

WHITSUNDAY REGIONAL COUNCIL

# CLIMATE CHANGE MITIGATION STRATEGY



## A MESSAGE FROM YOUR MAYOR

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**I am pleased to present the Climate Change Mitigation Strategy. This strategy sets out Council's commitment to reducing greenhouse gas emissions and becoming a leader in climate change mitigation.**

Our cherished region is exposed to extreme weather events which are becoming more and more common. Therefore, mitigating environmental change is one of the essential priorities within the organisation. Whitsunday Regional Council (WRC) intends to lead by example in the field of climate change by reducing its own Greenhouse Gas Emissions (GHG).

The Strategy sets GHG reduction targets for 2020, 2030 and 2050 across our organisation. Council has already started to reduce its GHG by improving energy efficiencies across corporate assets and intends on building on this progress. Indeed, we have made significant progress by reducing 3227 tonnes of GHG in only one year.

This Strategy embraces a series of priority actions that Council believes will be the most cost effective in reducing its GHG emissions. These actions have been prioritised based on environmental impacts, feasibility of implementation, return on investment and relevance to the Whitsunday community.

Council recognises that its GHG emissions contribute to climate change and is committed to substantially reduce those emissions by actively developing innovative solutions, strengthening our knowledge base, and working with our community in the fight against climate change. This Strategy is an opportunity for Council to demonstrate its commitment to be part of the solution.

Our aim is to maintain a sustainable and resilient Whitsundays with a thriving future and an active community. We hope that this Strategy will be an inspiration to our community and that together we can build a better future for our next generations.

**Andrew Willcox**  
Mayor, Whitsunday Regional Council



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# EXECUTIVE SUMMARY

Whitsunday Regional Council's *Climate Change Mitigation Strategy* has been developed to understand, and significantly reduce, Council's greenhouse gas emissions thus contributing to slowing the rate of global warming.

The earth's climate has changed throughout history. While both natural and human activity have affected the climate, it is widely accepted that human activity has been the dominant cause of the observed global warming since the mid-20th century. Consensus on climate change among the scientific community and experts was established under the Intergovernmental Panel on Climate Change (IPCC), which is the leading international body for the assessment of climate change.

One of the main consequences of climate change is the increase in global temperatures associated with increased greenhouse gas (GHG) emissions.

The effects of global warming have significant impacts at the national, regional and local scale. The Whitsunday Region is exposed to a number of natural hazards, which are likely to be exacerbated as a result of climate change. These hazards include tropical cyclones, extreme storms, landslides, riverine flooding, coastal erosion, heatwaves and bushfires. Climate change forecasts indicate that in the future, the Region can expect higher temperatures, changes in rainfall patterns, rising sea levels and less frequent but more intense tropical cyclones, among other effects. Mitigating environmental change is of fundamental importance to Council.

The Strategy is designed to guide Council's actions in reducing GHG emissions thus contributing to slowing the rate of global warming through:

01

#### Empowering resilience

Supporting long-term financial planning, asset management, strategic planning, emergency management and other key Council processes with consistent, timely and scientifically sound information related to climate change.

02

#### Mainstream mitigation

Ensure that climate change mitigation is a core component of planning for a more resilient Whitsunday Region and is mainstreamed into Council's functions and activities.

03

#### Identifying opportunities

Ensuring that Council is well placed to benefit from economic development opportunities that may eventuate due to its proactive climate change mitigation and community resilience commitment.

This strategy is supported by Council's Corporate Plan which informs Council's direction and priorities. While the Strategy will support informed decision-making for the duration of the Corporate Plan, it guides Council in making informed decisions aligned with the outcomes contained in the Corporate Plan:

- » **Outcome 2.1** Our Region is active, healthy, safe and resilient.
- » **Outcome 3.1** Our built environment is well planned, effectively managed and protects our Region's heritage and character.
- » **Outcome 3.2** Our natural environment is valued and sustainable.
- » **Outcome 3.3** Our infrastructure supports our Region's current and future needs.
- » **Outcome 4.1** Our infrastructure enables economic development and facilitates investment opportunities.
- » **Outcome 4.3** Our agriculture sector is sustainable and enjoys access to strong export and development opportunities.
- » **Outcome 4.4** Our tourism and small business sectors are strong, sustainable and actively promoted.

Council's strategic outcomes are implemented to ensure that short and long-term mitigation responses will endure into the future.

# INTRODUCTION

The *Climate Change Mitigation Strategy* discusses the impacts of climate change on Council's operation and management, outlining ways in which Council will seek to mitigate those impacts.

The Strategy has been developed to significantly reduce Council's greenhouse emissions and consequently contribute to slowing the rate of global warming. This contribution is part of an international, national and state-wide framework.

The Strategy sets out carbon dioxide (CO<sub>2</sub>) equivalent emission targets for Council's infrastructure and operations for 2020, 2030 and 2050. Council has developed fifteen (15) priority actions which will support Council's commitment to reach its emission targets.



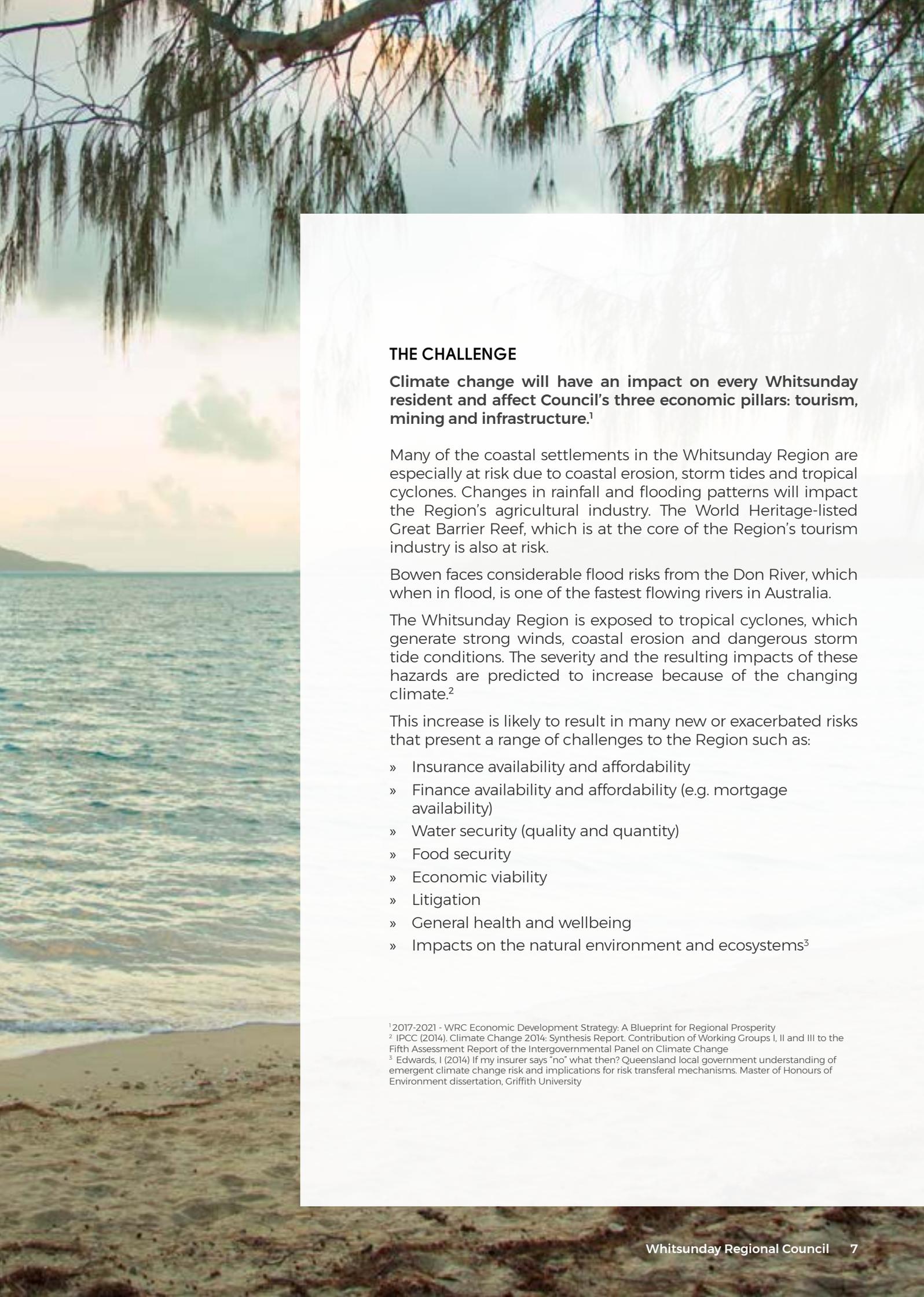
# WHAT IS CLIMATE CHANGE?

Climate change (as referred to in this document) relates to the long-term effect of changes in temperatures that are caused by human induced GHG emissions. The process by which GHG emissions are causing the greenhouse effect is explained in Figure 1.

Climate change mitigation involves putting measures in place to reduce emissions and slow the rate of global warming.



Figure 1. The Greenhouse Effect - How greenhouse gases contribute to global warming.  
Source: Opus International Consultants (2017)



## THE CHALLENGE

**Climate change will have an impact on every Whitsunday resident and affect Council's three economic pillars: tourism, mining and infrastructure.<sup>1</sup>**

Many of the coastal settlements in the Whitsunday Region are especially at risk due to coastal erosion, storm tides and tropical cyclones. Changes in rainfall and flooding patterns will impact the Region's agricultural industry. The World Heritage-listed Great Barrier Reef, which is at the core of the Region's tourism industry is also at risk.

Bowen faces considerable flood risks from the Don River, which when in flood, is one of the fastest flowing rivers in Australia.

The Whitsunday Region is exposed to tropical cyclones, which generate strong winds, coastal erosion and dangerous storm tide conditions. The severity and the resulting impacts of these hazards are predicted to increase because of the changing climate.<sup>2</sup>

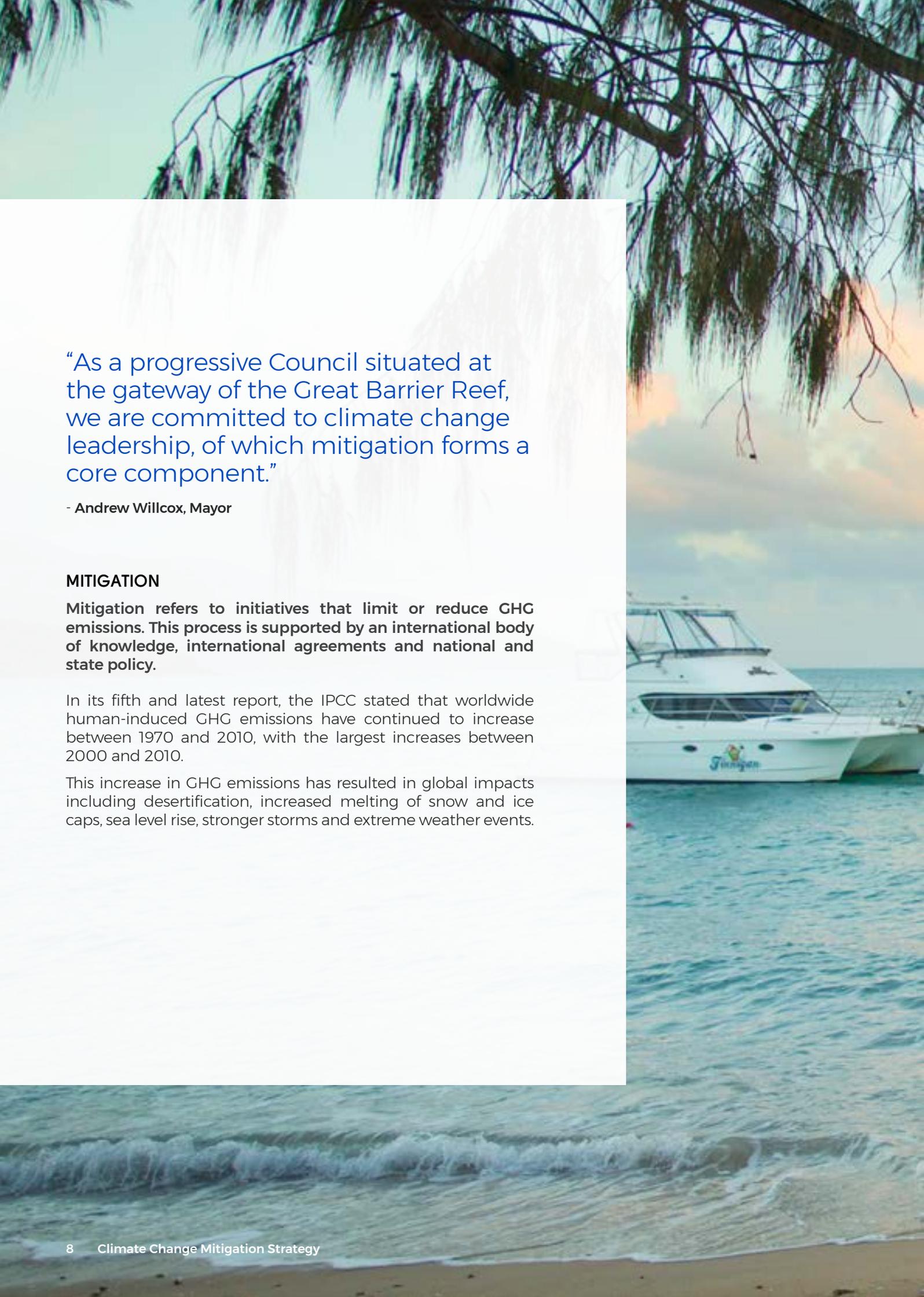
This increase is likely to result in many new or exacerbated risks that present a range of challenges to the Region such as:

- » Insurance availability and affordability
- » Finance availability and affordability (e.g. mortgage availability)
- » Water security (quality and quantity)
- » Food security
- » Economic viability
- » Litigation
- » General health and wellbeing
- » Impacts on the natural environment and ecosystems<sup>3</sup>

<sup>1</sup> 2017-2021 - WRC Economic Development Strategy: A Blueprint for Regional Prosperity

<sup>2</sup> IPCC (2014). Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change

<sup>3</sup> Edwards, I (2014) If my insurer says "no" what then? Queensland local government understanding of emergent climate change risk and implications for risk transfer mechanisms. Master of Honours of Environment dissertation, Griffith University



“As a progressive Council situated at the gateway of the Great Barrier Reef, we are committed to climate change leadership, of which mitigation forms a core component.”

- Andrew Willcox, Mayor

## MITIGATION

**Mitigation refers to initiatives that limit or reduce GHG emissions. This process is supported by an international body of knowledge, international agreements and national and state policy.**

In its fifth and latest report, the IPCC stated that worldwide human-induced GHG emissions have continued to increase between 1970 and 2010, with the largest increases between 2000 and 2010.

This increase in GHG emissions has resulted in global impacts including desertification, increased melting of snow and ice caps, sea level rise, stronger storms and extreme weather events.

# TARGETS FOR CLIMATE ACTION

## PARIS AGREEMENT

The agreement aims at strengthening the global response to the threat of climate change by keeping a global temperature rise for this century well below 2 degrees Celsius above pre-industrial levels<sup>4</sup>. To achieve this, the agreement sets a 40% reduction in GHG by 2030 and an 80-95% reduction by 2050 and a net zero greenhouse gas emission for the second half of the century.

<sup>4</sup> [http://unfccc.int/paris\\_agreement/items/9485.php](http://unfccc.int/paris_agreement/items/9485.php)



**NET ZERO**  
GREENHOUSE  
EMISSIONS  
BY 2050



**196**  
NATIONS COMMITTED  
TO LIMIT GLOBAL  
WARMING



**ZERO**  
EMISSIONS  
TECHNOLOGY  
WILL BE  
COST-COMPETITIVE

## AUSTRALIAN GOVERNMENT'S NATIONAL CLIMATE POLICY

Australia has a strong commitment to act on climate change by ratifying the Paris Agreement. The Federal Government is implementing national policies to reduce emissions, by setting mitigation targets for 2030 and 2050.

Australia will reduce emissions to 26-28 per cent on 2005 levels by 2030. This target represents a 50-52 per cent reduction in emissions per capita and a 64-65 per cent reduction in the emissions intensity of the economy between 2005 and 2030.

Queensland joins Victoria, New South Wales, South Australia, Tasmania and the Australian Capital Territory in setting a zero net emission by 2050 target.



**2030**  
TARGET OF  
REDUCING EMISSIONS  
TO 26-28% BELOW  
2005 LEVELS



**QLD**  
JOINS VIC, NSW, SA,  
TAS & ACT IN SETTING  
A ZERO NET EMISSIONS  
BY 2050 TARGET

## QLD GOVERNMENT

The QLD Government has also aligned its policies to the federal initiatives by aiming to reduce GHG emissions. QLD Government aims to power the State with 50% renewable energy by 2030 and by achieving zero net greenhouse emissions by 2050.



**50%**  
RENEWABLE  
ENERGY BY 2030



COMMIT TO  
A TARGET OF  
ZERO NET  
EMISSIONS  
BY 2050



INTEGRATE EMISSIONS  
TARGETS IN  
KEY POLICY AREAS  
(MINING, TRANSPORT,  
ENERGY AND WASTE  
AMONG OTHERS)

## WHITSUNDAY REGIONAL COUNCIL CLIMATE CHANGE MITIGATION STRATEGY

At a local level, Council is committed to, and aligned with, both Federal and State Government reduction targets. The development of this climate mitigation policy and strategy is focused on reducing GHG emissions from Council's corporate assets. Council has set reduction targets for 2020, 2030 and 2050 (refer to page 15).

## COUNCIL IN ACTION SOLAR ENERGY



**Whitsunday Regional Council has become a leader in renewable energy, after commissioning a 400-kilowatt solar power plant at the Bowen Water Treatment Plant.**

The installation is the first of its kind in North Queensland. It will produce more than 625,000 kilowatts/hour of electricity annually and will remove 570 tonnes of greenhouse gas from Council's carbon footprint each year. Also, it is expected to save almost \$250,000 per year in operational costs. Council estimates that the project will pay for itself in just over four years.

The solar power plant consists of approximately 1,500 solar panels fitted with photovoltaic cells, which are around 17% more efficient than traditional cells. These panels supply seven large three-phase inverters.

The project also includes two large permanent standby generators, which will be used to ensure that potable water is supplied to residents during and after severe weather events. This was an important issue to address for residents, with many not having access to potable water in the aftermath of Tropical Cyclone Debbie.

By upgrading the water treatment plant's operating systems as part of the project, Council will have remote control over the critical functions of the facility in the event of a cyclone or significant weather event. This will ensure a much safer and more resilient water supply.

Council is not only reducing its carbon footprint and operational costs, but also increasing the resilience of its critical community assets through the installation of a reliable energy source.

Figure 2. Solar panels at Bowen Water Treatment Plant





“Taking the initiative as part of Council’s continued commitment to reducing GHG emissions, a 400 KW solar photovoltaic system has been installed at the Bowen Water Treatment Plant.”

- Andrew Willcox, Mayor

### **BENEFITS**

**Council is committed to meeting its GHG emissions reduction target through the implementation of this strategy. Mitigation actions provide Council and the wider Whitsunday community with a number of direct and indirect benefits, including:**

- » Improving efficiencies in infrastructure and asset management
- » Reducing operational costs due to decreased energy consumption
- » Improving energy reliability by using renewable and local energy sources
- » Demonstrating leadership in the area of sustainability
- » Enhancing community resilience through improved self-sufficiency and decreasing reliance on higher energy (high cost) technologies
- » Enhancing community connection and cooperation through education



# STRATEGIC OUTCOMES & TARGETS

Council's Mitigation Strategy identifies a range of strategic outcomes to guide the implementation of this strategy. The strategic outcomes cover seven core areas, which form the basis of this strategy, and the resulting mitigation actions.



01

## **GOVERNANCE & LEADERSHIP**

Council is committed to improving governance through building a positive organisational culture that is engaged, informed, accountable and transparent. Council will lead by example by using innovative solutions to support climate change mitigation.

02

## **ASSET MANAGEMENT & DECISION MAKING**

Council is improving its decision making by gathering data and reviewing its processes to optimise energy efficiency and reduce GHG emissions.

03

## **COMMUNICATION AND EDUCATION**

Council demonstrates its commitment to climate change mitigation by leading by example and involving the Whitsunday Region's community.

04

## **STRATEGIC PARTNERSHIPS**

Strategic partnerships can be used to leverage Council's climate change mitigation actions in the Region. They are a positive way in which Council can make a difference in the community.

05

## **LAND USE PLANNING**

Through the Whitsunday Planning Scheme, Council can influence the outcome of private development in the Region. The Region will benefit by ensuring that development minimises the impacts of climate change.

06

## **EMERGENCY PREPAREDNESS**

The Whitsunday Region is subject to a variety of hazards such as cyclones and extreme rainfall events. Enhanced energy self-sufficiency through improved reliability and local energy security are essential to Council's mitigation strategy.

07

## **RESEARCH**

Council is committed to fostering climate mitigation research, initiatives and projects that will benefit the Region and reduce Council's GHG emissions.

## COUNCIL'S GREENHOUSE EMISSIONS

Like other growing regional local governments, Council's GHG emissions trend is on the rise. This is because our Region's population is increasing, with a resultant increase in demand on resources such as water, sewer and road infrastructure.

Council acknowledges the impact of GHG emissions on the climate. Council is strongly committed to reducing its GHG emissions and began measuring them in 2016. The largest contribution to Council's GHG emissions comes from waste management, with over 81,000 tonnes of GHG emitted over the 2016-2017 financial year from its Kelsey Creek and Bowen landfills. In addition to this, 8,366 tonnes of CO<sub>2</sub> equivalents were produced across Council's

electricity based operations (i.e. all operations excluding fleet and landfill) over the 2016-2017 financial year, as detailed in Figure 3. Out of this, the largest source of GHG production is from the water and sewerage asset groups.

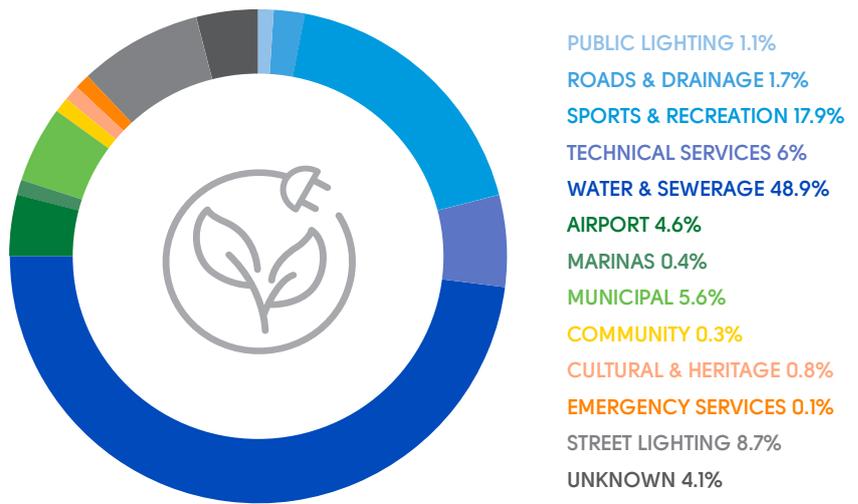


Figure 3 - Breakdown of Council sources of GHG (2016-2017) from corporate (electricity based) operations (excluding fleet and landfill). Source: Opus International Consultants (2017)

## COUNCIL IN ACTION BOWEN WATER TREATMENT PLANT

As part of the projects completed in 2017/18, Council has transitioned the Bowen Water Treatment plant to a Supervisory Control and Data Acquisition (SCADA) Systems.

The transition to a SCADA system provides important data about Council's infrastructure. It allows Council to undertake remote, real-time monitoring and manual control of essential pumps within the water treatment plant. The ability to regulate pump speeds through controls known as Variable Speed Drive (VSD), and power outages to match demand, will result in an increase in pump efficiency, profitability and reduce the generation of GHG emissions (through energy savings).

The transition to SCADA systems allows Council to fully automate processes by avoiding the need for manual adjustment of systems. This is achieved by using a sonar that measures water levels in pump wells. The sonar triggers an automatic response at a pre-programmed level in the well that will adjust the VSD accordingly. The automation will significantly reduce operational costs and, in particular, maintenance costs.



Figure 4: Bowen Water Treatment Plant. Source: WRC

## CLIMATE TARGETS

Council's GHG emissions reduction targets have been developed to align with the Paris Agreement and both Australian and Queensland Government climate change targets.

The figures to the right set out Council's GHG-reduction targets and objectives in CO<sub>2</sub> equivalents for 2020, 2030 and 2050. These targets will be achieved through the implementation of priority actions (refer to priority actions at the end of the document) that will reduce and/or offset energy consumption from Council assets and operations.

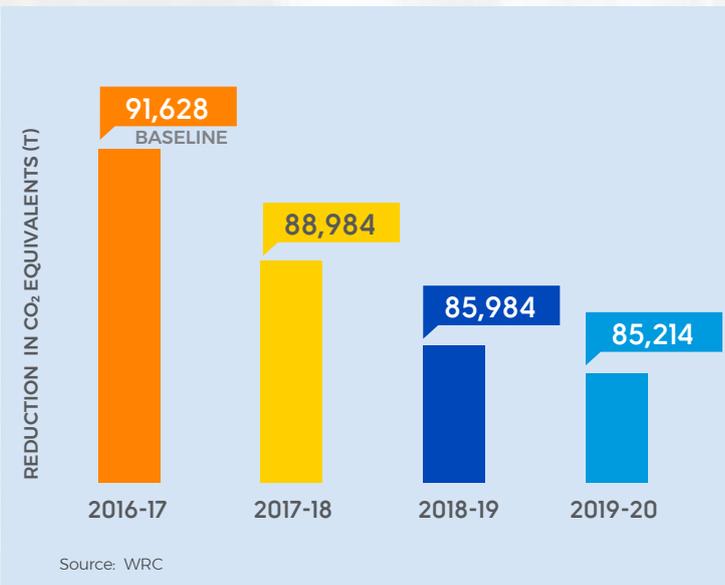
*Note: Reduction targets are based on CO<sub>2</sub> equivalents*

**2020**  
**10%**  
REDUCTION

**2030**  
**30%**  
REDUCTION

**2050**  
**100%**  
REDUCTION  
*(aspirational target)*

### COUNCIL TOTAL CO<sub>2</sub> EMISSIONS REDUCTION



### EXAMPLES OF ASSETS INCLUDED IN THE CALCULATION OF COUNCIL GHG EMISSIONS

ASSET CLASSIFICATION	ASSET EXAMPLES
<b>Water and sewerage</b>	Treatment plants, pump stations and bores
<b>Waste</b>	Landfills
<b>Sports and recreation</b>	Pools, sports clubs and ovals
<b>Municipal</b>	Libraries and Council offices
<b>Technical services</b>	Telecommunications plant rooms
<b>Airport</b>	Hangar and sheds
<b>Roads and drainages</b>	Buildings, such as depot and sheds, to store machinery used for roads and drainage works.
<b>Emergency services</b>	SES building and generators
<b>Marinas</b>	Fuel facilities
<b>Public lighting</b>	Street lighting, parks
<b>Cultural and heritage</b>	Heritage buildings such as police and fire stations, the lighthouse in Bowen and showground buildings

# PRIORITY ACTIONS

**Council has considered a large number of climate mitigation actions. These actions have been prioritised based on the following criteria:**

- » Relevance to Whitsunday Regional Council
- » Relevance to the Whitsunday community
- » Return on investment
- » Feasibility of implementation
- » Operational requirements
- » Community expectation
- » Environmental impact

The top fifteen priority actions and their relationship to the strategic outcomes can be seen on the next page, and explanatory notes on these actions are contained at the end of the document.

## STRATEGIC OUTCOMES

ACTION NO.	PRIORITY ACTIONS	GOVERNANCE & LEADERSHIP	ASSET MANAGEMENT & DECISION MAKING	COMMUNICATION & EDUCATION	STRATEGIC PARTNERSHIP	LAND USE PLANNING	EMERGENCY & PREPAREDNESS	RESEARCH
01	SOLAR POWER	●	●				●	
02	LED SMART LIGHTING		●					
03	PROCUREMENT POLICY AND GUIDELINES	●	●					
04	ENERGY EFFICIENT VEHICLE FLEET		●					
05	ASSET IDENTIFICATION AND MONITORING		●					
06	ENVIRONMENTAL SUSTAINABLE DESIGN FOR COUNCIL BUILDINGS	●	●				●	●
07	ASSET SERVICING AND RENEWAL	●	●					
08	WATER SUPPLY EFFICIENCIES - SCADA SYSTEM	●	●					
09	CARBON OFFSETTING					●		●
10	PLANNING SCHEME AMENDMENT		●		●			
11	PRIVATE/PUBLIC PARTNERSHIPS	●		●				
12	DEDICATED COUNCIL SUSTAINABILITY CHAMPION			●		●		
13	OUTREACH & PUBLIC EDUCATION		●	●	●			
14	MONITORING, EVALUATION AND IMPROVEMENT	●	●	●	●	●	●	●
15	WHITSUNDAYS CLIMATE CHANGE INNOVATION HUB	●	●	●	●	●	●	●

## COUNCIL IN ACTION SMART SOLAR WALKWAY LIGHTING

Council has installed smart solar lights on public walkways in order to improve energy efficiency.

The new LED lights are solar powered and equipped with sensors. The project has been designed with a specific focus on pedestrians and encourages people to participate in outdoor walking and sports activities in the evening.



To date, solar walkways have been installed in the following locations:

- » Argyle Park, Bowen
- » Yasso Point, Bowen
- » Scottsville
- » Abell Point and various locations across Airlie Beach
- » Proserpine

The LED technology improves cost efficiencies and decreases energy consumption. The technology improves the lifespan of the asset and reduces the maintenance costs. As an example, new LED lights installed on part of the Bicentennial Walkway are equipped with a sensor, which automatically turns the lights on as the sun goes down.



Figure 5: Coral Seas Boardwalk Lights. Source: WRC

# CONCLUSION

Whitsunday Regional Council's *Climate Change Mitigation Strategy* highlights the impacts of climate change for the Region and more specifically for Council's operation and management.

The Strategy has been developed with the sole objective of significantly reducing Council's GHG emissions and consequently contribute to slowing the rate of global warming. GHG-reduction targets (using 2015/16 as a baseline) have been set for 2020, 2030 and 2050 to ensure that progress can be measured. This contribution is in line with international, national and state-wide frameworks.

As part of its continued commitment to reducing GHG emissions and to minimise the effects of climate change, Council has developed fifteen (15) priority actions. Through the implementation of these actions, Council will achieve up to a 10% reduction of its GHG emissions by 2020 and up to 30% by 2030, supporting our aspirational target of a 100% reduction by 2050.

By improving efficiencies in infrastructure and asset management, and by converting assets to renewable energy sources, Council strives to become an example of progress, innovation and leadership in climate change initiatives in Queensland.

# SOLAR POWER

# 01

## PROJECT

Council is committed to expanding solar power generation to supplement and provide an alternative to conventional energy sources. Council has investigated opportunities for solar panel installations across key Council owned buildings and infrastructure. Large assets, such as the Bowen Water Treatment Plant, have already been fitted with solar photovoltaic panels. Additional solar installations have been identified for a number of other Council assets. For smaller installations, such as barbeque areas, a feasibility analysis has been conducted and it has been demonstrated that savings and GHG emissions could be achieved.

**Project Champion:** Corporate Service (Procurement, Property & Facilities)

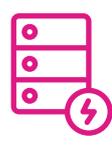


Figure 8: Bowen Water Treatment Plant  
Source: WRC

## BENEFITS



REDUCE COUNCIL'S GHG EMISSIONS BY USING CLEAN ENERGY



ALLOW THE MONITORING OF ENERGY CONSUMPTION TO SET REDUCTION TARGETS FOR BUILDINGS & INFRASTRUCTURE



IMPROVE BUILDING & INFRASTRUCTURE RESILIENCE IN CASE OF SEVERE WEATHER EVENTS AS THEY WILL BE SELF-SUFFICIENT

# LED SMART LIGHTING

## 02

### PROJECT

Council has a significant portfolio of assets that could be more energy efficient. Substantial energy efficiencies can be generated by replacing existing halogen light bulbs with LED bulbs for all Council assets.

Further energy reductions will be achieved by fitting smart lighting technology. This will include the installation of movement sensors and remotely controlled lighting to improve energy efficiency and reduce GHG emissions.

Smart lighting conversions will include consumption monitoring to enable Council to ascertain energy reductions and associated cost savings.

**Project Champion:** Corporate Services (Property and Facilities)



Figure 7: Airlie Beach Lagoon  
Source: WRC

### BENEFITS



**SMART LIGHTING** WILL RESULT IN LIGHTS ONLY BEING USED WHEN THEY ARE REQUIRED



**LED LIGHTS** CONTAIN NO TOXIC MATERIALS, ARE RECYCLABLE AND WILL HELP COUNCIL TO **REDUCE GHG EMISSIONS**



**LED LIGHTS ARE 90% MORE EFFICIENT** THAN TRADITIONAL LIGHTING

# PROCUREMENT POLICY AND GUIDELINES

## 03



**PROJECT** Council is committed to improving its procurement standards by amending Council's procurement policy and guidelines. It is proposed to imbed sustainable practices, including mitigation principles within the existing Procurement Policy. For example, limiting and/or mitigating transport for a product or service, should be taken into account during the procurement process.

Figure 6. Climate Change Mitigation-Energy and GHG Audit, WRC, 2018

By purchasing products and services that are energy efficient, Council can lower energy costs and the amount of GHG emissions created by the organisation. It is proposed to consider and incorporate the following factors into the decision process through the Procurement Policy:

- » The whole-of-life cost of an asset
- » The whole of the supply chain for goods and services, including end-of-life of goods
- » The energy consumption and GHG emissions associated with service providers
- » Low-impact and environmentally friendly goods and services
- » How the supplier reduces waste and how products are disposed of.

**Project Champion:** Corporate Services (Procurement)

### BENEFITS



REDUCE COUNCIL'S GHG EMISSIONS BY LOWERING ENERGY CONSUMPTION



ENSURE THAT THE END-OF LIFE OF PRODUCTS ARE CONSIDERED



REDUCE THE OVERALL ENVIRONMENTAL IMPACT OF GOODS AND SERVICES PURCHASED

# ENERGY EFFICIENT VEHICLE FLEET

# 04

## PROJECT

Council is in the process of renewing its fleet to be more energy efficient, with low-emission vehicles and machinery. Council has invested in seven new fuel-efficient cars during the 2017/18 financial year and the conversion will continue as part of a five-year plan.

The average mileage for a Council car is around 25,000 km/year. By utilising more fuel-efficient cars, Council could save up to 2,000 litres of fuel per year, per vehicle. This will significantly reduce the amount of GHG emissions into the atmosphere as well as achieving considerable savings in operational expenditure.

As an example, by replacing a 6-cylinder petrol car with a diesel efficient car, Council will reduce its GHG emissions by 1.84 tonnes/year. Table 3 compares the fuel consumption and CO<sub>2</sub> emissions between a new diesel efficient car, which is replacing a 6-cylinder petrol car.

**Project Champion:** Corporate Service (Procurement, Property & Facilities)

## BENEFITS



ACHIEVE EFFICIENCIES BY DEPLOYING A FIT-FOR-PURPOSE VEHICULAR LIGHT FLEET



REDUCE COUNCIL'S GHG EMISSIONS BY 209 MILLION TONNES BY 2020 BY:

- » REDUCING GHG BY 2% FOR 2017/18
- » FURTHER GHG REDUCTION OF 5% FOR 2019/20 & 2020/21

VEHICLE DETAILS	FUEL CONSUMPTION (L/100KM)	ANNUAL TAILPIPE CO <sub>2</sub> EMISSION (TONNES)
<b>NEW VEHICLE:</b> DIESEL EFFICIENT CAR	4.9	1.92
<b>OLD VEHICLE:</b> 6-CYLINDER PETROL CAR	9.3	3.61

Table 3. Source: <https://www.greenvehicleguide.gov.au/Vehicle/QuickCompareVehicles>



Figure 9: Energy Efficient Vehicle. Source: WRC

# 05

# ASSET IDENTIFICATION AND MONITORING

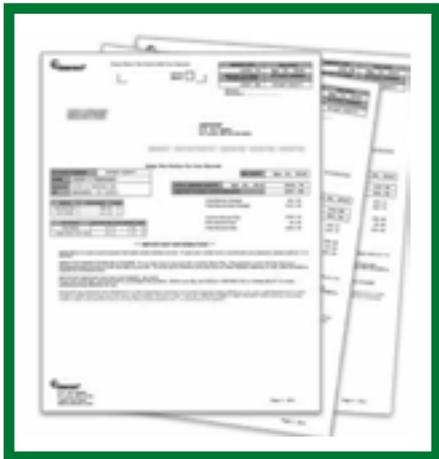


Figure 10: Climate Change Mitigation - Energy and GHG Audit, WRC, 2018

## PROJECT

Council is pursuing an asset identification program to ensure that all assets are correctly identified and linked to Council's GIS system. This information will be the basis for integrating business processes across all Council departments through the use of Enterprise Resource Planning (ERP) software, which will centralise all operations. This will allow processes to be optimised for efficiency and enable improved decision making.

As an example, all records of electricity consumption will be automatically recorded against individual assets. These can be monitored to improve energy efficiency and detect any abnormal high energy consumption.

**Project Champion:** Corporate Service (Procurement, Property & Facilities)

## BENEFITS



REDUCE COUNCIL'S GHG EMISSIONS BY GAINING EFFICIENCIES IN ENERGY CONSUMPTION



REDUCE THE OVERALL ENVIRONMENTAL IMPACTS OF GOODS AND SERVICES PURCHASED

# ENVIRONMENTALLY SUSTAINABLE DESIGN FOR COUNCIL BUILDINGS

## PROJECT

Council is committed to improving its energy efficiency through incorporating Environmentally Sustainable Design (ESD) principles in all retrofits or new construction of Council buildings and assets. For example, as part of the tendering process, Council is introducing requirements for applicants to demonstrate how ESD principles are to be incorporated in projects. In awarding contracts, Council will give a weighting to ESD principles during the assessment of projects, which will also provide operational savings for Council. Examples of ESD principles would be to incorporate glazing into windows and install differential pressure sensors to create a continuous air flow in the ventilation system.

## BENEFITS



**REDUCE COUNCIL'S GHG EMISSIONS BY LOWERING ENERGY CONSUMPTION**



**COUNCIL'S ENVIRONMENTALLY SUSTAINABLE DESIGNS CAN SERVE AS AN EXAMPLE TO THE BROADER COMMUNITY**



Figure 11: Climate Change Mitigation - Energy and GHG Audit, WRC, 2018

**Project Champion:** Corporate Services (Procurement)

# 07

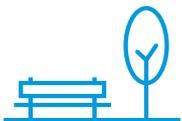
# ASSET SERVICING AND RENEWAL

## PROJECT

Council is responsible for the management, operation and maintenance of a diverse asset portfolio that provides services and facilities to the community. Council is actively working on increasing the resilience and energy efficiency of its assets over their lifetime through the implementation of preventative maintenance regimes and schedules.

Council has incorporated climate change core principles within its Strategic Asset Management Plan (SAMP) and subordinate plans, such as the Asset Management Plan (AMP). The AMP outlines the types and frequency of works needed to be done to maintain a particular asset class. Each asset class, such as roads, footpaths, parks, water infrastructure and Council buildings, will have its own maintenance schedule that considers climate change mitigation.

## BENEFITS



AVOID HAVING TO REPLACE ASSETS DUE TO BREAKAGE BEFORE THEIR NORMAL END-OF-LIFE



ENSURE THAT EQUIPMENT IS **OPTIMISED** FOR ENERGY EFFICIENCY



REDUCE THE OVERALL ENVIRONMENTAL IMPACTS OF EQUIPMENT



Figure 12. Climate Change Mitigation - Energy and GHG Audit, WRC, 2018

**Project Champion:** Engineering & Corporate Services (Asset Management)

# WATER SUPPLY EFFICIENCIES SCADA SYSTEM

## BENEFITS



REDUCE ENERGY CONSUMPTION THROUGH **REAL-TIME MONITORING** AND ADJUSTMENTS



**SAVE COSTS** BY ENSURING ASSETS ARE ENERGY EFFICIENT AND DO NOT NEED REPLACEMENT BEFORE THEIR NORMAL END-OF-LIFE

## PROJECT

Council operates four potable water plants across the region, all of which extensively use pumps. Those pumps consume a lot of energy and emit and produce GHG emissions. The implementation of a Supervisory, Control, and Data Acquisition (SCADA) system for the monitoring, supervision and controlling of pumping systems can help minimise GHG emissions through real time monitoring. SCADA systems can adjust the pump operations to the real-time demand and thus reduce pumping volumes as required. Reducing pumping activities ensures that the energy consumption is optimised.

**Project Champion:** Engineering Services (Water and Sewer)

MITIGATION ACTION

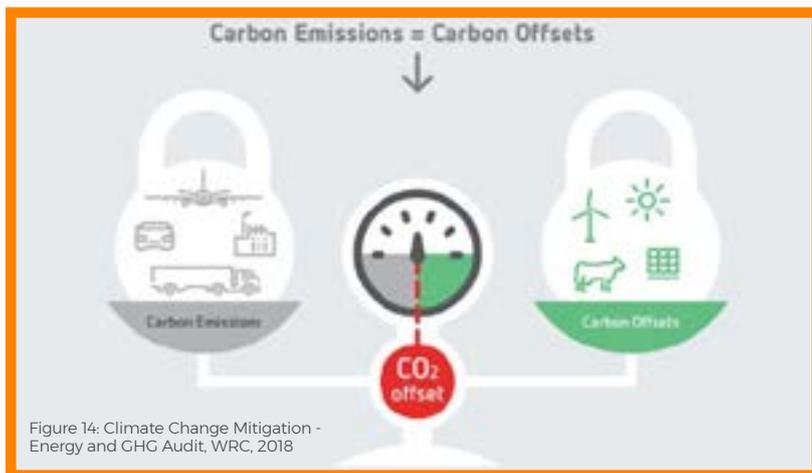
# 08



Figure 13. Water Plant in Bowen  
Source: <https://premise.com.au/project/bowen-water-treatment-plant/>

# CARBON OFFSETTING

# 09



## PROJECT

Although Council is reducing its GHG emission, it is not currently feasible to eliminate all greenhouse gas produced by Council operations. To compensate for the remaining GHG emissions Council is looking to quantifying the level of CO<sub>2</sub> being sequestered (creating a baseline) and look into offsetting opportunities.

Council currently owns many land parcels containing natural vegetation including wetlands and forests. These areas currently sequester CO<sub>2</sub> into vegetation's biomass and into the soil. By protecting these areas and quantifying the levels of CO<sub>2</sub> sequestered, Council will be able to determine management responses required (including offsetting) to produce zero net emissions by 2050.

Council is able to offset greenhouse gas emissions through initiatives such as reforestation and rehabilitation of natural areas. By undertaking reforestation and natural restoration activities, Council will not only reduce the greenhouse gasses entering the atmosphere and increase biodiversity values within our region.

## BENEFITS



ESTABLISH  
A **BASELINE**



ENSURES THAT  
CARBON NEUTRALITY  
OR GHG EMISSION  
REDUCTIONS **CAN**  
**BE ACHIEVED**



IDENTIFIES AREAS  
WHERE RECEIVING  
OFFSETS WOULD  
BE THE **MOST**  
**BENEFICIAL**

**Project Champion:** Planning and Development Services  
(Strategic Planning) and Health, Environment and Climate (Climate)

# PLANNING SCHEME AMENDMENT

# 10

## PROJECT

Council is continuously working on improving the Planning Scheme through the consultation and amendment process. This allows Council to amend the Planning Scheme in response to new or improved scientific data, which will inform development controls to address specific climate change considerations.

Improved walkability, resilience to hazards, increase in green cover, consideration of building orientation and creating cooler buildings through passive cooling are just a few principles that could be better encouraged through the Planning Scheme.

Council is investigating the integration of climate considerations in the development application framework. This would require developers to identify how their proposed development addresses climate factors to reduce the impacts of climate change.

## BENEFITS



ENSURES THAT CLIMATE CHANGE IS APPROPRIATELY CONSIDERED THROUGH THE DEVELOPMENT ASSESSMENT PROCESS

**Project Champion:** Planning and Development (Strategic Planning)

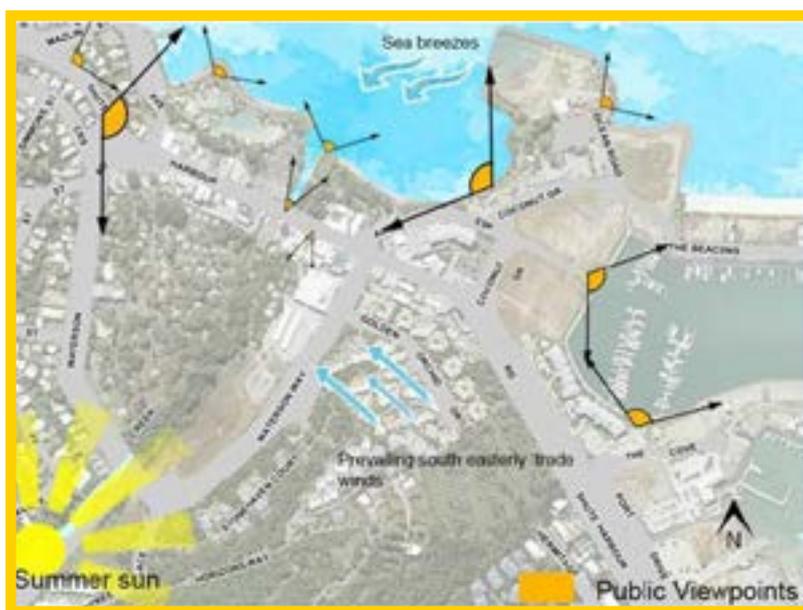


Figure 15: Whitsunday Regional Council Planning Scheme, 2017

# PARTNERSHIPS

## PROJECT

Council's gains in GHG emissions reduction can be leveraged by involving other parties and building strong partnerships in the Region. There are two major partnerships that Council intends on developing.

The first partnership is in relation to street lights. Ergon is currently implementing a LED transition program in regional Queensland to switch street lamps to LED. Council has approximately 620 lights that can be converted to LED. This presents a potential opportunity for Council to partner with Ergon to become part of this program in the future.

The second is a partnership with the Queensland Government to roll out the Queensland Electric Super Highway. The aim is to encourage, support and accelerate the uptake of electric vehicles in Queensland. A total of 18 fast-charger locations are proposed, one of which is located in Bowen. Council intends to facilitate and promote the project in collaboration with the Queensland Government. Council is looking to install fast-charger locations in Proserpine and Airlie Beach.

**Project Champion:** Corporate Service  
(Procurement, Property & Facilities)

## BENEFITS



PROMOTE GREEN MODES OF TRANSPORT



REDUCE GHG EMISSIONS BY INSTALLING ENERGY EFFICIENT STREET LIGHTS



REDUCE GHG EMISSIONS IN THE TOURISM INDUSTRY



SAVE 3.8 TONNES OF GHG EMISSIONS ANNUALLY BY USING EV COMPARED TO A TRADITIONAL INTERNAL COMBUSTION ENGINE VEHICLE

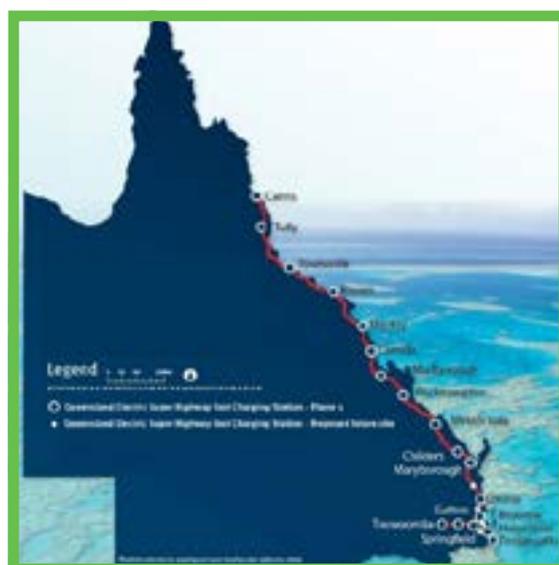


Figure 16: Queensland Government Electric Vehicle Super Highway. Source: <https://www.qld.gov.au/transport/projects/electricvehicles/map>

# DEDICATED COUNCIL SUSTAINABILITY CHAMPION

# 12

## PROJECT

Council believes that small actions in the workplace can have big impacts on energy consumption and carbon footprint reduction. Council proposes to improve workplace behaviour by nominating an existing employee as a Sustainability Champion (one per directorate). Examples of workplace-driven efficiencies could include: carpooling, avoiding printing excessive amounts of paper, recycling cardboard and paper, encouraging staff to make sure all lights are switched off when the office is not in use or making use of natural lighting where possible.

## BENEFITS



**REDUCE COUNCIL'S GHG EMISSIONS BY LOWERING ENERGY CONSUMPTION**



**ENCOURAGE COLLABORATION AND INVOLVEMENT FROM ALL PEOPLE IN COUNCIL**



**REDUCE THE OVERALL ENVIRONMENTAL FOOTPRINT**



**PROVIDE A POSITIVE EXAMPLE FOR OTHER WORKPLACES IN THE REGION**

**Project Champion:** One in each directorate under the leadership of Environment, Health, Environment and Climate



Figure 17: Achieving sustainability at work.  
Source: Energy and GHG Audit, WRC, 2018

# OUTREACH AND PUBLIC EDUCATION

# 13

## PROJECT

Council has recently established a kerbside recycling program. As part of this new initiative, it is proposed that Council conduct public campaigns to inform residents about what can and cannot be recycled. Bin audits can be used as an education tool.

Council achievements can be used to demonstrate that recycling can lead to GHG reduction. In 2017, Council paper and cardboard waste made up approximately 17% of total household waste. By recycling cardboard and paper and diverting it from landfill, Council has diverted 2,162 tonnes of organics. That represents a reduction in 17,193 tonnes of greenhouse gases.

Council is well placed to inform the public on its recent climate mitigation achievements. The dissemination of such information to the public will help drive confidence in tangible outcomes and reinforce Council's commitment towards climate change initiatives.

Council will provide current and appropriate energy efficiency information to the public via the creation of a dedicated webpage, highlighting the latest in industry practice, local providers and relevant case studies.

## BENEFITS



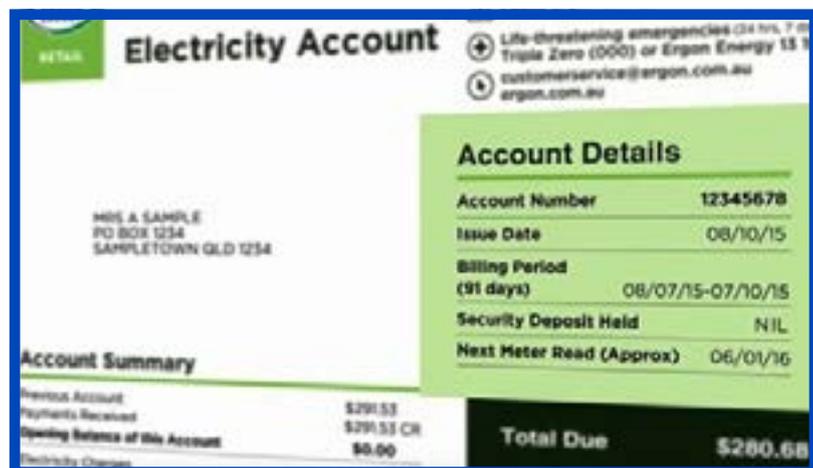
**EMPOWER RESIDENTS ABOUT THEIR CONTRIBUTION TO CLIMATE CHANGE MITIGATION**



**IMPROVE RECYCLING BIN USAGE**



**IMPROVE RESIDENTS KNOWLEDGE ABOUT WHAT CAN AND CANNOT BE RECYCLED**



**Project Champion:** Health, Environment and Climate (Waste management and Climate)

Figure 18. Understanding electricity bills. Source: Energy and GHG Audit, WRC, 2018



# WHITSUNDAY CLIMATE CHANGE INNOVATION HUB

# 15

## PROJECT

The Whitsunday Climate Change Innovation Hub (the Hub) is an initiative of the Whitsunday Regional Council. The Hub will provide a focus for parties from all over the world to work together with the Whitsunday community to develop real-world, holistic innovation required to maximise the resilience of the region to climate change. Given that many of the issues that climate change creates are consistent, lessons learned, information gathered and techniques developed at the Hub can then be disseminated to other local communities nationally and globally.

The Hub aims to lead the collaboration required to maximise the resilience of the Whitsundays and communities everywhere to climate change. The Hub is supported by the Climate Hub Advisory Panel, which includes climate change related experts from both public and private sectors, as well as community and Council representatives.

## BENEFITS



**MAXIMISE RESILIENCE TO CLIMATE CHANGE RISKS**



**CAPACITY BUILDING TO WITHSTAND ADVERSE CLIMATE CHANGE IMPACTS**



**PROVIDE INNOVATIVE SOLUTIONS TO MITIGATE CLIMATE CHANGE CHALLENGES IN THE WHITSUNDAY REGION**

**Project Champion:** Community & Environment (Environment, Health and Climate)



Figure 20. Whitsunday Climate Change Innovation Hub Advisory Panel Source: WRC



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HOTEL.  
MACKENZIE 1862

BILLIARD

HICKMOTTS DOWN TOWN CENTRE

AUSTRALIAN



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