standalone, renewable energy system at the Walwa Bush Nursing Centre, including installation of solar panels and batteries on site. This will provide low emissions and low cost power for the integrated community health facility.

Sandi Grieve, CEO of Walwa Bush Nursing Centre said: "This funding enables us to continue to support and protect our community members, particularly those who are more remote or vulnerable, by ensuring we have a reliable power supply during emergency events. It gives us a real sense of security to know that we are prepared for whatever may come."

A 45 kW solar system, a 66kWh battery and three 20kW battery inverters will be installed. Additionally, the installation includes a smart energy control device to provide visualisation of the system for site management. This will allow for community participation in future distributed energy resources market programs.

*Photo: Corryong township during the 2019/20 summer fire season.*





Theme 2:

# CARING FOR OUR NATURAL ENVIRONMENT

*Our natural environment is healthy, water is used wisely, and farming systems are transformed to suit the changing climate.*

In the face of current and predicted climate change impacts strong, integrated water policy and local management plans are critical to catchment and ecosystem stability, as are soil health and agricultural production systems.

In the Hume region, agribusinesses and land managers are diversifying to alternative or mixed farming to maintain and improve long-term land health and production values. Carbon sequestration and regenerative practices are being trialled to improve soil health and carbon and water storage capacity.

Various environmentally-focussed agencies and groups are working with Traditional Owner groups such as Yorta Yorta Nations to ensure the protection and ongoing health of our natural systems and waterways. Innovative programs such as the ClimateWatch citizen science program and the University of Melbourne's FrogID app are also helping, and Climate Ready Hume is supporting state and community initiatives through local education, youth and partnerships programs.



## VISION

Our community is increasingly connected to, and caring for nature.

Traditional Owners' experience and knowledge helps heal and manage Country.

Natural environments are protected and managed.

Agricultural and land management practices are transformed to maximise climate friendly opportunities.



## PRIORITY ACTIONS (NEXT FIVE YEARS)

- \* Improve community health and wellbeing through programs that connect people with nature including those which support volunteers, citizen science and vulnerable people.
- \* Support Traditional Owners to document and use ecological and cultural knowledge to lead natural resource and land management projects.
- \* Expand ecological knowledge and practices, such as cultural burning, in partnership with Traditional Owners.
- \* Implement integrated water management programs, preparing for a future with less water.
- \* Natural environments are supported to adapt to climate change impacts through investment and community programs.
- \* Increase community participation in water, biodiversity and natural resource management programs.
- \* Improve planning systems and environmental regulation to reduce biodiversity degradation caused by urban growth and climate impacts.
- \* Increase shade and shelter in urban and rural landscapes to improve the liveability and sustainability of our towns, cities and rural areas.
- \* Facilitate opportunities for local and urban food production and sales to improve liveability and sustainability of our towns and cities.
- \* Grow soil and carbon regeneration programs in support of health, biodiversity and landscape transformation.

## REGIONAL FACTS - AGRICULTURE AND DROUGHT

Given the Hume region's economic reliance on agriculture, current and future climate change mitigation and adaptation success will require comprehensive planning for equitable water availability and sustainability. The region relies on the largest and most complex river system in Australia for its water supply, the Murray-Darling Basin.



**\$1.2 billion**

Gross value of agricultural production (2018/2019).



**1996-2010 Millennium Drought**

Consecutive dry conditions brought the lowest annual water flows and inflows to water storage on record.



**Cattle and calves (\$418m)  
Sheep and lambs (\$197m)  
Wool (\$145m)**



Most important commodities, contributing 65 per cent of total agricultural production value.

## MANAGING A PRECIOUS RESOURCE

Management of our natural resources (by catchment management authorities) and urban and rural water supplies (by water authorities) is essential to address the anticipated impacts of climate change. Climate change impacts like reduced rainfall and streamflow, increasing number and severity of heatwaves, and increased frequency and severity of bushfires put our native flora and fauna under considerable stress.

Intervention measures undertaken by the relevant authorities must incorporate a holistic approach, and catchment areas need to be viewed as interconnected systems, requiring integrated management.

### Hume Catchments

Our water catchments are nationally important, supplying 50 per cent of the inflows into the Murray-Darling system. Climate change impacts to water catchments (including forest catchments) result in local wildlife habitat loss and degradation and increase sediment and runoff, which affects water quality. There are two major catchments in the Hume region

- **Goulburn Broken Catchment** - stretches from the outskirts of Melbourne to the Murray River and west and from Mt Buller to the Mt Camel Range. The catchment's two Registered Aboriginal Parties (RAPs) are Yorta Yorta Nation Aboriginal Corporation (YYNAC) and Taungurung Land and Waters Council (TLaWC).
- **North East Catchment** - bordered by the Warby Ranges (west), Murray River (north) and the Victorian Alpine region (east). The catchment's RAPs are Taungurung Land and Waters Council (TLaWC) and Yorta Yorta Nations Aboriginal Corporation. The region is also home to Gunaikurnai Land and Waters Aboriginal Corporation, Dhudhuroa Waywurru Nations Aboriginal Corporation, Jaithmathang Traditional Ancestral Bloodline Original Owners First Nation Aboriginal Corporation and Duduroa Dhargal Aboriginal Corporation.

### Regional Catchment Strategies

In order to support integrated catchment management in Hume, the catchment management authorities are responsible for developing and monitoring the effectiveness of regional catchment strategies.

These strategies contain actions designed to improve and protect each catchment's natural resources (encompassing water, land, and biodiversity). The regional catchment strategies for Goulburn Broken and North East Catchment were renewed in 2021 and outline the region's climate change challenges and priority actions.

### Future Impacts

Regional catchment water quality and yield will be significantly impacted by climate change. The Victorian Climate Projections 2019 (VCP 19) show an estimated 20 per cent reduction in rainfall in Hume annually by late century. This likely change will vary between flat plains and mountainous regions, and will include increased rainfall variability, seasonal shifts and extreme rainfall events. Climate modelling predicts drought events will continue, starting from an already drier environment with reduced system water volumes (VCP 19). Urban and rural water supplies (ecological and community) are being addressed in Victoria's Integrated Water Management Plan, water authority plans and regional catchment strategies collectively.

Water management and availability underpins emergency preparedness and recovery, biodiversity and species health, population growth, agricultural production and ecological catchment health (soil and carbon).



*Adaptation = our values and actions help address environmental challenges caused by climate change.*

# ONE LANDSCAPE – UNITING OUR CATCHMENTS

A holistic approach connecting strategic actions, regional communities and organisations to improve the health of our natural resources - climate, land, water and biodiversity.

## North East Regional Catchment Strategy

A framework of action for all community, agencies and organisations to use in natural resource management decisions in the Upper Murray. Incorporating climate change, it is a partnership approach to catchment resilience.

## Hume Climate Change Adaptation Strategy

Community-led vision capturing actions and strategic goals for Hume's climate ready present and future. Uniting individual, community and agency approaches.

## Water Management

The Integrated Water Management Framework for Victoria and 5 year Urban Water Strategies considers water use and availability long term.

## Traditional Owner Caring for Country Plans

Guiding and promoting awareness, investment and rights of people and culture, working together now and for future benefits.

## Goulburn Broken Regional Catchment Strategy

Guidance to restore natural environments and communities relying on the Goulburn system. A partnership approach, it is closely linked to community values and regional views.

## Goulburn Murray Resilience Strategy

Community supported interventions for the Goulburn Murray region.

## Biodiversity Strategy 2037

Victoria's plan to prevent the decline of our fauna and flora and unique environments, outlining actions for the next 20 years to improve biodiversity.

## CLIMATE PROOFING FOR THE FUTURE

Carbon sequestration is a natural or artificial process by which carbon dioxide is removed from the atmosphere and stored in solid or liquid form. It can assist in reducing greenhouse gas emissions by capturing elemental carbon within the soil and plant material and through plant growth. Carbon capture can also help improve soil health and land management and productivity from home gardens to large-scale agriculture, forestry and conservation areas.

Climate Proofing Australia is an initiative led by industry and a network of conservation organisations to advance agriculture and natural resource management practices while helping Australia reach its emission reduction targets. Carbon farming for regeneration when connected to urban and rural farming practices, can help communities realise their biodiversity and sustainable food system aspirations. There is widespread consumer understanding of and demand for ethically, locally-produced, carbon neutral food sources, providing a platform of support for an increase in carbon farming.

Part of the Climate Future Program, Climate Plots is an initiative underway within Hume, which addresses the health and quality of soils and the environment. It aims to help local land managers and other community members establish carbon projects on sites near vulnerable ecological or food systems. This important initiative is available for all Hume residents to access.

[www.greeningaustralia.org.au/what-we-do/climate-proofing-australia](http://www.greeningaustralia.org.au/what-we-do/climate-proofing-australia)



Photo: Controlled burn in progress in North East Victoria.

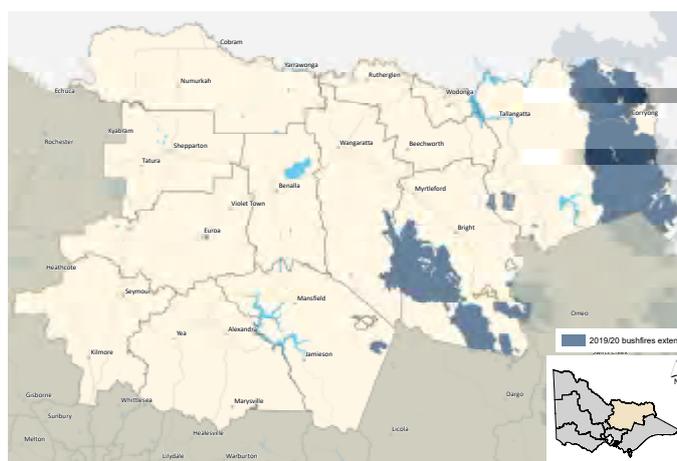
## RECOVERING FROM FIRE

Almost 85 per cent of eastern Victoria's land is publicly-owned and a significant part of this is in the Hume region, including alpine, temperate, open woodland, woodland, grassy plains and wetland ecosystems.

Following the fire events of 2019/20, land managers and organisations in our region and more widely are being supported by the Bushfire Biodiversity Response and Recovery Program, which has invested \$17.5 million so far.

Site assessments provide essential information on impacts of high severity fire across various species to determine the short and longer-term actions and interventions required to help biodiversity recovery, and ensure long-term flora and fauna population health. 2019/20 post fire regional surveys estimate that over 244 species had 50 per cent or more of their habitat burnt, including 215 rare or threatened species. Nine ecological vegetation classes (EVCs) also had more than 50 per cent of their habitat burnt (Victoria's Bushfire Emergency: Biodiversity Response and Recovery Plan 2020).

Figure: Map of fire extent from 2019/20 fires



"We need to empower the agricultural community to prepare for our changing climate in a more public way. Most farmers are already adapting, but many lack the tools and solutions to plan and implement activities for a changed climate. Information and funding for adaptation activities needs to be researched and distributed."

EngageVic Community Survey 2020



*"Not just focusing on renewable energy which is obvious to reduce emissions, but make it more difficult for developers/landowners to be able to remove/clear native vegetation. Protect the little vegetation and biodiversity that exists and plant more. This is not just relevant for forested areas, but also agricultural/urban areas, as every scattered tree/patch contributes to habitat, cooling/shade, and photosynthesis (turning CO2 into O2)."*

EngageVic Community Survey 2020

## KEEPING A CLOSE EYE ON OUR BIODIVERSITY

The ClimateWatch Program is a collaboration between the Bureau of Meteorology, Melbourne University and Earthwatch to understand how shifts in rainfall and temperature are impacting our natural systems.

Trial sites across Australia have established monitoring and tracking projects, collecting information on changes to plant flowering times, life and breeding cycles and migration. The trials are the first of their kind in the southern hemisphere and information is collected through citizen science students and adults who are invited to participate.

ClimateWatch is focusing on monitoring the Mount Buffalo National Park sub-alpine trail (grasslands and the sub-alpine woodlands) due to the location's significant risk of habitat loss. In partnership with Parks Victoria, local species including the Flame Robin and Mountain Grevillea (pictured below) are being observed along the Lake Catani Lakeside Walk. Results collected over time will help manage and conserve precious fauna and flora species.

*Photo: Mountain Grevillia is one of many indigenous plant species iconic to North East Victoria.*



## MULLINMUR BILLABONG'S PUPPET SHOW

The Mullinmur Billabong's Puppet Show is a partnership between the Mullinmur Billabong, Borinya Wangaratta Community Partnerships and Galen College of Wangaratta.

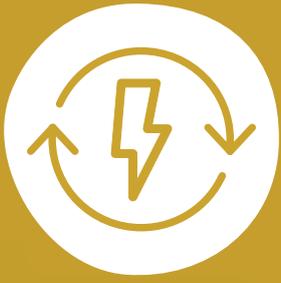
Based at the Mullinmur Billabong and as part of a regeneration project on the northern edge of Wangaratta, the project involves local school students being invited to participate in biodiversity education at the newly established Community Education Hub.

Younger students are introduced to climate change adaptation, biodiversity and riverine environments.

Middle and secondary students participate in script writing workshops, set production, puppet making and technical sound and lighting techniques for stage production.

Also, drama class students from local secondary schools will be invited to participate and perform ideas featuring climate change themes, such as threatened species, water management, green infrastructure and expanding habitats.

*Photo: Mullinmur Billabong is part of a 20 hectare floodplain riparian woodland on the Ovens River, Wangaratta.*



Theme 3:

# EMBRACING RENEWABLE ENERGY



## Our energy comes from local and renewable sources.

As outlined in Hume's Renewable Energy Roadmap 2019, our community is already embracing renewable energy, through significant local initiatives and investments. The Hume region is also an excellent future prospect for pumped hydro, solar, distributed energy resources and green transportation alternatives.

However, Hume communities still require improved access to renewable energy generation and equitable and affordable opportunities to ensure current and future benefits are realised and shared.

Circular economy principles which support alternative energy investment such as waste to energy and transportation fuels will be an important driver of this equity.

The generation, use and distribution of renewable energy is perhaps one of the most significant examples of how our region can proactively adapt to, and mitigate, the impacts of climate change. Hume is one of the leading community energy hubs in Australia with an annual renewable energy generation profile of around 1,700GWh per year. It is home to the highest number of community energy groups within a single region in Australia, and groups continue to form, network and share information and ideas.

The Hume region's strong transmission and transport infrastructure, geography, landscape and climatic conditions make it particularly well suited to solar and hydro electricity generation. The community's uptake of renewable energy is enthusiastic, from both commercial and residential customers. The North East Community Energy Network, Indigo Power and partners in state and private industry are supporting community-owned energy projects.



### VISION

Our region has a quick and well considered transition to renewables.

Disadvantaged and vulnerable people live comfortably and have access to clean, affordable, reliable energy.



### PRIORITY ACTIONS (NEXT FIVE YEARS)

- \* Provide opportunities for communities to participate in major renewable energy projects such as those provided by renewable energy zones and transmission upgrades.
- \* Strengthen renewable energy literacy programs to promote understanding and foster the region's transition to a renewable energy future.
- \* Integrate renewable energy into agricultural systems.
- \* Develop renewable energy partnerships with industry to support a growing circular economy.
- \* Foster Traditional Owner energy investment programs.
- \* Identify "ready to advance" renewable energy projects through feasibility studies.
- \* Ensure the renewable energy transition has a net positive benefit for local business, the economy and biodiversity.
- \* Continue to implement the Hume Renewable Energy Roadmap.
- \* Expand and increase awareness of energy efficiency programs.
- \* Upgrade public housing energy efficiency across our region.
- \* Advocate renewable energy investment that provide benefits to youth, multi-age and multicultural communities.

# HUME RENEWABLE ENERGY LANDSCAPE (2021)



Note: Approximately 15 solar farm projects are in stages of planning to construction.

"Renewable and decentralised energy for both power and transport to limit impacts of climate change related events. Individuals and organisations should be able to have their own affordable, renewable energy source for both housing and transport able to operate under extreme conditions."

EngageVic Community Survey 2020

## DIGITAL CONNECTIVITY IS KEY

While the 2019/20 bushfires and COVID-19 pandemic have again highlighted the criticality of strong digital connectivity for all communities, some remote areas of North East Victoria continue to deal with the challenges of limited mobile or internet access due to poor infrastructure and services.

The benefits of reliable, digital connectivity are multifaceted. This was highlighted in the Mansfield Food Access Guide: Community Resource (Mansfield District Hospital and RESPOND Project), which addressed local food access concerns during the COVID-19 response (April 2020). The project identified digital connectivity as a powerful tool in connecting communities to services and local markets to support reliable and sustainable food supplies to Mansfield.



Adaptation = locally generated renewable energy creates jobs and equitable access to affordable power supplies.



## ENERGY INDEPENDENCE - AN OPPORTUNITY

Community-owned green energy generation offers the opportunity for alternative, resilient energy sources. Locally based, independent energy generation and storage enables highly localised climate change resilience, and locally owned and operated energy sources such as microgrids (large or small scale, solar or wind) can ensure communities receive uninterrupted energy supplies during fire events or other disruptions.

The work of the Euroa Environment Group in Hume provides one example where a microgrid trial and demonstration site links the community to shared renewable energy generation that is local, reliable and sustainable.

In 2018 the Group was awarded a grant of \$680,000 towards a \$1.6 million project as part of the Victorian State Government's statewide Micro-grid Demonstration Initiative. The 589kW solar PV system with up to 400kW of batteries will initially support up to 14 businesses, and it is intended to expand to service residential properties.

The Euroa Environment Group was established in 1992 to ensure land management in the township and surrounds took environmental matters into consideration. The Group ran a highly successful Environment Series for the community which expanded its remit to include the promotion of renewable energy opportunities.

Shirley Saywell from the group said the key goals of the microgrid trial and demonstration are to provide real renewable energy opportunities at the local scale for local people and businesses, and to inspire others to get on board the energy revolution in the regions.

[www.energy.vic.gov.au/renewable-energy/microgrids](http://www.energy.vic.gov.au/renewable-energy/microgrids)

*Photo: Solar and clean energy projects provide community investment opportunities across Hume.*

## THE IMPORTANCE OF EQUITY TO HEALTH AND RESILIENCE

Housing quality has been identified of significant importance to community members' ongoing health and resilience. In a 2020 survey by Sustainability Victoria, 95 per cent of healthcare professionals who responded identified individuals in poor quality housing as being particularly vulnerable to the impacts of climate change. Additionally, 65 per cent of Victorian respondents who live in public housing found their homes were too hot during the 2019/2020 summer, and 45 per cent have had to leave their homes because of extreme heat. Leaving their homes as a result of heat stress is a major health risk for individuals who are forced into that situation.

The Victorian Council of Social Service (VCOSS) highlights the urgent need for a coordinated response from our health and service providers in dealing with climate impacts, so every person can have fair and impartial access to the aid they are entitled to, when they need it. Climate equity explains how people with lower incomes, living in social housing or with a disability or health care challenge, are at greater risk from extreme weather events and the subsequent impact on their access to services (VCOSS 2020). Providing all community members with energy efficient, healthy homes and access to affordable, renewable energy supply are important steps to ensure climate equity.





*Adaptation = growing community resilience through community energy initiatives.*



## SHARING KNOWLEDGE AND LEADING THE WAY

Mitchell Community Energy continues to lead the way in sharing knowledge and information, raising awareness, securing funding and delivering important local renewable energy projects within Hume. The challenges presented by COVID-19 did not slow this powerhouse group down and in August 2020 they hosted a webinar on community battery benefits, bringing together an enviable list of national experts from Western Power, AusNet Services, Indigo Power and the Australian National University. The webinar explained how community batteries work, what they cost, installation models for ownership and management and the considerable economic and social benefits they bring to communities.

Community battery energy storage can provide significant opportunities to address climate change impacts for businesses and households by making local, clean and affordable power generation available during severe weather events. The webinar was free, well attended, and showed an impressive level of adaptability by Mitchell Community Energy, as they continued to deliver on their objectives during what was a challenging year to make connections.

## EMBRACING ELECTRIC VEHICLE (EV) POTENTIAL

Tourism across Hume will continue to recover from the double impact of the 2019/2020 bushfires and the COVID-19 pandemic. The statewide feasibility study called Charging the Regions shows that regional EV access could generate \$25 million in tourism spend over the next 10 years as EV use increases.

Through opportunities identified by the Goulburn Broken Greenhouse Alliance (GBGA), it is estimated that a total of \$1.7 million would be required to make the Goulburn and North East regions of Victoria EV ready, with one 50 kW DC fast charger and four 22 kW AC chargers per municipality.

EVs have the potential to reduce greenhouse gas emissions and business and transport vehicle operating costs. EV charging stations positioned across Hume at prominent and practical locations would help create jobs through the need for technical servicing, further boosting the local economy.

*Photo: Electric vehicle charging station at Gateway Quality Hotel, in Wangaratta.*



*Adaptation = leveraging electric vehicle investment to support resilient communities and businesses.*

"Community-based renewable energy projects assist those who do not have the funds or ability to install rooftop solar PV. All business and industry should be encouraged as well to install PVs, particularly factories with large roof areas."

EngageVic Community Survey 2020



## POWERING UP COMMUNITY CONNECTIONS



Local halls are often the social and information hub for rural communities, offering opportunities to learn, connect and unwind. Committees of management often manage halls and public buildings, maintaining infrastructure and paying for utilities including power.

During 2021, the Solar on Public Buildings program will commence installing solar systems on public buildings in Hume. Committees of management who look after 70 public buildings in the region, including some located in areas affected by the 2019/2020 bushfires, will receive solar installations under round one of the program.

The program will assist small communities to reduce their energy bills and improve the long-term sustainability and safety of town assets. It will also provide local employment and training opportunities in the renewable sector and build local knowledge about energy consumption and conservation.

## TOTALLY RENEWABLE YACKANDANDAH GOES FROM STRENGTH TO STRENGTH

Formed in 2014 with the aim of converting the town of Yackandandah to 100 per cent renewable energy by 2022, Totally Renewable Yackandandah (TRY) continues to benefit from its partnership approach, and its commitment to a resilient, sustainable future.

Working with electricity distributor AusNet Services and Mondo Power, TRY is developing Australia's first commercially operated minigrids.

The development of Indigo Power and the recent fulfilment of a local share offering during the COVID-19 shutdown demonstrates the strength of community support. TRY and Indigo Shire Council have shown the value of cooperation in the development of community facilities and community housing solar projects. Recent examples include the extension of community power hubs and more direct engagement through Solar Vic. TRY has also been successful with grant opportunities which could transform how local energy is sourced, allowing it to be affordable and secure, with a particular focus on community hubs and social housing.

The Yackandandah community has taken a holistic approach to building its resilience to known future disruptions (such as fire and extreme weather), allowing it to cope better with unknown future disruptions and impacts resulting from climate change. The community strives to achieve energy independence, mutually beneficial partnerships, cooperative models of ownership and support the growth and aspirations of like-minded others.

TRY is focussed on realising its own aspirations and also bringing others along on the journey. It does this through a proven model combining community leadership and a sense of generosity in sharing learning, and using its experiences to advocate for others.

*Photo: Yackandandah community members.*



Adaptation = growing community resilience through support for vital infrastructure and reliable renewable energy sources.



Theme 4:

# IMPROVING HEALTH AND WELLBEING





*Our mental and physical health is improved by healthy environments and neighbourhoods.*

Emergencies and extreme weather conditions will continue to impact our community's mental and physical health, and place strain on associated services.

Health and wellbeing planning, and community access to mental and physical health support services, will be critical. Impacts and gaps that need to be addressed include smoke from bushfires, heatwaves, the robustness of supply chains and access to fresh food. We will need resilient, environmentally sensitive transport infrastructure to service our community and meet people's needs across all demographics.

A power of work is already going on in Hume. Health agencies like Primary Care Partnerships (PCP) and other regional partnerships are actively involved in developing local food programs and strategies to support community income streams and access to fresh food. Schools and community groups are investing in climate change education, and there is increasing consideration being given to equitable and affordable regional transport precinct design and services.



#### VISION

Sustainable food systems support environmental and health benefits.

Our community is equipped and involved in delivering environmental, health and wellbeing initiatives.

Our neighbourhoods are connected and enhanced through urban green spaces.



#### PRIORITY ACTIONS (NEXT FIVE YEARS)

- \* Establish local food networks and collaboration with communities, agencies, agribusiness and business.
- \* Empower young people to respond to the health, environmental, economic and social impacts of climate change through targeted programs.
- \* Expand services and programs that link sustainability and health (eg. physical and mental health, wellbeing, food security, social and cultural inclusion, and family violence).
- \* Engage and inform local medical practitioners about the health and wellbeing opportunities provided by the natural environment.
- \* Include liveability principles in built and natural environment programs and planning guidelines (eg. Municipal Health and Wellbeing Plans).
- \* Enhance urban green spaces to increase connection to the natural environment and health benefits.



  
Adaptation =  
healthy communities  
created through climate  
ready local food networks,  
gender equality and  
equity across income  
and age.

## CLIMATE CHANGE AND COMMUNITY HEALTH AND WELLBEING

The World Health Organisation (WHO) has described climate change as the defining issue for public health in the 21st century (WHO 2015). It says:

*“Climate change affects health in many ways: directly by the increased intensity and frequency of events such as heatwaves, floods and bushfires; and indirectly through worsening air quality, changes in the spread of infectious diseases, risks to food safety and drinking water quality, and effects on mental health.”*

*“Whilst climate change presents a fundamental threat to health, many of the actions we can take as individuals and organisations to reduce greenhouse gas emissions can bring benefits, such as healthy sustainable diets and encouraging walking and cycling for short journeys.”*

(Victorian Public Health and Wellbeing Plan 2019-2023 consultation paper).

In Victoria, state and local governments are required to deliver public health and wellbeing plans every four years.

The Victorian Public Health and Wellbeing Plan 2019-2023 recognises tackling climate change and its impact on health as one of the four priority areas to drive coordinated action.

The innovative document Tackling Climate Change and its Impacts on Health Through Municipal Public Health and Wellbeing Planning: Guidance for Local Government (2020) has been developed to help all Local Government Areas (LGAs) meet their legislative obligations. It spells out required governance and leadership roles, how to engage and communicate with communities, all aspects of emergency management, mental and physical outcomes and principles, natural and built environment management, and how to achieve sustainable, local food supplies.

Victoria’s LGAs are well positioned to facilitate local initiatives to address regional community health issues through council and community programs and connections within communities. Their endeavour will support communities to adapt and respond to the impacts of climate change on public health.

## THE TASTE OF FRESH

A secure, reliable supply of fresh food is critical to community physical and mental health and wellbeing. Hume produces diverse commercial agricultural commodities including dairy, beef, grain and horticultural crops such as grapes, apples, berries and nuts, while smaller enterprises produce honey, eggs, olives, vegetables and other niche products. Small farms and farm gate businesses are common across Hume, and the region also contains several large food processing and distribution facilities.

Department of Health and Human Resources (DHHS) statistics from 2017 show 63 per cent of men and 46 per cent of women are overweight or obese in our region and a large proportion of adults in Hume (91.6 per cent) do not meet vegetable consumption guidelines.

Given how important access to fresh food is to mental and physical health, and our region's production capabilities as a key contributor to Victoria's food bowl, multiple agencies and community groups are viewing this as an opportunity.



## LEARNING FOR SUSTAINABLE CHANGE

In April 2020, the innovative Community and Youth Mini-grants Program was launched in Hume, to support community-led climate change activities for action within the region.

The Youth Mini-grants helped St Bernard's Primary School in Wangaratta have a spectacular Earth Week, and make changes with immediate benefits, and longer-term positive impacts, at school and at home. These changes were focused on managing the impacts of climate change while looking for opportunities to share knowledge and adapt. Students participated in a variety of activities to learn more about sustainability and climate change.

Student leaders undertook a series of climate change workshops, developed presentations and participated in a climate crisis committee. Other activities were based on themes of recycling, waste management, being water wise, biodiversity and food production. Assembling insect hotels to increase biodiversity at the school was a very popular activity.

Students gained new skills and knowledge and inspired their families and friends to connect with local food, the health of our environment and the value of sustainable practices at home and at school. These practical actions help our local species, our communities and reduce carbon emissions, a key contributor to climate change.

*Photo: Students from St Bernard's Primary School display their insect hotel.*



*Adaptation = supporting school communities growing awareness of how to adapt to the impacts of climate change.*





## THE LOCAL IMPACT OF GLOBAL EVENTS

The potential impacts of emergency events on our mental and physical health and wellbeing were brought into focus in 2020 by the global COVID-19 pandemic.

The National Mental Health and Wellbeing Pandemic Response Plan focusses on the expected significant increase of long-term mental health conditions including illness, increased substance abuse and risk of suicide. Research conducted by Dr Fiona McKay from Deakin University (July 2020) found that necessary interventions to limit the spread of the virus in Australia (isolation, quarantine and social distancing measures) created significant disruption to food security, supply and systems. This resulted in an increase in people seeking food assistance from community and charitable organisations, whose services were also significantly disrupted and faced unprecedented operational challenges with supply, storage, transport and securing volunteer staff.

The pandemic's long-term effects on individuals and community will continue to stretch services in our region, adding to anticipated increases in mental distress and illness resulting from climate change emergency events, climate anxiety and shifts in local employment and liveability.

## NORTH EAST LOCAL FOOD STRATEGY

The North East Local Food Strategy 2018-2022 was developed by a working group of project partners from health, local government, natural resource management, tourism and community sectors, with the aim of strengthening the region's total food system.

The strategy aims to grow a strong, sustainable and equitable food system in North East Victoria. It considers the challenges associated with food production, distribution, consumption waste and the associated social, economic and environmental issues, with a view to identifying key opportunities for action.

A resilient, sustainable and equitable food system is a critical contributor to regional and community health, wellbeing, identity and liveability. A food system's resilience refers to how effectively it can respond to shock and adapt to change.

The strategy outlines directions and priority actions, one of which is, "All community members have access to fresh local produce, understand the benefits of a strong local food system and make informed and healthy food choices."

It is clear that strong local food systems and supply chains can play a critical role in supporting our communities to adapt and respond to the impacts and disruptions brought on by climate change.



*Adaptation = growing community resilience and connectedness through reliable and accessible local food systems.*





## THE LINK BETWEEN GENDER EQUALITY AND CLIMATE CHANGE

The Victorian Government's vision is for all Victorians to live in a safe and equal society, have equal access to power, resources and opportunities, and be treated with dignity, respect and fairness. Women's gendered experience, including of violence and sexism, can affect their life experiences and subsequently their health and wellbeing. (Safe and Strong: A Victorian Gender Equality Strategy).

According to Women's Health Goulburn North East (WHGNE), gender is a key factor in a person's attitude towards climate change, their ability to play a part in climate change-related decision making and their experience of the impacts of climate change ([www.wealth.com.au/climate-change](http://www.wealth.com.au/climate-change)). Through activities supported by *Victoria's Gender Equality Act 2020*, WHGNE is encouraging public, private and education sector organisations to be fully informed and endorse positive changes to workplace equality, offering resources, information and programs. This includes life coaching, mentoring, workshops on gender-based planning, and developing workplace strategies to support women in adapting to climate change.

WHGNE has developed Gender Equity Snapshots for each of the Goulburn and North East councils to help them plan, draft and implement their Municipal Health and Wellbeing Plans 2021-2025.

These snapshots include data analysis on demographics, mother's index, education, leadership, workforce participation, the the gender pay gap, labour force status, income and safety. This information gives councils a better understanding of the vulnerabilities of women in our region, and improve their economic security, safety and independence.

Women's Health Victoria (WHV) notes that, "women are disproportionately impacted during times of crisis due to financial and economic pressures including loss of income or employment, escalation in family violence, carer burden and working in frontline services" ([whv.org.au/about/whv-and-covid-19](http://whv.org.au/about/whv-and-covid-19)). This puts women at greater risk during all kinds of emergency events affecting employment, education, food, service and resource availability and domestic safety.

There is global recognition that empowerment of girls and women is one of the major steps in tackling the causes and impacts of climate change, and that addressing climate change (one of the United Nations' top five Sustainable Development Goals) requires equitable health care, employment and opportunities for 51 per cent of the global population.



Theme 5:

# ENHANCING NEIGHBOURHOODS AND THE BUILT ENVIRONMENT



## Our community is strengthened through sustainable transport, tourism and urban design.

How we live in our towns and interact within our communities is vital to planning and responding to climate challenges. Hotter temperatures and heatwaves are already testing and putting strain on our existing built environment and its ability to offer healthier living conditions with passive cooling/heating opportunities for all community members.

Well planned precincts and housing developments will help reduce health impacts from increased heat, damage and injury from emergency events and adequate provision of accessible services. Green infrastructure investment in towns and green transport options

are being explored through the Urban Cooler Spaces project (led by GBGA) and the Hume Regional Integrated Transport Plan. Climate Ready Hume is supporting these initiatives through grant funding.

A neighbourhood is where we live, and also how we connect socially. Good urban design incorporates positive health outcomes through human connection with nature, and green design for public spaces, social networks, accessibility to businesses and services, and environmental sustainability. The Wodonga Green Development Pilot is an example of these principles being trialled for precinct expansion.



### VISION

Our transport is sustainable, reliable and accessible.

Our region is based on sustainable tourism.

Our growth is based on sustainable urban design.



### PRIORITY ACTIONS (NEXT FIVE YEARS)

- \* Invest in sustainable transport infrastructure (eg. EV charging, rail, hydrogen and green freight).
- \* Implement affordable green transport developments and investments for vulnerable communities.
- \* Enhance walking and cycling networks throughout the region with particular attention to vulnerable communities.
- \* Improve public transport and ride share services in towns and across the region.
- \* Promote climate smart business opportunities arising from changing demographics and social and economic infrastructure.
- \* Sponsor cultural and art programs that support climate adaptation and tourism growth.
- \* Support local government and tourism agencies to adopt sustainable urban design.
- \* Build technology hubs and corresponding transport networks to support a flexible, local economy.
- \* Strengthen building codes to improve the sustainability and liveability of housing.
- \* Address social and gender equity gaps through cross border and state governance programs for family health and culturally diverse programs.



## THE IMPORTANCE OF THOUGHTFUL NEIGHBOURHOOD DESIGN



### SUSTAINABLE SUBDIVISIONS

Shifting and growing populations will have an impact on current and future urban design across Victoria. In many cases, towns and buildings will need to be “retrofitted” so they are energy efficient and capitalise on renewable energy opportunities.

The Sustainable Subdivision Framework is a partnership between the Victorian Planning Authority, the Council Alliance for a Sustainable Built Environment and 16 local councils. It seeks to mitigate climate change impacts to create suburbs that improve the health and quality of life for residents, while reducing greenhouse gas emissions.

The Sustainable Subdivision Framework will be tested via a new planning process as part of an 18-month trial project involving 16 councils including the City of Wodonga, Greater Shepparton, Mitchell Shire and Rural City of Wangaratta. This trial project is funded through the Victorian Government’s Collaborative Council Sustainability Fund Partnership Program.

One of the trial project’s focus areas will be to promote increased collaboration across Local Government Authorities, including building staff skills. Site selection and layout, street design and public realms, renewable energy options, ecology and natural biodiversity, integrated water management, urban heat management and circular economy principles will all factor into subdivision planning for the future. This work is being supported by the Goulburn Broken Greenhouse Alliance and information and resources are being shared across all regional councils.

Neighbourhoods, where we live now, where we grew up, or where we see our future, are key to our sense of self and happiness. They shape and contain our memories and experiences and the opportunity for sustainable, thoughtful urban design exists across much of Victoria, including Hume.

Our region needs sustainable, green infrastructure, smart urban housing developments, smart and energy efficient house designs, community proximity to health services, local food sources and resilient networks. Good water management and green design also supports positive community health outcomes through access to nature and recreation, tourism and employment. Sustainable, thoughtful urban design and use of native and exotic plant species is linked to how we manage our water resources.

Victoria’s draft 30-year Infrastructure Strategy is a guiding tool for town planning and future liveability consistent with Liveability Victoria ([www.liveability.vic.gov.au](http://www.liveability.vic.gov.au)). It considers climate change impacts, including how to improve health outcomes with increased heat and extreme weather events, how we connect socially, how to achieve energy independence through sustainable means, and how to support carbon neutral living in conjunction with transport and infrastructure requirements.

Investment certainty is important for creation of great neighbourhoods including provision of sustainable roads and alternative green transport, rail freight and clean energy freight and digital infrastructure. Shifting populations, adapting industry, local economic and circular economy conditions, transition of school to higher education and workforce and the tourism industry are just some of the factors to consider when managing buildings and streetscapes, now and into the future.



## HEALTH AND LIVEABILITY

Effective health services, age friendly infrastructure, hospitals and care facilities, urban and housing design, social connectivity programs and general mobility support are essential for our community, as we age and for service-connected youth and adults.

Our health and environmental wellbeing will benefit from a careful, planned transfer to carbon neutrality and the adaptation of circular economy principles.

Liveability principles include walkability, social structure, transport, food and distance to fresh food, health of public open spaces, local employment and housing stock health. Each of these are essential in managing hotter, more extreme weather conditions and the health of our towns.

## THE RELATIONSHIP BETWEEN INFRASTRUCTURE AND AGEING WELL

The Ageing Well Info Hub, located in the Wangaratta library and online, is supported by the Council of the Ageing (COTA) and Northeast Health Wangaratta. It's an example of a free service supporting those with different interests and needs from local services.

The Hub provides information on the health and community support available to older people living in the Rural City of Wangaratta and surrounding areas, with trained volunteers available to help people understand and navigate the aged care system.

*"Elderly care, at home and institutional, to be sure that cooling and heating is adequate and affordable..."*

*EngageVic Community Survey 2020*



## THE BENEFITS OF COOLER URBAN SPACES

During 2019/2020, Climate Ready Hume contacted regional councils to better understand our community's climate priorities. What became evident is that some councils were seeking support to factor climate change risks into their funding and planning, particularly in relation to businesses and insurance, future infrastructure and precinct management.

The priority that emerged as part of this research was managing heatwave impacts on community services and health.

Once this priority was identified, and with the support of councils, the Goulburn Broken Greenhouse Alliance (GBGA) developed a pilot approach to specifically address heat in the urban environment.

The project will draw on liveability and ageing well principles, and the latest climate projection data, to examine the use of native and non-native plant species as green infrastructure to create cooler urban environments. Water efficiency and management, biosecurity and safety elements will also be considered.

The work will be available to aid council decision making and will include mapping where current and future tree and garden plantings are best placed to reduce heat effects, increase social connectivity and community recreation opportunities in hotter and more extreme conditions.





Theme 6:

# STRENGTHENING THE ECONOMY AND WORKFORCE

*Our financial prosperity comes from innovative and sustainable development and growing our skilled population.*

Economic stability through green and circular economy development will buffer our region from the impacts of climate change. Well targeted research and investment will support growth of clean and sustainable enterprises including renewable energy, manufacturing, industry, non-nature-based tourism and education. Connecting buyer and seller markets increases local job growth and enhances prosperity. Smart specialisation offers niche development opportunities suitable to townships and districts.

"Buy local" programs connect buyers with producers, assisting with equitable access to resources while generating local income streams. The Goulburn Murray Resilience Strategy 2020 provides a transformative approach to a place-based economic and environmental future which includes a strong agricultural industry. Circular economy development is supported by Climate Ready Hume programs, empowering our community to innovate for local employment.

 VISION

Smart specialisation enhances education and workforce development.

The economy is strengthened and diversified through inclusive and climate smart enterprises

Generate local employment in agriculture, general industry and manufacturing to support adaptation to climate change impacts.

Maximise investments in local research and climate change adaptation.

 PRIORITY ACTIONS (NEXT FIVE YEARS)

- \* Ensure the Hume Regional Growth Plan and skills development strategies reflect the needs of our changing climate.
- \* Develop a circular economy prospectus including alternative business models and climate adapted investments.
- \* Grow local workforce and economic development programs through equitable circular and green economy principles.
- \* Grow social enterprises and green funding models to support local economies.
- \* Design employment and training programs for youth and culturally sensitive adult learning pathways, for locally climate adapted opportunities.
- \* Build local industry's capacity to ensure waste outputs are utilised to support a circular economy.
- \* Adopt a culturally inclusive and gender safe economy through equitable financial programs based on social and ecological justice .
- \* Grow digital marketplaces to increase accessibility to local services and commodities.
- \* Provide training to improve access to virtual marketplaces, and participation in the digital economy.
- \* Adapt sustainable transport alternatives for industry and community, transitioning from traditional methods through investment and education programs.
- \* Expand research and promote programs for climate adapted commodities, specific to our region's future climate.
- \* Maintain and enhance state and cross border partnerships to foster climate change adaptation governance and actions across public and private communities.'

## SMART SPECIALISATION AND JOB CREATION

The “smart specialisation” model seeks to design a place-based, long-term approach for sustainable regional economies and cohesive communities. It identifies ways regions can develop local competitive advantage, generate jobs and economic growth through new niche businesses and services.

The model builds on the location’s unique advantages, assets, strengths and opportunities to adapt to climate change.

The approach incorporates targeted development and population expansion to match the skills and education provided in the region.

For our region, it means creating a long-term vision for how each town can build, capitalise and thrive. Circular economy principles are interwoven into smart specialisation, creating green economies (economies

that are healthy for the environment and communities) and long-lasting food supply, manufacturing and business systems that are prepared for increased climatic pressures.

The Gippsland Smart Specialisation Strategy has trialed a project with the Latrobe Valley Authority, partnering with the University of Melbourne. The strategy emerged from a locally-based trial connecting current initiatives, productivity, employment, governance, health, knowledge based activities logistics, advanced manufacturing and infrastructure requirements.

Linking and expanding circular economy principles with smart specialisation models will provide Hume with a strong, environmentally sound and community-based economy which will contribute to our resilience against climate change impacts.

## WHAT IS A CIRCULAR ECONOMY?

A circular economy continually seeks to reduce the environmental impacts of production and consumption, while enabling economic growth through more productive use of natural resources.

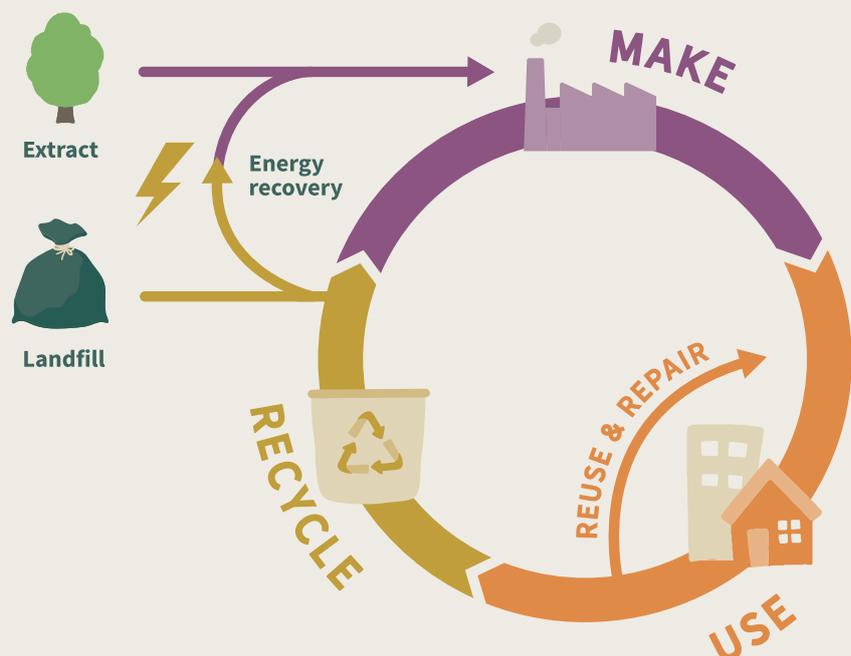
It transforms our linear economy mindset from take, use and throw away, to, good design that can be recovered and reused.

It promotes more efficient business models that encourage intense and efficient product use, such as sharing products between multiple users, or supplying a product as a service that includes maintenance, repair and disposal.

Over time the value people obtain from the resources used to create goods and services increases.

It fosters innovation and productivity that invigorates existing businesses and creates new ones, delivering more jobs and more growth for local, regional, state and global economies.

**Figure : Resource flows in a circular economy**





*Adaptation = a circular economy supports local jobs and sustainable population growth*

## FUELING A CIRCULAR ECONOMY

Renewable energy opportunities in Hume include energy generation from waste and recovered resources. As a principle of circular economy investment, generation of fuels for energy production from local waste sources reduces emissions, and offers more sustainable transport choices.

Bioenergy is generated by processing organic matter into a range of solid, liquid and gaseous fuels. Supplies are often sourced locally, supporting local generation and markets. This creates short, efficient and profitable green supply chains with reduced transport requirements and exponential environmental and greenhouse emission benefits, generating local business and employment.

Biodiesel is classed as a certified alternative product to diesel fuel, delivering environmental, health and social benefits to the community.

Just Biodiesel Pty Ltd, based in Barnawartha, has operated since 2018 to meet local expectations and grow national and internal markets for alternative energy sources. It currently generates biodiesel from local fuel sources including tallow and used cooking oil.

Within Hume, bioenergy fuel sources are estimated to supply 18 million GJ per year.

## A STRATEGIC APPROACH TO RESILIENCE

Supported by the Goulburn Murray Resilience Strategy (2020), Hume region community members have begun the journey to create a low carbon, circular economy. The strategy, launched in 2020, represents a breadth of community views on how to leverage the region's assets and abilities to adapt to climate change. While the strategy focuses on agriculture, its principles also apply to the community and regional economy.

The strategy outlines eight resilience principles and five specific interventions to drive and support focused, impactful action. Circular economy is one of the five intervention streams. The goal is to "support our region to develop a circular economy underpinned by a transition to renewable energy sources. A circular economy is restorative and regenerative by design. It aims at eliminating waste and the continual use of resources."

The next step in the strategy's delivery, is to form a Regional Resilience Taskforce to deliver the interventions. Strong community interest and participation in the taskforce is already evident.

*"Bioenergy Australia emphasises that biomethane creates three times more ongoing jobs (per unit of energy) than other utility-scale renewables including solar and wind (Source: IRENA, 2019, Renewable Energy and Jobs. Annual Review 2019). For Hume, keeping residents in jobs is vital for the wellness of the community and its individuals, particularly as climate change is forecasted to negatively impact the economy."*

*EngageVic Community Survey 2020*



*"Public transport that works for the people who use it most. Eg school aged kids can't get anywhere from Alpine for a weekend because the bus leaves in the middle of the day on Friday and returns early on Sunday!"*

*EngageVic Community Survey 2020*



## A MOUNTAINOUS CHALLENGE

The Hume region is known for snow and its natural beauty in local towns such as Myrtleford, Bright, Mt Beauty, Mansfield and Beechworth. Each snow season, 2.3 million Victorians visit the high country to ski or snowboard, play in the snow or toboggan. While they stay and play they support the local economy via accommodation and eating out.

During summer, or the green season as it is known, 2.2 million Victorians visit our high country for hiking, adventure sports, short walks and day trips.

The Victorian Alpine Resorts Management Boards are business operators with nature tourism services that is considering the long-term impacts of climate change, specifically the impacts of increased overnight and day temperatures and shifting rainfall patterns on natural and man-made snow. Climate change projections reveal rainfall across the Hume region is reducing by at least 20 per cent (VCP 2019). This will inevitably alter snow seasons, the amount of snowfall, and associated tourism opportunities. A collective tourism development framework for all the Alpine Resorts is being created to identify growth and ensure a positive visitor economy, now and into the future. (Alpine Resorts Coordinating Council).

## CLIMATE CHANGE IMPACTS AND LOCAL BUSINESS RISK

Small to medium sized businesses are among those most concerned about climate change in Hume Region (community survey September-November 2020).

Businesses identified flow on effects from increased heat and severe weather events as significant threats. These include financial and operating risks, changes to insurance premiums and insurability, practical impacts to buildings and infrastructure, disrupted power supply, disrupted digital connectivity and banking systems, cost to stock and sourcing of stock, and the health and safety of staff.

In discussions and surveys facilitated by Climate Ready Hume, business and agribusinesses highlighted the need for business decision making now and over the next five years, and also identified a need for support mechanisms to help them address operational risk and equitable access to climate adaptation services. These mechanisms include education and training, scenario planning, and a network of peers and industry professionals to provide practical information and accurate and timely advice. Businesses want to increase their understanding of climate decision making, and how to address building stock for disaster preparedness and improve financial security. Several local, state and agency programs are being developed to support business owners across the Hume region (Appendix 2).

*"Invest in alternative water sources. Maintaining public open space and assets with alternative water sources will relieve pressure on our potable water supply (which will be impacted by climate change)."*

*EngageVic Community Survey 2020*



## ZOOMING TOWARDS A CLIMATE READY FUTURE

Students at Greater Shepparton Secondary College have been learning about climate change through creative activities supported by Climate Ready Hume's Mini-grants Program.

Students and teachers implemented a peer learning program to encourage deeper thinking about climate change at school and home, the power of individual actions, and community action to reduce negative environmental impacts.

Year 11 students started a campaign for their cohort to use alternative transport for commuting to and from school. Students were encouraged to ride, skate or walk to school, and the campaign involved a competition to promote this message throughout the school population.

Students designed and painted skateboards with environmental messages, using the finished skateboards as prizes in a climate change quiz.

Learning activities across the College gathered momentum, including information and knowledge sharing on reducing waste and landfill and adopting fire resistant plant species.

*Photos: Students from Greater Shepparton Secondary College working on their skateboard designs.*



*Adaptation = building students' awareness of how climate change will impact their communities.*

## GETTING ACTIVE WITH TRANSPORT

Transport networks are a vital contributor to our local economic and social resilience. Motorised and non-motorised (known as active) transport provide local employment opportunities and access to essential services such as schools and medical facilities. Transport networks are part of everyday life, and equitable access to them is crucial for successful economic participation, health and wellbeing.

Investing in sustainable transport such as rail, walking and cycle paths, electric vehicles and ride sharing services reduces emissions, promotes health and improves transport options during extreme weather events such as flooding or bushfires.

Hume's Regional Integrated Transport Plan acknowledges the need for "prosperous, livable and connected communities", with innovative ideas and technology addressing potential risks to network connectivity caused by climate impacts.

Disruptions and disconnections from flood, fire and storm events are expected to increase in the future requiring alternate approaches.

Balancing active and passive transport is a challenge for many communities. State and regional strategies, such as the Victorian Cycling Strategy 2018, guide planning and investment.

In Hume, we continue work building on the East Victoria Cycling Optimisation Masterplan, to support investment in cycling infrastructure and active transport networks,

Many of our region's councils have begun developing their own active transport strategies.

# APPENDICES

# APPENDIX 1

## TERMS AND DEFINITIONS

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<b>Adaptation</b>	The different ways we can address the impacts of climate change. These impacts include more frequent heat wave events, intense downpours and harsher fire weather.
<b>Climate change</b>	A variation or change in a weather pattern that persists over several decades. Signs include changes in; ocean temperatures and currents, land surface temperatures, ice levels, day and overnight temperatures, and rainfall patterns and levels.
<b>Climate science</b>	The study of climate or climatology including average weather conditions over a period of time.
<b>Climate variability</b>	Short-term variations or changes in our climate usually measured by events.
<b>Drought</b>	Acute water shortages resulting from rainfall deficit. Drought can occur on top of or in addition to more extreme heatwave or reduced rainfall years.
<b>Maladaptation</b>	Where actions, activities or pathways fail to adjust to the environment or situation, or cause an alternative action inadvertently.
<b>Mitigation</b>	Addresses the causes of climate change – reduces the accumulation of greenhouse gases in the atmosphere.
<b>Resilience</b>	The ability of people and natural systems to recover quickly from events, trauma or change.
<b>Seasonality</b>	Seasons are grouped by calendar months. Shifting seasonality refers to traditional or expected weather patterns shifting to an “out of character” season such as winter rainfall to spring.
<b>Weather</b>	Referring to the state of atmospheric conditions at a place in time, measured by a set of factors including heat, moisture content, evaporation and humidity,

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# APPENDIX 2

## POLICIES, LINKS AND OTHER DOCUMENTS RELATED TO THIS STRATEGY

Example	Themes
ACRE - Australian Centre for Rural Entrepreneurship	     
Ageing well strategies	    
Agricultural Investment Strategy	  
Alpine Resorts Economic Strategy	   
Arts recovery (eg. Regional Arts Victoria)	  
Biodiversity Strategy 2037	  
Building a food system that works for everyone (IPPR)	     
Bushfire preparedness plans (multiple organisations)	    
Bushfire Recovery Strategy (Victorian Government)	    
Traditional Owner group and community plans	    
Eastern Victorian Fires 2019-20: State Recovery Plan	     
Embedding climate change adaptation in agriculture	  
Emergency Management Strategy (Victorian Government)	  
Energy upgrade program	  
Farmers for Climate Action	  
Feeling the Heat (VCOSS)	    
Gender and family programs (Women's Health Goulburn North East)	    
Gender and Disaster POD (Women's Health Goulburn and North East)	     
Goulburn Murray Regional Resilience Strategy	     
Health and climate change social research (Sustainability Victoria)	   
Healthy Parks Health People (ParksVic)	   
Hume Regional Growth Plan	     
Hume Regional Integrated Transport Plan	   
Hume Renewable Energy Roadmap	   
Indigo Power	  
Integrated water management	     
Liveability principles (multiple organisations)	    
Local Government guidance (Dept. Health and Human Services)	   

Local Government Authority (strategic and services)					
Materials and efficiency programs					
Municipal emergency recovery plans					
Municipal health and wellbeing frameworks					
Municipal health and wellbeing plans					
Murray Primary Health Network					
National Australian Built Environment Ratings System (NABERS)					
Neighbourhood House Networks					
North East Community Energy Network					
North East Local Food Strategy					
Pandemic recovery and investment programs					
Parliamentary Inquiry into Biodiversity Decline					
Primary Care Partnerships					
Recovery Framework - BRV					
Recycling Victoria					
Regional Catchment Strategies					
Renewable energy investment programs					
Start Up Shake Up youth and adult programs					
Totally Renewable Yackandandah (TRY)					
Victorian Energy Upgrades (Victorian Government)					
Victoria's Climate Change Strategy					
Victoria's Great Outdoors (ParksVic, DELWP)					
Victorians Valuing Nature					
Victorian Waterway Management Strategy					
Walwa Bush Nursing Solar project					
Wodonga Green Development Pilot					
Working for Victoria					

# APPENDIX 3

## ENGAGEMENT SUMMARY

- 1 School 2040 events
- 2 Community 2040 events
- 3 Pop up stalls
- 4 Youth events and consultation
- 5 Service-connected youth
- 6 Culturally and Linguistically Diverse (CALD) engagement
- 7 Volunteer network programs
- 8 Agriculture engagement
- 9 Working groups
- 10 Community representative
- 11 Renewable energy (micro-grids, pumped hydro, community energy)
- 12 Linked projects: Goulburn Murray Irrigations District, Integrated Water Management, Climate Change Adaptation in Agriculture, Regional Catchment Strategies
- 13 Community climate change grants
- 14 Community and youth mini-grants



### COMMUNITY CONSULTATION AND RAISING AWARENESS

#### 2040 Screenings

Fostering positive community conversations on climate change adaptation and community vision:

- 20 face-to-face and streaming events (pre and during pandemic response)
- Over 450+ people attended live events
- Over 900+ people participated in streaming events, contributing to the RAS

### WORKING GROUPS

#### Hume-wide response

Embedding climate change mitigation and adaptation activities with Sector Plan priorities and community led responses – Linking through practical working groups and partners:

- Natural Resource Management
- Health and wellbeing
- Education and skills
- Local Government
- Renewable energy
- Agriculture
- Transport
- Culturally and Linguistically Diverse (CALD)
- Let's Adapt (Internal DELWP)



## RENEWABLE ENERGY

### Building on Hume Renewable Energy Roadmap recommendations and supporting bushfire recovery

Partnership with local leaders, distribution and community power agencies and groups.

Emerging projects include:

- Microgrid pilot projects
- Pumped hydro feasibility study
- Distributed energy resource opportunities
- Community energy
- Support for fire impacted communities with Bushfire Recovery Victoria
- Renewable Energy Zones development



## LOCAL GOVERNMENT AND HEALTH

### Connecting climate change, health and wellbeing and local government priorities for long term community response and support for the effects of climate change

- Local Government survey – Shared information and resources across agencies
- Health and wellbeing partnerships across Hume
- Business and community risk analysis
- Local food and program development
- Ongoing partnerships



## CALD

### Partnering to enhance emergency response, safety awareness and community connectivity with Hume Culturally and Linguistically Diverse communities

- Establishment of essential services and CALD working group
- Community training sessions and consultation workshops
- Training in Emergency Vic Services and App
- Test climate adaptation and health safety information for alternate language publications
- Capturing visions and stories for strategy development



## YOUTH

### Supporting youth vision and voices through engagement and programs

- Youth mini-grants (progressing through restrictions)
- 2040 screenings with Strategy development
- Working with service-connected youth in new and targeted ways
- Youth Politics and Youth Council events
- Youth Science Webinar series
- Consultation for strategy development

# ACKNOWLEDGEMENTS



## Special thanks to

Eldorado Sustainable Living Festival  
 Mitchell Community Energy  
 Euroa Sustainability Group  
 Biofuel Pty Ltd  
 Tallangatta Health Service  
 Gardens for Wildlife Albury Wodonga  
 SUPERGOAT Media

Regional Partnerships  
 Climate Partner Advisory Group and Working Group  
 The Hume community  
 Tourism North East  
 Charles Sturt University  
 RMIT  
 All case study participants



This is us.  
This is our place.  
It's beautiful and  
we need to look  
after it. For now  
and forever.

