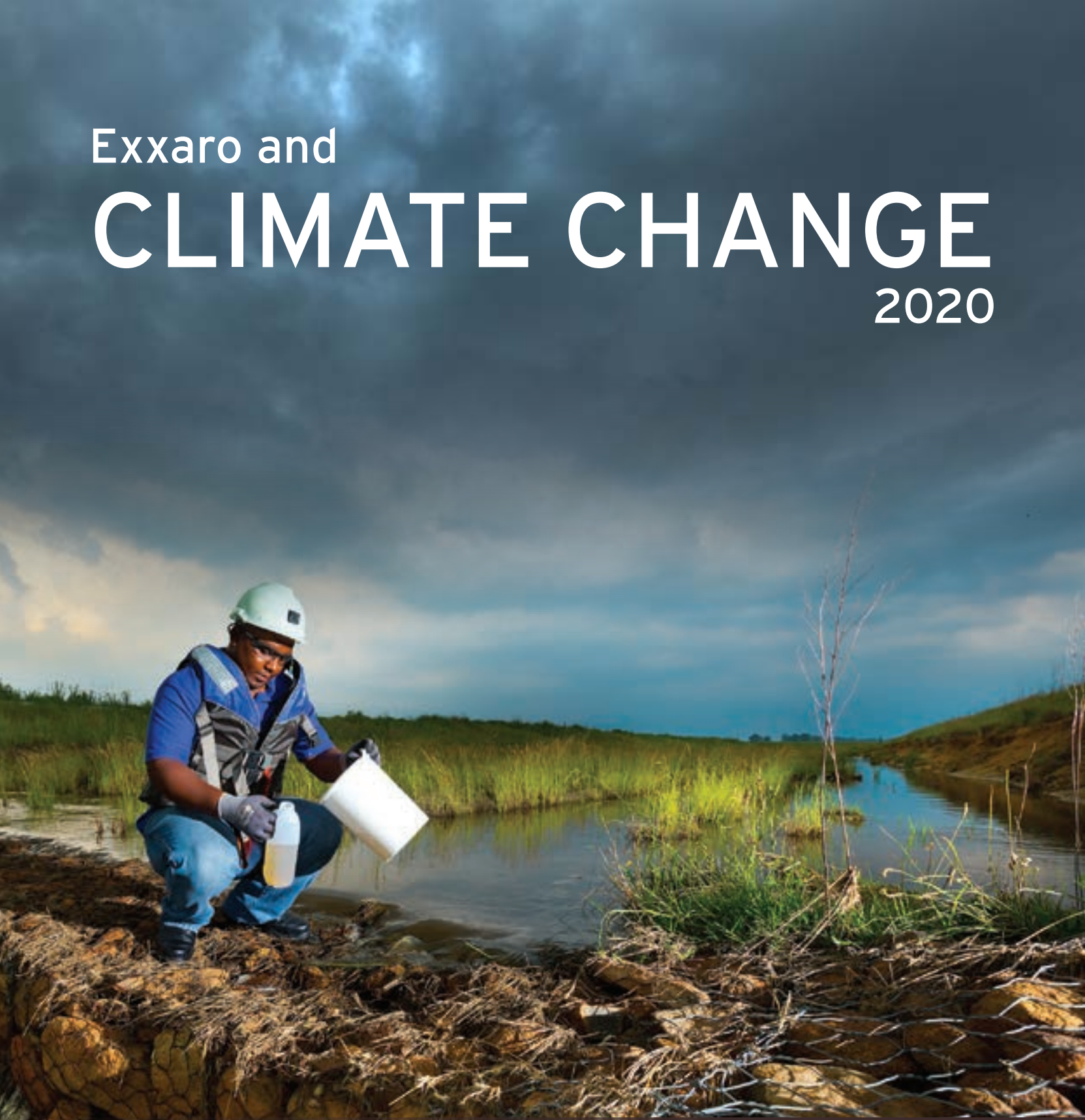
Exxaro and

CLIMATE CHANGE 2020



exxaro

POWERING POSSIBILITY

Contents

We are exploring new business opportunities in the low-carbon future world, believing that we can provide solutions to the global dual energy and climate challenge, especially in Africa.

Mxolisi Mgojo, Chief Executive Officer

Foreword

Exxaro is one of the largest and foremost black-empowered South Africa-based diversified resources companies. Our company is rooted in South Africa and respected by our peers for its innovation, ethics and integrity. Our asset portfolio includes coal and investments in iron ore and renewable energy.

The world is facing many challenges which compel our organisations to operate with the highest level of social and environmental consciousness. These challenges are captured in the 17 United Nations Sustainable Development Goals (SDGs) as well as the South African National Development Plan 2030, which both recognise that ending poverty must go hand-in-hand with strategies that build sustainable economic growth while tackling climate change risks and environmental degradation. At the same time, these efforts must also address societal challenges ranging from education, health, decent work, youth development, women empowerment and access to reliable energy.

We recognise that the use of coal to generate electricity, contributes to climate change through the emission of greenhouse gases (GHGs). While the share of coal in the global energy mix is expected to decline in the medium to longer-term, it is likely to remain significant in South Africa for a foreseeable future as we transition to low-carbon energy sources.

Nevertheless, we regard this as a medium to longer-term risk, and it is part of our diversification imperative to explore other climate-resilient opportunities to develop and commercialise new businesses that will add value to society. We are exploring new businesses that will be relevant and sustainable in the low-carbon world, and we believe that we can provide solutions to the global dual energy and climate challenge, especially in Africa.

Exxaro plays an active and constructive role in the South African policy development process on climate change and sustainability. We work with policymakers directly and through business associations and research institutions, on issues related to just transition policy, climate change mitigation and adaptation, clean energy solutions and carbon emissions reduction strategies.

We are committed to supporting a smooth and just energy transition to the low-carbon economy and a world that will see less than a 2°C increase in global warming by 2100.

Mxolisi Mgojo
Chief Executive Officer

Executive Summary

Making our business climate change-proof is one of our strategic imperatives:

- The World is facing a dual-energy challenge of providing affordable and reliable energy to meet the growing energy demand while managing the risks of climate change.
- The dependence on fossil fuel-generated electricity and fuels for transportation means that greenhouse gases (GHGs) emissions will continue to increase, thereby making it difficult to curb global temperature increases.
- The Intergovernmental Panel on Climate Change's (IPCC) climate change assessment reports have presented irrefutable evidence that the Earth's climate balance has been altered towards warming, with the most significant contributor being increased carbon dioxide (CO_2) concentrations in the atmosphere since the Industrial Revolution.
- Reversing this trend and halting temperature increases to below 2°C will be challenging but not impossible. The United Nations (UN) IPCC 1.5°C Special Report states that limiting warming to 1.5°C implies reaching net-zero CO_2 emissions globally around 2050 and concurrent deep reductions in emissions of non-CO_2 gases, mainly methane (CH4).
- Decarbonisation of energy generation by introducing renewables into the energy mix would have significant implications for fossil fuels, especially coal use, globally.
- However, the need for affordable and reliable energy has become more urgent in Africa to ensure that the continent develops its industrial base to reduce poverty and unemployment significantly.
- We believe that renewable energy can support the electrification of Africa and we are strategically working towards this.

We believe a Just Transition solution to a low-carbon future should inform global climate action and binding agreements:

- The Paris Agreement aims to limit warming to "well below 2°C above pre-industrial levels" and to pursue efforts to limit the temperature increase to 1.5°C. This is a significant milestone to ensure collective action for the mitigation of climate change impacts.
- We support the South African government's efforts to transition to a low-carbon economy within the principle of "Just Transition", taking into account the contribution of coal in the socio-economic development of the country.
- The role of business is critical in adopting low-carbon technologies and driving innovation in product design to ensure that the objectives of the Paris Agreement are attained.
- Opportunities to expand the energy mix by incorporating renewables will increase access to reliable energy for the population, thereby contributing to the reduction of GHG emissions.

As we transition our business into a low-carbon future, we believe coal as an input to energy generation will remain relevant in South Africa:

- Around 77% of South Africa's primary energy needs are currently provided by coal.
- The Integrated Resource Plan (IRP) 2019 states that the share of coal in the South African energy mix will reduce to 59% by 2030. This will increase pressure to diversify our business portfolio with the low-carbon future in mind.

Our strength to manage climate change risks lies in our governance structures, innovation, stakeholder engagement and research:

- The Sustainability and Risk Committee (SRC), which is the delegated sub-committee of the Board, ensures that climate change accountabilities and responsibilities are cascaded to all levels within the organisation.
- Climate change aspects relating to mitigation, adaptation, risks and opportunities are considered in strategic and operational decisions to ensure we build organisational resilience.
- The organisation's strategic dashboard incorporates carbon and energy efficiency targets to ensure climate change action is embedded throughout the business.
- By investing in climate change research through our University Chairs, we ensure that scientific research is translated into business knowledge for the benefit of all South Africans and other stakeholders.

We will aim to reduce our Scope 1 and Scope 2 GHG emissions to attain "carbon neutrality" by 2050:

- In 2019, our audited Scope 1 and Scope 2 emissions were 412 and 670 kilotonnes of CO_2 ($ktCO_2$) respectively. We will incorporate low-carbon fuel technologies and self-generated renewable energy in our operations to reduce our Scope 1 and Scope 2 emissions. This will support our aspirational target to be carbon neutral by 2050.
- We will engage our customers to support initiatives to reduce emissions from our product use, which will positively influence Scope 3 indirect emissions.

Keeping our stakeholders and investor community informed of our performance:

- We will continue to disclose our carbon emissions, climate change risks, opportunities and interventions through internationally recognised organisations such as the CDP (formerly known as the Carbon Disclosure Project).
- We aim to enhance our climate change disclosure landscape by adopting the Task Force on Climate-related Financial Disclosures' (TCFD) recommendations.

Building climate change business resilience is an opportunity to diversify our business portfolio into a low-carbon product mix.

- The diversification of our portfolio into renewable energy by acquiring 100% of Cennergi, an independent power producer, will drive our carbon neutrality strategy.
- We will continue to invest in the development of low-carbon energy sources to ensure that the majority of the population has access to affordable and reliable sources of energy.

Our position on global climate change

Exxaro acknowledges the IPCC's assessment of the science and impacts of climate change.

We believe that the impacts of climate change present a serious challenge to society, our mining communities and operations. Urgent action is required to mitigate the local and global impacts of climate change. Therefore, we fully support the IPCC's* scientific findings and the objectives of the 2015 Paris Agreement of reducing GHGs and the development of sustainable mitigation and adaptation measures for vulnerable communities.

We recognise the contribution of coal to GHG emissions and that public and investor sentiment will continue to drive policy developments and programmes to restrict its use in the low-carbon transition. These actions will impact our business sustainability as we are a significant producer of coal in South Africa. However, we have a responsibility to make our business climate resilient given the impending low-carbon future.

The world is currently facing dual-energy challenges: to reduce the severity of climate change while providing access to clean, reliable and affordable energy to a growing world population.

While the share of coal in the global energy mix is expected to decline in the medium to longer-term, it is likely to remain a significant source of affordable electricity generation for our economy for decades to come. The South African Integrated Resource Plan 2019 (IRP-2019) indicates that the share of coal in the energy mix will remain at 50% by 2030. As one of the major suppliers of this coal in South Africa, we are committed to playing our part in creating a just energy transition to a world that will attain less than 2°C of global warming by 2100.

Our actions are guided by three principles:

- To reduce our own Scope 1 (direct) and Scope 2 (indirect) emissions by continuously exploring opportunities in low-carbon technologies and self-generation of electricity through renewables. With regards to Scope 3 emissions, we will collaborate with our customers and value chain partners to influence the implementation of GHG reduction initiatives.
- To build climate change resilience to physical impacts in our communities and operations.
- To explore new business opportunities to transition our business into the low-carbon future.

WE SUPPORT THE ATTAINMENT OF SUSTAINABLE DEVELOPMENT GOALS

The United Nations General Assembly approved the document "Transforming our World: the 2030 Agenda for Sustainable Development" in 2015. The document enshrines 17 indivisible Sustainable Development Goals (SDGs) and 169 targets and has a central motto "Let no one be left behind". More than half of the SDGs speak directly to a desire to look after the planet while pursuing sustainable economic growth.

We support all 17 SDGs and incorporate them into our activities. Two of these SDGs are particularly important to us in the global discourse of climate change. These include Goal 7 – Providing access to reliable and affordable energy to a growing world population, and Goal 13 – Limiting the impact of climate change. As part of our climate change mitigation and adaptation strategy, we will actively pursue initiatives to support the realisation of these SDGs.

* The Intergovernmental Panel on Climate Change (IPCC) is the United Nations (UN) body for assessing the science related to climate change. It was created by the UN Environment Programme and the World Meteorological Organization in 1988. It provides policymakers with regular scientific assessments on climate change, its implications and potential future risks, and puts forward adaptation and mitigation options.

We support global action to address climate change

The 2015 Paris Agreement objective aims to halt the increase in the global average temperature by 2100 to well below 2°C above pre-industrial levels and to pursue efforts to limit this to 1.5°C.

In a landmark report on global warming released in October 2018, the UN IPCC stated that urgent and unprecedented changes are needed to stop global temperatures from rising by over 1.5°C by 2100. While this will be challenging to attain, the report states that it is still possible.

The average global temperature increase of 1.5°C is now generally accepted as the maximum allowable rise in temperature. Beyond this, physical climate impacts and mitigation costs will rise exponentially.

According to the World Resources Institute (WRI), "limiting warming to 1.5°C requires major and immediate transformation".

It highlights that global emissions were roughly 52 gigatonnes (Gt) (billion tonnes) CO_2 equivalent (CO_2e)* in 2016 and are projected to be 52-58 Gt CO_2e by 2030. To limit warming to 1.5°C and then to zero by 2050, GHG emissions need to be 25-30 Gt CO_2e per year on average.

The WRI also points out that "the scale of the required low-carbon transition is unprecedented".

While there have been examples of rapid changes in specific technologies or sectors in the past, there is no precedent in documented history for the rate of change at the scale required for limiting warming to 1.5°C.

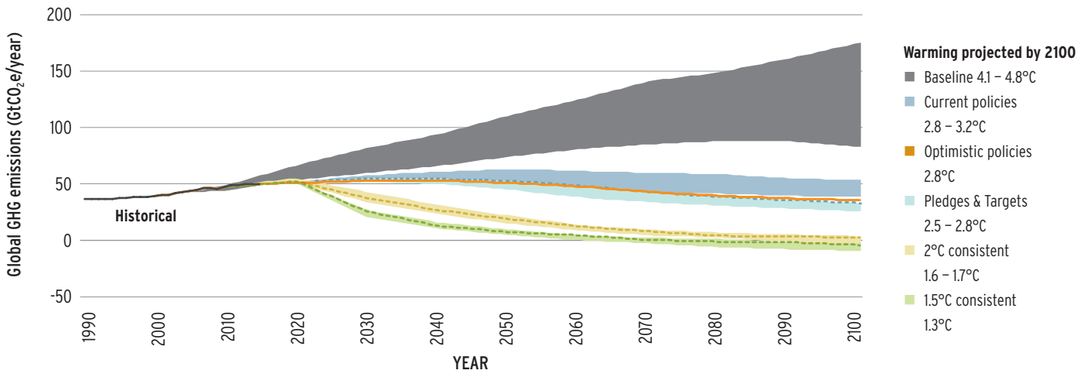
Making this shift will require substantial investments in low-carbon technologies and energy efficiency. The IPCC report stipulates that if the 1.5°C goal is to be met, investments in low-carbon energy technology and energy efficiency must increase by a factor of five by 2050 compared to 2015 levels.

We are conscious of this monumental global challenge and believe that a coordinated effort to drive global climate change action taking into account the need for "just transition", will create positive outcomes for the world.

*Carbon dioxide equivalency is a quantity that describes, for a given mixture and amount of greenhouse gas, the amount of CO_2 that would have the same global warming potential (GWP), when measured over a specified timescale (typically 100 years).

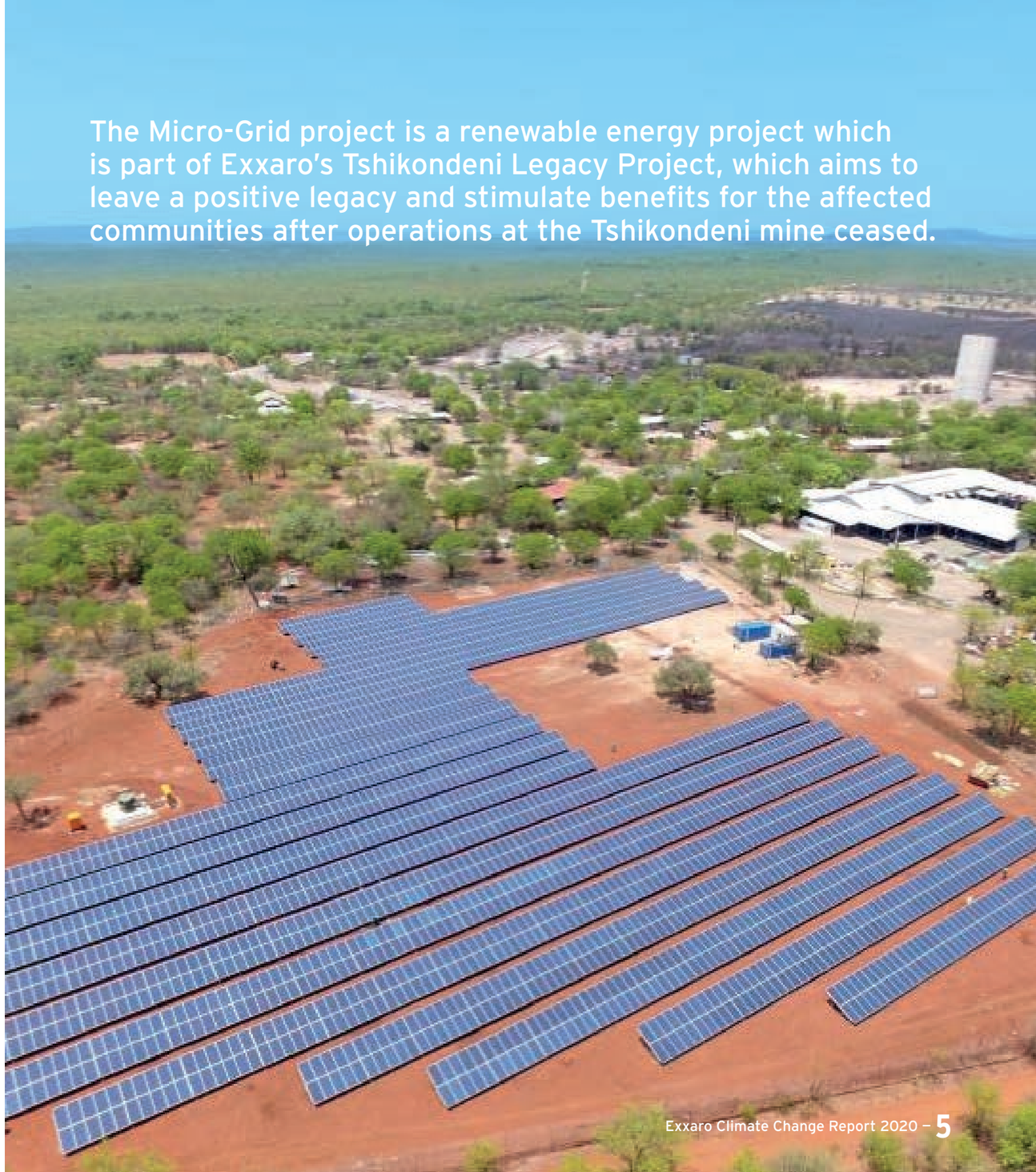
2100 WARMING PROJECTIONS

Emissions and expected warming based on pledges and current policies



Source: Climate Action Tracker, 2020

The Micro-Grid project is a renewable energy project which is part of Exxaro's Tshikondeni Legacy Project, which aims to leave a positive legacy and stimulate benefits for the affected communities after operations at the Tshikondeni mine ceased.



Climate Change Policy Implications

The Paris Agreement requires virtually every country to reduce its GHGs and to set out, on a five-year basis, its plans to avert climate change. It is the world's first comprehensive climate change agreement.

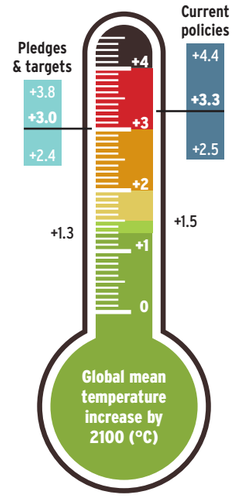
The Paris Agreement has a long-term goal of achieving net-zero emissions by the second half of this century. It outlines an obligation known as the Global Stocktake for parties to the Agreement to assess progress toward the purpose and goals of the Agreement every five years. The Global Stocktake will shape the Nationally Determined Contributions (NDCs) that countries submit as part of their efforts to support the net-zero emissions target.

SOUTH AFRICAN NATIONALLY DETERMINED CONTRIBUTIONS

Under the Paris Agreement, each party is required to submit an NDC as part of its commitment of supporting emissions reduction.

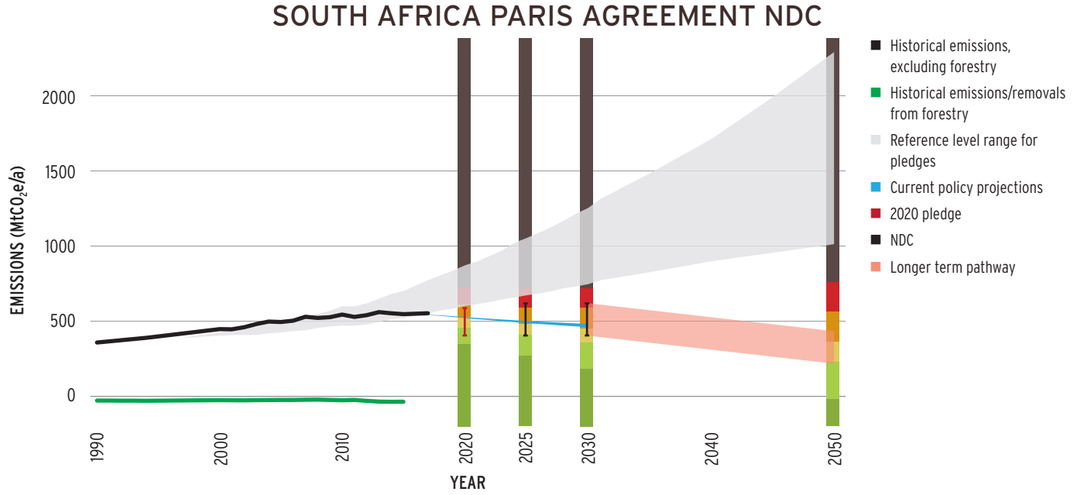
As a signatory to the Paris Agreement, South Africa's NDC long-term emission target is consistent with its long-term goal that follows a peak-plateau-decline (PPD) trajectory. South Africa's NDC absolute emission target levels are in the range of 398–614 megatonnes CO_2 equivalent ($MtCO_2e$) – including Land use, Land-use change and Forestry (LULUCF) – over the period 2025–2030.

We believe that the South African NDC committed emissions are unlikely to exceed the absolute before 2025 due to the current low economic growth and constrained electricity supply. Thus, the government has the scope to align the integrated mitigation system that incorporates the coal transition plan to address GHG emissions and avoid negative impacts on communities and business. The South African NDC long-term targets have an implication for our business as policy interventions may result in increases in our operational costs. We will continuously engage with government and other stakeholders to ensure that the NDC takes into account the socio-economic impacts. We believe that the NDC should be based on the principle of "*A Just Energy Transition Approach*".*



Carbon pricing is a fundamental pillar of policies designed to mitigate climate change.

Source: Climate Action Tracker, 2020



CARBON PRICING RISKS

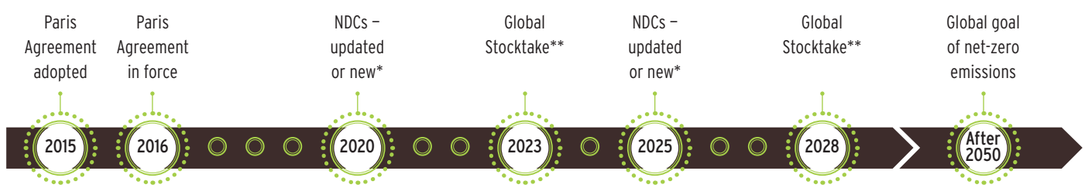
Carbon pricing, whether through emissions trading or taxes, aims to discourage high-carbon emitting activities. This mechanism is a fundamental pillar of policies designed to mitigate climate change.

Several organisations have produced forecasts and scenarios with global carbon prices required to limit the global temperature rise this century to 2°C above pre-industrial levels. For 2030, this number is approximately US$50/$tCO_2e$ and US$100/$tCO_2e$ in 2040.

The South African first phase (2020–2023) of the carbon tax is at US$8/$tCO_2e$ and sentiment is that this will increase in subsequent phases to between US$12–50/$tCO_2e$. The increase in the carbon tax will increase operational costs and the expectation is that suppliers will pass through their carbon tax liabilities downstream.

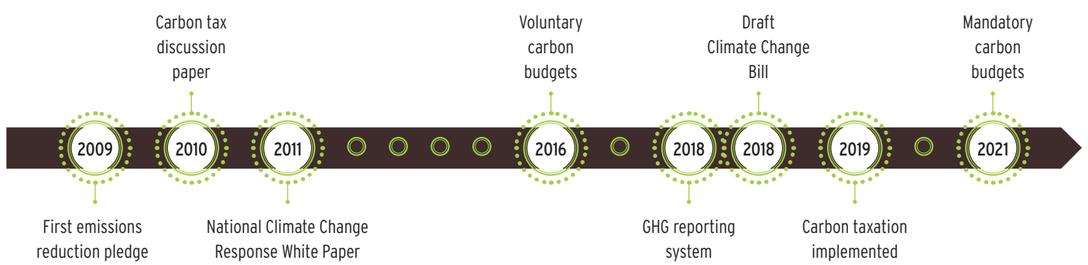
* The Just Energy Transition is defined as a low-carbon energy transition that takes into account:
- Economic security
- Opportunities for all – good work, strong local economies, shared prosperities
- Affordable energy and transportation services
- Healthy communities.

TIMELINE OF PARIS AGREEMENT PROCESS



*NDCs updated or new every five years from 2020 onwards. **Global Stocktake on mitigation, adaptation and finance every five years from 2023 onwards.

TIMELINE OF SOUTH AFRICAN POLICY DEVELOPMENT



Governance

The Sustainability, Risk and Compliance Committee (SRC) of the Board oversees the company's management of climate-related risks and opportunities.

The SRC is responsible for:
- Reviewing the enterprise risk management processes and the responses in place to address identified risks.
- Reviewing legal and regulatory processes, ensuring compliance to all laws and regulations and codes of good practice.
- Oversight of technical and operational matters for the sustainability performance and reporting for the company.

SRC key performance indicators include:
- Ensuring compliance with legislative requirements and ongoing best practice with codes, standards, and regulations.
- Ensuring that climate change risks and opportunities are considered in all decision-making processes affecting our business, shareholders, employees and communities.

Climate risks are identified and reviewed continuously and elevated to the Executive Committee for implementation of mitigation measures. The governance structure will be reviewed and strengthened to align them to TCFD recommendations.

Policy engagement

Exxaro has been engaging in climate-related policy work since 2010.

We are active members of:
- **Business Unity South Africa (BUSA)**: the voice of business that serves to keep business interests at the heart of economic and socio-economic South African policy. The Department of Environment, Forestry and Fisheries (DEFF) recognises BUSA as the representative voice of the industry on matters such as carbon policy, emissions reporting and carbon budgeting.
- **Industry Task Team on Climate Change (ITTCC)**: this is a voluntary association established in December 2010. It was formed by a group of concerned industry representatives to address the call by the South African government for comment on DEFF's National Climate Change Response and National Treasury's Carbon Tax proposals. More recently it has become involved in the transition into the low-carbon economy.
- **National Business Initiative (NBI)**: a voluntary coalition of around 100 South African and multinational companies committed to working towards sustainable growth and development in South Africa and shaping a sustainable future through responsible business leadership and action. The NBI positions itself as a thought leader in the fields of climate change, water, the green economy and energy efficiency.
- **Minerals Council South Africa**: a mining industry employers' organisation that supports and promotes the South African mining industry. It is a principal advocate for mining to government and communicating major policies endorsed by its members.

We further attend the annual UN Framework Convention on Climate Change (UNFCCC) Conferences of Parties (COPs) and co-sponsor the South African Pavilion in collaboration with (DEFF), which showcases South Africa's mitigation and adaptation efforts.

BUSA BUSINESS UNITY SOUTH AFRICA

ITTCC Industry Task Team on Climate Change

NBI National Business Initiative

Managing Exxaro risks

We have modelled climate change risks for our operations to identify the severity and the possible responses to address the risk.

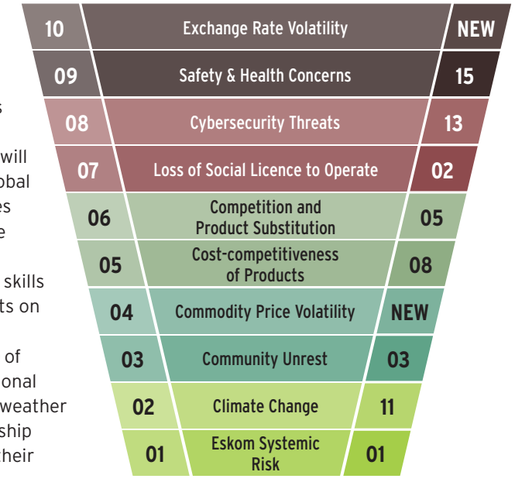
RISK MANAGEMENT PROCESS

Our risk management process is a strategic enabler and embedded in all our processes, functions and systems. Risk management, together with crisis management, is seen as a Board objective which is ingrained in the Exxaro corporate culture. Exxaro is fully committed to effective climate change risk management to ensure that shareholder value is created by achieving our strategic objectives. The Board and respective management layers consider business risks when setting strategies and monitor controls continuously at strategic, tactical and operational levels.

CLIMATE CHANGE SCENARIO

We conducted a climate change downscaling model exercise with the Exxaro University of the Witwatersrand Chair in Global Change and Sustainability to inform our climate change physical risks exposure and response. The likely climate action scenario indicates that:
- The risk is already severe and will increase further with fewer global mitigation efforts. This includes risks associated with employee safety, infrastructure damage from extreme weather events, skills shortages and negative impacts on our communities.
- Our responses include the use of technology to mitigate operational risks associated with extreme weather events and working in partnership with communities to improve their climate resilience.
- All functional areas have collective responsibility to mitigate climate change risks, for instance:
  - Human Resources (developing skills retention strategy for different climate scenarios)
  - Health and Safety (monitoring employees' health under different extreme temperatures and tracking disease migration due to changing climatic conditions)
  - Engineering (design infrastructure that will withstand extreme flood events and provide solutions for on-site water storage to cope with prolonged drought).

2019 vs 2018 RISK COMPARISON



EXXARO RISK MANAGEMENT LAYERED APPROACH

Exxaro is fully committed to effective risk management in pursuit of our strategic objective of creating share-holder value.

Our climate change scenarios

We applied scenarios to identify the broad climate change risks in alignment with the TCFD risk categories.

These risks will have different magnitudes in the different scenarios:

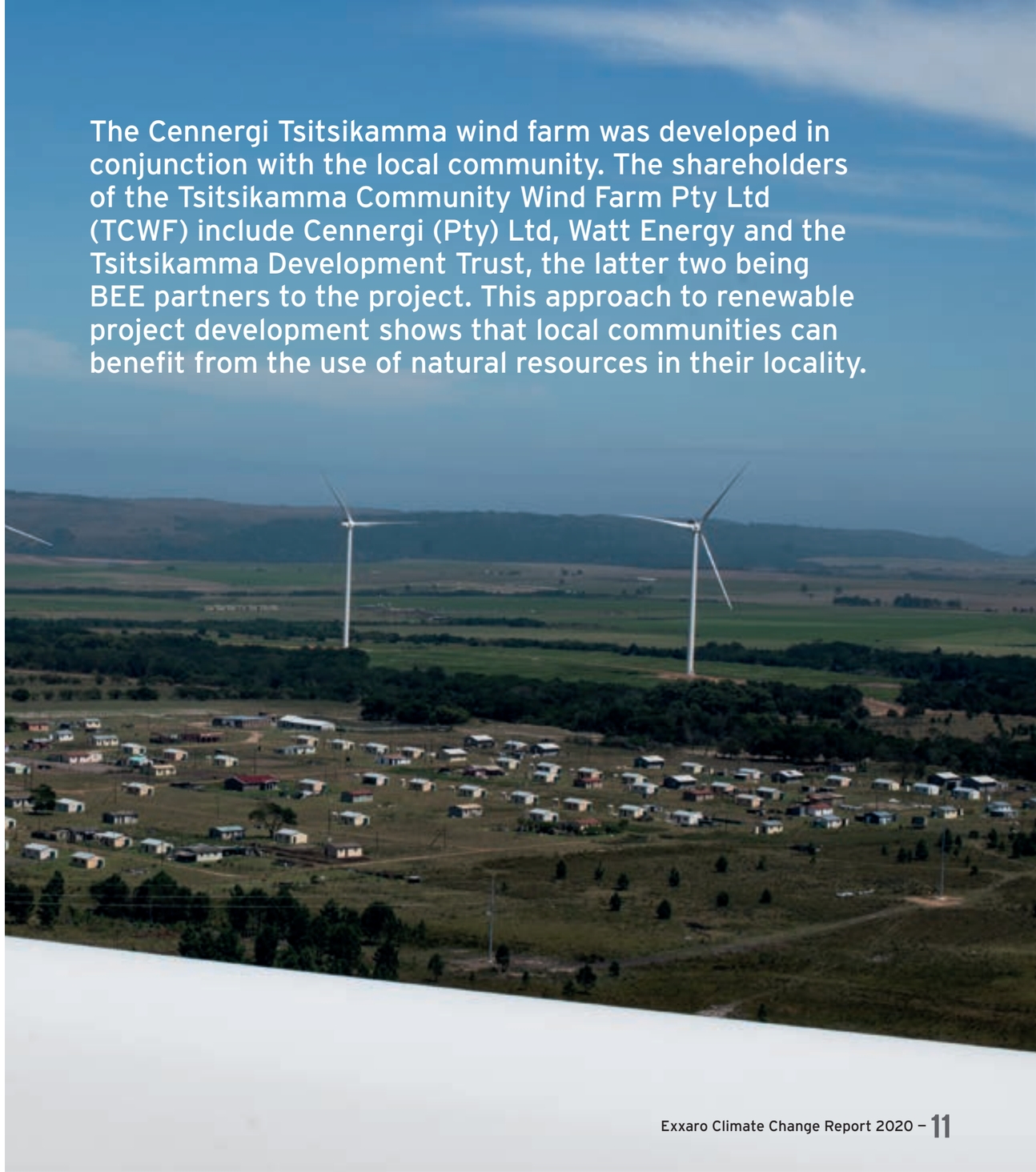
- Based on the scientific data from the IPCC and current NDC commitments, we believe that the global average temperature increase will be between 2.8°C and 3°C by 2100 with the current mitigation commitments.
- For the other five risk categories, collectively designated as **transition risks**, the exposure decreases with temperature rise.

EXXARO RISK HEAT MAP

SCENARIO	ROBUST CLIMATE ACTION	GOING GREEN	HEADING SOUTH	UNSUSTAINABLE GROWTH
Global climate policy	Initial delay followed by rapid climate action in response to the Paris Agreement exceeded	Stronger global policy represented by ambitious NDC pledges under the Paris Agreement almost achieved	Weak climate action represented by current NDC pledges	Very weak policy represented by the collapse of global multilateral agreements and unilateral action in few countries
ΔT 2100 global	**1.5°C**	**2°C**	**3°C**	**4°C**

We believe the current climate change mitigation efforts and trajectory are headed towards 2.5 – 3.5°C in 2100. Our short to medium-strategic planning aligns to this scenario.

PHYSICAL RISKS		• Physical impacts from extreme weather events, changes in precipitation patterns and longer-term temperature rises on facilities, employees and communities • Cost of lost production, protection, insurance and adaptation
TRANSITION RISKS	**Policy** 30%	• Policy action is to constrain adverse effects of climate change or to promote adaptation, e.g. carbon pricing, insurance restrictions, emissions reporting regulations, regulation of coal use – including through the Integrated Resource Plan (IRP) electricity plan
	Legal 15%	• Legal action by third parties on, e.g. failure to mitigate impacts, insufficiency of disclosure around material financial risks, including director's liability • Claims against big emitters and emissions attribution which could impact Exxaro's business
	Technology 25%	• Substitution of existing products and services with low emission options, e.g. renewables replacing coal • Costs to transition to new technologies • Unsuccessful investments in new technologies
	Market 20%	• Shifts in supply and demand for certain commodities, products, and services as climate-related risks and opportunities are increasingly taken into account, e.g. shift away from coal to gas and renewable energy
	Reputational 10%	• Changing customer and community perceptions of an organisation's contribution to, or detraction from, the transition, e.g. stigmatisation of the coal sector, impact of the business coalitions for change, public opinion, banks, financing of coal, fossil fuel divestment campaigns, ethical investment



Managing GHG emissions

EMISSIONS MANAGEMENT

Measuring specific environmental indicators across our business units enables us to prioritise mitigation measures and resources to address the most significant impacts.

Employee safety and health, air pollution levels, water security and infrastructure stability are some of the indicators that Exxaro monitors due to their vulnerability to climate change impacts.

Exxaro uses the IPCC Guidelines and GHG Protocol Corporate Accounting and Reporting Standard to calculate carbon emissions for all business units. This information is applied for the purposes of designing mitigation measures, target-setting and performance reporting across the group.

One of the pillars of our climate change strategy focuses on reducing operational GHG emissions and investing in low-carbon technologies. In 2019, our audited Scope 1 and Scope 2 emissions were 412 and 670 kilotonnes of CO_2e ($ktCO_2e$) respectively. We will incorporate low-carbon technologies and self-generated renewable energy in our operations to reduce our Scope 1 and Scope 2 emissions. This will support our aspirational target of carbon neutrality by 2050. We will engage and collaborate with customers to support initiatives aimed at reducing carbon emissions from product use as this will positively influence Scope 3 indirect emissions.

REPORTING OF EMISSIONS

Exxaro has been disclosing its climate change mitigation and adaptation plans through the CDP process since 2009.

In 2019, our CDP performance maintained a B-level, which was above the industry level of D and the global average of C. We are confident that our performance will improve as we partner with our downstream users to focus on reducing Scope 3 emissions.

The TCFD provides us with an additional opportunity to enhance our climate change disclosure by analysing the financial implications associated with climate change physical and transitional risks, as well as opportunities. We will migrate our performance reporting towards TCFD recommendations by 2021.

CARBON PRICING

Exxaro supports the appropriate application of a carbon price in the economy as part of a suite of measures of addressing the country's climate change transition to a low-carbon future.

We believe this should be implemented in a way that addresses stakeholder concerns, including all industry sectors and the achievement of emission reduction.

The revenue raised from carbon pricing should be used to support South Africa's transition to a low-carbon future and build adaptive capacity for vulnerable communities.

We will continue to engage with all stakeholders, including government, on future carbon pricing discussions and energy just transition.

Exxaro's headquarters, the conneXXion, has achieved a 5 Green Star rating from The Green Building Council of South Africa (GBCSA). Overall, the conneXXion is expected to consume 76% less water than national best practice and will prevent the waste of two of the country's most finite resources: energy and water.

Building Exxaro's resilience

Future climate modelling illustrates the potential risks facing our operations and the need for adaptation.

Building operational resilience is critical in our climate change adaptation journey. Figures below show the downscaled climate model for our Waterberg operations. The model is generated by the Global Change Institute at the University of the Witwatersrand as part of the pilot project to use science to inform our business strategy.

The figures show the projected changes in annual average temperature under low mitigation conditions, based on IPCC RCP 8.5*, which will lead to an average global temperature increase over pre-industrial levels of over 4°C by 2100. The world will follow RCP 8.5 if no further emissions mitigation is achieved.

WARMER TEMPERATURES

In the RCP 8.5 scenario of low mitigation, Grootegeluk will be warmer by almost 6°C by 2100. Areas immediately west will be warmer by more than 6°C, and in some places 8°C. On average, southern Africa warms at almost twice the global rate, which means that even if the 2°C objective of the Paris Agreement is achieved, southern Africa will warm on average by 4°C. This points to the vital need for adaptation.

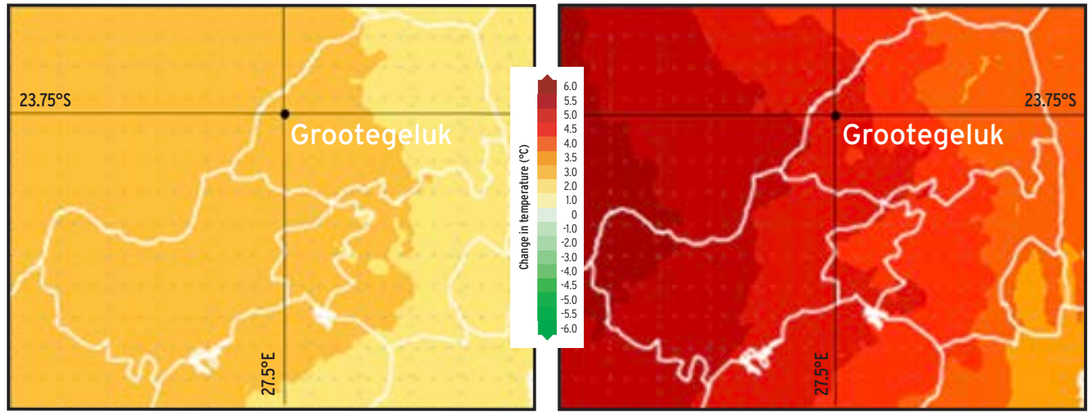
To put this in context, the average annual temperature of Johannesburg

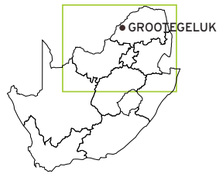
GROOTEGELUK 2021-2050 VS 1961-1990

To the rise of 2.3°C must be added a further 0.6°C for the rise from pre-industrial times to 1961-1990, giving a total of 2.9°C.

GROOTEGELUK 2071-2100 VS 1961-1990

To the rise of 5.3°C must be added a further 0.6°C for the rise from pre-industrial times to 1961-1990, giving a total of 5.9°C.





*A Representative Concentration Pathway (RCP) is a greenhouse gas concentration trajectory adopted by the IPCC for its Fifth Assessment Report (AR5) in 2014. Four pathways were selected for climate modelling and research, which describe different climate futures, all of which are considered possible depending on how much GHGs are emitted in the years to come. They are named RCP2.6 (lowest trajectory with most mitigation), RCP4.5, RCP6.0, and RCP8.5 (highest trajectory with least mitigation). They correspond approximately to global average temperature rises by 2100 over pre-industrial levels of 1.6°C, 2.5°C, 2.9°C and 4.3°C.

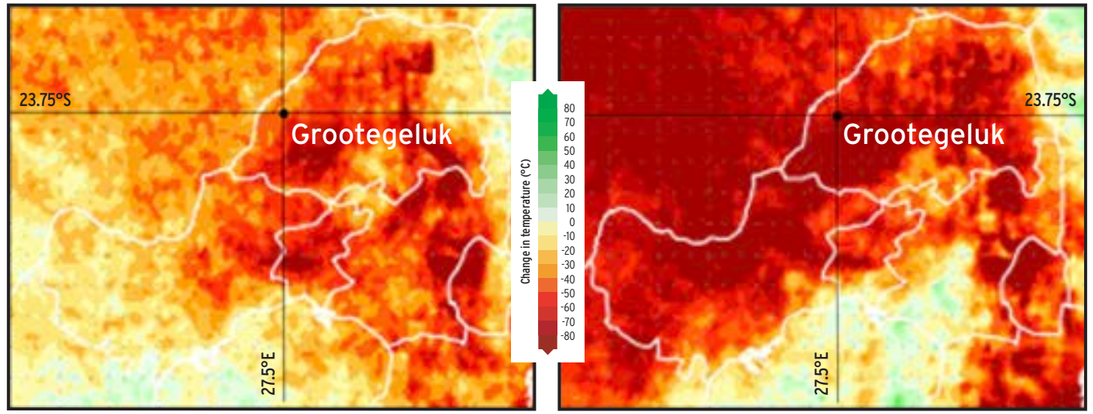
Exxaro incorporates small-scale renewable energy solutions in our operations to reduce our Scope 1 and 2 emissions. Scaling up such initiatives will support our aspirational target to be carbon neutral by 2050.

GROOTEGELUK 2021-2050 VS 1961-1990

Rainfall -30 to -40%

GROOTEGELUK 2071-2100 VS 1961-1990

Rainfall -60 to -70%



Projected changes in annual rainfall under low mitigation conditions, based on IPCC RCP 8.5.

is 16°C and that of Durban is 21°C – a difference of 5°C.

LESS RAINFALL, MORE STORMS

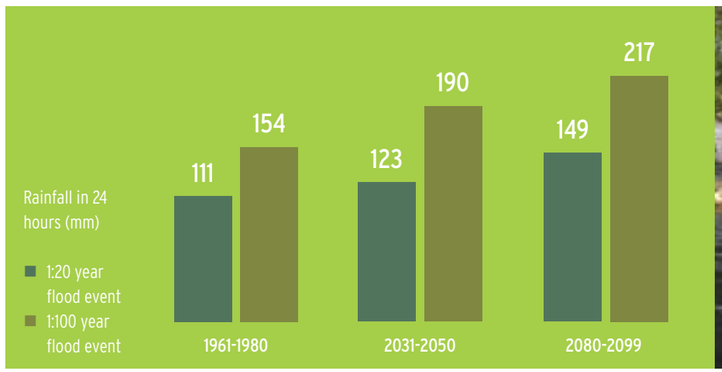
Rainfall intensity is typically expressed in terms of return periods. For example, a 1:100-year event is bigger than a 1:20 year event.

Climate change affects rainfall, so the amount of rain falling in a 1:100 or 1:20 year event will also change.

Even though annual rainfall figures might drop under climate change, an increase in severe storm events may still increase the amount of rain expected for a particular extreme event. As an example, serious flooding at our Grootegeluk operation in 2014 occurred due to the 230mm of rainfall received in one 24-hour period.

ESTIMATED EXTREME RAINFALL IN 24 HOURS, FOR DIFFERENT TIME PERIODS

Based on RCP 8.5 with low mitigation



MORE HEAT-RELATED ILLNESSES

Climate change is typically presented as a change in long-term mean temperature.

A change in the long-term mean is made up of changes in daily temperatures, expressed as droughts, heatwaves or the number of extremely hot days.

The human core body temperature is ~37°C, and skin temperature is ~35°C. If the environment is warmer than skin temperature, then humans struggle to cool down and may experience heat-related stress. Anecdotal evidence from the Mining Medical Professions Association shows that there is an increase in heat-related illnesses.

In the graph (below left), the green line shows the average projection and the black and yellow lines show the model variation.

In 2010, there were 60 days over 35°C. This is projected to rise to 80 days by 2030, almost 100 by 2050 and 170 by 2100.

The graph (below right) shows the progression in the changes in temperature and rainfall over time, based on RCP 8.5 with low mitigation.

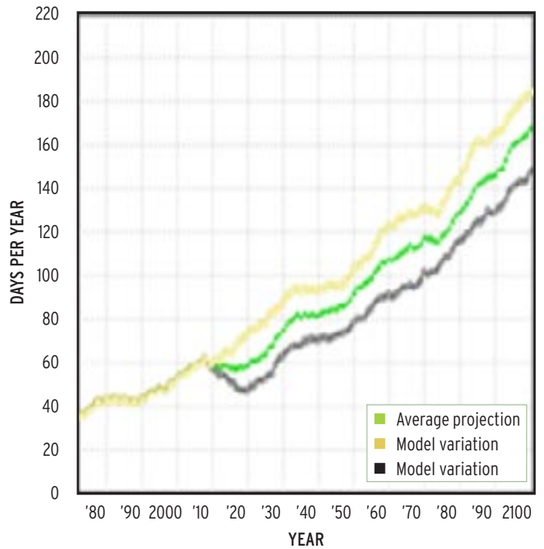
A change in the long-term mean is made up of changes in daily temperatures, expressed as droughts, heatwaves or the number of extremely hot days.

Each time period is shown in a different colour and the trendline in black (qualitative) shows clearly that Grootegeluk will become drier and warmer over time, with some of the data points showing a possible warming of up to 8°C towards the end of the century.

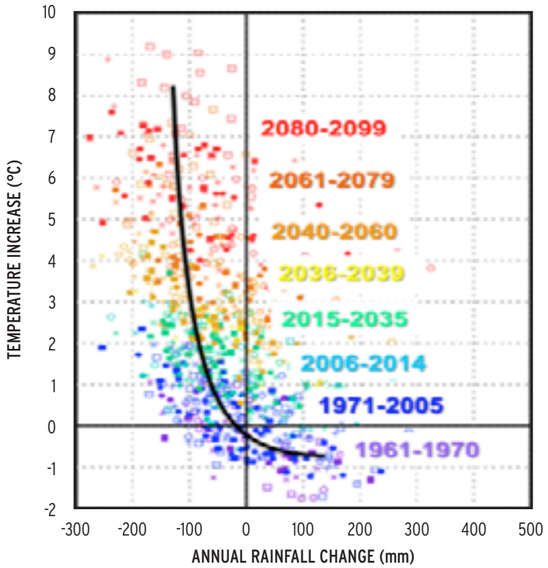
Data points come from the outputs of six different climate models and the spread of points within each colour shows the variation in model outputs for a particular time period.

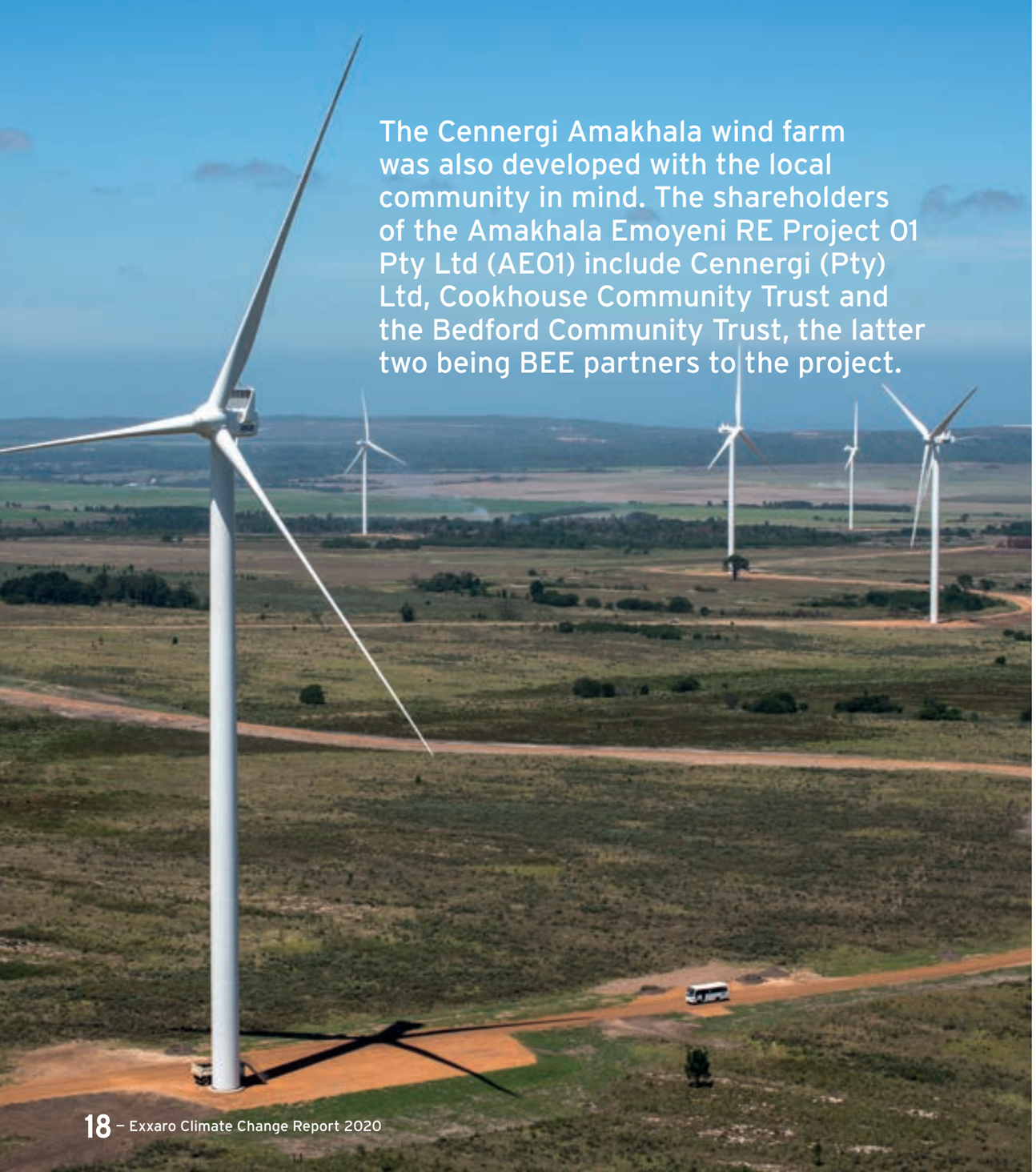
NUMBER OF VERY HOT DAYS (OVER 35°C)

Simulated annual number of very hot days (maximum over 35°C) per year for the period 1971-2100 at Grootegeluk, under low mitigation conditions (RCP 8.5).



LONG-TERM TRENDS IN DRYING AND HEATING EXPRESSED RELATIVE TO A LONG-TERM MEAN (1971- 2005)





Adopting the Climate-related Financial Disclosures Framework

Exxaro supports the use of the Task Force on Climate-related Financial Disclosures (TCFD) to quantify financial risks and opportunities.

The transition to a low-carbon economy requires significant and, in some cases, disruptive changes across economic sectors and industries in the near term. There are implications for the global financial system, especially in terms of avoiding financial dislocations and sudden losses in asset values. Given such concerns, the G20 Finance Ministers and Central Bank Governors asked the Financial Stability Board (FSB) to review how the financial sector could take account of climate-related issues.

The FSB established the TCFD to develop voluntary, consistent climate-related financial disclosures that would be useful to investors, lenders, and insurance underwriters in understanding material risks. The TCFD issued recommendations in June 2017.

The TCFD provides two significant opportunities for our business:

- **Use a formal framework** to identify climate-related risks and opportunities.
- **Demonstrate resilience** of our strategies, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

We have been addressing some of the TCFD recommendations through our participation in the CDP since 2009.

We are embarking on an extensive analysis to quantify the financial impacts of climate change, physical and transitional risks. The results of this analysis are expected to be made available by the end of 2021.

CORE ELEMENTS OF RECOMMENDED CLIMATE-RELATED FINANCIAL DISCLOSURES

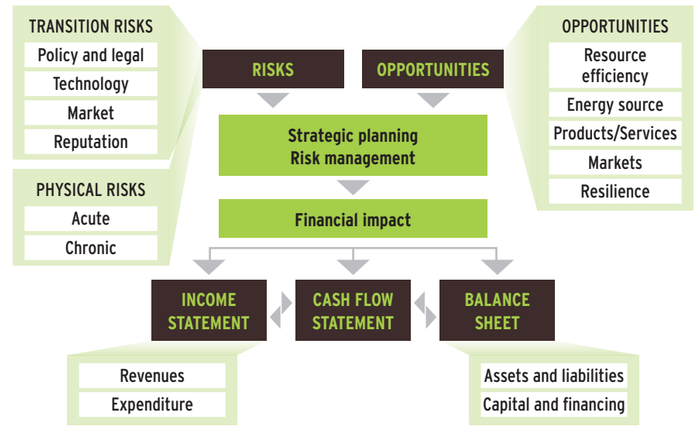
Governance: The organisation's governance around climate-related risks and opportunities

Strategy: The actual and potential impacts of climate-related risks and opportunities on the organisation's business, strategy, and financial planning

Risk management: The processes used by the organisation to identify, assess, and manage client-related risks

Metrics and targets: The metrics and targets used to assess and manage relevant climate-related risks and opportunities

CLIMATE-RELATED RISKS, OPPORTUNITIES AND FINANCIAL IMPACT



Supporting research and development in climate change mitigation and adaptation

We prioritise innovation, research and development, and collaborations on sustainability issues with stakeholders who form part of our value chain.

RESEARCH AND DEVELOPMENT

Over the past decade, Exxaro has invested R24 million in building long-term research to develop the body of knowledge in climate change, renewable energy and sustainability through three University Chairs:

- **University of Witwatersrand (Wits) – Global Change Institute.** The Chair undertakes research on adaptation pathways for a changing world, alignment of global climate change adaptation and mitigation with the SDGs, minimising the impact of extractive industries such as mining, and maximising post-extractive landscapes for sustainable communities. The research outputs are used by both industry and government to enhance our climate change adaptation and resilience.
- **University of South Africa (UNISA) – Business and Climate Change.** The Chair operates in key thematic areas: research, development, innovation and advocacy-oriented community engagement. The UNISA Chair also undertakes research on climate governance, sustainable development goals domestication, climate change mitigation and adaptation, as well as green buildings. It has also published research articles on the coal mining sector's response to climate change and developed a decision-making framework for corporate climate change response.
- **University of Pretoria (UP) – Energy, Water and Food.** The Chair undertakes research and development work on energy efficiency improvement in Exxaro's operations, providing high-quality services to our business on energy efficiency. To date, the Chair has developed two toolkits on motor resizing and multi-drive conveyor belt design and simulation to save energy, and has published technical reports on energy efficiency in South Africa.

All three Chairs have made substantial contributions to our strategy.

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG | GLOBAL CHANGE Institute

EXXARO CHAIR: GLOBAL CHANGE AND SUSTAINABILITY

UNISA university of south africa

EXXARO CHAIR: BUSINESS AND CLIMATE CHANGE

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

EXXARO CHAIR: ENERGY, WATER & FOOD

References

1 https://www.ipcc.ch/sr15/
2 https://www.wri.org/blog/2018/10/8-things-you-need-know-about-ipcc-15-c-report
3 https://unfccc.int/process/the-paris-agreement/status-of-ratification
4 Shell Sky Scenario, 2018
5 High Level Commission on Carbon Pricing, 2017
6 BHP Climate Portfolio Analysis, 2018
7 World Energy Outlook 2018, International Energy Agency
8 Global Warming of 1.5 °C, Intergovernmental Panel on Climate Change, 2018

exxaro

POWERING POSSIBILITY

Contact details:

SUSTAINABILITY
climatechange@exxaro.com
+27 12 307 3220

INVESTOR RELATIONS
investorrelations@exxaro.com
+27 12 307 7393