WWF

POLICY

2020

Making Australia a Renewable Export Powerhouse

ACKNOWLEDGEMENTS

WWF-Australia acknowledges the Traditional Custodians of Country throughout Australia and their continuing connection to land, water and culture. We pay our respects to their Elders - past, present and emerging.

WWF is one of the world's largest and most experienced independent conservation organisations, with over five million supporters and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

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INTRODUCTION

As the world moves to act on climate change and fulfil the promise of the Paris Climate Agreement, places that have the best renewable resources in the world have a significant opportunity. **It's an opportunity that we believe Australia should seize.**

Renewable energy such as solar and wind is critical to decarbonising more than two thirds of global emissions in the electricity, transport, buildings and industrial sectors. In a world that acts on climate change, places with the most sunshine and strong winds and the land or area to capture these resources will have the lowest cost energy - a significant competitive advantage we ought to secure.

For the past 200 years Australia has been a resource powerhouse. Australia now has the prospect of becoming a zero-carbon energy powerhouse. However, for Australia to seize this potential requires leadership and urgent government action. Failure to act will mean watching other countries beat us to the opportunity, while locking our economic future to industries incompatible with a safe climate.

In this policy paper, WWF Australia sets out the priority policies required by Australian state and federal governments to position Australia as a renewable export powerhouse and put us on track to 700% renewables - that means having enough renewable energy for ourselves, and having much more left over to sell to the world.

Specifically, WWF calls on all States and Federal Governments to:

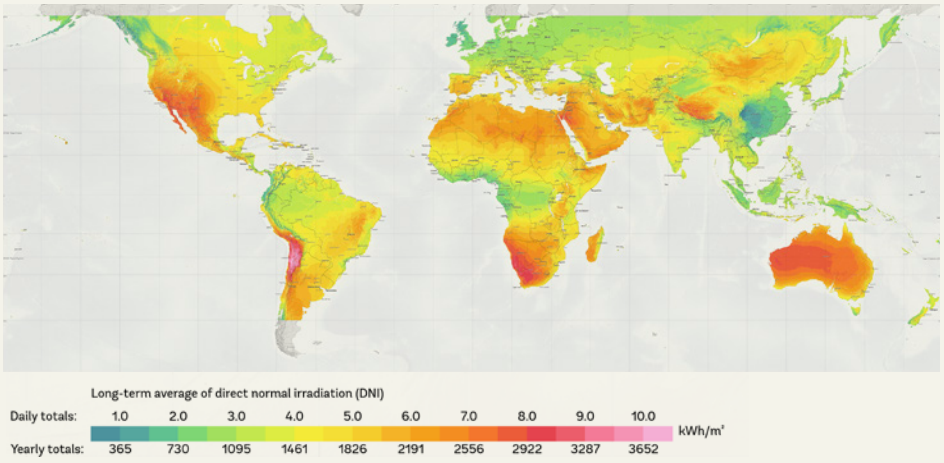
1. **Develop a costed Renewable Exports Plan for their jurisdictions,**
2. **Ensure the current renewables boom continues through smart policies and incentives,**
3. **Legislate a Climate Action Plan that ensures workers, communities and industry are looked after through the transition to a zero-carbon Australia, and**
4. **Work together to support accelerated action on renewable energy and new industry developments that deliver a zero carbon future, and achieve a safer climate for all.**

THE CASE FOR ACTION

A massive expansion of Australia's renewable industry including investment in technology, expertise, supply chains and high value products and commodities over the next decade presents a huge opportunity.

An opportunity that can bring massive economic growth, renewed industries and jobs and mainstream political popularity. The chance to write Australia's future is in the hands of the leaders of today.

GLOBAL SOLAR RESOURCE MAP



Economically beneficial climate action

Few places in the world are as well endowed with the resources needed to prosper in a low-carbon world than Australia. Australia has a large land area and some of the best solar and wind resources in the world. We have mineral deposits essential to the development of clean energy technologies. We have expertise, trust, a stable democracy and strong existing trade relationships.

Meanwhile, some of our biggest trading partners such as Japan, South Korea, Singapore and even Europe face significant challenges decarbonizing their energy sectors. They have higher populations, less land and a lot less sunshine.

This means that, Australia has the resources to not only decarbonize Australia's energy system at comparatively low-cost and high reliability, but to help our neighbours too through exporting our renewables to the world. In the process, renewables will underpin the economic competitiveness of our manufacturing, resources and agricultural sectors, attracting new industries to the Australian economy.

Global Solar Resource Map is published by the World Bank Group, funded by ESMAP, and prepared by Solargis.
For more information, please visit http://globalsolaratlas.info

"US$28 TRILLION IS EXPECTED TO BE INVESTED IN RENEWABLE ENERGY AND ENERGY EFFICIENCY EQUIPMENT BY 2035"
IEA & BEYOND ZERO EMISSIONS

Climate change is here. After a summer of catastrophic bushfires, made worse by climate change, the economic cost of climate inaction is now stark. Meanwhile renewable exports present an opportunity to boost Australia's economy, create tens of thousands of new jobs, while also lowering our own domestic carbon pollution.

Further, some of the best renewable export opportunities are located in traditional fossil-fuel resource communities. Renewable exports can and will be essential to supporting workers and communities currently dependent on fossil fuels to ensure their communities remain economically strong and socially vibrant.

Internationally, Australia is seen as a climate pariah. Action to take Australia to 700% renewables as part of a broader plan to move to zero-net emissions as soon as possible, would shift Australia from climate laggard to economic champion and open up new export income in the process.

Economy versus climate action is a false choice. Economic competitiveness now aligns with international decarbonisation efforts to which Australia has committed. Given every state and territory in Australia has the opportunity to benefit from renewable exports, all Australian Governments must now focus on how we take meaningful climate action and simultaneously stimulate our stagnating economy.

"AUSTRALIA HAS BETTER RENEWABLE ENERGY RESOURCES AND THEREFORE SPECIAL ADVANTAGES IN ENERGY USING INDUSTRIES THAN ANY OTHER COUNTRY IN A ZERO CARBON WORLD ECONOMY."

ROSS GARNAUT

What are Australia's renewable export opportunities?

WWF-Australia has identified six main types of renewable energy export opportunities that all governments should explore. They are:

a. Renewable hydrogen

Renewable electricity can be used to electrolyse water to create renewable hydrogen which can then be converted into a range of derivative commodities such as ammonia and synthetic fuels. Renewable hydrogen will have a huge role to play in decarbonising hard-to-decarbonise places and sectors such as steel.

b. Direct electricity transfer via undersea cables

Exporting our sunshine through high-voltage direct current cables to South East Asia, such as the 10GW Sun Cable project in the Northern Territory, backed by Mike Cannon Brookes and Twiggy Forest.

c. Renewable power products and commodities

Manufacturing in Australian energy-intensive commodities such as green steel, advanced manufacturing, aluminium and more using renewable electricity and then exporting embodied renewable energy in the form of these high-value products.

d. Australia's expertise

Australia's expertise, legal, financial, business and engineering, particularly in deploying & managing renewable energy systems, including education and training. Components for clean energy technologies e.g. wind turbine blades, inverters, batteries and the minerals such as lithium and copper essential to their production.

e. Components and recycling of components for clean energy technologies

Traditionally Australia has been thought of as a small market for renewables, but if Australia becomes a renewable export powerhouse this will no longer be the case. Australia can do everything from produce the minerals essential to clean energy technologies such as lithium, copper and nickel, to manufacturing wind turbine blades, inverters and batteries.

f. Software and services

Our software expertise is helping support the operation of clean energy systems, enabling demand management, microgrids, and grid integration of renewables, we can export this software and these services to the world.

Renewable exports are popular

Poll after poll shows that renewable energy is popular. With over 2.1million rooftop solar systems, you just have to walk down the street to evidence of how Australians have embraced renewable energy.

Significantly, WWF-Australia recently conducted national research to better understand what climate change stories resonate with middle Australia. This research found Australians want to hear messages that are positive, that are solutions-focused and that tap into their love and optimism about Australia.

By far the most popular message was this:

We are a nation of quiet achievers, at the individual, community, and business level. We invented WiFi and EFTPOS - technology that is used all over the world today. The modern solar cell was invented by an Aussie, and Australia has one of the highest rates of household solar in the world - with one in seven households having solar panels on their roofs. Aussie companies - big and small, and run by people like you and me - are leading the way in clean energy solutions, like grids, batteries, and electric vehicles. Australia has the tools and the solutions to become a clean energy powerhouse.

This message appealed to people across the board, regardless of their stance on climate change.

Australian governments have a political opportunity to present a vision for Australia as a renewable powerhouse. However, with trust in government at record lows it is essential that this vision is backed with both practical and policy action.

RENEWABLE EXPORT OPPORTUNITIES MAP

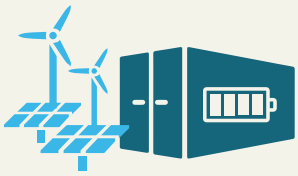

Mt Isa & Townsville renewable metals precinct
Battery Gigafactory
Sun Metals
Gladstone Renewable Hydrogen & Ammonia Hub
QUEENSLAND
Redflow Batteries
Planet Ark Power – Energy Management
Port Augusta Renewable Industry Hub
Tonsley Innovation District, Hydrogen Park
NEW SOUTH WALES
SOUTH AUSTRALIA
Whyalla Green Steel
Eguana Battery Factory
Sonnen Battery Factory
Alpha ESS Battery Factory
Low Inertia Grid Management Training?
ANU Grand Challenge
Windlab
ITPower
Newcastle Renewable Industry Hub?
Global Renewable Financing Hub?
UNSW Solar Engineering
VICTORIA
Vestas Wind Turbine Assembly Plant
Green Sync - Energy Management
Relectrify - Energy Management
Energy Transition Hub, Melbourne University
SEA Electric Vehicle Factory
Star of the South Offshore Wind Farm
Renewable powered Portland Aluminium Smelter
Bell Bay Advanced Manufacturing Zone & Battery of the Nation
TASMANIA
Entura

POLICY PRIORITY 1: A COSTED RENEWABLE EXPORTS PLAN

WWF is calling on all Australian governments to undertake the research required to position Australia as the world's leading renewable exporter by 2030. Based on that research these governments should develop and launch - by November 2020 - a costed Industry Plan to get their jurisdiction to 700% renewables.

This plan should include policies that:

1. Commercialise renewable export technologies and accelerate them down the cost curve,
2. Cover all of the renewable export pathways (outlined above) relevant to the jurisdiction where the jurisdiction has a potential competitive advantage,
3. Grow demand and market access for Australia's renewables in Australia and internationally,
4. Build the grid and sufficient renewable energy capacity so we can export excess,
5. Grow private and public sector investment in Australia's renewable export industries,
6. Support Aboriginal, agricultural, traditional resource and other local communities to benefit from renewable exports, and
7. Build industry and workforce expertise and capability to deliver renewable exports at scale, rapidly.



"WIND AND SOLAR BACKED UP BY STORAGE ARE NOW CHEAPER TO BUILD THAN COAL, GAS OR NUCLEAR"

CSIRO & AEMO

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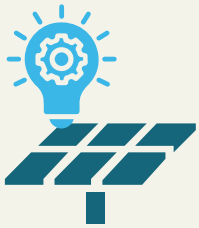


SOLAR CELLS INVENTED IN AUSTRALIA, ARE THE MOST WIDELY DEPLOYED GLOBALLY,
ANDREW BLAKERS, ANU

The plan should not include policies that extend the life of the fossil fuel industry and rather include policies that actively accelerates a fair transition. For example:

- The investigation of revenue models that reduce the jurisdiction's reliance on fossil fuel royalties,
- Not supporting projects where hydrogen is made from coal and gas, and
- Ensuring renewable export projects and services also help to decarbonise Australian markets and products in addition to international markets.

Governments should ensure this plan leads to a renewable export industry that is underpinned by the following principles:

- Maximises the benefits to Australians and Australian energy consumers including leading to more affordable and reliable power,
- Is safe,
- Leads to good careers, and
- Deploys renewable resources efficiently, for example renewable hydrogen is used for processes (e.g. steel) & places (e.g Japan) that can't be fully electrified.

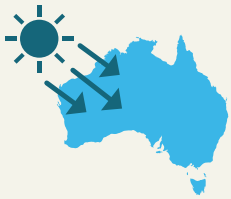
BOX 1: HYDROGEN STRATEGY

WWF notes the development of the National Hydrogen Strategy and a number of state and territory specific hydrogen strategies. We commend the significant work and thought that has gone into the development of these strategies. WWF-Australia is supportive of many aspects of these hydrogen strategies, including the priority focus on safety and the establishment of a hydrogen certification scheme, pilot and demonstration projects, hydrogen hubs and building benefits for the Australian community.

While WWF-Australia sees hydrogen as an essential element of a fully-decarbonised energy system, we have concerns about certain aspects of the National Hydrogen Strategy. These include:

- Lack of acknowledgement that the current global hydrogen industry is a significant contributor to climate change. Indeed if the hydrogen industry produces more carbon dioxide than either the global shipping or aviation industries, [1]
- The inclusion and support for hydrogen from coal and gas, and
- The lack of consideration of water and using recycled water for hydrogen production
- Support for some proposed hydrogen applications that would be more efficiently and cost-effectively served through electrification powered by renewable electricity.

WWF Australia is developing a Hydrogen Position Paper, which will set out our organisational position on hydrogen and priority focus to progress a targeted renewable hydrogen industry.



THE ANNUAL SOLAR RADIATION FALLING ON AUSTRALIA IS APPROXIMATELY
10,000 TIMES
AUSTRALIA'S ANNUAL ENERGY CONSUMPTION

1. Wood Mackenzie, 2019, The Future for Green Hydrogen, www.woodmac.com/news/editorial/the-future-for-green-hydrogen/

POLICY PRIORITY 2: ENSURE THE RENEWABLES BOOM CONTINUES

In addition to developing and launching a costed Industry plan, WWF is calling on all Australian Governments to implement the following policies to ensure the current renewables boom continues and avert another bust, as a matter of urgency:

IN THE LAST 3 YEARS AUSTRALIA INSTALLED MORE ELECTRICITY GENERATION THAN THE PREVIOUS 30 YEARS

1. Underwrite the planning for all transmission projects identified in the latest ISP, no matter the time frame proposed for deployment.
2. Establish at least three Renewable Energy Zones.
3. Establish a renewable generation and storage program that deploys at least 2GWs of renewables per year for larger states and 300MWs per year for smaller states and territories.[2] This could be a reverse auction or underwriting program, a requirement for large energy users to undertake corporate PPAs, government ownership or similar. This program should be designed to:
    a. Ensure the current renewable industry downturn does not lead to significant industry contraction and rather expands the renewable industry in-line with the jurisdictions significant export opportunity,
    b. Encourage best-practice in industry around employment standards and community engagement, and
    c. Help the establishment of local supply chains and leverage additional jobs in manufacturing, training, services and more.
4. Identify at least one new market domestically where the government can increase demand for a potential renewable export product or service, through underwriting, regulation or smart incentives. For example renewable ammonia and renewable fertilizer.
5. Establish and open a renewable export research, development, commercialisation and innovation fund. This should include grant funding (not just finance).
6. Support at least one flagship renewable export project that is at multi-gigawatt scale, as a project of state-significant development.
7. Put in place incentives and regulation that encourage or require the efficient electrification (via renewable generation combined with energy efficiency) of:
    a. Transport (passenger vehicles and public transport),
    b. Industry (e.g. mining, low-to-medium temperature manufacturing, metals refinement) and,
    c. Buildings (homes and offices).
8. A community renewable energy program funded to the tune of at least $50million over the forward estimates period for large states and $20million for smaller states.

CLEAN ENERGY INVESTMENT DROPPED ↓40% IN 2019

2. Note this should be additional to domestic solar and household battery uptake and associated support programs.

POLICY PRIORITY 3: ENSURE NO ONE IS LEFT BEHIND BY DELIVERING A CLIMATE PLAN

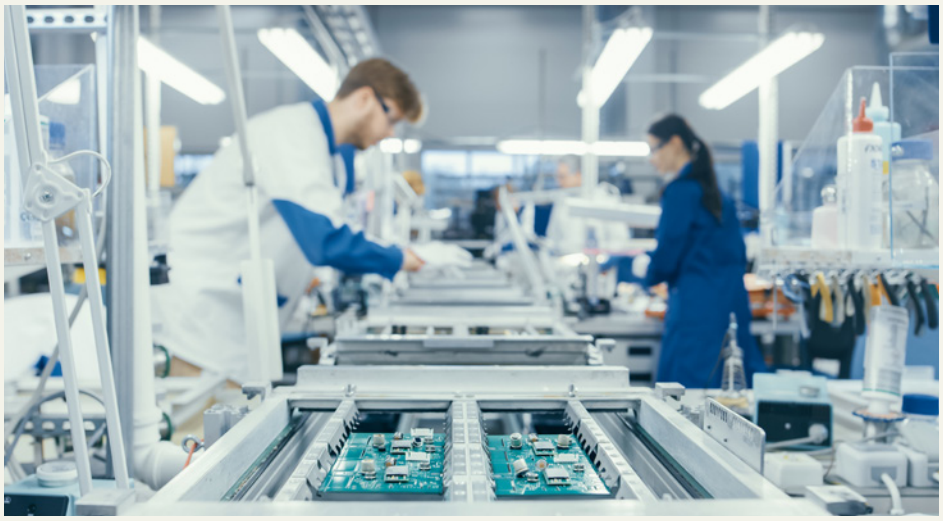
A renewable export strategy should compliment and feed-in to a legislated climate act that ensures workers and communities are looked after through the transition to a zero-carbon Australia.

Climate legislation will send an important market signal to all organisations and businesses that addressing climate change is a priority, thereby creating the stimulus for greater investment in clean energy solutions and domestic markets for products and services that may also have international markets.

The climate act should:

1. Require the government to undertake regular climate risk and opportunity assessments, that assess the risk of inaction on climate to the jurisdiction and the opportunities by acting on climate.
2. Legislate zero net emissions by 2040.
3. Require the government to undertake carbon budgeting in line with the Paris Agreement and the best available climate science to set interim climate targets.
4. Require the government to develop funded climate mitigation plans for every sector of the economy, and in those plans be required to identify co-benefits to action for example the building plan, should look at how to make homes more healthy. These plans should look at ways to leverage the actions of all relevant actors and should prioritise measures that reduce climate pollution in this term of government.
5. Put in place a funded Just Transition package of measures that ensures all workers and communities reliant on industries incompatible with a zero carbon world are well supported to diversify.
6. Require the government to develop and implement a climate adaptation plan.
7. Create new statutory bodies responsible for independently delivering the carbon budgeting and just transitions responsibilities.

1.25 BILLION ANIMALS DIED IN AUSTRALIA'S RECENT BUSHFIRES - MADE WORSE BY CLIMATE CHANGE



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POLICY PRIORITY 4: WORK TOGETHER TO ACCELERATE ACTION

Australian state governments have a significant role to play in making Australia a renewable export powerhouse and putting us on the path to 700% renewables, indeed a bigger role to play than many credit.

However, there are many other actors essential to achieving this goal, from energy market institutions to energy companies, the Federal Government to social sector organisations. It is essential that state governments work together, cooperatively with each other and these actors to accelerate action on renewable energy and zero-carbon industry development.

Specifically, we ask that state governments:

1. Use their influence to advocate for greater action federally and for expedited time frames from energy market bodies. Specifically, every jurisdiction should be:

    a. Calling **for the extension and expansion of the Australian Renewable Energy Agency (ARENA).** ARENA has played a critical role in driving the uptake of renewable energy in Australia since its establishment in 2012. Over this time it has delivered significant value to each state and territory. ARENA will run out of funding in 2020. Given the significant role ARENA must play in unlocking renewable export opportunities, it is essential that this not be allowed to happen.

    b. Asking AEMO to undertake electricity System Planning for deep decarbonisation, this could be new scenarios in the next version of the AEMO Integrated System Plan that look at significant levels of electrification and renewable export opportunities.

2. Coordinate and collaborate with other jurisdictions to maximise benefits to Australians and expedite the action required to become a renewable powerhouse.
3. Ensure that all parts of government are engaged in the efforts to deliver a renewable export strategy and industry and this important task is not siloed within one ministry or department.
4. Promote the renewable export opportunities and projects underway through all the channels available to them. This should include social media and media, events, multilateral and bilateral negotiations and more.

700% RENEWABLES FOR AUSTRALIA

WHY 700% RENEWABLES

Darren Miller, CEO of ARENA was the first person to publicly raise the concept of 700% renewables for Australia. 700% renewables which approximately equates to 700GWs of wind and solar, represents the scale of energy we currently export through Australia's LNG industry. WWF-Australia believes that Australia should be aiming for a renewable industry at least as big as our LNG industry, if not bigger.

GETTING TO 700% RENEWABLE ENERGY

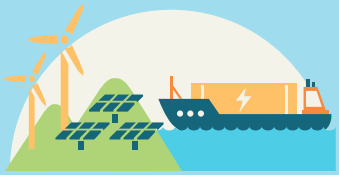
CLEAN OUR ELECTRICITY SYSTEM

Everything we do in Australia is powered by different types of energy. The main one is electricity, but we also use gas or petrol to give us heat and light and move vehicles and machines.

ELECTRIFY TRANSPORT AND INDUSTRY

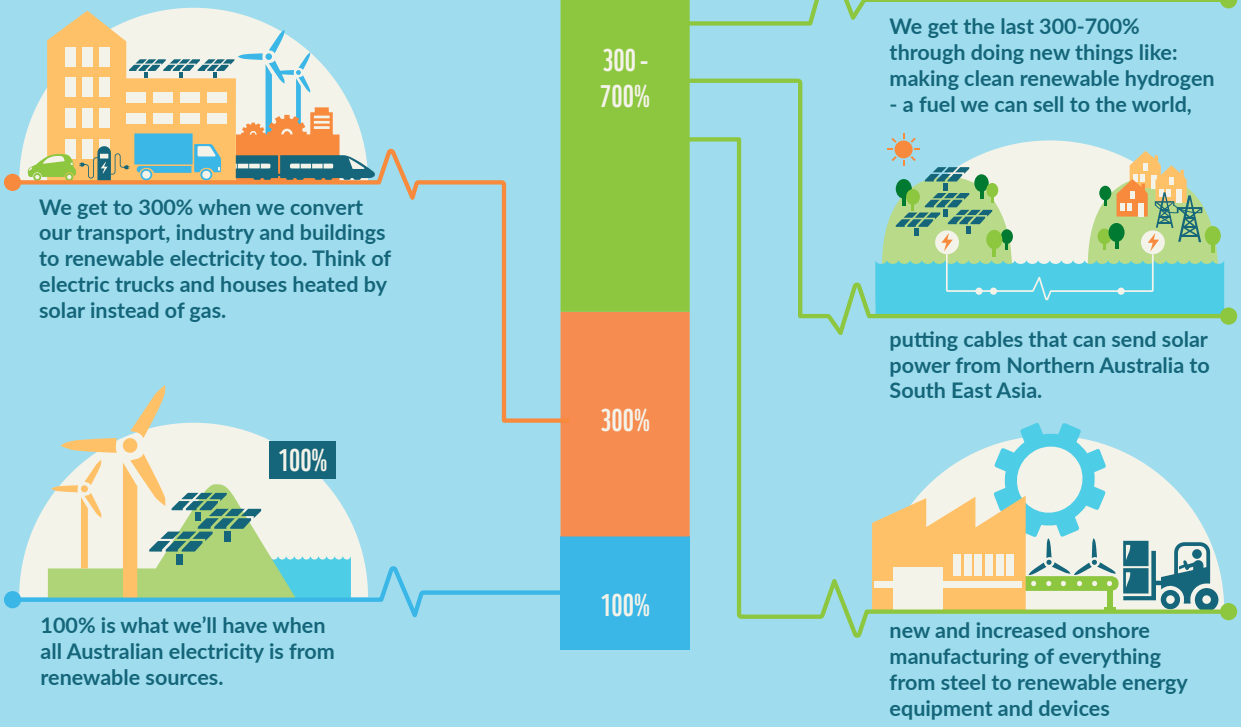
Some of our electricity already comes from renewable sources, but we need to make 100% of our electricity renewable and we need to replace those other types of energy with renewable electricity too.

EXPORT TO THE WORLD



If we do this well, as we get Australia clean we will also be able to sell renewable energy, and all of the equipment and expertise that goes into deploying it, to the world.

700% RENEWABLES



CONCLUSION

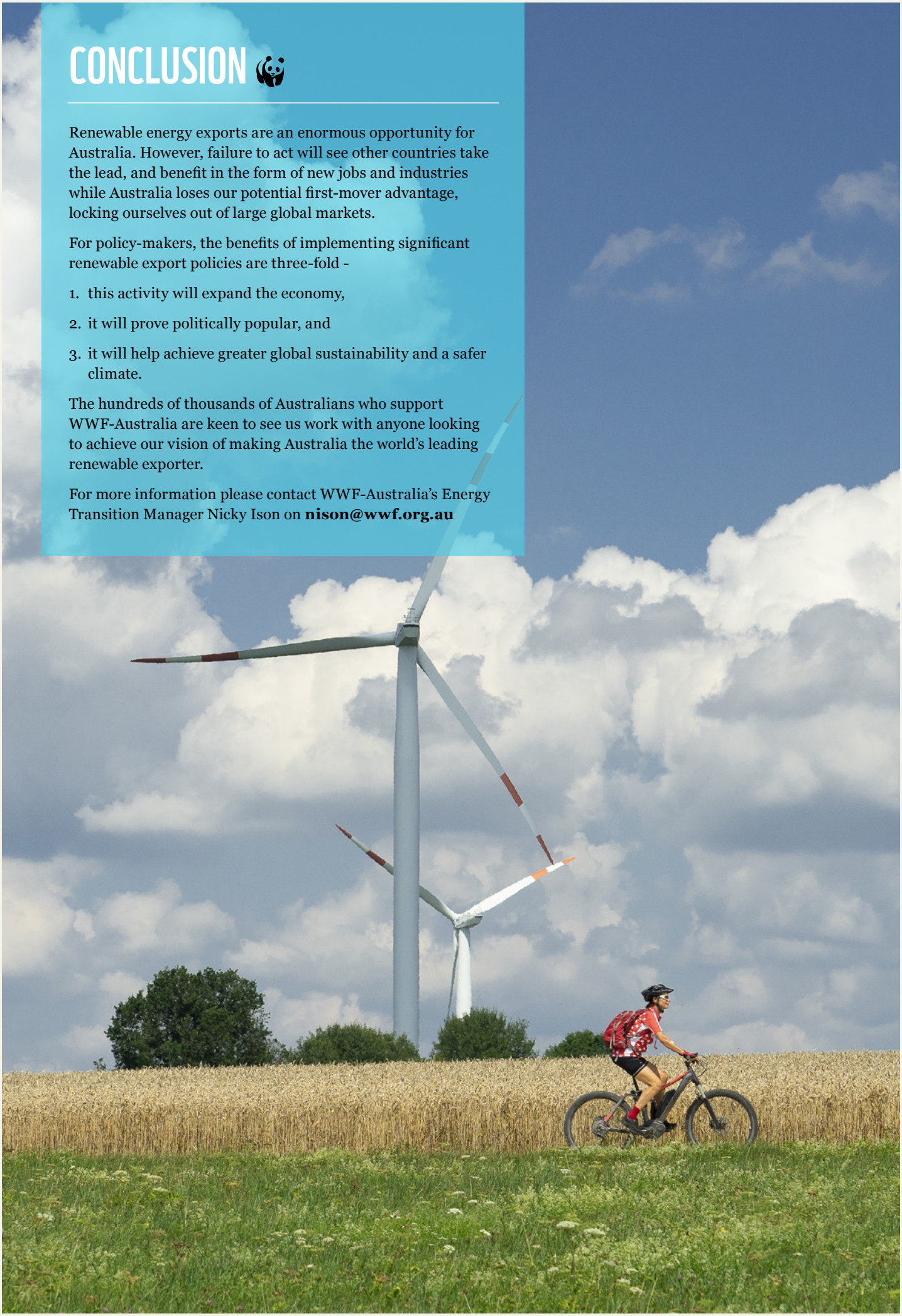
Renewable energy exports are an enormous opportunity for Australia. However, failure to act will see other countries take the lead, and benefit in the form of new jobs and industries while Australia loses our potential first-mover advantage, locking ourselves out of large global markets.

For policy-makers, the benefits of implementing significant renewable export policies are three-fold -

1. this activity will expand the economy,
2. it will prove politically popular, and
3. it will help achieve greater global sustainability and a safer climate.

The hundreds of thousands of Australians who support WWF-Australia are keen to see us work with anyone looking to achieve our vision of making Australia the world's leading renewable exporter.

For more information please contact WWF-Australia's Energy Transition Manager Nicky Ison on **nison@wwf.org.au**



A RENEWABLE FUTURE

CLIMATE CHANGE

As the world moves to act on climate change and fulfil the promise of the Paris Climate Agreement, places that have the best renewable resources in the world have a significant opportunity.

CLEAN ENERGY

Renewable energy such as solar and wind is critical to decarbonising more than two thirds of global emissions, in the electricity, transport, building and industrial sectors.

POPULAR CHOICE

With over 2.1million rooftop solar systems, you just have to walk down the street to see how Australians have embraced renewable energy.

A JUST TRANSITION

WWF-Australia supports a climate action plan that ensures nobody is left behind.

RENEWABLE LEADER

Our goal is for Australia to be a leading exporter and investor in renewable energy with a zero-carbon economy achieved well before 2050.

Why we are here
To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

wwf.org.au

WWF-Australia National Office

Level 1/1 Smail Street,
Ultimo NSW 2007
GPO Box 528
Sydney NSW 2001

Tel:+1800 032 551
enquiries@wwf.org.au
@WWF_Australia
wwf.org.au