



Ngala kwop biddi.
Building a brighter
future, together.

SUB-STRATEGY 2024 - 2030

Sustainability

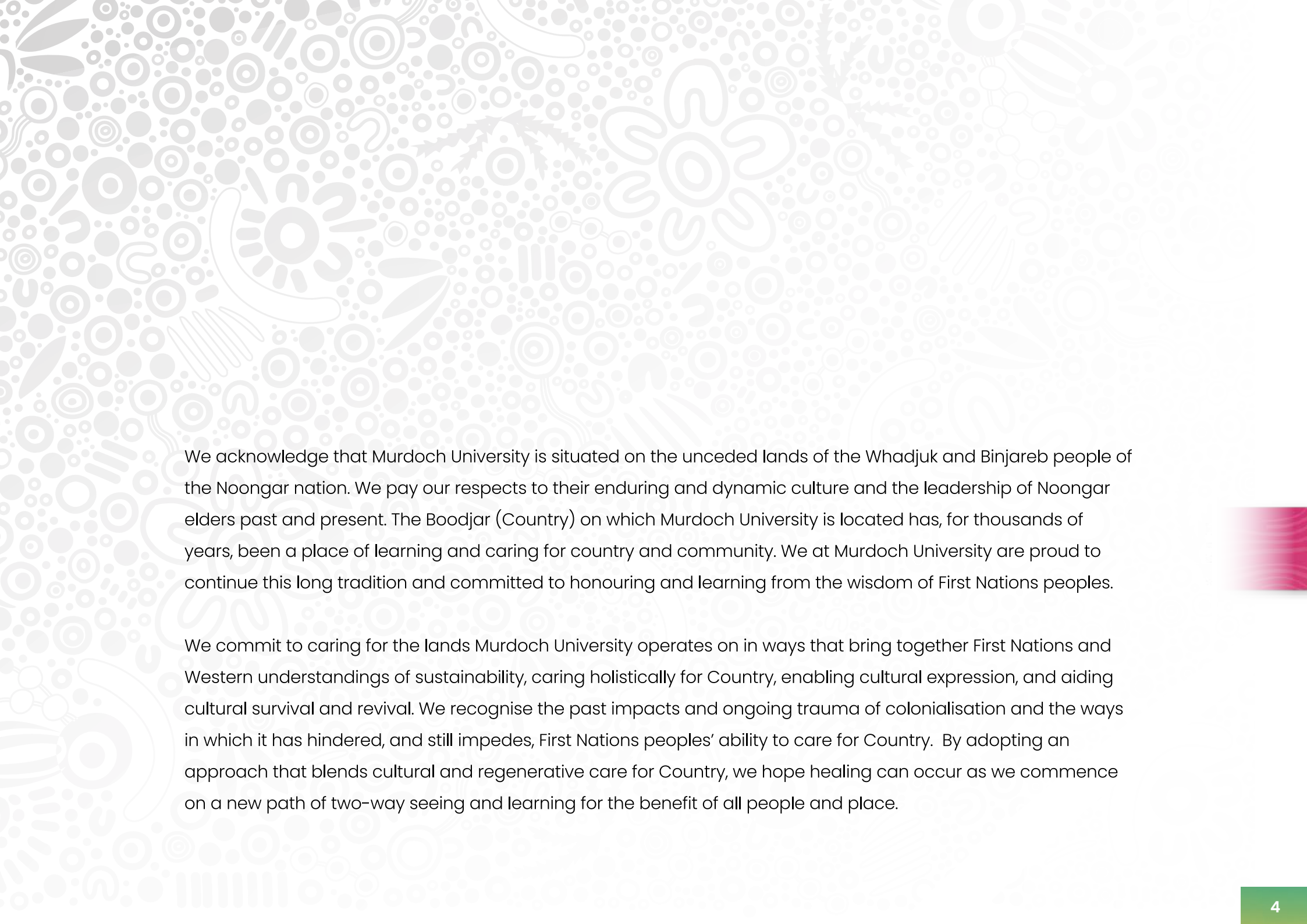
MOORDITJ BOODJA – STRONG COUNTRY



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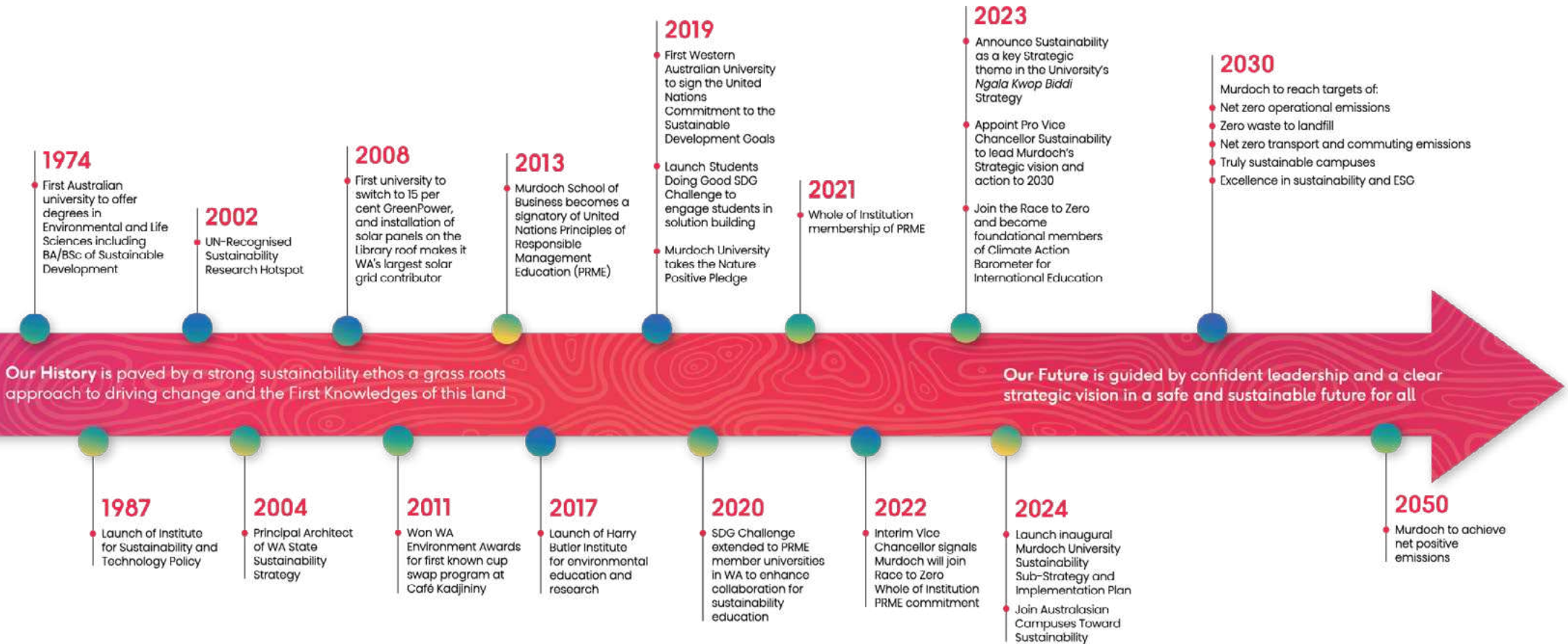




We acknowledge that Murdoch University is situated on the unceded lands of the Whadjuk and Binjareb people of the Noongar nation. We pay our respects to their enduring and dynamic culture and the leadership of Noongar elders past and present. The Boodjar (Country) on which Murdoch University is located has, for thousands of years, been a place of learning and caring for country and community. We at Murdoch University are proud to continue this long tradition and committed to honouring and learning from the wisdom of First Nations peoples.

We commit to caring for the lands Murdoch University operates on in ways that bring together First Nations and Western understandings of sustainability, caring holistically for Country, enabling cultural expression, and aiding cultural survival and revival. We recognise the past impacts and ongoing trauma of colonialisation and the ways in which it has hindered, and still impedes, First Nations peoples' ability to care for Country. By adopting an approach that blends cultural and regenerative care for Country, we hope healing can occur as we commence on a new path of two-way seeing and learning for the benefit of all people and place.

Our Sustainability Journey



Message from the *PVC*

Science is unequivocal about humanity's collision course with the natural world.

The human impact on the natural functions of the Earth is as such that the planet's ability to sustain future generations can no longer be taken for granted. Thus, the enduring calls for transformative change and a transition to more sustainable nature-society relations.

Universities in this regard are widely seen as places of educating for a more sustainable future, with a mission to foster students' critical agency and for playing a key role in providing them with the tools needed to affect positive change. Murdoch University has been among the first universities globally to take on this mission and has long been a leader in sustainability research and education. Indeed, since its inception in 1974, sustainability has been at the University's core.

The University's Strategy 2023-2030, *Ngala Kwop Biddi—Building a Brighter Future, Together*, not only reaffirms Murdoch University's commitment to sustainability but also elevates sustainability to one of its three strategic themes. With this commitment and strategic focus comes a renewed impetus to continue and expand our teaching and research work in the sustainability space and to embed sustainability across all university activities and to cultivate a sustainability ethos that informs and guides our thinking and decisions.

Following my appointment to the role of Pro Vice Chancellor Sustainability, the Sustainability Team has been working with staff and students from across the organisation to create a shared understanding of how to operationalise *Ngala Kwop Biddi* and to realise the university's sustainability objectives. My sincere thanks go to all members of the university community who have given generously of their time to help shape this document; Murdoch University's Sustainability Sub-Strategy 2024-2030, *Moorditj Boodja—Strong Country*.

This is a comprehensive plan that charts a credible pathway toward a more sustainable future. Informed by sector-specific best practice frameworks, *Moorditj Boodja* outlines how the university can reach its ambitious goals for decarbonisation and waste valorisation, climate resilient and nature positive campuses, and an empowered and sustainability-literate university community working towards a world where people and planet can thrive. This sub-strategy is a call to action and an invitation to join us in driving positive change and inspiring responsible citizenship.

I look forward to embarking with you on this sustainability journey.

A/Prof. Martin Brueckner

Pro Vice Chancellor, Sustainability
Murdoch University



Sustainability at *Murdoch University*

In alignment with Murdoch University's foundational principles, Sustainability is identified in Murdoch University's Strategy 2023-2030, *Ngala Kwop Biddi* as one of the university's three strategic themes alongside First Nations and Equity Diversity & Inclusion.

Becoming a university of first choice for First Nations peoples, providing a welcoming place for all and embedding a sustainability ethos in all we do.

Each theme denotes a specific set of values that speak to key aspects at core of the Murdoch University. Together they form an integrated value statement with three mutually reinforcing themes and a shared appreciation for a relational approach that values multiple perspectives and worldviews at their core (see Figure 1 – The interrelation of Murdoch University's three strategic themes). Such rendering enables the development of holistic solutions to complex problems by drawing on humanity's entire repertoire of knowing and understanding, without privileging any culture, knowledge system or research paradigm.





Ngala Kwop Biddi, with its key focus on emissions, transport and circularity, requires the Office of the Pro Vice Chancellor Sustainability to focus its efforts on tackling key environmental concerns. Thus, for the purposes of this sub-strategy, sustainability is largely framed in environmental terms to enable the embedding of sustainable practices and knowledges, with various arms of the university having carriage of key elements required to achieve our sustainability objectives.

In operationalising *Ngala Kwop Biddi* we seek to maintain and enhance ecological values and resilience on our campuses whilst reducing the overall environmental impact of university operations. We do this through targeted investments in eco-efficient technologies that also support research and education, sustainable and biophilic campus design and regenerative approaches to biodiversity management, in addition to enhancing the sustainability literacy of both staff and students and integrating sustainability consideration into our policies, systems and processes. Our approach is inclusive, drawing on the technical expertise of members of the campus community, also bringing together First Nations and western knowledge systems for the holistic treatment of the sustainability challenges we face.

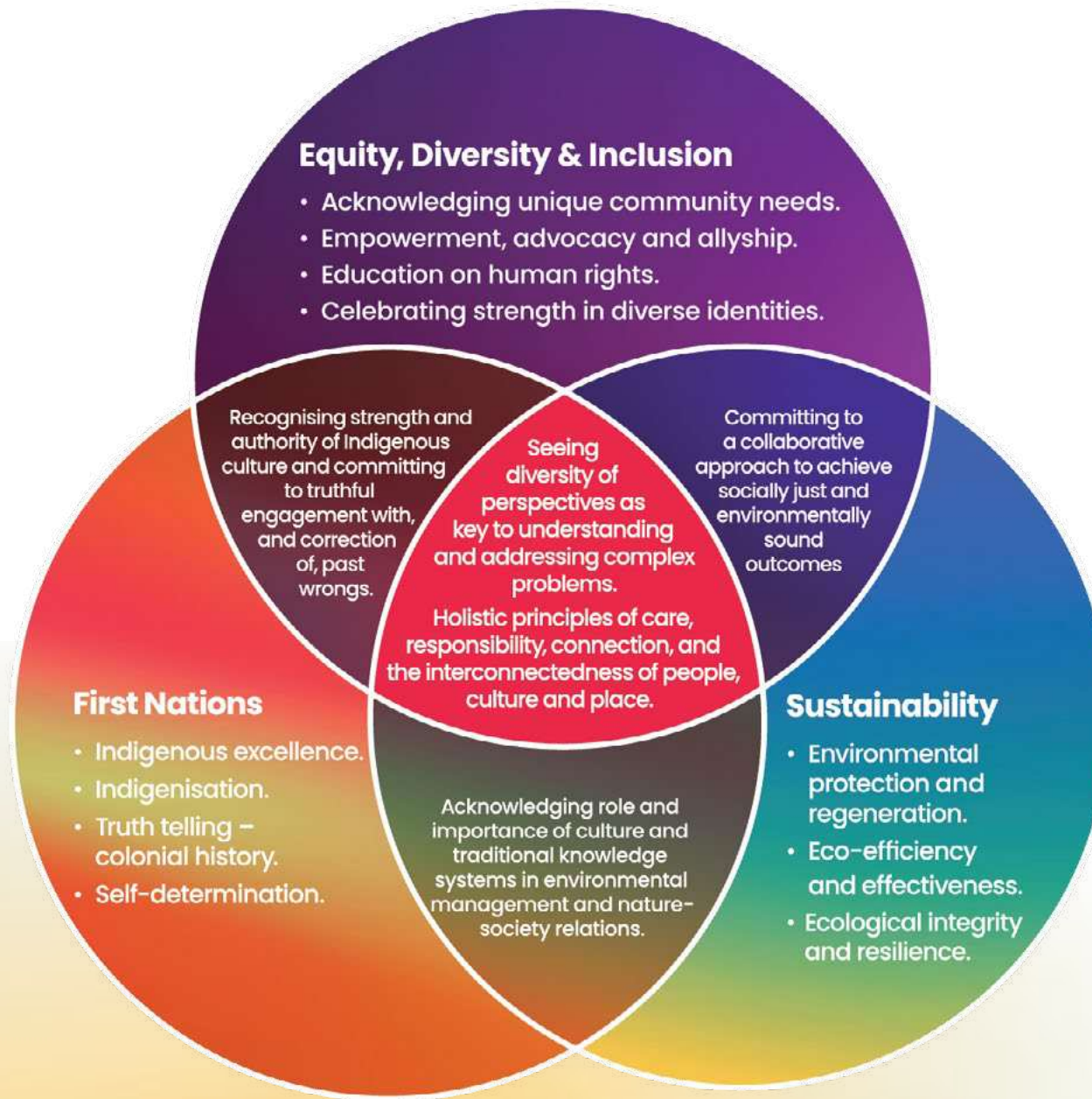


Figure 1 – The interrelation of Murdoch University's three strategic themes

Ngala Kwop Bididi objectives:

- Ensure a sustainability ethos guides all activities of the University.
- Become a recognised centre of excellence for sustainability and ESG, covering education, research and research translation, and professional development by 2030.
- Develop and implement a campus sustainability plan to achieve truly sustainable campuses by 2030.
- Develop and implement an operation sustainability plan to achieve carbon neutrality in our operations and zero percent waste to landfill by 2030.
- Develop and implement a university transport and commuting plan to move all transport and commuting associated with the University towards net zero.
- Develop the Harry Butler Science Centre, and through this Centre and other means, promote awareness of sustainability issues in Western Australian schools and in the community.
- Ensure all Murdoch students and staff learn about and embrace the challenges facing the environment and the principles of sustainable development.

Our Horizon Approach

Moorditj Boodja will guide and direct actions towards achieving the university's sustainability goals by 2030 and provide the foundation for two successive three-year implementation plans, commencing with the Sustainability Implementation Plan 2024 – 2027 (see Figure 2 on the right). A second implementation plan, spanning the period 2028 – 2030, will be released subsequently to further advance our sustainability objectives.

This horizon approach enables us to work closely with the university community to tailor targeted implementation plans, monitor our progress, and integrate emerging technologies and innovative perspectives in our future plans. It gives us the ability to take stock, evaluate our priorities and set new goals for the second implementation period.

By adopting this forward-looking strategy, Murdoch University is poised to navigate the complexities of sustainability challenges, continuously refine our approaches, and accelerate progress towards a more sustainable future.

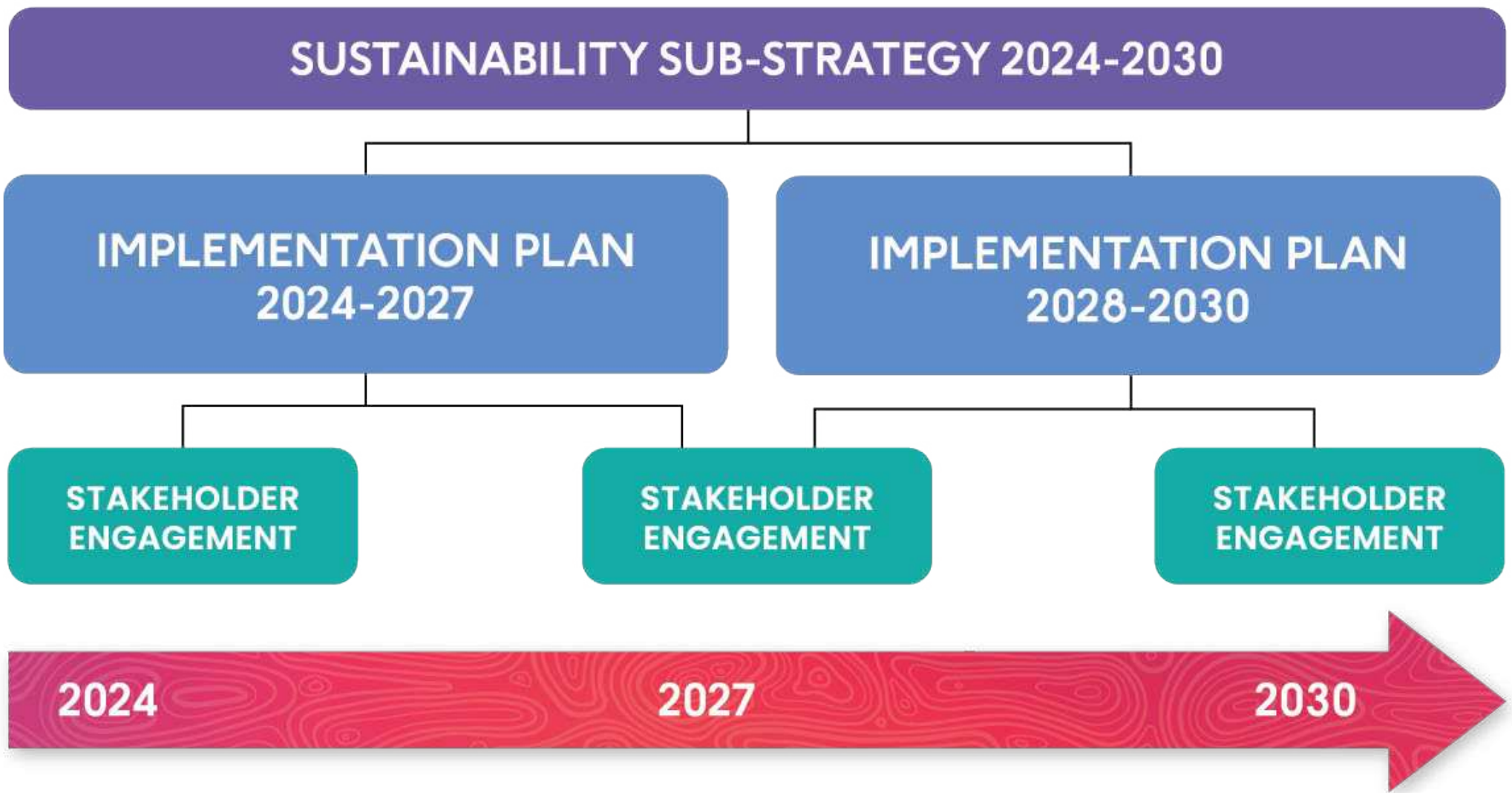


Figure 2 - Our horizon approach

Sustainability Sub-Strategy Overview

Moorditj Boodja serves to guide and direct the university's actions towards achieving our sustainability goals by 2030. The Murdoch University Sustainability Sub-Strategy is comprised of the below building blocks, which together form a coherent and focused framework for achieving the university's strategic sustainability goals.

OUR SUSTAINABILITY VISION

We lead by example, empowering local and global communities to embrace a future where our impacts on the environment are minimised and people and planet can thrive.

OUR SUSTAINABILITY MISSION

We are dedicated to nurturing a culture of sustainability that infuses every facet of our university community. By melding cutting-edge research, innovative education, and holistic engagement, we empower individuals and communities to enact meaningful change.

OUR GUIDING PRINCIPLES



Nature Positive



Sustainability Ethos



First Nations Knowledges



Collaboration and Inclusivity



Transparency and Accessibility



Living Laboratory

CORE ACTIVITIES



Education



Research



Engagement



Governance

KEY PRIORITY AREAS



Energy



Circularity



Transport



Biodiversity



Water



Climate Resilience

Figure 3 - Sustainability Sub-Strategy Framework

Our Mission, Vision and Guiding Principles

OUR SUSTAINABILITY VISION

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OUR SUSTAINABILITY MISSION

We are dedicated to nurturing a culture of sustainability that infuses every facet of our university community. By melding cutting-edge research, innovative education, and holistic engagement, we empower individuals and communities to enact meaningful change.

Six principles guide how we seek to realise the sustainability goals outlined in this sub-strategy:

OUR GUIDING PRINCIPLES



Nature Positive



Sustainability Ethos



First Nations Knowledges



Collaboration and Inclusivity



Transparency and Accessibility



Living Laboratory



Nature Positive

We are committed to halt and reverse ecological decline and work towards improving the condition, abundance, diversity and resilience of species, populations and habitats.



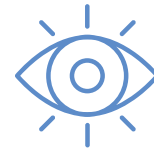
Collaboration & Inclusivity

We embrace collaboration with stakeholders across and external to the University, recognising the value of diverse perspectives and expertise. Through stakeholder engagement we will foster inclusive decision-making and ensure a tapestry of voices shapes our sustainable journey.



Sustainability Ethos

Sustainability is a founding principle of Murdoch University and thus deeply embedded in the organisation's values. We are committed to sustainability, ethical behaviour, and responsible environmental stewardship. This ethos guides all activities of the University.



Transparency & Accessibility

We commit to providing timely, complete and accurate data, accessible to key stakeholders to enable monitoring of our progress towards our environmental targets. We will be transparent on the actions and achievements of this strategy, acknowledging that transparent practices inspire learning and foster a culture of sustainable innovation.



First Nations Knowledges

We acknowledge the profound wisdom of First Nations peoples and respect their connections to Country past, present and future. We commit to caring for the lands Murdoch University operates on in ways that bring together First Nations and Western knowledge, protect Indigenous Cultural and Intellectual Property (ICIP), care holistically for Country, enable cultural expression, and aid cultural survival and revival.



Living Laboratory

Our campuses serve as vibrant hubs for research, teaching, and learning, where the physical environment becomes a canvas for exploration and demonstration. Through impactful initiatives, we will showcase Murdoch University's dedication to sustainability and environmental and ecological protection, turning theory into tangible action.

Our Core Activities



Ngala Kwop Biddi identifies Education, Research and Engagement as Murdoch University’s core activities. Given the significance of strong and effective governance processes for the enabling and implementation of sustainability initiatives, ‘governance’ is also a core activity for the purposes of *Moorditj Boodja*.



Education

Enhance staff and students’ sustainability literacy and reduce environmental impacts of teaching delivery.



Research

Enhance the impact of research outcomes to support a sustainable future, while seeking to reduce environmental impacts of research activities.



Engagement

Foster a sustainability ethos and increase engagement with, and awareness of, sustainability issues and actions within the university and beyond.



Governance

Reduce environmental impacts from campus operations and ensure that all university activities are subject to sustainability considerations, working towards ESG excellence.



MU

MU
360

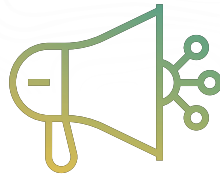


Education

Enhance staff and students' sustainability literacy and reduce environmental impacts of teaching delivery.

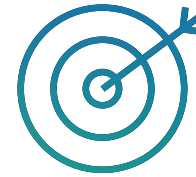
Murdoch University is committed to providing an education for a more sustainable future with a mission to foster all students' critical agency and for playing a key role in providing the tools for responsible, earth literate citizenship. We consider it vital to equip students with the values and skills to innovate and develop solutions to address global challenges such as climate change, environmental degradation and social inequality.

We want to ensure that *sustainability informs what we teach and how we teach*. To this end, we offer targeted sustainability-focused courses across various academic fields including engineering and education as well as environmental and social science and embed sustainability content into course offerings of non-cognate disciplines such as arts and information technologies. At the same time, we seek to reduce the environmental impacts of education activities. We also invest in the sustainability literacy of our professional and academic staff, providing opportunities for professional development and formal upskilling. This not only ensures high levels of competency in teaching for sustainability, but also brings a sustainability ethos to all operational areas of the university.



Our Actions

- Map curriculum against UN SDGs
- Integrate sustainability and sustainable practices into the curriculum across degrees;
- Provide professional development to increase sustainability literacy;
- Provide co- and extra-curricular options for sustainability-focused learning; and
- Reduce teaching-related environmental impacts.



Our Success Measures

- Enhanced visibility of sustainability in Murdoch University curriculum;
- Increased number of unit offerings with sustainability focus;
- Enhanced sustainability literacy among staff and students; and
- Reduced environmental impacts of teaching delivery.

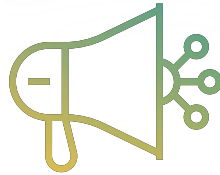


Research

Enhance the impact of research outcomes to support a sustainable future, while seeking to reduce environmental impacts of research activities.

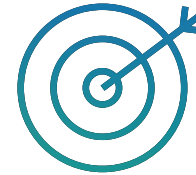
As a research-led university we contribute solutions to global sustainability challenges through translational, multidisciplinary research, seeking to improve environmental and community outcomes. Sustainability is at the core of our research institutes and centres whose work in areas such as food security, environmental management, and health, as well as policy and business-environment relations, informs our teaching and affects change in policy-making, professional practice and business conduct at the local, national and international level. We support sustainability-related research across

While we endeavor to drive impactful change through applied sustainability research, we also seek to reduce the environmental impacts of our broad research activities, which we commit to measure and report on. Further, our research activities and outputs are mapped against the United Nations Sustainable Development Goals, and we develop new impact metrics that capture the breadth of the sustainability contributions, either directly or indirectly, of our researchers. Through research collaborations with external partners, we seek to develop innovative and practical solutions that address pressing sustainability challenges and contribute more broadly to solving Environmental Social Governance (ESG) issues.



Our Actions

- Map research activities/outputs against UN SDGs;
- Develop research metrics to capture sustainability contributions of research activities;
- Foster sustainability-focused research partnerships; and
- Reduce research-related environmental impacts.



Our Success Measures

- Enhanced visibility of sustainability-focused research at Murdoch University;
- Effective capture of sustainability contributions of research;
- Impactful sustainability-related research through research partnerships; and
- Reduced environmental impacts of research activities.

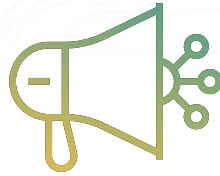


Engagement

Foster a sustainability ethos and increase engagement with, and awareness of, sustainability issues and actions within the university and beyond.

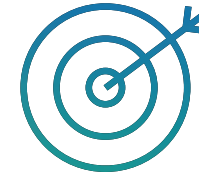
Operationalising *Ngala Kwop Biddi* is a whole-of-organisation effort. The university, therefore, champions a collective approach that empowers and supports staff and students in the development of sustainability solutions. Through our engagement initiatives, we endeavour to foster a sustainability ethos and increase sustainability literacy and action throughout the university. Through the establishment of the Sustainability Collective and commitments to support student-led initiatives we will build on the existing grass-root engagement of our staff and student community.

Our communications efforts will bring further visibility to the sustainability knowledges emerging from our Colleges, Research Institutes and Centres; bringing crucial insights to local, national and global communities. Using a partnership approach, we also promote and raise awareness of sustainability issues in schools, industry and the wider community through the Harry Butler Science Centre and College-based outreach activities. Our community impact will be further broadened through tailored educational programmes offered to external stakeholders to equip individuals and organisations with the skills needed to contribute meaningfully to sustainability in both local and global contexts.



Our Actions

- Develop comprehensive awareness programs for staff and students to increase sustainability and ESG literacy;
- Drive staff and student engagement in sustainability initiatives on campus;
- Share sustainability information online and communicate sustainability-focused work at Murdoch University to external stakeholders; and
- Build sustainability-focused community partnerships.



Our Success Measures

- Increased engagement with, and awareness of, sustainability issues and actions among staff and students;
- Enhanced sustainability literacy in the wider community; and
- Enhanced public awareness of sustainability-focused work at Murdoch University.



Governance

Reduce environmental impacts from campus operations and ensure that all university activities are subject to sustainability considerations, working towards ESG excellence.

We strive for excellence in sustainability operations and environmental social and governance (ESG) practices and processes. We are committed to align our policies and procedures with the university's sustainability goals to reduce environmental impacts from campus operations and ensure that all university activities are subject to sustainability considerations. This includes the adoption of sustainable approaches to procurement and events management, ensuring campus development plans are guided by the university's sustainability objectives and to orientate capital investments towards ways that help conserve resources and promote sustainable practices across our operations.

By supporting initiatives of the Pro Vice Chancellors First Nations, Equity Diversity and Inclusion and embedding appropriate mechanisms for co-design with First Nations Peoples, expert roundtables and students we are ensuring we are guided by the breadth and depth of knowledges needed to inform and develop sustainable practices. Through the establishment of a data dashboard, the creation of an Annual Sustainability Report and engaging in external reporting through the Sustainability Tracking, Assessment & Ratings System (STARS) and other accreditation commitments, we are committed to accurate and transparent data management and reporting to uphold accountability and demonstrate progress towards our sustainability targets.



Our Actions

- Review and update policies and procedures to ensure university activities are subject to sustainability considerations;
- Establish mechanisms for co-design with First Nation Peoples for culturally appropriate approaches to sustainability management;
- Establish Expert Roundtables with relevant discipline experts to advise on, and assist with, technical aspects of sustainability management; and
- Engage in transparent and accessible reporting of sustainability practices and progress toward sustainability KPIs and targets.



Our Success Measures

- Alignment of university policies and procedures with sustainability objectives;
- Reduced environmental impacts from campus operations;
- Enhanced ownership of sustainability agenda among staff and students;
- Transparency in university's sustainability-related reporting; and
- Publication of Annual Sustainability Report 2026 and onward.

Our Key Priority Areas

KEY PRIORITY AREAS



Energy



Circularity



Transport



Biodiversity



Water



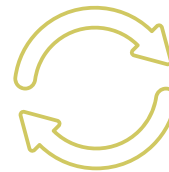
Climate Resilience

Our targets for these key priority areas include:



Energy

Net zero operational emissions by 2030.



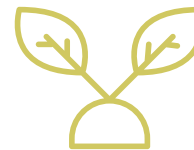
Circularity

Zero waste to landfill by 2030.



Transport

Move toward net zero transport and commuting emissions by 2030.



Biodiversity

Nature positive campuses by 2030.



Water

Reduce use of scheme water and ground water and minimise impacts on water resources.



Climate Resilience

Maximise preparedness and safeguard wellbeing.





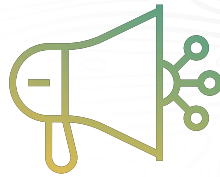
Energy

We seek to reduce the university's energy consumption and subsequent GhG emissions and monitor and report on progress toward our target of net zero carbon emissions by 2030.

Fossil fuel-based energy generation is the largest contributor to global warming and thus chiefly responsible for the increase of global surface temperatures by 1.1°C above pre-industrial levels over the last 200 years. This temperature increase is already triggering many weather and climate extremes in every region across the globe, incurring irreversible ecological losses, leading to widespread adverse socio-economic impacts, and disproportionately affecting vulnerable communities. Without more ambitious decarbonisation efforts globally, further warming to 2.8 °C above pre-industrial levels by 2100 is considered likely, leading to further increases in climate hazards and risks to ecosystems and humans (IPRC 2023).

Murdoch University produced 12,503tCO₂e in operational emissions (Scopes 1 and 2) in the 2022–23 financial year. Of those emissions, 10,855t CO₂e (87%) were produced at South Street campus with electricity usage being the university's primary source of operational GHG emissions.

Murdoch University aspires to achieve net zero operational emissions (Scopes 1 and 2) by 2030. Going beyond net zero, we aim to become carbon positive by 2035 (Scopes 1 and 2) and to achieve net zero carbon emissions (Scopes 1, 2 and 3) by 2050. Our primary focus will be on reducing electricity consumption, transitioning to renewable energy sources, and minimising the use of natural gas. We also plan to transition our fleet to hybrid or electric/alternate fuel vehicles wherever possible and address transport emissions by way of offset generation. Through a new approach to procurement, we will also engage with providers in our supply chain—inter alia—to promote the reduction of our indirect emissions (Scope 3) (see Governance, Circularity and Transport). This approach is aligned with the recommendations of the United Nations Paris Agreement 2016, the Science Based Targets initiative (SBTi) and our commitments to the United Nations Sustainable Development Goals, Race to Zero for Universities and Colleges and CANIE Accord.



Our Actions

- Develop a Decarbonisation Roadmap to meet our net zero emissions target by 2030;
- Scope, implement and resource plans to:
 - ◇ foster carbon literacy among staff and students to lower energy demand;
 - ◇ reduce energy consumption through operational enhancements and process optimisation;
 - ◇ adopt renewable energy and storage technologies;
 - ◇ support the deployment of on-site and off-site technologies to generate carbon offsets;
 - ◇ achieve net zero compatible designs for all new buildings; and
 - ◇ maintain greenhouse gas (GHG) emissions inventory and disclose annually.



Our Success Measures

- Maintained GHG Emissions Inventory for scope 1, 2 and 3 emissions.
- Published and implemented Decarbonisation Roadmap with:
 - ◇ target to meet zero adjusted net scope 1 and 2 GHG emissions per square meter normalised by gross floor area by 2030 in line with Senate KPI;
 - ◇ target to meet zero adjusted net scope 1 and 2 GHG emissions by 2030;
 - ◇ 100 per cent renewable energy target using on-site and off-site renewable energy sources by 2030; and
 - ◇ target to meet and exceed peer energy consumption benchmarks of 123 kWh/m²GFA by 2030 and 2,830 kWh/FTE by 2030.

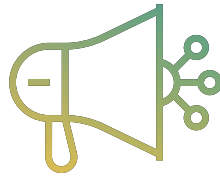


Circularity

We seek to reduce waste generation, move towards circularity on Murdoch campuses and support achievement of our target of zero waste to landfill by 2030.

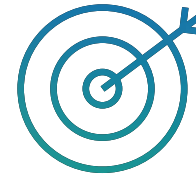
Resource use and waste generation are a prominent issue globally with over 100 billion tonnes of virgin materials used annually; a figure that is predicted to almost double by 2050. While recycling rates have more than tripled between 1960 and today, still more than 91 percent of natural resources taken from the earth ends up as waste. The adoption of a circular economy model will not only help reduce resource use and waste generation but also help curb greenhouse gas emissions (Circle Economy 2022).

At Murdoch University we are presently producing around 770 tonnes of waste annually, of which approximately 330 tonnes are recycled, and 440 tonnes are destined to landfill (TEFMA 2023), generating Scope 3 emissions of around 780 tCO₂e per annum (Decarbonology 2024b). We are committed to a zero waste to landfill target by 2030 by way of minimising waste generation and maximising resource efficiency by following the circular economy model.



Our Actions

- Detailed waste audit to determine baseline for waste production;
- Scope, implement and resource plans:
 - ◊ to achieve zero waste to landfill by 2030 following a circular economy approach;
 - ◊ to foster waste literacy among staff and students to reduce waste volumes and improve waste separation; and
 - ◊ to reduce and eliminate where possible sale and use of single-use items on campus.
- Optimise systems and processes for reuse, recycling and waste diversion across different waste streams.



Our Success Measures

- Waste management plans and programmes finalised, implemented and resourced;
- Reduced volumes of waste generated on campus;
- Improved waste separation by staff and students;
- Increased volumes of waste diverted from landfill and valorised; and
- Year on year reduction in waste to landfill, progressing towards target of zero waste to landfill by 2030.

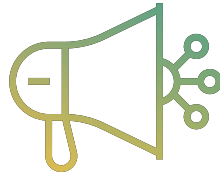


Transport

We seek to reduce the university's transport and commuting related emissions and to monitor and report on progress toward our target of net zero transport and commuting emissions by 2030.

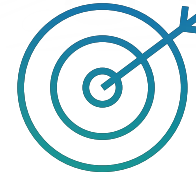
Transport is responsible for approximately one quarter of all global greenhouse gas emissions. With 95 percent of the world's transport energy still coming from fossil fuels, transport is a key driver of global warming and the attendant ill-effects of climate change. Global passenger and freight transport demand is predicted to grow by around 200 percent by 2050 (Steffen et al. 2024). In Australia, transport accounts for around 18 percent of the country's annual greenhouse gas emissions (Australian Government 2020).

At Murdoch University, student and employee commuting produced around 3,680 tCO₂e during the 2022-23 financial year, accounting for 5 percent of the university's Scope 3 emissions that year. Business travel, which includes employee and international student travel, accounts for around 53 percent (40,971 tCO₂e) of the university's annual Scope 3 emissions (Decarbonology 2024b). We are committed to promoting sustainable transport options and reducing transport-related environmental impacts with a view to move all transport and commuting associated with the University towards net zero.



Our Actions

- Create net zero transport emissions roadmap;
- Develop and implement an Electric Vehicle (EV) Charging Masterplan in conjunction with Campus Development Plan;
- Annual travel surveys to identify transport trends, barriers and opportunities;
- Improve end-of-trip facilities;
- Incentivise and facilitate use of public and active transport options; and
- Develop and maintain links to transport partners.



Our Success Measures

- Year-by-year reductions in transport related Scope 3 emissions;
- Increases in commuting by active, public transport and car-pooling;
- Reductions in single occupancy vehicle use; and
- Transport emissions reporting under STARS, Race to Zero and CABie.



Biodiversity

We seek to protect, restore and enhance biodiversity values on Murdoch campuses.

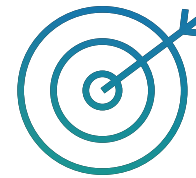
Global biodiversity loss is the result of large-scale and often irreversible environmental change driven by human activities. Over the last 400 years, over 680 vertebrates and almost 600 plant species are believed to have gone extinct, and a further 1 million plant and animal species are currently estimated to be under threat of extinction. Despite some progress in safeguarding ecosystems, species and genetic diversity, biodiversity trends continue to worsen with the notable exception of lands managed by First Nations peoples (IPBES 2019). In Australia, the country's rate of species extinction is one of the highest globally (Australian Government 2021).

Murdoch University's South Street campus is home to conservation category wetlands and Banksia woodlands, as well as endemic and threatened plant and animal species, including Quendas (Southern Brown Bandicoot), Karrak (Forest Red-tailed Black Cockatoo) and Ngoolarks (Carnaby's Black Cockatoos). We as a university are committed to protecting and enhancing biodiversity values on our campuses and beyond.



Our Actions

- Review, update, and resource implementation of Biodiversity Management Plan;
- Scope, implement and resource plans:
- to foster biodiversity literacy among staff and students for impact reduction in environmentally sensitive areas;
 - ◊ to conduct biodiversity assessment on campus to produce baseline for Nature Positive pledge;
 - ◊ to increase wildlife habitat and enhance connectivity between wildlife corridors; and
 - ◊ to improve pest and invasive species management.
- Adopt regenerative and cultural approaches to land management.



Our Success Measures

- Net biodiversity gains year on year in relation to baseline;
- Enhanced biodiversity outcomes on farmland;
- Risk downgrades for threatened plant and animal species on campus and adjacent areas; and
- Growth of protected and sustainably managed areas on campus in consultation with First Nations stakeholders.

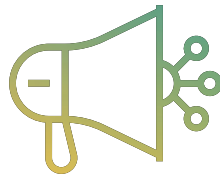


Water

We seek to reduce scheme water and groundwater consumption; maximise water use efficiencies and protect surface and groundwater resources.

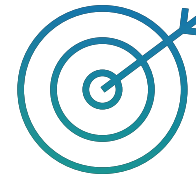
As global demand for water is rising at a rate of 1 percent per year, water scarcity is increasing. By 2050, it is predicted that up to 5.7 billion people will experience water scarcity due to factors such as population growth, pollution and climate change (UNESCO 2023). Australia, as the world's driest inhabited continent, faces serious water security issues not only in relation to water availability but also in terms of quality, affordability, and access; issues that will come into even sharper focus in the context of a warming climate (Australian Government 2022).

In the face of growing water scarcity, proximity to sensitive ecosystems and considering our unique South Street campus is home to banksia woodlands (a Threatened Ecological Community and a groundwater-dependent ecosystem) and two Conservation Category Wetlands, Chelodina Wetland and Melaleuca Swamp, we seek to reduce our scheme water and groundwater consumption, to protect precious water resources and surrounding ecosystems.



Our Actions

- Scope, implement and resource plans:
 - ◊ to enhance water storage;
 - ◊ to treat and recycle water on campus; and
 - ◊ to return treated water to adjacent wetlands.
- Investment in submetering;
- Investment in water efficiency measures; and
- Prevention of water contamination.



Our Success Measures

- Net reductions in use of scheme water and groundwater;
- Improved submetering and water management;
- Improvements in groundwater quality; and
- Release of water to adjacent wetlands.

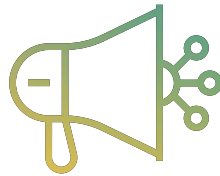


Climate Resilience

We seek to enhance climate change resilience, risk assessment and mitigation on campus relating to infrastructure, natural environment & human wellbeing.

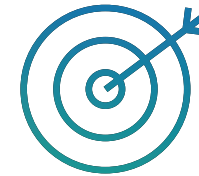
In the context of climatic change, the ability to anticipate, prepare for, and respond to, climate-related hazardous events, trends, or disturbances is becoming increasingly important; this is what is understood as climate resilience which is fundamentally about protecting people from harm. While reductions in greenhouse gas emissions are the most effective approach to achieving climate resilience, adaptation measures are needed to protect against the threats already here and to prepare for changes yet to come. Such measures include infrastructure upgrades to protect against fire, floods and weather extremes, and planting trees to reduce extreme heat and provide natural shading.

Adaption is also about climate justice, recognising the disproportionate harm climate change causes to vulnerable members of the community and prioritising their wellbeing (UNCLF 2024). At Murdoch University, we seek to protect the health, wellbeing and safety of staff and students and enhance the climate resilience of our infrastructure and landscapes.



Our Actions

- Complete baseline assessment to identify vulnerabilities on our campuses related to likely climate change scenarios;
- Create climate risk matrix and climate change risk mitigation plan;
- Climate sensitive management of infrastructure and landscapes; and
- Measures to reduce impact of fire, water shortage and heat.



Our Success Measures

- Climate resilient university community, infrastructure and landscapes;
- Increased preparedness for climate change impacts; and
- Increased resilience to climate change risks and impacts.

Achieving our *Ngala Kwop Biddi* Targets – *Key Actions to be undertaken 2024-2027*

The following diagram outlines the key actions we will take over the next three years to progress toward our *Ngala Kwop Biddi* targets. For a complete list of actions to be taken, see our Implementation Plan 2024-2027.

**NGALA KWOP BIDDI
2030 TARGETS**

**KEY PRIORITY AREAS
& CORE ACTIVITIES**

OBJECTIVES

**KEY ACTIONS
OUTLINED IN
SUSTAINABILITY
STRATEGY -
IMPLEMENTATION
PLAN 2024-2027**

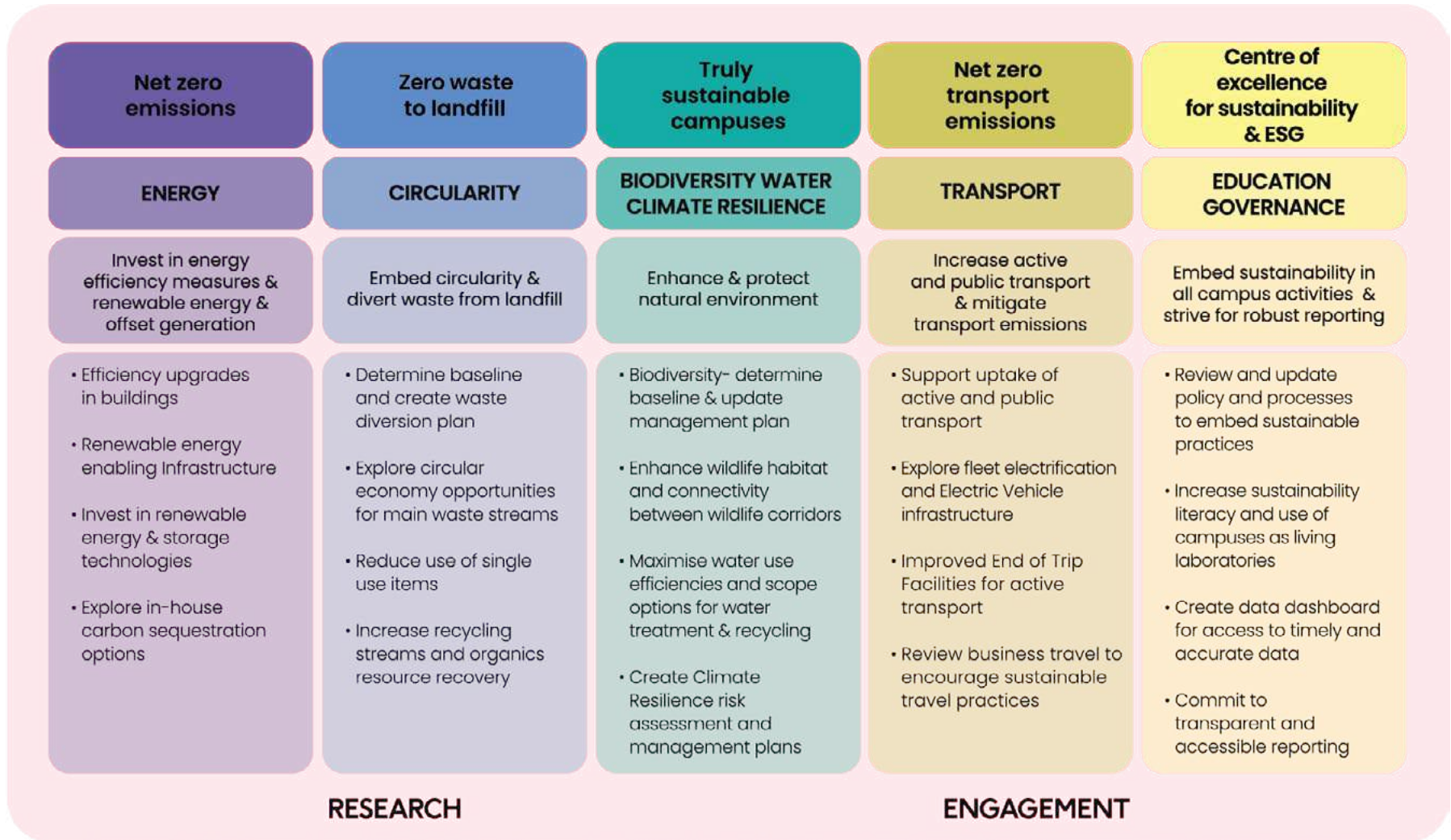


Figure 4 – Key Priority Actions for 2024–2027 required to progress toward our targets

Alignment and *Drivers*

Moorditj Boodja seeks to operationalise Ngala Kwop Biddi but is also informed by, and seeks to honour, public commitments Murdoch University has entered:



United Nations Principles for Responsible Management Education (2013)



Students Organising for Sustainability (2023)



Nature Positive University Pledge (2019)



Climate Action Barometer (2023)



United Nations Sustainable Development Goals (2019)



Race to Zero – Universities and Colleges (2023)



CANIE Accord (2024)



Australasian Campuses Towards Sustainability (2024)



Sustainability Tracking, Assessment & Rating System (2024)



Strategic Implementation *Partners*

Achieving our sustainability targets demands a collaborative and empowered approach, leveraging the collective insights and expertise within our university community, including:

- First Nations peoples' knowledge and wisdom: we recognise and honour the profound insights and traditional knowledge systems of First Nations peoples; their expertise will guide our sustainability initiatives and decision-making processes.
- Academic research, innovation, and education: our academic community drives innovation and fosters a culture of sustainability through cutting-edge research and transformative education, equipping future leaders with the knowledge and skills to address global challenges.
- Professional staff expertise and support: the dedication and expertise of our professional staff are essential in implementing sustainable practices across university operations, ensuring effective governance and operational efficiency.
- Student knowledge and passion: students are at the forefront of driving change and bringing fresh perspectives to sustainability initiatives. Their passion, creativity, and commitment play a vital role in shaping our university's sustainability agenda and fostering a culture of environmental stewardship.
- Industry and government partnerships: collaborating with industry and government partners enables us to leverage external knowledge, resources, and networks to drive innovation, inform policy, and address complex sustainability challenges at local, national, and global levels.
- Community and alumni engagement: engaging with our broader community and alumni network strengthens our collective impact and fosters a sense of shared responsibility for creating a sustainable future. Through partnerships and outreach initiatives, we amplify our efforts and mobilise collective action towards common goals.

We value our implementation partners and are guided by the principles of collaboration, inclusivity, empowerment, and transparency in all our endeavours. We recognise that each stakeholder makes unique contributions to building a brighter and more sustainable future for generations to come.

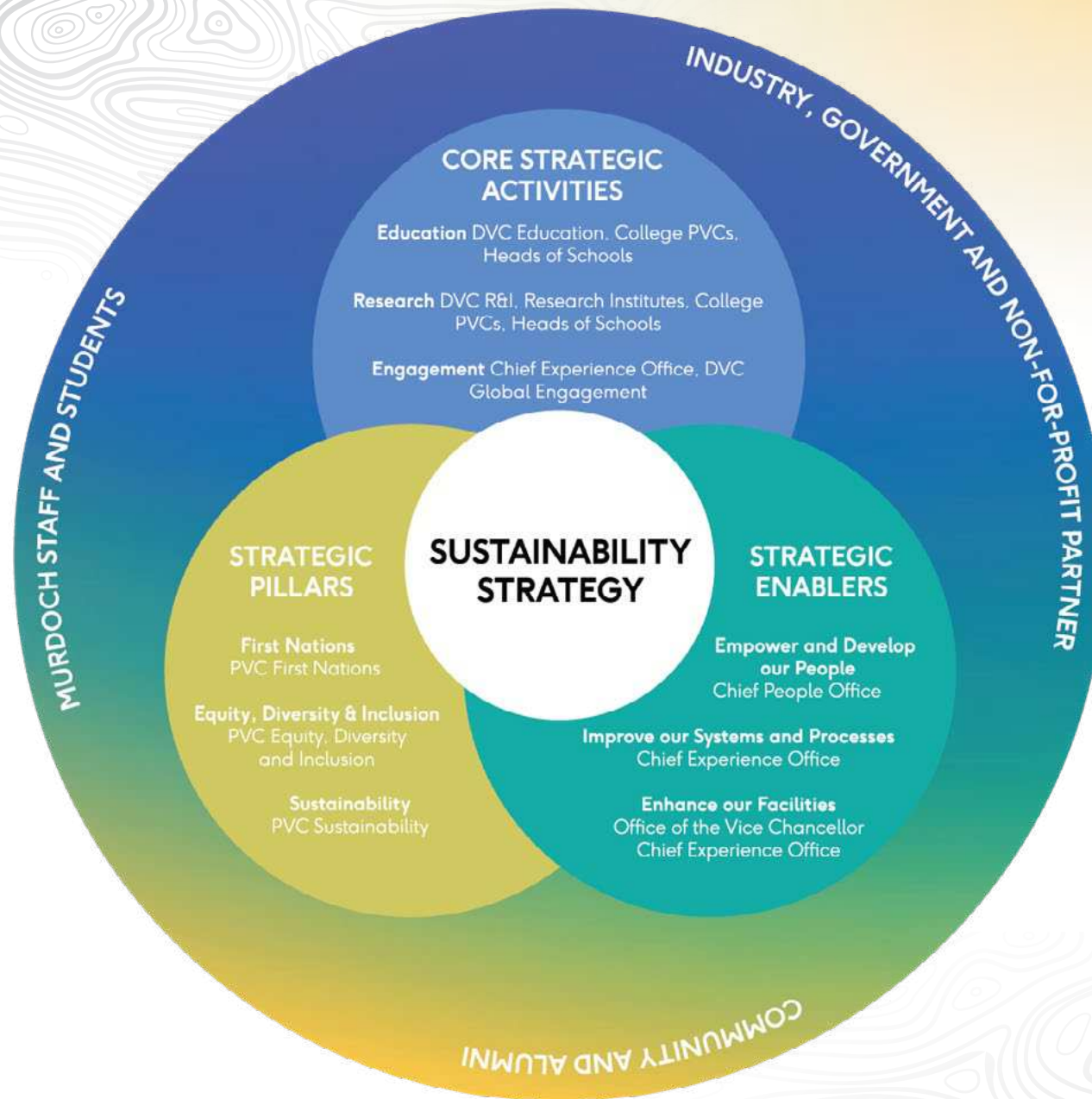


Figure 5 - Implementation partners

Implementation

The Sustainability Sub-Strategy 2023-2030 and Implementation Plan 2024-2027 are intended as a living documents to be responsive to the needs and priorities of the university, innovations in technologies and sustainable practices, as well as potential legislative shifts. Key actions to be undertaken in the first three years of the strategy are detailed in the Implementation Plan, covering all facilities over which Murdoch University has operational control.

As part of our commitment to transparency and accessibility we have committed to using the Sustainability Tracking, Assessment & Rating System (STARS) as a framework to assist in monitoring and reporting progress toward our sustainability targets. We will commence reporting against this framework in 2025. All STARS reports are publicly available, enabling sharing of best practice across the university sector.

In addition, we are committed to publishing an annual Sustainability Report (commencing in 2026) to disclose progress toward our strategic targets and Senate KPIs. We also commit to reporting under Race to Zero, Nature Positive, CABie and PRME frameworks.

Led by our guiding principles and commitment to environmental stewardship, *Moorditj Boodja-Strong Country* encompasses our key priorities, enabled and supported by our core activities to form a holistic approach to fostering positive change within the university community and beyond.

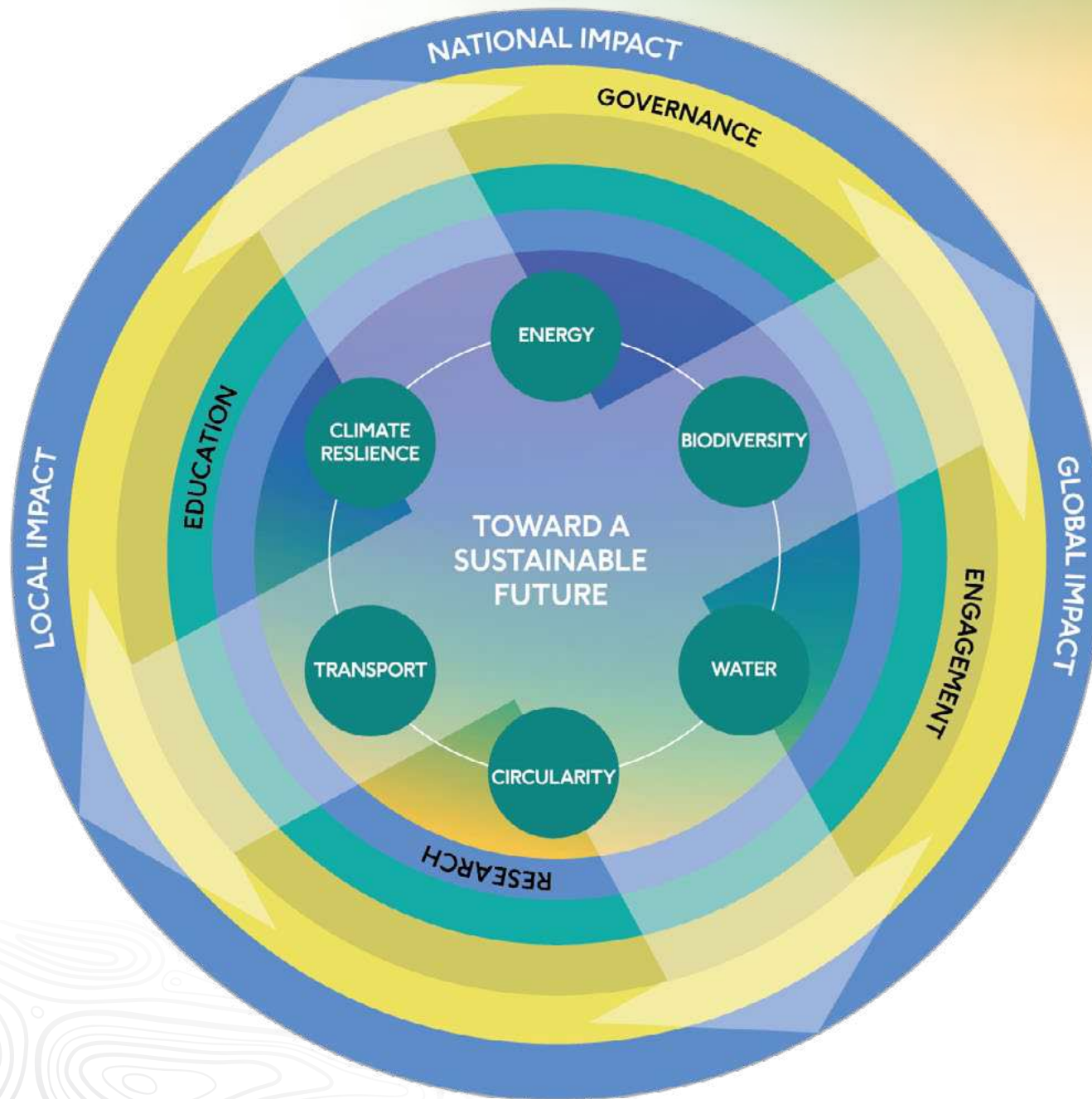


Figure 6 – Integration of action across our Moorditj Boodja Sustainability Sub-Strategy driving impact toward a sustainable future.

Glossary

Active transport: The transport of goods and/or people through non-motorised means, requiring human physical activity (e.g. cycling, walking).

Australasian Campuses Towards Sustainability (ACTS): ACTS is a member-led organisation that supports campuses to play a pivotal role in the sustainability transformation, creating and supporting a range of programs, resources, developmental and networking opportunities for members. too young or too old.

Biodiversity: Biodiversity speaks to system variety in terms of having diversity of plant and animal species, which is highly important for ecosystem stability, productivity and resilience.

CANIE Accord: CANIE is an international education practitioners' initiative that seeks to drive action on climate change. The CANIE Accord is an institutional pledge that strengthens organisational commitments to the decarbonisation of international education. The initiative is well-aligned with the Climate Action Barometer for International Education.

Carbon neutral: Carbon neutrality is achieved when an entity that produces carbon emissions removes the same volume of carbon emissions from the Earth's atmosphere.

Carbon offset: Carbon offsets compensate for emissions of carbon dioxide or other greenhouse gases by way of reducing, avoiding or removing emissions elsewhere.

Circular economy: In a circular economy, materials never become waste, allowing nature to regenerate. This is achieved through processes such as maintenance, reuse, refurbishment, remanufacture, recycling, and composting so that products and materials are kept in circulation.

Climate Action Barometer for International Education (CABie™): CABie is a global benchmark, designed specifically for the international education sector, that enables the tracking and comparing of sustainability policies, practices and emissions for international education. Murdoch University became a CABie signatory in 2023 and will commence reporting in 2024.

Climate resilience: The ability of human and environmental systems to withstand and cope with climate hazard events.

Greenhouse Gas (GhG): Heat-trapping greenhouse gases such as carbon dioxide (CO₂), methane or sulphur dioxide, which drive global warming.

Gross Floor Area (GFA m²): At Murdoch University, the gross floor area is the sum of the floor areas of the spaces within the buildings on its campuses.

CO₂-e: CO₂-e is the abbreviation for 'carbon dioxide equivalent', which beyond carbon dioxide accounts for other greenhouses gases including methane, nitrous oxide, ozone and water vapor.

Emissions Inventory Boundaries: See full Sub-Strategy document

Indigenous Cultural and Intellectual Property (ICIP): Often also referred to as "cultural heritage", ICIP refers to all aspects of Aboriginal and Torres Strait Islander peoples' traditional knowledge and cultural expressions, including stories, songs, language and sacred information. The UN Declaration on the Rights of Indigenous Peoples recognises ICIP rights, which are underpinned by the principles of self-determination and free, prior and informed consent.

Living Laboratory: Living laboratories are physical or virtual spaces for exploration, experimentation and collaboration within real-world contexts. At Murdoch University, the campus as a living lab is a test-bed for research, innovation and the co-production of knowledge, enabling a learning within and from the campus environment.

Murdoch University Strategy Ngala Kwop Biddi

2023 – 2030: Murdoch University's strategy, also known as *Ngala Kwop Biddi*, which translates to Building a Brighter Future Together, identified Sustainability as one of three key strategic themes and laid the foundation for this Sustainability Strategy.

Nature Positive Universities: Nature positive is a commitment to enhancing biodiversity values by way of halting and reversing nature loss. The Nature positive pledge for universities commits organisations to conduct biodiversity baselines assessments, setting biodiversity targets, and reporting on progress towards achieving them.

Net zero carbon emissions: The term 'net zero carbon emissions' refers to the amount of GHGs that are removed from the atmosphere being equal to those emitted by human activity. In contrast to carbon neutrality, net zero places greater emphasis on mitigating emissions, only allowing offsetting unavoidable, residual CO₂ as a last resort.

Perth to Peel Urban Greening Strategy

2023–2036: A Western Australian state government strategy designed to make the Perth and Peel regions greener, cooler and more liveable in the facing of a warming climate through education and urban greening measures. Sustainability Strategy.

Race to Zero – Universities and Colleges:

Race to Zero is a higher education campaign supported by EAUC, Second Nature and UN Environment Programme which drives emission reductions in the tertiary sector. The Race to Zero pledge compels participating organisation to set climate targets in line with the Paris Agreement and to report on their progress towards meeting them.

Science Based Targets initiative: The Science Based Targets initiative (SBTi) is a corporate climate action organization that enables companies and financial institutions worldwide to play their part in combating the climate crisis. Targets are considered 'science-based' if they are in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement – limiting global warming to 1.5°C above pre-industrial levels.

Scope 1 emissions: Direct greenhouse gas (GHG) emissions that occur from sources that are controlled or owned by the organisation.

Scope 2 emissions: Indirect GHG emissions associated with the purchase of electricity.

Scope 3 emissions: Emissions from value chain activities (incl. purchased goods and services, business travel and employee commuting).

Senate Key Performance Indicators –

Sustainability: Following the release of Ngala Kwop Biddi, two key performance indicators related to sustainability were set to track our progress toward our targets of net zero carbon emissions by 2030 and net zero waste to landfill by 2030. Progress toward these KPIs is reported to Senate on an annual basis.

Sustainability KPI 1 – Net carbon emissions of operations (kgCO₂e/m²GFA)

Sustainability KPI 2 – Proportion of waste to landfill (kg/m²GFA).

Sustainable Development: In 1987, the United Nations Brundtland Commission defined sustainable development as a development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs'. This concept goes beyond environmental concerns, including economic and social aspects (WCED 1987).

Sustainability: Many definitions for sustainability exist, yet most lack specificity or a sound ecological logic. Farley and Smith (2020) provide scientifically robust definition, describing sustainability as “the ability of an activity to sustain a system by improving its quality and operating within its limits”. In operational terms at Murdoch University, this means that we are seeking to maintain and enhance ecological values on our campuses while seeking continuously to reduce our overall environmental impact.

Sustainability challenge: An issue or situation that threatens or undermines ecological integrity, racial equity and social justice, or the ability of future generations to meet their needs (e.g., biodiversity loss, poverty and inequality, and climate change), OR a goal or objective that contributes to the resolution of such an issue or situation (e.g., ecosystem health, universal human rights, and renewable energy generation). To identify sustainability challenges, it may be helpful to reference the targets embedded in the Sustainable Development Goals (SDGs), the principles outlined in the Earth Charter, and/or the Doughnut of social and planetary boundaries. (ref. STARS)

Sustainability-related research:

Direct – Sustainability as a Primary

Outcome: Research activities and scholarly work that explicitly address or explicitly focus on sustainability challenges with tangible outcomes relevant to the UN SDGs. (definition adopted from STARS)

Indirect – Sustainability as a Secondary

Outcome: Research activities and scholarly work that implicitly address sustainability concerns, conceptually enrich the sustainability field, further our understanding of the interdependence of ecological and social/cultural/economic systems or discuss, debate or problematise sustainability approaches and/or drivers of unsustainability.

Sustainability Tracking, Assessment & Rating System (STARS):

A tool developed by and for higher education which recognises the unique missions, challenges, obligations, constraints, and opportunities of colleges and universities. It provides a tool for looking at all facets of our institutions—curriculum and research, campus operations, planning and institutional capacity—with the goal of aiding strategic planning, fostering cross-sector dialogue about sustainability on campus, and stimulating conversations and learning between institutions.

United Nations Sustainable Development Goals (SDGs):

Also known as Agenda 2030, the SDGs—adopted by all United Nations Member States in 2015—provide a global blueprint for achieving future sustainability, seeking to end poverty and other deprivations and pursuing strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve species and ecosystems.



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Moorditj Boodja–Strong Country was envisaged as a document that is jointly owned and provides a shared understanding of the university’s approach to delivering on our sustainability objectives. As such, significant stakeholder engagement has been undertaken to devise a sub-strategy informed by the perspectives and expertise of university staff and students including:

- The Truly Sustainable Campus Survey – delivered in Q4 2023 more than 400 staff and student respondents, providing 750 open-text comments;
- Over 45 hours of stakeholder engagement from February to July 2024 with more than 150 members of the University community taking part; and
- Consultation with various committees and governing bodies, including First Nations Committee, Sustainability Committee, Academic Council, Elder Advisory Group, Equity, Diversity and Inclusion Committee, and the Senior Leadership Team.

Our sincere thanks to members of the university community who supported the development of this Sustainability Sub-Strategy.



Abdul ABDULLAH, A Return, 2022. Oil on linen, 200 x 165cm. Purchased to commemorate the 50th Anniversary of Murdoch University Art Collection.

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