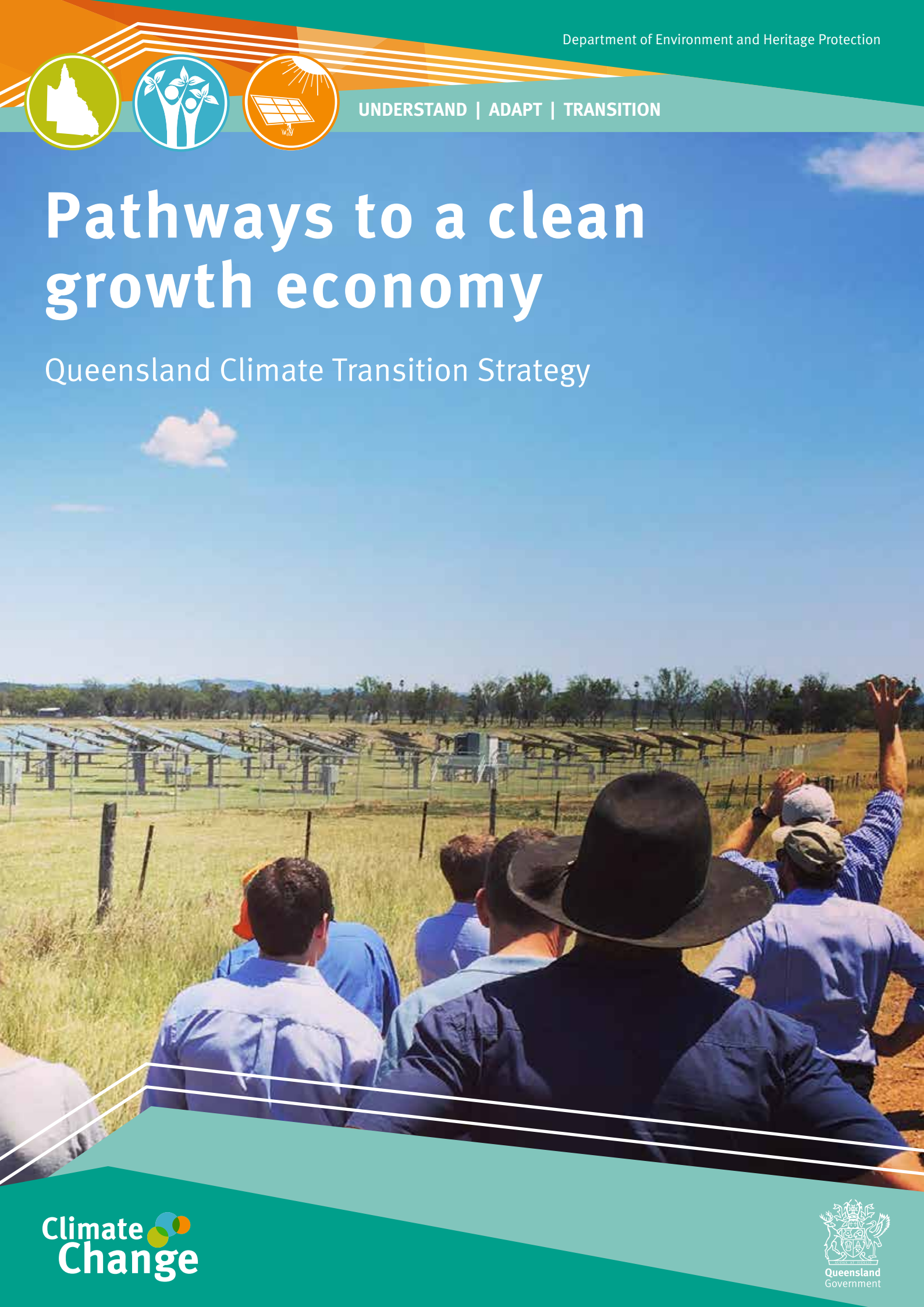




UNDERSTAND | ADAPT | TRANSITION

# Pathways to a clean growth economy

Queensland Climate Transition Strategy





## Minister's foreword

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Queenslanders want action on climate change.

In an overwhelming response to our discussion paper *Advancing Climate Action in Queensland: Making the transition to a low carbon future*, Queenslanders told us that action on climate change is needed now to create new jobs and sustainable communities in Queensland. From tourism operators on the Great Barrier Reef, who witnessed the worst coral bleaching event ever seen, to resource communities keen to ensure the long term viability of jobs, to business looking for the markets of the future, to Indigenous communities who see the opportunity for home-grown, carbon-exporting industries: all want a strong economy and a healthy environment for our kids to enjoy.

Stronger national action remains the most effective and least-cost way to reduce Australia's—and Queensland's—carbon pollution. The Palaszczuk Government will continue to advocate for clear and credible national climate and energy policy settings that will cap and drive down carbon pollution, in accordance with our international obligations.

But we are also acting now to ensure our communities and workforce are ready to capitalise on the opportunities of the global transition, and that we are putting in place the right measures to attract the new investment and industries of the clean growth economy.

The International Renewable Energy Agency, along with International Energy Agency, estimate the global compact to keep global warming to well below 2 degrees Celsius will add \$19 trillion to the world economy and create 6 million new jobs.

**We will create our fair share of these jobs of the future here in Queensland.**

In this Climate Transition Strategy we set out how we will set Queensland on the pathway to transition to a clean growth economy.

The first step is to set a goal, and that is for Queensland to achieve zero net emissions by 2050.

We will also:

- Generate 50% of Queensland's energy from renewable sources by 2030.
- Continue to advocate for national policies that will reduce carbon pollution.
- Lead by example by working to reduce the carbon pollution created by government operations and buildings.
- Take actions that will help create the jobs of the future in Queensland.
- Support businesses and households to increase their sustainability and decrease their expenses.

Queensland is already experiencing the impacts of a changing climate. Alongside this transition strategy is the Queensland Climate Adaptation Strategy 'Pathways to a climate resilient Queensland' which sets our approach to protecting the people and places we love and Queensland's way of life.

**Steven Miles MP**

Minister for Environment and Heritage Protection and  
Minister for National Parks and the Great Barrier Reef



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## Executive summary

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The Queensland Government has set a state target to reach zero net emissions by 2050. Along with the interim target for at least a 30% reduction in emissions on 2005 levels by 2030, this target is a critical first step to drive the investment and action needed to transition Queensland's economy to a zero emissions future.

This Queensland Climate Transition Strategy outlines how Queensland proposes to prepare for this transition and set itself on the pathway to meet this target. The world is heading toward zero net emissions and the technologies enabling this transition are now competitive. Australia's ratification of the Paris Agreement means the nation will need to reach zero net emissions by 2050.

As Australia's highest emitting state, this will challenge Queensland. Yet Queensland is well positioned to capitalise on its strengths: its skilled workforce; its capacity to act as a major carbon sink; its strong innovation and research sector; and its strong communities. Many decarbonisation actions also produce co-benefits in areas such as health, amenity and the environment.

It is in Queensland's interests to position itself to respond to the economic transition taking place as a result of the world's need to address climate change. But that response must be at the right pace for Queensland, be supported by solid evidence, and be developed collaboratively with Queenslanders across the state. The transition is both technically and practically achievable and as Queensland will be particularly affected by the impacts of climate change, there is a lot to gain from undertaking actions to address it.

The Queensland Government is already using the state's competitive advantages to create the jobs of the new economy and build a solid platform for reaching the 2050 target. Early actions include the ground-breaking 50% renewable energy target by

2030, the Advance Queensland initiative—including the Biofutures 10-Year Roadmap—and a commitment to developing an Electric Vehicle Strategy to prepare Queensland for a transition to electric vehicles.

This Strategy proposes a two-stage approach to developing Queensland's long-term policy framework to reach the 2050 target. The first stage and associated policy approaches will be implemented over the next three years, noting that this period of time is likely to be characterised by policy uncertainty and instability at the national level.

Strong national action to cap and reduce carbon pollution will deliver the best outcomes for Queensland; however, there are many low risk 'no-regrets' actions that Queensland can take to position the state for a smoother transition as the global economy accelerates towards zero net emissions. These actions include de-carbonising our energy sector (and biggest emitting sector), developing our capacity as a carbon sink, developing our capacity to drive innovation at a community level through place-based initiatives, and for government to drive zero net emissions targets through its own activities.

This will position Queensland for the second stage, which is the deployment of a suite of substantive policy measures from 2020, representing the state's pathway to zero net emissions by 2050. These policy measures will be based on a significant body of work that will help Queensland to position itself against global trends.

# Our commitment

Our vision is an innovative and resilient Queensland that addresses the risks and harnesses the opportunities of a changing climate.

We will make the transition to a low carbon, clean growth economy in a way that secures new jobs and opportunities for Queenslanders, supports and strengthens our communities and protects our precious natural environment.

## Queensland Government’s three key climate commitments

1

**POWERING QUEENSLAND WITH 50% RENEWABLE ENERGY BY 2030**

2

**DOING OUR FAIR SHARE IN THE GLOBAL EFFORT TO ARREST DAMAGING CLIMATE CHANGE BY ACHIEVING ZERO NET EMISSIONS BY 2050**

3

**DEMONSTRATING OUR COMMITMENT TO REDUCING CARBON POLLUTION BY SETTING AN INTERIM EMISSIONS REDUCTION TARGET OF AT LEAST 30% BELOW 2005 LEVELS BY 2030**

### What do we mean by ‘transition’?

The global economy is changing and Queensland is substantially influenced by these global trends. The jobs of today will not be the jobs of tomorrow.

‘Transition’ refers to shifts in the Queensland economy in response to the way the global economy is changing, and will continue to change, in response to an increasingly carbon constrained environment—from global trends such as automation, electrification, disruptive technologies, and information and communications technologies (ICT) innovation. These trends will be compounded by international and national measures to address climate change, as well as Queensland’s commitment to action, which will drive structural economic change that will affect many of the state’s industries.

## A 2050 zero net emissions target for Queensland

Zero 'net' emissions means that carbon pollution may still be produced in one part of the economy (e.g. some industrial processes) and count towards our pollution profile. However, the Queensland Government will be looking to find ways to offset that pollution in another part of the economy, such as increasing carbon storage in the landscape.

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

A long-term, state-based target provides a strong signal for guiding policy and driving the investment needed to put Queensland on a pathway to a zero net emissions economy.

Queensland's 2050 zero net emissions target is a clear long-term goal which will:

- Protect the state's long-term interests by positioning the economy to be competitive in a world where carbon pollution is constrained
- Provide the Government with the policy direction to manage uncertainty by equitably allocating costs of transition and reducing the risk of stranded assets and economic shock in later years
- Provide a signal to industry and the community that can unlock opportunities for investment and innovation in the state
- Demonstrate that Queensland is doing its fair share in the global effort for a zero emissions world.

Queensland's target will guide the Government's pollution reduction policies, inform business expectations about the future, and provide context for community action. In doing so, Queensland's target will play an important role in linking decisions with longer-term timeframes that need to be made now and, ultimately, national and global climate objectives. The target will also help maintain Queensland's commitment and allow our progress to be monitored and evaluated.

Queensland has also set an **interim target of at least a 30% reduction in greenhouse gas emissions by 2030, contingent on continued national and global action to meet the goals of the Paris Agreement**. The purpose of this target is to guide Queensland policy makers and industry in their medium-term planning and investment, while providing a clear signpost for monitoring progress towards the 2050 target.

## The journey so far

### May 2016

- Released the *Advancing Climate Action in Queensland: Making the transition to a low carbon future* discussion paper, inviting Queenslanders to have a say on the directions and opportunities that should be pursued to build a cleaner, more sustainable and prosperous Queensland. The discussion paper received nearly 6000 responses from Queenslanders across the state.
- Released the *Carbon Pollution Projections: Queensland's Baseline Greenhouse Gas Emissions to 2030*. The case for action on climate change was set out in these documents.

### October 2016

- Released the *Queensland Climate Adaptation Directions Statement* and *Regional Climate Change Projections*. Consultation was held across the state on these documents and almost 300 submissions were received.
- Held the *Advancing Queensland: Building the new low carbon economy* industry summit where leading business representatives from across Australia gave their views on the opportunities for Queensland in a zero net emissions world.

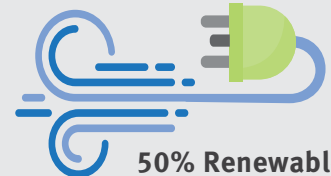
### 2017

- Release of *Queensland Climate Transition Strategy* and the *Queensland Climate Adaptation Strategy*—together they will form the Queensland Government's response to climate change.

# EARLY MEASURES TO REVITALISE CLIMATE CHANGE ACTION IN QUEENSLAND

## Queensland Carbon Plus Fund

**\$8.4 million** will support the carbon farming industry and create jobs for Traditional Owners to deliver environmental, social and cultural benefits in Indigenous communities.



**50% Renewable energy target by 2030**

**1 million or 3000MW solar rooftops**



## Green Bonds

The Queensland Government will support investment in environmentally responsible projects through Green Bonds issued by the Queensland Treasury Corporation.



## \$12 million over three years for the QCoast2100 program

Supporting Queensland local governments impacted by existing and future coastal hazards to advance adaptation planning.



**2050 TARGET**  
Zero net emissions

## Advance Queensland Biofutures 10-Year Roadmap and Action Plan

The Government has set a vision for a **\$1 billion** sustainable and export-oriented industrial biotechnology and bioproducts sector.

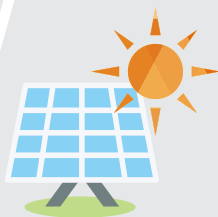


## Electric Vehicle Strategy

The Queensland Government's **Electric Vehicle Strategy** will prepare Queensland for a transition to EVs.

## Solar150

Providing long-term income certainty to support the development of up to **150 megawatts** of large-scale solar power generation in Queensland.



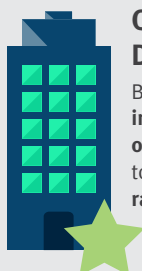
## \$3 million Climate Adaptation Strategy

The Government has developed a **Queensland Climate Adaptation Strategy** to improve opportunities and reduce risks to our communities, economy, infrastructure and environment from current and future climate impacts.



## Queensland Building Plan Discussion Paper

Building on early commitments to **improve the sustainability of privately owned buildings and homes** and work towards achieving **Green Star ratings for government buildings**.



## Sustainability assessments for all government capital projects over \$100M

As part of the **State Infrastructure Plan**, all state government projects of **greater than \$100 million** in value will undertake a sustainability assessment, including climate change considerations.





## Global drivers

The 2015 United Nations Paris Agreement was a landmark commitment by more than 190 nations, including Australia, to limit global warming to “well below” 2 degrees Celsius, above pre-industrial levels and as close to 1.5 degrees as possible. It committed the world’s governments, including Australia’s key trading partners, to zero net emissions by the second half of this century.

Since Paris, a major shift in global investment towards zero emissions sources of energy has accelerated with the International Energy Agency highlighting that global investment in renewable energy and energy efficiency now tops \$US0.5 trillion.

The groundswell of climate action from sub-national governments, cities and businesses has also increased after Paris. More than 170 states and regions in 33 countries representing over 1 billion people support the goal of zero net emissions by 2050 as part of the Under2 Coalition.

### KEY POINTS

- The world is committed to the Paris Agreement.
- Zero emissions technology is now cost-competitive.
- The global economy is already transforming.



## National drivers

Australia needs to do its part as a nation to meet the commitments made in the Paris Agreement.

Strong, coherent and consistent policy drivers in response to climate change are needed at a national level to reduce emissions at the lowest cost across the Australian economy and to support Queensland’s—and all state and territories’—efforts to transition to a zero net emissions economy.

Queensland will continue to advocate for effective and responsible national policy settings through the Australian Government’s National Climate Change Policy Review in 2017 in collaboration with other states and territories.

Other states and territories are active in developing assertive climate change policies and actions with a number adopting zero net emissions targets.

Industry continues to advocate for stronger policy measures and, in many cases, is ahead of government in the action they are taking in response to the global transition. Industry has been clear in their conversations with the Queensland Government that certainty in climate change policy is critical to their ongoing success.

But Queensland can’t wait for the national policy position to become clear and do nothing in the meantime. There are actions that the Queensland Government must take to prepare the state for the inevitable transition that it will have to make. By getting on the right path now, Queensland can get ahead to ensure the state is not disadvantaged in the long run and that the pathway to a zero net emissions future plays to its strengths.

Queensland will continue work on climate change action within its own borders and will seek opportunities to collaborate across state boundaries. Queensland joins Victoria, New South Wales, South Australia, Tasmania and the Australian Capital Territory in having set a zero net emissions by 2050 target. In the absence of policy leadership at the national level, the states will continue to work together through the Climate Action Roundtable to find ways to collaborate to achieve the 2050 target.

### KEY POINTS

- Strong, effective climate change action at a national level is needed.
- Business, industry and the community are already working to manage their transition.
- States and territories will continue to work together on climate change.

### States and territories with zero net targets





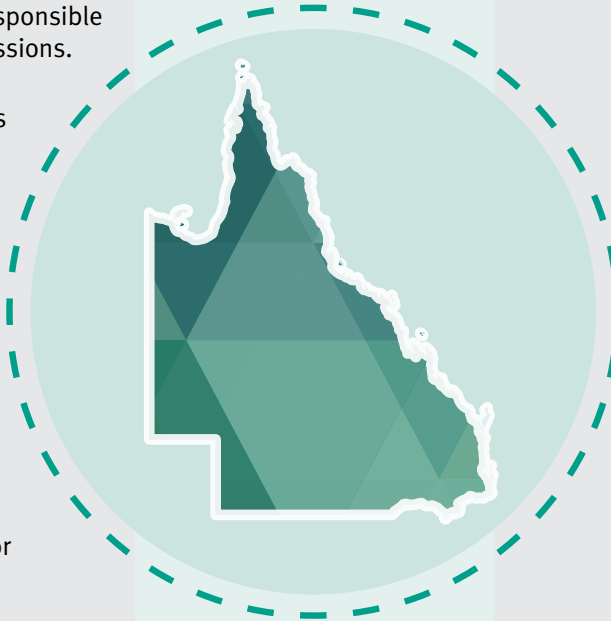


*Make climate change policy a prominent agenda item at COAG meetings so that the information regarding each State's carbon reduction contribution is reported and evaluated.*

## QUEENSLAND DRIVERS

### RISKS

- Queensland is Australia's highest emitting jurisdiction—responsible for 28% of national emissions.
- Queensland contributes around 0.3% of global emissions.
- ClimateWorks Australia modelling indicates a 31% increase in emissions to 2050 under business-as-usual.
- Emissions from land clearing continue to be a significant issue for Queensland.
- Queensland's high coastal population increases our vulnerability to sea level rise.
- Communities are vulnerable to more heatwaves and more intense rainfall events in some regions and droughts in others.
- The Great Barrier Reef is already being impacted by climate change, placing at risk the \$6 billion and 69,000 jobs it contributes to our economy.



### ADVANTAGES

- Queensland's large land mass has the potential to produce biofuels and develop a carbon farming industry.
- The agricultural sector is adaptive and responsive to climate change, ensuring its future competitiveness.
- The strong industrial sector produces many products that will be needed in the future economy and we have many mineral resources that will also be required.
- The long coastline and pristine environments provide opportunities in low carbon tourism.
- Research institutions across the state are already collaborating with industry on low emissions solutions.
- Many communities across Queensland are already responding to climate change.

# Getting it right for Queensland

Setting a 2050 zero net emissions target and an interim 2030 target is ambitious, but it is an important first step in responding to global market and climate drivers. It signals to global and domestic business and industry where Queensland needs to be, and it will guide the Government’s role in facilitating and enabling industries and communities to transition. Without this, Queensland risks being left behind in the national and global economy.

The Queensland Climate Transition Strategy builds on early action to establish a two-stage process for Queensland to achieve the 2050 target. The Strategy recognises the transition to a zero net emissions economy is both technically possible and economically responsible.

The Strategy recognises Queensland’s strengths and natural competitive advantages: a skilled workforce; solar, wind and natural resources; capacity to be a carbon sink; strong innovation and research sector; and strong communities.

Importantly, it sets out the first stage to move the Queensland economy towards the 2050 target.

This first stage, over the next three years, is characterised by the need to keep pace against national uncertainty, and the need to continue to advocate for strong national action which will deliver the best outcomes for Queensland and Australia as a whole.

During this period there are many low risk ‘no regrets’ actions that Queensland can take to position itself for a smoother transition as the global economy accelerates towards zero net emissions.

These actions include de-carbonising our energy sector (the biggest emitter), and for government to drive zero net emissions targets through its decision making.

Further analysis of economic and international trends—underpinned by ongoing engagement with communities, industry and business—will guide the second stage of pursuing the most appropriate post-2020 pathway for Queensland in the context of national policy settings in place at that time. Progress will be reviewed in 2019 to identify a broader policy framework for Queensland’s post-2020 action.

## KEY POINTS

- It is in Queensland’s interests to transition—and it is both technically possible and economically responsible.
- Queensland needs to keep pace with the transition in the global economy to take advantage of the opportunities and minimise the risks.
- Queensland has a good competitive advantage and a past history of making strong economic transitions.
- A two-stage approach to transition is sensible and will get Queensland on the most cost-effective pathway, but this is not a formula for inaction in the short term.



# What Queenslanders said...

In response to *Advancing Climate Action in Queensland: Making the transition to a low carbon future* discussion paper:

- Commit to a target of zero net emissions by 2050.
- Integrate emissions targets across government and in key policy areas including mining, transport, vegetation management, housing, infrastructure, energy and waste.

*Set a clear framework, with binding emissions targets and monitoring based on credible scientific analysis (e.g. The Climate Authority) and Queensland's 'fair share' of emissions reductions. ”*

*The problem we face is bigger than right here and now, and more important than the electoral cycle. There will always be jobs in new and non-polluting industries. ”*

*The State Government's goal of 50% of electricity generation from renewable energy by 2030 is to be applauded. ”*

*Queensland has a great opportunity to reduce our greenhouse pollution. What is needed is for all sectors of the economy to take part. Furthermore, the economic benefits of reducing pollution now will make it easier than delaying action into the future. ”*

A young child with light brown hair, wearing a blue t-shirt, is seen from the back, looking through binoculars. The child is standing in a sun-dappled forest with green foliage and trees in the background. The scene is bright and natural.

*Climate change is the critical issue of our time and all levels of Government have a responsibility to act decisively. A failure to restrict average global temperature increases to “well below” the 2 degrees range, as outlined in the 2015 Conferences of Parties (COP21) Paris climate agreement, will result in catastrophic environmental, social and economic impacts. ”*

*...commit to targets that ensure less than 1.5 degree rise in temperature. ”*

*...emissions are currently an external cost in our economic system and this has got to change. ”*

*I would like to see the aim clearly stated as not reaching 1.5 degree according to the Paris Agreement rather than not reaching 2 degrees. Even 1.5 is too high for many ecosystems such as coral reefs. ”*

# Setting Queensland on the transition path

The transition to a clean growth economy is a process that has already begun.

A suite of actions has been developed that advance this transition in a way that secures new jobs and opportunities for Queenslanders, supports and strengthens our communities and protects our precious natural environment. These actions are based on extensive feedback received from both industry and the community over the past 12 months.

### Our pathways

	<p><b>PATHWAY 1</b> Create an environment for investment shift and innovation</p>	<p><b>Response 1</b>—Facilitate the zero net emissions industries of the future</p> <p><b>Response 2</b>—Lead by example</p>
	<p><b>PATHWAY 2</b> Facilitate existing Queensland industries to transition</p>	<p><b>Response 3</b>—Understand the risks and opportunities that a zero net emissions future presents for Queensland</p> <p><b>Response 4</b>— Encourage innovation and transition to low and zero carbon technologies</p>
	<p><b>PATHWAY 3</b> Work with Queensland’s regional communities to transition</p>	<p><b>Response 5</b>—Work with Queensland’s regional communities to transition</p> <p><b>Response 6</b>—Skill Queenslanders for new economy jobs</p>

### Our principles

<p><b>Focused on opportunity</b></p> <p>We will identify and take up the opportunities that a zero net emissions transition provides</p>	<p><b>Flexible</b></p> <p>We will deliver early action to put Queensland on the path to zero net emissions that will remain complementary to emerging national policy</p>	<p><b>Effective abatement</b></p> <p>We will target areas of most emissions reduction potential, avoid emissions lock-in, and use effective mechanisms</p>	<p><b>Cost effective</b></p> <p>We will target areas of: low abatement cost; feasible total cost; and dynamic cost efficiency (lowering long term transition costs through innovation, technology diffusion and investment security)</p>	<p><b>Maximise co-benefits and manage risks</b></p> <p>We will promote transition actions that support the Government’s economic diversification and innovation agenda and deliver economic cobenefits such as jobs, industry development and lowered energy costs, and that support other Queensland Government objectives such as climate change resilience, reef water quality, biodiversity and air quality</p>
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Most importantly, Queensland will work from the strong platform that has already been developed.

The Queensland Government has already committed to a number of actions that will significantly deliver on reducing emissions, while creating jobs and facilitating the growth of new industries. This solid platform of activity includes:

- Commitment to a 50% renewable energy target by 2030—creating additional investment and jobs, particularly in regional Queensland.
- 1 million Solar Rooftops or 3000 megawatts of solar photovoltaics (PV) by 2020.
- Developing an Electric Vehicle Strategy to prepare Queensland for the transition to electric vehicles.
- Supporting carbon farming in regional and remote Indigenous communities through capacity building, recognising Indigenous benefits, and offsetting government emissions with Aboriginal carbon credits.
- Commitment to improve the sustainability performance of Queensland’s commercial, residential and government buildings through the Queensland Building Plan.

The Government will build on this work to continue Queensland’s transition.

This work will be supported and informed through ongoing community engagement as well as expert advice provided by the Queensland Climate Advisory Council (QCAC)—which will draw on additional expertise through the Queensland Climate Adaptation Partners group and Queensland’s Carbon and Industry Network.

Before 2020, Queensland will also explore what may be required, by way of a legislative response, to assist us in meeting the target commitments we have made. Other jurisdictions have developed Climate Change Acts, and a similar approach for Queensland will be explored.

## QUEENSLAND CLIMATE ADVISORY COUNCIL

- The Queensland Climate Advisory Council’s (QCAC) purpose is to provide the Queensland Government with expert advice on opportunities and directions to maximise the economic and social potential of the transition to a zero net emission and climate resilient economy.
- The 15 members are eminent business, industry and research leaders who will act as a conduit between the Queensland Government and the private sector to identify priorities for climate change action and innovation.
- The QCAC’s first role will be to apply its expertise to enhance the delivery of the Queensland climate transition and adaptation strategies. Following this, the QCAC will participate in the 2019 review of climate transition actions and will identify future policy actions for Queensland Government consideration.



# PATHWAY 1

CREATE AN ENVIRONMENT FOR INVESTMENT  
SHIFT AND INNOVATION





# Response 1

## Facilitate the zero emissions industries of the future

### Action

1.1	Achieve 50% renewable energy generation by 2030
1.2	Develop a Demand Management and Energy Efficiency Strategy
1.3	Deliver the Queensland Electric Vehicle Strategy
1.4	Expand carbon farming in Queensland
1.5	Reduce carbon emissions in the built environment
1.6	Support industry to shift to sustainable biofuels

### What Queenslanders said:

- The future should be powered by clean and renewable energy and technology - particularly given we are the 'Sunshine State'.
- We need low-carbon construction, infrastructure and transport systems (e.g. low carbon building design, electric vehicles, biofuels and green star rated buildings).
- Key opportunities are in renewable energy, battery and power storage, cleaner technologies and electric vehicle industries.
- Facilitate carbon farming and offset programs to provide financial incentives to retain forested areas or to revegetate land, including initiatives to diversify land use (carbon farming, organic and small-scale farming, solar and wind farms).
- Provide industry funding and investment to mobilise innovation and action.
- Improve public transport systems to be low-emission, well maintained, affordable, reliable, frequent and integrated.
- Ensure industry emissions are monitored and use penalties or incentives to shape behaviour.



Innovation and investment utilising new technology are essential for the development and expansion of low and zero emissions industries. Growth in low and zero emissions technology industries and enterprises in Queensland presents a major opportunity for business, industry and communities across the state. The government has an important role to play as a facilitator for this investment and innovation.

The Queensland Government is helping local companies, entrepreneurs and startups to bring innovative new renewable technology ideas to the global marketplace. Advance Queensland programs like Ignite Ideas, Innovation Partnerships, the Business Development Fund and the Advancing Regional Innovation Program can help create a new zero emission industry sector in Queensland that will power economic growth and create the knowledge-based jobs of the future.

Platform technologies, in particular, provide a significant opportunity in this space. Platform technologies are used as a base upon which other applications, processes or technologies are developed. The Advance Queensland Platform Technology Program provides opportunities for collaborative partnerships that accelerate the development and deployment of significant industry-based 'game changing' platform technology projects with the potential for multiple industry application.

In addition to the work Queensland has already done to develop a strong platform of high impact, no regrets action, the Government will:

- Develop and implement a Queensland Demand Management and Energy Efficiency Strategy to complement the 50% renewable energy target. The strategy will include a mix of mechanisms tailored

to achieving a state-wide energy efficiency goal. To determine an appropriate mix of measures, the Government will explore energy efficiency opportunities in Queensland and the potential to establish an energy efficiency obligation scheme.

- Develop a program to work with Queensland small-medium enterprises to take up energy efficiency measures and other sustainability initiatives that improve climate change mitigation and adaptation.
- Build on the CarbonPlus Fund, established in December 2016, to support landholders undertake carbon farming activities with social, economic and environmental co-benefits. The Government will address regulatory and administrative gaps; support research; engage with landholders on carbon farming opportunities; and investigate opportunities for investment in the revegetation and remediation of land under state control such as abandoned mine sites, unallocated state land, protected areas and forest reserves.
- Develop an action plan to support liquid fuel users switch to sustainable, low carbon biofuels, particularly where electrification may be difficult, such as in the aviation, maritime, freight, mining and agricultural sectors.

## CASE STUDY: SOUTHERN AURUKUN SAVANNA BURNING PROJECT

In 2016, the Queensland Government made a significant commitment of \$8.4 million to develop carbon farming in Queensland, and in particular to increase the participation and capacity of Aboriginal communities in carbon markets. Through this commitment, we hope to see more projects similar to the Southern Aurukun Savanna Burning Project that aims to reduce greenhouse emissions from fire.

Savanna fires release greenhouse gas emissions. By burning in the early dry season when fires are cooler and patchy, and burning less country, there are fewer emissions.

The Southern Aurukun project combines traditional knowledge of how to read country and knowing when to burn, with modern hardware (e.g. helicopters, fireballs and leaf blowers). The restoration of traditional patchwork burning has significant benefits for the environment.

This project is on Wik and Kugu country, to the south of Aurukun, and is carried out by the rangers at Aak Puul Ngantam in Cape York.

Improved fire management started in 2012, and a fire plan and carbon business plan were developed in 2015 so that the project could be registered under the Australian Government's Emissions Reduction Fund. The rangers have acquired significant knowledge about fire management and the logistics of running a project that can create recognised carbon credits.

In 2015, the project achieved 17,396 tonnes of abatement but the broader social and environmental benefits are what makes this project, and others like it, very exciting.

According to the project coordinators: *"Country is being managed the right way, connection to country is being revitalised and improved corridors are taking pressure off wildlife. Rangers and traditional owners have also gained an understanding of how management of their country is linked to climate change"*.

In the future, there is potential for greater cooperation with neighbours over fire management and a chance to rekindle broader clan networks.

Overall, the project helps fulfil the Wik and Kugu vision of sustaining their values and culture through healthy country and resilient and engaged communities.

*Queensland will be home to low-carbon industries, clean and healthy air, and cheap, abundant electricity.*



### **CASE STUDY: GRAZIERS REAPING THE BENEFITS OF CARBON FARMING**

With the investment already made by the Queensland Government in carbon farming and our proposal to build Queensland as a significant carbon sink, we hope to drive more projects like the Maranoa Ecosystem Conservation Project #2, outlined below.

Working with local graziers within the Maranoa region, GreenCollar has pioneered a market-based approach that protects threatened forest ecosystems while providing graziers with additional income and increased productive capacity.

One property in particular—located between the Thrushton National Park and the Chesterton Range National Park in South West Queensland—is part of a broader ecosystem corridor being assembled in the Maranoa region. The property, which has been owned by one family for over 100 years, is one of the oldest pastoral properties in its district. The property has a long history of clearing and development for various productive purposes.

In 2016, after consultation with GreenCollar, the family performed a cost-benefit analysis to assess the benefits of managing parts of their property to maximise the carbon stocks and sell carbon credits under the Australian Government’s Emissions Reduction Fund. The family concluded that the diversification of their income stream would not only benefit their current sheep grazing enterprise but also enable them to improve the long-term ecological integrity of their property as a whole.

The Maranoa Ecosystem Conservation Project #2 was one of the first ‘Avoided Clearing’ projects to be implemented in Queensland under the Emissions Reduction Fund and protects over 5,500ha of forest at threat of being cleared.

By protecting and enhancing large tracts of native vegetation and habitat, projects like these aim to maximise the co-benefits to the environment and improve the long-term viability of threatened ecosystems and the services they provide. They also provide graziers and landholders with a diversified income stream across the overall farm enterprise that can potentially increase their resilience to climate risks.

The Maranoa Ecosystem Conservation Project #2 is an example of transition action that can positively benefit landholders and help Queensland move towards a zero net emissions future.

# Response 2

## Lead by example

### Action

2.1	Join the Under2 Coalition and support zero net emissions by 2050
2.2	Demonstrate leadership by reducing emissions from Queensland Government operations
2.3	Integrate zero net emissions goals into state infrastructure planning
2.4	Use the land use planning system to support delivery of zero net emissions
2.5	Develop a Zero Net Emissions Transport Roadmap
2.6	Explore options to regulate greenhouse gas emissions through the Environmental Protection Act framework
2.7	Integrate climate transition risks and opportunities into government decision-making
2.8	Reintroduce comprehensive vegetation management legislation



### What Queenslanders said:

- The Commonwealth Government should lead on climate change policy, but is failing to act.
- The Queensland Government should lobby the Commonwealth Government and act independently where necessary to drive change.
- The Queensland Government needs to lead by example and transition its own operations, for example: low-carbon government operations (buildings, vehicles, electricity and procurement).
- Develop a whole-of-government approach to reduce emissions and integrate low-carbon criteria across policy areas and in investment, infrastructure and innovation funds.
- Local government should be demonstrating action and engaging with communities to facilitate low-carbon initiatives and economies.

The Queensland Government will facilitate transition through policy, projects and procurement, drawing on interstate and international practice. The Government will create platforms for innovation, demonstrate leadership, create demand for new services and set policy direction to drive government and non-government action.

The Queensland Government will sign the Under2 MOU to showcase its commitment to subnational global leadership on climate change and encourage others to do the same. The Under2 Coalition is a diverse group of subnational governments around the world who set ambitious targets (80 to 95% below 1990 levels by 2050) to combat climate change. A total of 167 jurisdictions spanning 33 countries and six continents have signed or endorsed the Under2 MOU—together they represent 1.09 billion people and \$25.9 trillion in GDP, equivalent to over a third of the global economy.

To demonstrate government leadership, the Queensland Government will reduce its own emissions from government operations. The first step is to reinstate the requirement for all government departments to report on their emissions from energy and fuel use and air travel by 2018 to manage emissions from government operations.

The second step is to use its funding, policy and purchasing levers to deliver emissions reductions, as well as social and economic outcomes in Queensland.

The Queensland Treasury Corporation is also issuing certified green bonds to investors in environmentally responsible projects funded in part by the Queensland Government.

Queensland has already committed to undertake sustainability assessments (including climate change impacts) for all government capital works projects over \$100 million, and will encourage sustainability assessments for projects under \$100 million.

The Queensland Government will drive investment in sustainable infrastructure by integrating the zero net emissions goal into the infrastructure policy framework. The land use planning system can be used to help deliver the zero net emissions goal. Building on its commitment to improve the emissions performance of buildings, the Government will ensure that changes to land use and built form—at the state, regional and local level—reduce energy emissions, promote energy efficiency, support renewable technologies and protect natural assets which act as carbon sinks.

The Government will develop a zero net emissions transport roadmap. This will consider better integration of transport policy with land use planning to reduce travel demand and optimise public and active transport infrastructure and services. It will also look at ways to reduce emissions from private, passenger and freight transport, such as through improved vehicle and fuel efficiency, technology and innovation, and fuel shift.

Queensland will continue to advocate for a coherent national framework that addresses greenhouse gas emissions from industry on a nationally-consistent basis. Should no coherent national framework be developed by 2020, Queensland will pursue avenues under the Environmental Protection Act framework to regulate greenhouse gas pollutants.

Queensland also assured the international community that it remains committed to reinstating strong tree-clearing protection laws in the future.

Finally, the government will work to better understand the risks and opportunities that global climate drivers present for its own assets, and investments, and use this understanding to make better decisions.

*Set an example for others to follow, employing best practice from cities around the world whose climate change response is more advanced.*

*The Government should legislate a Queensland Climate Change Act, locking in the more ambitious targets, with an agreed upon charter providing principles and objectives that must be considered in plans, policies, programs and operational decision making across departments.*



## GREEN BONDS FOR QUEENSLAND

The Queensland Government will support investment in environmentally responsible projects through Green Bonds issued by the Queensland Treasury Corporation (QTC).

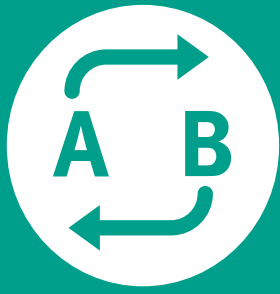
QTC has worked with the international Climate Bonds Initiative to independently certify a list of Queensland projects that meet a set of environmental criteria and for which QTC can issue green bonds to domestic and international investors.

The list of potentially eligible projects include:

- renewable energy
- energy efficient processes and products
- low-carbon transport—electrified rail infrastructure and cycleways
- drought resilience and flood defence
- water and wastewater treatment plants and distribution infrastructure
- preservation of the Great Barrier Reef and other natural ecosystems
- low-carbon buildings
- other projects covered by new or revised climate bond sector-specific standards.

The issuance of QTC Green Bonds will support the Government's commitment to the environment and action on climate change and will mean Queensland joins an ever-growing worldwide movement in supporting greater investment in projects that create jobs and support the transition to a zero emissions and climate-resilient economy.

The green bond market has grown rapidly in recent years and is expected to continue to grow as new issuers enter the market and investor mandates for green investments increase.



## PATHWAY 2

FACILITATE EXISTING QUEENSLAND  
INDUSTRIES TO TRANSITION



# Response 3

## Understand the risks and opportunities that a zero net emissions future presents for Queensland

### Action

3.1	Identify the sectoral and regional risks and opportunities for Queensland of transitioning to a zero net emissions economy
3.2	Assess zero net emissions pathways for Queensland, including achieving the interim 2030 target
3.3	Undertake strategic workforce and industry foresight analysis
3.4	Work with industry to promote efficient and effective abatement of fugitive emissions

### GLOBAL TRENDS DRIVING CHANGE IN OUR INDUSTRIES

Queensland's economy is fully integrated with global markets. Changes in those global markets will impact on our domestic industries and businesses, especially the products and services we export.

Some key trends that will impact Queensland's economy include:

- **Global demand for carbon offsets:** Post-2020, the global market for carbon credits is expected to grow significantly driven by national commitments to reduce emissions under the Paris Agreement—as well as major international sectors such as aviation and shipping with carbon reduction commitments. Queensland is well positioned to be a major supplier of products and services into this market through carbon farming of our land.
- **Low carbon food and fibre:** Queensland's agriculture sector is already highly efficient but markets are shifting towards suppliers that can provide products guaranteed to be environmentally and socially sustainable. For example, in 2013 the Coca-Cola Company committed to sustainably source 100% of its priority ingredients—like sugar, pulp and paper fibre, and citrus fruit—by 2020.
- **Innovation driven by carbon and resource constraints:** Climate change, natural resource constraints, and the transition to greener economies will drive demand for innovation—and global markets are already changing. Queensland has an opportunity to participate right now.





The global transition to a zero emissions future has significant implications for emissions-intensive, resource-based economies such as Queensland's. Even if Australia and Queensland were to take no further action on climate change, the economy would be affected by the mitigation efforts of other countries and by changing global technology and economic trends.

The transition to a zero emissions economy will take place over decades and will translate into different rates of change for different industries, regions and communities. To transition successfully to a zero net emission future, multiple pathways and options need to be explored. For some sectors, the change may involve use of new fuel sources or greater use of energy efficiency. For others, it may involve a more significant transition to new opportunities.

The Queensland economy is always evolving as conditions and technologies change. The Queensland Government proposes to work with industry to maintain the competitiveness of key Queensland industries and make the transition to a zero net emissions economy as smooth as possible for Queensland businesses and communities.

## What can we do to understand impacts on our existing industries and communities?

Over the next two years, the Queensland Government will work to identify the risks, opportunities and costs of transitioning to a zero emissions economy. This will take into account various transition scenarios and external factors such as international action and global trends, as well as the direction of national climate policy, and assess the implications for the Queensland economy. The risks and opportunities will also be analysed on a regional basis, to better understand how different communities will be affected by the transition.

This information will be communicated in regional impact statements and industry impact statements and will be used to:

- Enable a clearer understanding of the trade-offs that may be needed in the economy and 'least cost abatement' options of reducing pollution
- Allow the Queensland Government to facilitate a dialogue with industry to ensure that existing industries remain competitive
- Inform Queensland Government advocacy at a national level and prepare Queensland to respond to national policy settings as they develop
- Assist those communities that will be most impacted by transition scenarios to understand the decisions they need to make and the opportunities and transition pathways available to them

- Allow the Queensland Government to collaborate with industry and communities to facilitate workforce transition where required
- Inform Queensland Government and local government decision making, planning and policy development for longer term post-2020 policy
- Facilitate a dialogue with the community to engage in the most appropriate solutions for communities to transition.

This analysis will allow the Queensland Government to collaborate with local government, industry and communities to identify what response is required to identified risks and opportunities and to facilitate workforce transition where required.

Using the results of this analysis, the Government will reassess the Queensland Climate Transition Strategy in 2019 and develop a suite of longer term policies to put Queensland on a pathway to zero net emissions by 2050.

In conjunction with this pathway and modelling work, the Queensland Government will monitor and evaluate the effectiveness of our policies and actions already underway to ensure they are effective in meeting the state's target.

While further work is needed to create a long term transition pathway that is right for Queensland, this is not a reason for inaction in the short term. There are many actions that Queensland can take to position the state for a smoother transition as the global economy accelerates towards zero net emissions.

# Response 4

## Encourage innovation and transition to low and zero carbon technologies

### Action

4.1	Engage with the start-up community to promote Zero Emissions Innovation In Action
4.2	Partner with Climate-KIC to harness climate change innovation
4.3	Support the 2017 Global Business Challenge to find innovative renewable energy solutions



### What Queenslanders said:

- There are economic opportunities and jobs in new clean industries.
- Explore and promote the potential for exporting technologies, clean energy and knowledge.
- Provide support for innovation through investment and efficient policies and regulations.
- Put a price on carbon to stimulate innovation and commercialisation of low emission industries and technologies.
- Increase awareness, promote the options and develop tools to engage and motivate communities and businesses.
- Improve education and training to help industry transition through knowledge and skills.



The Queensland Government is committed to growing existing key industries and fostering new industry sectors. Existing industries could benefit from a zero net emissions economy, for example, through the revival of energy-intensive manufacturing industries such as aluminium smelting powered by zero-emission electricity.

Queensland also has the potential to deliver renewable energy, such as biofuels, for export markets. The Queensland Government is leading Australia's bio-economic revolution through the Advance Queensland Biofutures 10-Year Roadmap and Action Plan. Queensland also has significant rare earth and mineral deposits which have high value in emerging and green technologies required for a decarbonising world.

The Queensland Government's Advance Queensland initiative supports diversification of the economy by developing new industries and creating the knowledge-based jobs of the future. The various programs within this initiative will support the development and deployment of innovative technologies that will help existing and emerging industries compete and flourish in a low to zero emissions economy.

Over the next two years, the Queensland Government proposes to:

- incorporate the zero net emissions target and interim target into its Advance Queensland agenda
- identify opportunities to actively engage with innovators to promote zero emissions innovation through initiatives such as Climate-KIC and the Global Business Challenge.



## CASE STUDY: ADVANCE QUEENSLAND

Advance Queensland supports projects to help manage climate risk, develop renewable energy solutions, and develop Queensland's solar PV and battery energy storage industries. Projects that have been funded to date include:

### Advance Queensland Research Fellowships:

- *Smartphone-based decision support tool*—this project will develop an actionable, research-based approach to cyclone mitigation in Queensland and other cyclone-prone regions of Australia.
- *Maximising renewable energy penetration through smart inverter deployment and control*—a research project to enable higher penetration of renewable energy sources in Queensland.
- *Making solar better: advanced electronics for distributed energy storage*—research to help solve power quality issues in low voltage distribution networks by developing an advanced direct current converter to be used in battery energy storage.

### Advance Queensland Ignite Ideas:

- *Optimisation of patented wind turbines*—optimisation of a proprietary wind energy technology using advanced computational fluid dynamics modelling for improved wind energy harnessing.
- *Impact Building Systems*—field trials for a patented low cost solar thermal collector.
- *Elevare Energy*—funding to undertake research and development into technologies that use clean energy from rooftop solar stored in Queensland-made 'smart' batteries to reduce peak demand charges in commercial buildings.

### Advance Queensland Innovation Partnerships:

- *Battery and Microgrid Management Systems*—a project to develop and demonstrate two new products for the management of batteries in solar energy systems and the management of microgrid systems.

### Advance Queensland Business Development Fund:

- *Tritium: improving our energy future*—funding to assist Tritium (a Queensland-based company) to undertake research and development into electric vehicle technologies.

### WHAT IS CLIMATE-KIC?

Climate-KIC (Climate-Knowledge Innovation Community) is Europe's largest public-private innovation partnership, working together to address the challenge of climate change.

The objective of the organisation is to drive innovation in climate change through creative partnerships large and small, local and global—between the private, public and academic sectors.

Building on its success in Europe, Climate-KIC is now establishing in Australia. Partnering with Climate-KIC gives Queensland the opportunity to actively build its innovation eco-system in climate change. For more information on Climate-KIC see: [www.climate-kic.org](http://www.climate-kic.org)

### WHAT IS THE GLOBAL BUSINESS CHALLENGE?

The Global Business Challenge (GBC) was established in 2014 as the G20 Global Business Challenge. The GBC is managed by the Queensland University of Technology (QUT) and supported by two other leading Australian universities—The University of Queensland and Griffith University—as well as the Queensland and Australian Governments. The GBC has seed funding of \$500,000 each year for an initial seven years to address real-world solutions such as the global water challenge, food security and healthcare. Building on the success of the inaugural competition in 2014, the Global Business Challenge has quickly established itself as the world's premier innovation competition.

The challenge for the 2017 GBC is to identify novel solutions that lower the cost and/or reduce the risks associated with the transition from fossil-fuel based energy to achieving sustainability and reliability from renewable energy sources.

Proposed solutions may cover any domain within the renewable energy theme, and one or more points within the value chain (generation, distribution and storage). Proposed solutions should include demonstrable new technologies, as well as novel business models that support widespread adoption and successful commercialisation.

*The global economy of the future will be based around renewable energy and low carbon initiatives. Put simply, we should aim to be at the forefront of this transition, in order to position Queensland for the benefits of innovation. We are ideally placed to do this.*

“

*The transformation of our transport, buildings, manufacturing, energy, food and agricultural systems all create exciting opportunities for Queensland, but we need to plan to achieve the full benefits of them. ”*

“

*Innovation isn't necessarily about technology and funding - it can also be about innovative leadership, collaboration, and stakeholder engagement. ”*





# PATHWAY 3

WORK WITH QUEENSLAND'S REGIONAL  
COMMUNITIES TO TRANSITION



# Response 5

## Support Queensland communities to take action

### Action

5.1	Build leadership capacity within communities to develop place-based climate transition roadmaps
5.2	Our Transition—provide tools, data and financial support for communities
5.3	Zero net pledges and Talking Transition program
5.4	Decarbonise remote communities
5.5	Work with local governments to build climate transition capacity



### What Queenslanders said:

- Queensland should base decisions on scientific evidence and research, and communicate the benefits of a clean energy transition.
- Facilitate behaviour change and engage the community on what they can do regarding sustainable alternatives and low carbon choices through awareness campaigns.
- Improved state, regional and town planning to optimise low-carbon opportunities.
- Develop consumer incentives, ensuring low-carbon options are affordable and accessible to everyone.



One of Queensland's great strengths is its regional communities—and their support is vital to the state's economic transition. Action at a local level will have a significant impact on our state's overall ability to meet the 2050 target, and will extend and complement action being undertaken at national and interstate level.

Those regional communities that will be most impacted by the economic transition are also best placed to identify the opportunities they have in the future. It is in the interests of Queensland to ensure that these communities are empowered to play an active role and that policies, where possible, encourage 'place-based' initiatives.

Climate change action at the sub-national, regional and city level—and specifically place-based emissions reduction initiatives—are already producing significant results internationally and have been identified as making a critical contribution to meeting our obligations under the Paris Agreement.

Cities are at the forefront of climate innovation, with carbon neutrality now a goal for hundreds of cities around the world. Some communities are innovating through a 'precinct' approach where government, industry and community work together to reach zero net emissions in a geographically-defined area.

Many communities across Queensland are already doing a lot to transition to the new economy—for example, by taking up renewables and through active transport and local sourcing of goods and services. Community groups are often led by volunteers who harness the resources of their local community to achieve effective on-the-ground results. The Queensland Government recognises the importance of this kind of community action and proposes to support these initiatives.

*I think there is a general lack of understanding of climate change in the population. This means that change is often seen as unnecessary or just another cost. This lack of support understandably makes Governments hesitate as they do not want to choose the less popular pathway. ”*

*You need to be using design to engage communities in meaningful, innovative ways, not gimmicky technology but actually sitting down with people, running workshops, identifying what challenges face particular communities and then designing alternative futures that the community can believe in and work towards. ”*



*We need a change in ideas of people before we can expect everyone to just adopt sustainable practices. Knowledge is power.*

© Tourism & Events Queensland

### **CASE STUDY: REGIONAL COMMUNITIES AND ECO-TOURISM**

Lady Elliot Island is a tiny 42ha Coral Cay, the most southern island on the Great Barrier Reef. In the past the island was mined for guano and was heavily degraded, but it has now been transformed to its former state. The island's sole operation is now a small eco resort with 41 cabins. It is renowned as an example of environmental best practice—providing an awesome holiday experience in a natural environment.

Transitioning towards low-emission self-sufficiency, while developing a successful business that manages everything in a sustainable way and preserves the island for future generations, has been a challenging exercise.

The island desalinates almost 30,000 litres of fresh water daily, as rainwater collection is not possible due to the highly populated bird colony. The underground aquifer is critically important to the island's eco-system. Waste water is processed by a waste water treatment plant and re-used to irrigate the airstrip's grass and island vegetation. All other wastes require the same responsible management practice. The island fully recycles, and all food waste and cardboard is composted and used as fertiliser for the nursery.

The island has always made its own power using diesel generators. In the past around 550 litres of diesel fuel was consumed daily. Over the past eight years the resort has converted to a hybrid solar power station with over 400 solar panels—and now burns under 100 litres of diesel per day.

While some doubted the island would achieve even 50% reduction due to the high power requirements for desalinating water and powering the resort's growing operations— over 80% reduction was achieved, saving more than \$200,000 each year. The savings were used to invest in a new desalination system, utilising the latest technology which makes the same volume of water as before, but does so in nine hours instead of 15.

The goal for the island is now 100% renewable energy. It is a balance between being financially sustainable and environmentally sound.

Feedback from consultation with communities has indicated that the most effective support for local action is to provide small grants, and to promote networking within and across communities so they can inspire each other and share knowledge. The Queensland Government will deliver a small grants program for communities using innovative approaches to reduce emissions locally.

The Government will build capacity within its non-government and not-for-profit sectors to ensure communities have the skills and capacity to facilitate transition conversations.

To provide Indigenous and other remote communities with more reliable and cleaner energy, the Government will accelerate the state's commitment to renewable energy and facilitate the installation of solar photovoltaics, battery storage and smart street lighting in remote areas. This will also support training and jobs for local technicians.

The Government will also assist communities with effective tools, information and data. Regional climate change projection data, information on relevant technologies, and innovative carbon reduction projects will be made publicly available online. These online resources will enable communities across Queensland to communicate and network on carbon projects, as well as providing a range of general resources, tips, how-to guides, and other tools. Communities can also share their carbon transition stories so other groups can learn and be inspired.

Local governments have an important role to play in facilitating and supporting progress towards zero net emissions goal. The Queensland Government will support local governments to integrate climate change initiatives across their functions and provide leadership within the local community and through the existing Queensland Climate Resilient Councils program.

The Government's support for Queensland communities taking action will be underpinned by a strategic communications and engagement strategy for sharing climate transition knowledge and showcasing community and industry leadership. This will be complemented by a zero net 'pledge' program to engage individuals, community organisations and business to make a public commitment to reducing carbon pollution and transitioning towards a low carbon future.

### **CASE STUDY: ZERO EMISSIONS NOOSA**

Zero Emissions Noosa (ZEN) was launched in 2016 with the goal of achieving zero net carbon emissions in the Noosa Shire community by 2026. The group is an alliance of 15 business, environment and tourism organisations, together with Noosa Council, CQUniversity and Sunshine Coast University.

The strength of the group lies in the unique alliance from organisations across the business and environment spectrum. With assistance from Noosa Council and Beyond Zero Emissions, ZEN has established the key contributors and quantities of its greenhouse emissions.

ZEN has established five working groups to tackle key emissions sectors: electricity, buildings, waste, land use and transport. Each of these groups has been working to identify strategic initiatives for the region.

The electricity group is developing case studies for the tourism industry demonstrating the payback for installing solar panels. The transport group knows that reducing the dependence on the private motor vehicle is a major task, and will engage with the community to explore opportunities such as using electric bicycles as an alternative to commuter travel. The land use group is developing a major strategic plan focussing on hinterland food production and revegetation opportunities.

# Response 6

## Skill Queenslanders for new economy jobs

### Action

6.1	Work with local governments and key stakeholders to develop local and regional jobs plans
6.2	Work with Queensland industries and communities to develop a Workforce Development and Skills Plan for low and zero emissions jobs



### What Queenslanders said:

- Recognise and advocate for industries important to Queensland’s economy, such as tourism and agriculture, and help them transition.
- Opportunities exist for new low-carbon industry and jobs, and a “future proofed economy”.
- Retrain workers and guarantee jobs in cleaner energy to support workers to transition.



Some of the jobs of today will not be the jobs of tomorrow.

As the world shifts towards zero net emissions there will be growth in clean energy and technology industries, and opportunities for Queensland businesses and workers to take advantage of these emerging industries.

The Queensland Government will use the economic risks and opportunities analysis—outlined in *Response 3: Understand the risks and opportunities that a zero emissions future presents for Queensland*—to understand where and how Queensland will be most affected by global economic shifts, and work with affected communities to provide them with the information and support they need to develop localised plans.

These strategies will identify industries that can be supported and expanded to ensure a sustainable economy into the future for these communities. Working in partnership with workers, communities and industry,

the Government will consider what support is needed for workforce planning to meet the needs of individual communities and workforces.

Coupled with the Government's engagement with the start-up community to promote *Zero Emissions Innovation in Action* (Response 4), the Government will analyse the risks and opportunities of a zero net emission future (Response 3) to help better understand the potential for new and expanded industries of the future. This analysis will be critical to inform workforce and skills planning for new economy jobs in Queensland to ensure that no Queenslanders is left behind as we transition.

### WHAT TYPES OF SKILLS WILL WE NEED IN THE FUTURE?

Creating new industries and using new technologies means workers with the necessary skills will be required. Many skills will be transferable but it will be important to ensure that workers—now and in the future—have access to the training needed for developing the skills required for new economy jobs. Skills needed in the new economy include:

- Engineering and construction skills for designing, siting, and building renewable energy and bio-industrial plants. For example: siting and erecting the wind turbines; designing appropriately-sized and safe biogas capture systems; and developing new processing equipment for unconventional bio-industrial feedstocks like weeds and waste.
- Electrical skills in renewables, energy efficiency, battery storage and electric vehicles to service and install these systems in residential, commercial, and industrial applications. With increased electrification of vehicles, servicing and repair of vehicles will require more auto-electrical skills.
- IT and communications to support the growth of the 'Internet of Things', increasing demand for IT infrastructure design and servicing skills.
- Carbon farming and land management to make the most of carbon export markets, rehabilitate degraded land, and produce food and fibre in low carbon and climate resilient ways.

It is important to understand the drivers for skills demand, training needs, projected workforce profiles, and critical skills and occupations for the renewable energy and zero net emissions technology industries.

Low and zero emissions industries require planning that links economic, industry and workforce objectives. Once the risks and opportunities associated with Queensland's transition are better understood, the Queensland Government will work with industries and communities to develop a Workforce Development and Skills Plan for low and zero carbon jobs to maximise opportunities for the state's workforce and jobseekers to secure jobs in low or zero emissions industries by:

- better understanding industry needs
- building the workforce in targeted communities
- increasing workforce participation
- maximising skills development and training provision in renewable energy construction.

*The opportunity for long term job creation in regional areas is incredible, jobs that will not end like those of the mining boom. We have the opportunity to bring employment and wealth back to suffering regional communities for the future and long term.*

*Queensland climate plan needs to go beyond energy. It's critical that the State Government invests in retraining of workers, encourages investment in places of industrial change and sets clear plans and targets for industry to mitigate against the risk of unplanned closure.*

# Climate Change

