

# Towards Net Zero

## 2033

A plan for Federation University's campus infrastructure that will create a built environment with net zero carbon emissions





Federation University Australia acknowledges the traditional custodians of the land where its campuses and centres are located.

<b>BALLARAT</b>		Wadawurrung
<b>BERWICK</b>		Boon Wurrung
<b>BRISBANE</b>		Turrbal and Jagera
<b>EUSTON STATION</b>		Tatti Tatti
<b>GIPPSLAND</b>		Gunai Kurnai
<b>NANYA STATION</b>		Mutthi Mutthi and Barkindji
<b>WIMMERA</b>		Wotjobaluk, Jaadwa, Jadawadjali, Wergaia, Jupagulk



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## From the Vice-Chancellor

**At Federation University, our purpose is to transform lives and enhance communities.**

We have over 150 years history delivering real, practical, and empowering education experiences that drive economic growth and jobs in our region.

As the world we live in continues to change rapidly, so too must our university.

We have a bold vision to become Australia's leading regional university – a vision that we are committed to advancing sustainably through our research, high quality education, partnerships, and sustainable campus operations.

Our *Strategic Plan 2021-25* provides the road map for our transformation and growth, all of which is underpinned by our key objective of building a strong and sustainable university, with a focus on sustainability.

Climate change impacts us all, and as a university we have a role to provide leadership at a global, national, and local level.

As Australia's leading regional university – our leadership within the local communities we serve is particularly important.

With a mix of university and TAFE campuses in Ballarat, Berwick, Gippsland, Ararat and the Wimmera, as well as a growing innovation campus in Brisbane, we have a unique opportunity and responsibility to educate and inspire our future leaders and deliver research solutions to challenges in our local communities and around the world.

How we use our campuses is central to this.

Our *Campus Vision 2022-25* sets out our plan to transform our campuses into places that are agile, integrated, and responsive to the needs of those we serve.

It is an opportunity to enhance our connection and presence in the heart of our communities, to use innovative technology to connect classrooms and people in new and productive ways, and to create the best learning and teaching environment.

Our *Campus Vision* is a model for what a modern university can and should be – a strong, sustainable, vibrant, and thriving university that will transform lives and enhance communities for generations to come.

We have a significant responsibility to deliver this transformation sustainably.

That is what this document, *Towards Net Zero*, is all about. Put simply, it is our plan to manage our own operational impacts and to reduce them to net zero carbon emissions by 2033 and to achieve reductions in line with Victorian Government targets.

Focused on infrastructure and achieving our *Campus Vision*, it sets out the practical steps we will take to reach net-zero Scope 1 and 2 carbon emissions.

Of course, our commitment to sustainability does not end there.

The broader environmental, social, and economic impacts of our operations and how we operate sustainably across all our activities will be addressed through our overarching Sustainability Framework, to be developed in collaboration with our staff, students, communities, and partners. Our Sustainability Framework will be aligned to the United Nations Sustainable Development Goals, which outlines a global agenda for sustainable development by 2030. The 17 goals are a call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity.

I am pleased to share this *Towards Net Zero* infrastructure plan and look forward to working together to develop our broader Sustainability Framework.

Together, they represent our commitment to leadership in sustainability to our university community and the communities we serve in Australia and around the world.

Yours sincerely,

**Professor Duncan Bentley**  
Vice-Chancellor





## Our **Commitment**

To be a leader in environmental sustainability, we must be bold, and we must utilise our position as a university to both educate and innovate.

Federation University has already reduced greenhouse gas emissions by 40 per cent since 2005. This reduction includes scope one emissions that occur from sources controlled by the university, such as fuel combustion in vehicles, boilers, and furnaces, as well as scope two emissions associated with the purchase of electricity.

In 2021, we took the next step on our path to sustainability, with the university receiving Victorian Government funding to support the development of both this plan and a broader Sustainability Framework, aligned to the government's target of net zero emissions by 2050.

This document provides our roadmap towards how we intend to achieve this target.

Beyond net zero emissions, we aim to contribute to positive carbon reduction through commercialisation of our research, patents, and other revenue activities.

We will also take advantage of our position as both a dual-sector university and Australia's first truly cooperative university, to train the clean energy workforce of the future.

Our strong connection to our communities will provide opportunities to partner with industry and government to work collectively towards net-zero emissions in the regions in which we are based.



## Putting our plan into action: **Creating a more sustainable heritage building**

As part of our plan to reduce emissions we will improve the energy efficiency and quality of our buildings, as well as how we use them. This will allow us to create a smaller footprint of higher quality, more efficient buildings.

We have begun this process with the heritage listed Building A at our School of Mines Ballarat (SMB) Campus, in Ballarat's city centre. Constructed in 1899, the building has had many different uses over its lifetime from a "new" teaching building in 1899 to an underutilised and inefficient administration building.

Thanks to a \$10 million Victorian Government investment through the Victorian Higher Education State Investment Fund, the building has been transformed back to its original purpose and is now a modern, flexible teaching space with state-of-the-art technologies.

In line with our plan for net zero emissions this newly renovated building will not only allow us to retire inefficient assets, but it has also been fitted out with a sensor rich environment and modern efficient heating, cooling, and ventilation systems. Future proofing our assets with these technologies will allow for further innovation and technology enhancements. We are developing plans to establish connected virtual replicas of our building systems, to identify and predict incidents, replacement schedules, inefficiencies, and integration impacts.

Key features include:

- Sensors - temperature, humidity, CO2 & motion sensors linked to the building management system and to lighting and audio visual (AV) energy saving modes
- New heat pump technology replaces gas boilers, ensuring access to renewable energy sources
- Energy efficient hot water heat pumps have replaced old style domestic hot water systems
- A glass atrium with louvre controls to provide natural ventilation and improve the buildings thermal performance
- Heat recovery systems that improve air quality and reduce energy use
- State-of-the-art teaching technology that enables students to access the classrooms remotely and increase participation and access to real time classroom activity.

# Sustainable Development Goals

We are committed to not only managing our own carbon footprint, but to becoming a leader in the communities we serve across the United Nations Sustainable Development Goals (SDGs).

The SDGs are a set of 17 goals and 169 targets adopted by all UN Member States in 2015 to end poverty, protect the planet and ensure prosperity for all.

This document, *Towards Net Zero 2033*, establishes our sustainability commitments for Energy and Emissions by addressing the SDGs of Affordable and Clean Energy and Responsible Production and supporting further SDGs as outlined in the table overleaf.

It provides both the practical actions we will take to manage our own operational sustainability impacts in the short, medium, and long term, as well as supporting the development of Federation University's Sustainability Framework.

The broader Sustainability Framework will outline our commitment to social, environmental, and economic sustainability through our current and proposed future contributions towards the 17 United Nations SDGs.

It will also identify complementary processes that are essential to achieving this document's net zero emissions target, such as procurement policies, building standards, supply chain accountability and future relationships Federation University may form with local government or industry partners.

As the Sustainability Framework evolves, this plan – *Towards Net Zero 2033* – will continue to be reviewed to maintain relevance and consistency.

The *Towards Net Zero* plan supports SDGs 3, 4, 7, 9, 11, 12 and 13 as detailed on the following page.



### 3 GOOD HEALTH AND WELL-BEING



3. Improved air quality and thermal comfort by using heat recovery ventilation systems. Reduced on site emissions through electrification.

### 4 QUALITY EDUCATION



4. Providing research opportunities such as the establishment of an electric vehicle demonstration site and further opportunities for research into battery technologies, wind, and solar energy.

### 7 AFFORDABLE AND CLEAN ENERGY



7. Reduced energy use and conversion to energy from renewable sources. Own generation will provide greater certainty over energy pricing and reduced burden on others.

### 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



9. Behind the meter initiatives that benefit our industry partnerships with affordable energy and other initiatives arising from our research.

### 11 SUSTAINABLE CITIES AND COMMUNITIES



11. Demonstrating practical achievement of carbon net zero in the cities and communities in which we are located helps to lead and encourage development of sustainable communities. We will investigate the use of Virtual Energy Networks that will enable campus-to-campus energy sharing, as well as future staff, student, and community participation.

### 12 RESPONSIBLE CONSUMPTION AND PRODUCTION



12. Increased efficiency, own production and optimised energy use reduces demand on the electricity grid and supports those less able to adapt in the short term

### 13 CLIMATE ACTION



13. Reduction of Scope 1 & 2 emissions will have a positive impact on our environment. As a major energy user across our portfolio of assets, reducing our carbon emissions to net zero will have a noteworthy local impact on the drive to climate action. As an educator driving provision of the skills of the future, doing so from a platform of environmental sustainability increases credibility and provides an example for industry and community partners to follow.





# Key Principles

The University will transform to a position of carbon net zero over the next ten years without reliance upon Carbon Offsets by adopting the following key principles:

# 1

**Invest in optimum assets and resources consistent with the net zero target**



Utilise advances in online teaching and research technologies and the delivery of the university's cooperative model & Campus Vision to transform the overall physical footprint into higher quality and more efficient buildings and structures. Current and future capital and maintenance projects will focus heavily on improving environmental performance outcomes. Investment strategies will reflect a long-term commitment to funding the actions necessary to meeting the net zero target. Savings generated by initial infrastructure investments will offset future operating costs as well as driving further savings to be re-invested into the *Towards Net Zero 2033* model.

# 2

**Prioritise uptake of renewable energy sources**



A strong focus on current proven and emerging technologies, the university's vast asset base and extensive research networks will be utilised to develop reliable self-sustaining clean energy for the university and its customers. The benefits of these outputs will be shared with the communities and organisations that partner with our campuses. For example:

- Large uptake of solar photovoltaic (PV) across the asset portfolio, complete with battery storage
- Consideration of the optimum financial investment options to deliver supply in line with targets.





# 3

## Implement a program of electrification of Vehicles and Equipment

Adopt a program that utilises best practice and emerging electrical technologies and systems to move away from carbon-based fuel sources:

- Reducing reliance on natural gas and fossil fuels through electrification
- Electric vehicles, charging stations and solar carparks
- Assisting research on Grid to Vehicle and Vehicle to Grid technologies and battery optimisation.

# 4

## Adopt technology & practices to reduce energy use and improve asset performance

Implement a range of measures that will ensure performance outcomes are reliably measured and continuously improved, including:

- Develop decision making criteria and design standards to align with the net zero principles & targets
- Controls and digitalisation improvements, collecting data, reporting on energy use, and driving change
- Efficiency improvements and equipment upgrades
- Employing a Building Management/Digital Twin operator to drive continued building efficiency
- Continuously monitor outcomes and trial new and emerging technologies.

# 5

## Implement Virtual Energy Networks

These networks will enable campus-to-campus energy sharing, behind the meter initiatives and future staff, student, and community participation. This approach will place the university at the forefront of sustainable energy practices. E.g.

- Install Solar PV on Technology Park rooftops and capture self-generated certificates for offsets whilst providing reduced energy costs for tenants.





## Roadmap to **net zero emissions**

### Short term

- Develop the broader Sustainability Framework in partnership with our staff, students, communities, and partners.
- Implement our *Towards Net Zero* plan – a tactical approach with a series of existing and planned initiatives across our campuses using the best available technologies and proven workable approaches.
- Prepare a detailed and costed preliminary estimate of the first steps in reaching net zero carbon emissions, noting that technology and infrastructure will significantly change over the next ten years and any steps taken will accommodate and adapt to changes as they occur to ensure both continuing optimisation and integration of investment.
- Invest in infrastructure in line with the university's investment analysis and gateway processes to generate significant reductions in scope two emissions and deliver savings to fund further investment opportunities.
- Provide a dedicated annual capital allocation as part of our long-term financial plan and budgeting process to enable the achievement of the net zero plan based on our estimate of incremental improvements combined with our current assessment of existing technologies and generated returns on investment. This approach will seek to reflect a dynamic and rapidly changing environment that will require agility and flexibility in seeking to maximise benefits realisation.





## Medium term

- Implement our *Campus Vision*, master-planning, and design of future campuses in line with the key principles of this plan.
- Work with our researchers, key community partners and industry to accelerate our path to net zero emissions.
- Implement the broader SDG commitments in line with the Sustainability Framework.
- Review, refine and reshape the *Towards Net Zero 2033* plan to include innovative approaches and technologies, with a rigorous investment logic approach that will allow us to prioritise.

## Long term

- Become a leader in our communities across the SDGs
- Contribute to positive carbon reduction that can be commercialised through our research, patents, and other activities.
- Contribute through partnerships to support government, aid agencies and industry partners to export knowledge, services, and goods to help meet the global SDG challenges in our regions and internationally.





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