



Environmental Sustainability Report 2019

UNSW Estate Management
June 2020



Acknowledgment of Country

UNSW Sydney acknowledges the Bedegal people (Kensington Campus), Gadigal people (Sydney CBD and Art and Design campuses) and Ngunnawal people (UNSW Canberra – ADFA) as the traditional custodians of the lands on which each UNSW campus is located.

For tens of thousands of years, Aboriginal and Torres Strait Islander people managed the land sustainably using practices adapted to its unique climate, geography and ecology. We honour their unique relationships with the land and their rich contribution to society.



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Message from the President & Vice-Chancellor



The Environmental Sustainability Plan we launched last year took on new importance in the wake of the longest and most catastrophic bushfire season Australia has endured.

The fires, undeniably linked to climate change, sent shockwaves around the world. Not only because the smoke from the infernos spread across the globe, but because what we were witnessing brought the extent of the threat into sharp and imminent focus.

As I write this, we are also dealing with another threat in the form of the COVID-19 pandemic and its social and economic impacts.

But in the midst of such upheaval and uncertainty, hope has emerged. We have united with great resolve to flatten the curve. Remarkable innovations from individuals, businesses and universities alike have uncovered new ways to work, help, teach, research and communicate. The lesson is simple but profound. Working together is key to overcoming the challenges we face.

We will need the same sense of solidarity to tackle the truly existential challenge of our time – climate change.

The uncertainty of the pandemic is having impacts across UNSW, including on some planned sustainability initiatives. Despite the uncertainty of how the pandemic will ultimately affect our University, we remain committed to making our campuses and operations more sustainable.

Perhaps the most significant decision over the past year was UNSW's commitment to divest from fossil fuels by 2025, which was agreed at Council in December. This move was welcomed by the UNSW community.

The work does not stop there. We are progressing a comprehensive climate risk assessment for our investment portfolio, which will inform our Responsible Investment Framework.

Pleasingly, UNSW's quest to become the first university in Australia to commit to having 100% of its electricity supplied by photovoltaic solar energy is set to be realised. Renewable electricity supply is due to commence in 2020 when the Sunraysia Solar Farm in southern NSW is connected. We have now completed a comprehensive account of all our greenhouse gas emissions and our long-term net zero emissions target will be considered for approval by University Council in 2020. We will then develop a net zero emissions strategy.

As staff will know, centralised waste and recycling collection was put in place in offices, and we also established a new IT-based electronic waste collection program, with around 24 tonnes of equipment collected for responsible reuse or recycling.

We plan to introduce further initiatives to improve waste management practices and phase out single-use plastics from food service over the next 12 months.

We will also finalise our Transport Strategy. The most noticeable addition to our travel options in 2019 was the long-awaited first stage of the CBD and South East Light Rail, with the Randwick line commencing in December. Stage two, the Kingsford line, commenced in April 2020.

The environmental benefits of the Light Rail are significant, with a 663,000-tonne reduction in greenhouse gas emissions over a 30-year period through a reduced dependence on cars and buses.

I am also pleased to report that UNSW will launch a United Nations Sustainable Development Goal (SDG) toolkit, which will provide a platform for sustainability knowledge to be embedded in all learning and teaching programs. The toolkit will be available for academics to integrate into any learning and teaching course in 2020. This was a key activity of the Environmental Sustainability Plan 2019-21 and continues UNSW's vision of improving lives around the world.

Research activity across a range of issues critical to the future of our planet has also been a feature of the last year.

The Digital Grid Futures Institute and Materials and Manufacturing Futures Institute are partnering with various sectors to secure more sustainable and equitable energy solutions for Australian and global industries and communities. The UNSW Grand Challenge on Rapid Urbanisation explored how we can create more sustainable, resilient and inclusive cities. 2020 will see the launch of the Grand Challenge Living in the Anthropocene, exploring how humanity can not only survive but thrive in this new era of our own making.

What I've given here is just a snapshot of the work that is occurring at UNSW and I am delighted that our efforts are being recognised.

Greenpeace ranked our university as one of the leading Australian organisations progressing towards 100% renewable energy. Our contribution to the SDGs, measured in the 2020 Times Higher Education University Impact Rankings, saw us ranked first in the world for SDG 12 (Responsible Consumption and Production) and fourth for SDG 7 (Affordable and Clean Energy).

While much remains to be done, these achievements of the past year should be celebrated and shared by all in the UNSW community. Our University's core value of serving society is borne out in the willingness to participate in and advance our sustainability plan.

I am privileged to lead a university whose people have such a strong sense of justice, humanity and compassion – values that are the true mark of the leadership so needed in these times.

Professor Ian Jacobs
UNSW President and Vice-Chancellor

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2019 highlights

In 2019 UNSW launched the Environmental Sustainability Plan 2019-21, which aims to build on, embed and deepen our commitment to environmental sustainability. In the first year we made progress on several key initiatives and milestones:



Climate Action

- Completed solar farm construction.
- Installed three new solar PV systems on campus.
- Completed our first comprehensive Scope 1, 2 and 3 greenhouse gas (GHG) footprint.



Buildings & Campus

- Developed our Sustainability Framework for capital projects.
- Secured development approval for the sustainable cross-laminated timber building, D14.
- Launched Urban Growers teaching and research garden.
- New native planting and bees at Kensington campus.



Learning & Teaching

- Progressed the SDG toolkit, to be completed and launched in 2020.



Goods and Services

- Completed a GHG footprint assessment of our supply chain.
- Established a Sustainable Procurement Framework.
- Established a new furniture panel with sustainability requirements.



Energy & Water Efficiency

- Implemented a range of energy efficiency projects.
- 7 buildings achieved a 4* NABERS Energy-equivalent rating.
- Improved the average NABERS Energy-equivalent rating across all buildings to 3.5* (6% improvement).
- 46% of water consumed was bore water, reducing pressure on potable supplies.



Engagement & Integration

- Launched the Environmental Sustainability Plan 2019-21.
- 35 teams completed 768 Green Impact actions.
- Trained 29 Green Impact student auditors.
- UNSW awarded Best Campaign Supporting Sustainability at the 2019 Edurank Social Media Awards.



Investments

- Committed to divest from fossil fuels by 2025.
- Reduced the carbon footprint of total equities by 10%.
- Committed to a \$15m investment in a 100% renewable energy infrastructure fund.



Waste & Recycling

- Installed 10 new water refill stations.
- Replaced under-desk bins in offices with centralised waste and recycling stations, saving 1m plastic bin liners per year.
- Collected 257 tonnes of food waste from retailers and colleges for composting.
- Collected 24 tonnes of electronic equipment under a new program for reuse and recycling.



Research & Advocacy

- 1,294 publications in the water, environment and sustainability categories.
- UNSW Professor wins international award for sustainable energy technology.



Travel & Transport

- Light Rail L2 Randwick Line opened.
- Completed the Barker Street Bike Store and installed 90 new short stay bicycle spaces.
- Student and staff active travel increased to 25%.
- Rolled out remote working and collaboration technologies.

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UNSW Sydney is an education and research-intensive university, which delivers outstanding teaching alongside cutting-edge research. Established in 1949 and with campuses in Sydney and Canberra, UNSW is principally focused on the scientific, technological and professional disciplines.

Environmental sustainability is a key element of our updated 2025 Strategy, released in 2020. [Our Environmental Sustainability Plan 2019-21](#) supports many areas of the 2025 Strategy, particularly:

Theme 03 - Sustainable Development:

Objective 2. - Reduce our environmental footprint by using natural resources more efficiently, reducing waste and ensuring investments are consistent with the United Nations Sustainable Development Goals (UN SDGs).

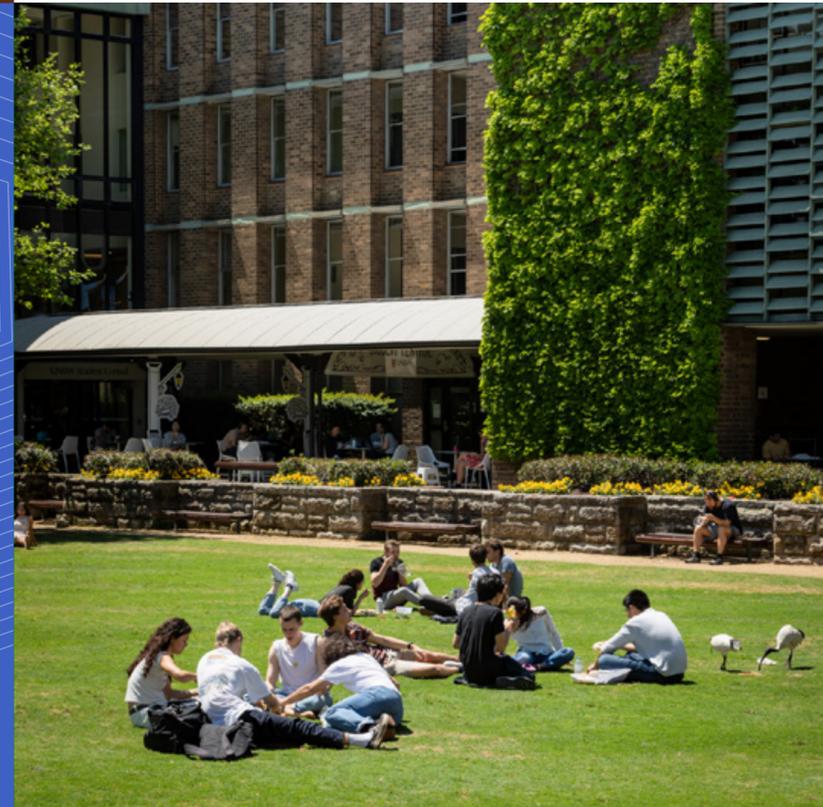
Enabler 04 - Enhance Our Campuses:

Objective 2. - Position our campuses and the activities they support as leaders in sustainability practices. We can do this by minimising our environmental footprint and improving resource efficiency.

Objective 4. - Create a modern campus that is resilient to environmental changes such as heatwaves and storms and can support local communities during times of emergency response to climate extremes.



Environmental sustainability at UNSW



Many of our students and staff are actively engaged in environmental and social issues. We recognise that we are uniquely positioned to contribute to solving global environmental challenges through teaching, research, thought leadership and demonstrating leading practices on our campuses. This unique role is reflected in our vision:

To be a catalyst for an environmentally sustainable future through excellence in research, teaching and campus operations.

UNSW's environmental sustainability program is led and coordinated by the Sustainability unit within Estate Management, in collaboration with students and staff across academic faculties and divisions.

Creating a sustainable future

Our vision is to be a catalyst for an environmentally sustainable future through excellence in research, teaching and campus operations. We measure 2019 progress across our 10 focus areas.

OUR INFLUENCE ON THE WIDER WORLD

We work with our partners to tackle global challenges like climate change.

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Climate Action

Installed **three new solar PV systems** on campus

Investments

Committed to **divest from fossil fuels by 2025**

Goods & Services

Established a **Sustainable Procurement Framework**

OUR SUSTAINABLE CAMPUSES

We seek to conserve natural resources and provide places where people and nature can regenerate and thrive.

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Buildings & Campus

Developed a **Sustainability Framework** for capital projects

Energy & Water Efficiency

Improved our average **NABERS Energy-equivalent rating by 6%**

OUR CATALYSTS OF CHANGE

Our students and staff underpin our contribution to a sustainable world.

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Travel & Transport

Student and staff **active travel increased to 25%**.

Waste & Recycling

Developed a **Plastic Free Dining Plan**

Learning & Teaching

Progressed the **'SDG thinking' toolkit** for launch in 2020

Research & Advocacy

1,294 publications in the water, environment and sustainability categories

Engagement & Integration

768 Green Impact actions completed by 29 teams



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The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 SDGs, which aim to tackle the world's most pressing challenges by 2030 – including ending poverty, delivering more equitable prosperity and protecting the planet.

Universities have a critical role to play in the achievement of the SDGs. The Environmental Sustainability Plan supports UNSW's contribution to the following eight SDGs and their associated targets.



Climate Action

- 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix.
- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.



Buildings & Campus

- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources.
- 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.



Learning & Teaching

- 4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development.



Goods and Services

- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources.
- 12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities.



Energy & Water Efficiency

- 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.
- 7.3 By 2030, double the global rate of improvement in energy efficiency.



Research & Advocacy

- 7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil fuel technology, and promote investment in energy infrastructure and clean energy technology.
- 9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries.



Investments

- 7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil fuel technology, and promote investment in energy infrastructure and clean energy technology.
- 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix.



Waste & Recycling

- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources.
- 12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.
- 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.



Engagement & Integration

- 4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development.
- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources.
- 12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.

Travel & Transport

- 11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

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Our Environmental Sustainability Plan 2019-21 addresses our key activities and environmental issues through 10 focus areas. Our plans in each area are structured as follows:

- **Commitments:** High-level statements setting out our planned direction.
- **Targets:** Specific, measurable indicators that we will report our progress against.
- **Activities:** The planned actions that support the realisation of our commitments and targets.

Each focus area has a dedicated section in this report.

Target status reporting

Our Environmental Sustainability Plan contains 22 targets. Progress against our targets is reported in its respective section of the report using the following categorisation:

Status	Symbol	Description	Count
Complete	●	Completed during the reporting period	1
On track	○	On track to meet the target	14
Not on track	△	Not on track to meet the target – action needed	7

Progress against our Environmental Sustainability Plan commitments and activities is reported in the sections that follow.

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Climate Action

Highlights

- Sunraysia solar farm construction completed.
- Installed three new solar PV systems.
- Completed our first Scope 1,2 and 3 GHG footprint



Sustainable Development Goal(s)

Our activities in this focus area contribute to the following SDGs:



And are especially focused on these targets under SDGs 7 and 13:

- 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix.
- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

Introduction

Climate change is the greatest challenge of our time. To keep warming within a 'safe' limit of 1.5°C, rapid transformation at an unprecedented level will be required.

The urgency of this challenge means Climate Action is our top environmental sustainability priority, and UNSW is choosing to focus on the areas that matter most to our students and staff. This includes our transition to renewable energy, measuring our GHG footprint and reducing it to net zero, and future-proofing our operations against climate risks.

Energy sourcing and onsite solar energy projects are managed by Estate Management, in collaboration with colleagues in the School of Photovoltaic and Renewable Energy Engineering (SPREE). Measuring and reducing our total GHG footprint engages staff involved in facilities management, construction, procurement, merchandising, travel and investment services, as well as suppliers and academic experts.

By demonstrating leadership on our campuses and within our wider community, we hope to act as a catalyst for a broader societal-level commitment to addressing climate change.

Commitments

- Transition to renewable energy and reduce net greenhouse gas emissions to zero.
- Ensure our campuses and operations are resilient to future climate risk.

Targets	Status
Reduce net emissions from building energy use to zero by 2020.	
Expand onsite solar energy generation to 1.2 MWp by 2022.	
Reduce total Scope 1, 2 and 3 emissions in line with a 1.5°C global warming scenario.	



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2019 progress

In 2019, we made significant progress against our Climate Action commitments. Construction was completed on the Sunrayasia Solar Farm which will provide UNSW campuses with renewable, reliable energy (see case study).

We also installed new solar photovoltaic (PV) systems on three more buildings at the Kensington campus, bringing total capacity close to our Environmental Sustainability Plan target.

We also completed a comprehensive assessment of our direct and indirect GHG emissions for our 2018 baseline, which we updated for 2019 (see case study).

While our total 2019 emissions did not show the reduction needed to align with a 1.5°C pathway, we anticipate that our switch to renewable electricity in 2020 will see us back on track. Emissions from building energy use increased due to three major new and refurbished buildings becoming operational, but construction of the solar farm means that we are on track to meet our target in 2020.

Case studies

Solar farm completed, awaiting grid connection

In 2017, UNSW entered into a 15-year Power Purchase Agreement (PPA), under which the Sunrayasia Solar Farm will supply 100% of UNSW electricity demand. The solar farm, covering 1000 hectares, is one of the largest in the world. At peak output, the solar farm will generate over 255 megawatts of direct current, enough to power 50,000 homes.

With construction completed in 2019, this solar farm is set to supply UNSW with 100% of our electricity demand, and additional carbon credits to offset natural gas usage. Unfortunately, due to problems with the transmission grid, connection has been delayed, but is forecast to be completed in 2020.

In the interim, our existing contractual arrangements mean that UNSW receives Large-scale Generating Certificates (LGCs) from 1 January 2020, meaning we are on track to meet the Environmental Sustainability Plan net zero building energy emissions target.

When the Sunrayasia Solar Farm is up and running, UNSW's ingenuity will be partly responsible for this new source of renewable energy. The 25% of the project dedicated to supplying us with power contains approximately 140,000 panels which use UNSW-pioneered PERC silicon solar technology.

UNSW renewable energy leadership recognised

This year, UNSW was ranked as one of Australia's leading organisations by Greenpeace for our transition to renewable energy. The Reenergise benchmark ranked organisations on their progress towards achieving 100% renewable energy and their commitments around PPAs and investment in onsite solar.

[More information →](#)

Onsite solar expanded

Estate Management installed new solar PV systems on Central Lecture Block (E19), Morven Brown (C20) and Scientia (G19) buildings. The new systems give us an additional 224 kilowatt potential (kWp) in capacity, increasing total installed capacity by 24% to 1.16 MWp.





Climate Action

Comprehensive GHG footprint to inform pathway to net zero emissions

In the Environmental Sustainability Plan we committed to aligning our decarbonisation pathway with climate science – specifically the pathway required to limit global temperature increase to 1.5°C, above which impacts on ecosystems, human health and wellbeing will increase substantially. To limit temperature increases to 1.5°C, global net emissions of greenhouse gases will need to fall by 45% from 2010 levels by 2030 and reach 'net zero' by 2050.

To inform our strategy, in 2019 we undertook a comprehensive GHG inventory aligned to the best practice standard for GHG accounting, the Greenhouse Gas Protocol. Our inventory includes all entities that are part of UNSW and over which we have operational control. In assessing our emissions sources, we distinguish between Scope 1, 2 and 3 emissions based on the Greenhouse Gas Protocol:

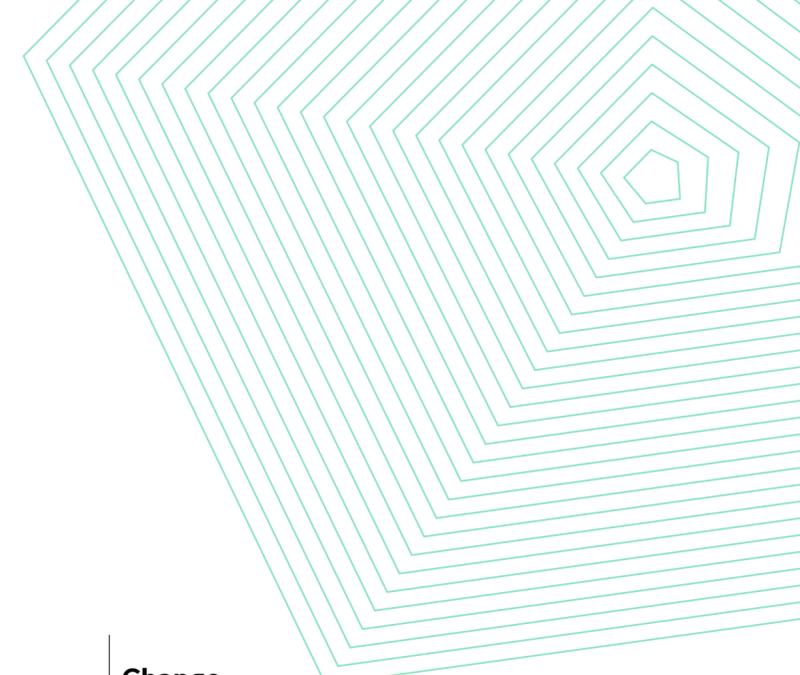
- **Scope 1:** Direct emissions from fuel use and refrigerant leakage from properties and activities owned or controlled by UNSW.
- **Scope 2:** Indirect emissions associated with UNSW's consumption of purchased electricity in properties owned or controlled by UNSW.
- **Scope 3:** Incorporates UNSW's value chain upstream and downstream emissions, including travel, purchased goods and services, investments and waste.

The assessment involved building a model that used physical and financial data, combined with emission factors sourced from life cycle analysis (LCA) databases, national GHG account factors and scientific literature. The result is, we believe, the most comprehensive GHG inventory of any university in Australia.

¹ IPCC, 2018: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C.

² World Resources Institute (2004) – The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard.

³ World Resources Institute (2011) – Corporate Value Chain (Scope 3) Accounting and Reporting Standard.



2018 baseline footprint

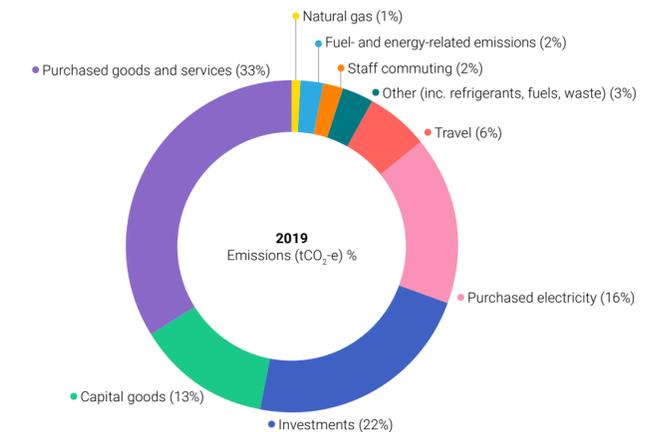
Our 2018 baseline footprint was 472,956 tonnes of carbon dioxide equivalent (tCO₂e), equating to 71 tCO₂e per Full Time Equivalent (FTE) staff member or 10 tCO₂e per Equivalent Full-Time Student Load (EFTSL). 82% of our footprint is associated with indirect (Scope 3) emissions.

Emissions Scope	Emissions				Change 2018-19 (%)
	2018 (tCO ₂ -e)	2018 (%)	2019 (tCO ₂ -e)	2019 (%)	
Scope 1	7,793	1.65%	8,608	1.81%	10.45%
Scope 2	74,398	15.73%	77,509	16.29%	4.18%
Scope 3	390,765	82.62%	389,833	81.91%	-0.24%
Total	472,956	100.00%	475,949	100.00%	0.63%

2019 footprint

In 2019, our total footprint increased by 1%, driven by an increase in Scope 1 and 2 emissions. This was as a result of increased gas and electricity consumption associated with the opening of three major new and refurbished buildings. Scope 3 emissions were slightly down, with a decrease in emissions from capital goods being offset by an increase in purchased goods and services, and staff travel.

Regrettably, in 2019 we did not achieve the 4.2% emission reduction needed to align with a 1.5°C pathway.



The pathway to 'net zero'

In 2020, we expect to reduce our Scope 1 and 2 emissions to 'net zero' through switching to 100% renewable electricity and offsetting our emissions from fuels and refrigerants, placing the University ahead of a 1.5°C pathway. This study provides a detailed baseline for tracking our remaining emissions, and will inform the development in 2020 of a strategy to reduce them to 'net zero'.

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- Completed a carbon footprint assessment of our supply chain.
- Established a Sustainable Procurement Framework.
- Established a new furniture panel with sustainability requirements.
- Implemented procurement process improvements.



Sustainable Development Goal(s)

Our activities in this focus area contribute to the following SDGs:



And are especially focused on these targets under SDG12:

- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources.
- 12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities

Introduction

The purchasing decisions that we make every day have an impact on people and the planet. Through our procurement practices we aim to source goods and services with the lowest environmental impact and greatest economic and social benefits.

In order to focus on where we can make the most difference, we take a risk-based approach, informed by an assessment of the environmental, social and economic risks and opportunities in our supply chain.

Our aim is to address these risks and opportunities and align our procurement practices with the International standard ISO 20400:2017 Sustainable procurement – Guidance.

Our activities in this focus area, coordinated by our Strategic Procurement team, mainly involve staff and how we select and work with our suppliers.

Commitments

- Integrate sustainability and 'circular economy' principles into procurement practices.

Targets

Align procurement processes with ISO 20400 by 2022.

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In 2019, we developed a Sustainable Procurement Framework to govern alignment to ISO 20400 for strategic procurement focus areas and activity over the coming years.

This includes several improvements to our procurement processes including:

- Introducing questionnaires for our vendors to assess their sustainability credentials against certain critical categories. This will help inform our approaches to market for our goods and services.
- Creating an annual procurement pipeline to identify specific areas within our sourcing activities that will improve UNSW's sustainability outcomes.

Our comprehensive GHG inventory, completed in 2019, covers our entire 'addressable spend' including travel, consumables, professional services and construction (see Climate Action focus area for further details).

This assessment provides a baseline for us to understand the emissions 'hotspots' in our supply chain and, in turn focus our future carbon reduction and supplier engagement efforts to secure the best outcomes.

The Strategic Procurement team is also supporting a key 2020 sustainability initiative by setting up a compostable food and drink packaging agreement. The agreement will allow our campus retailers to access approved, certified compostable products at the lowest prices and is a critical part of our Plastic Free Dining initiative.

Finally, we renegotiated our office products and stationery supply contract, and 61% of available products are now from social procurement categories, including 25% that are environmentally responsible. This includes products made from recycled materials and carbon neutral paper.

Case study

New furniture panel aims to tackle 'fast furniture'

Nationally, furniture disposal is estimated to make up 30% of waste which goes to landfill. UNSW saw an opportunity to create social and environmental benefits by improving our procurement practices in this area.

To respond to this opportunity, UNSW Strategic Procurement and Estate Management have launched a new furniture panel which selects suppliers providing whole-of-life value through higher-quality products made from recyclable materials and minimum 10-year warranties. In 2019, over \$5 million was spent on nine approved suppliers, ensuring standardised, sustainable furniture is provided for UNSW campuses.

The furniture panel complements our furniture reuse program, which reduces waste by allowing our staff to store and order used furniture.

[More information →](#)



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Highlights

- Committed to divest from fossil fuels by 2025.
- Allocated \$65.3m of long-term investment funds to a low carbon global shares fund.
- Reduced the carbon footprint of total equities by 10%.
- Committed to a \$15 million investment in a 100% renewable energy infrastructure fund



Sustainable Development Goal(s)

Our activities in this focus area contribute to the following SDG:



And are especially focused on this target under SDG 7:

- 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix.

Introduction

As a University, our influence on the wider world is partly driven by our investment decisions. These decisions reflect our values, organisational strategy and research objectives, while still seeking to deliver acceptable risk-adjusted returns for the University.

UNSW does not typically invest directly in companies, rather exposure is obtained by investing in a range of diversified financial products, usually commingled funds. As a result, we engage with the investment managers of these funds to meet our responsible investment commitments.

By engaging our investment managers and the rest of our community, UNSW aims to accelerate the transition to a sustainable, decarbonised economy.

Commitments

- Integrate best practice environmental, social and governance principles within our investment activities.
- Assess and mitigate investment climate risks and invest in solutions to climate change.

Targets

Align investment portfolio emission intensity with Paris Agreement commitments by 2020.

Status



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We have not yet finalised a methodology to measure alignment of our investment portfolio with the Paris Agreement, however a 2019 review of our portfolio showed that emissions intensity remains higher than required to meet this target.

Nonetheless, in 2019 we made progress in our journey to decarbonise our investment portfolio, including a new commitment to divest from fossil fuels by 2025 (see case study).

We completed Stage 1 of a climate risk assessment in line with the recommendations of the Task Force for Climate-related Financial

Disclosures (TCFD), a key Environmental Sustainability Plan commitment. This analysis provided:

- An overview of the TCFD framework.
- A baseline carbon intensity measurement.
- Forward looking modelling of the carbon reduction pathway.

Stage 2, being completed in 2020, will provide:

- Specification of key TCFD requirements for UNSW.
- Review of the alignment of UNSW investment policy and objectives with the TCFD framework.
- Recommendations for UNSW policy and governance framework.

UNSW Investment Policy and objectives will be updated to reflect the TCFD framework, which will inform the development of our Responsible Investment Framework and future disclosures.

As of 31 December 2019:



- 1.0% (\$5.9m) of equities were invested in companies that derive 20% or more of revenues from solutions to climate change.



- Investments in companies that directly own fossil fuel reserves was \$19.2 million in 2019, representing 3.1% of the long-term investment total portfolio.



- The carbon footprint of equities investments remains higher than the composite benchmark for both Portfolio Emissions Intensity and Absolute Portfolio Emissions. This reflects a high allocation to Australian equities, which have a relatively high carbon intensity.

Case study

UNSW commits to divest from fossil fuels by 2025

In December 2019, the UNSW Council resolved to divest from direct and indirect ownership of public equities and corporate bonds of companies whose primary business is the ownership and exploitation of fossil fuel reserves by 2025.

UNSW President and Vice-Chancellor, Professor Ian Jacobs, said UNSW's divestment decision is a "clear statement of UNSW's responsible investment intent and the continuation of our long and impressive journey on climate action. It is worth remembering that more than 30 years ago, the solar cell technology which powers 50% of solar panels around the world was developed right here at UNSW."

Above all, transitioning our investment portfolio reflects the responsibility we have to be part of a better world. "UNSW has a proud history of being at the forefront of climate science and renewable energy, and there is a clear expectation from our community that we forge a leadership role on climate change," Professor Jacobs said.

[More information →](#)

"UNSW has a proud history of being at the forefront of climate science and renewable energy, and there is a clear expectation from our community that we forge a leadership role on climate change,"

-
Professor Ian Jacobs
UNSW President and Vice-Chancellor

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We seek to conserve natural resources and provide places where people and nature can regenerate and thrive.



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Buildings & Campus

Highlights

- Developed our Sustainability Framework.
- Secured development approval for the sustainable cross-laminated timber building, D14.
- Launched Urban Growers teaching and research garden.
- New native planting and bees at Kensington campus



Sustainable Development Goal(s)

Our activities in this focus area contribute to the following SDGs:



And are especially focused on these targets under SDGs 12 and 15:

- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources.
- 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services.

Introduction

Through the planning and management of our campuses we aim to provide healthy and regenerative places for learning and work where people can connect with nature.

This focus area includes how we plan, develop and manage our campuses – activities led by Estate Management in collaboration with students and staff across UNSW faculties and divisions, consultants, contractors, government bodies, local organisations and the wider community.

We aim to repurpose and improve utilisation of existing spaces to reduce the need for new construction, and when new assets are required to minimise use of natural resources in construction.

Our approach is underpinned by minimum standards for new buildings and refurbishments. We seek to deliver environmentally sustainable design while providing flexibility to choose the tools best suited to each project.

Commitments

- Embed leading environmental sustainability principles and practices throughout the planning and operation of our buildings and campuses.

Targets	Status
Design and build new buildings to minimum 5* Green Star Design & As Built or equivalent and 5.5* NABERS Energy equivalent by 2022.	○
Ensure no net loss in tree canopy cover compared to the 2018 baseline (28%).	○



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Buildings & Campus

2019 progress

In 2019 we developed a Sustainability Framework for capital projects, which builds on our minimum requirements and provides guidance to project teams on UNSW's approach to delivering outstanding sustainability performance in a way that is an expression of the unique character and history of our campuses. The Sustainability Framework aims to ensure that the unique opportunities and needs of each project are addressed, and applies to new buildings, fit-out, refurbishment and infrastructure projects.

The UNSW Kensington campus covers 38 hectares and our grounds team ensures that new plantings favour native plants and grasses indigenous to the Randwick/Kensington area. We are the proud caretaker of over 1,200 trees, approximately 80% of which are Australian native species. This includes several 120-year-old Moreton Bay and Port Jackson Fig trees. New native planting in 2019 included:

- Planting approximately 150 native plants on the east side of Wallace Wurth building (C27), including botanic families that are in short supply on campus and hence will benefit the School of Biological, Earth and Environmental Sciences in their botany classes.
- Estate Management working with a group of staff on the Paddington campus to replant exotic garden beds with native plants. Staff and students now maintain the beds themselves and have added rocks and logs to further naturalise the space.
- The planting for the north and east sides of Sir John Clancy auditorium included over 70% native plants.



Case studies

Sustainable timber building receives development approval

In 2019, UNSW secured State Significant Development Approval (SSDA) for D14, a 15,000m², eight storey multi-purpose building, including student-led spaces, retail, teaching and faculty use. The structure will use innovative, sustainable cross-laminated timber (CLT) technology, which offers superior environmental sustainability performance due to its substantially lowered embodied greenhouse gas emissions compared to a traditional steel and concrete structure. Targeting 6* Green Star Design and As Built and 5.5* NABERS Energy equivalent ratings, the design includes a 30 kWp solar photovoltaic array, external shading, low energy LED lighting, and bore water use for non-potable uses.

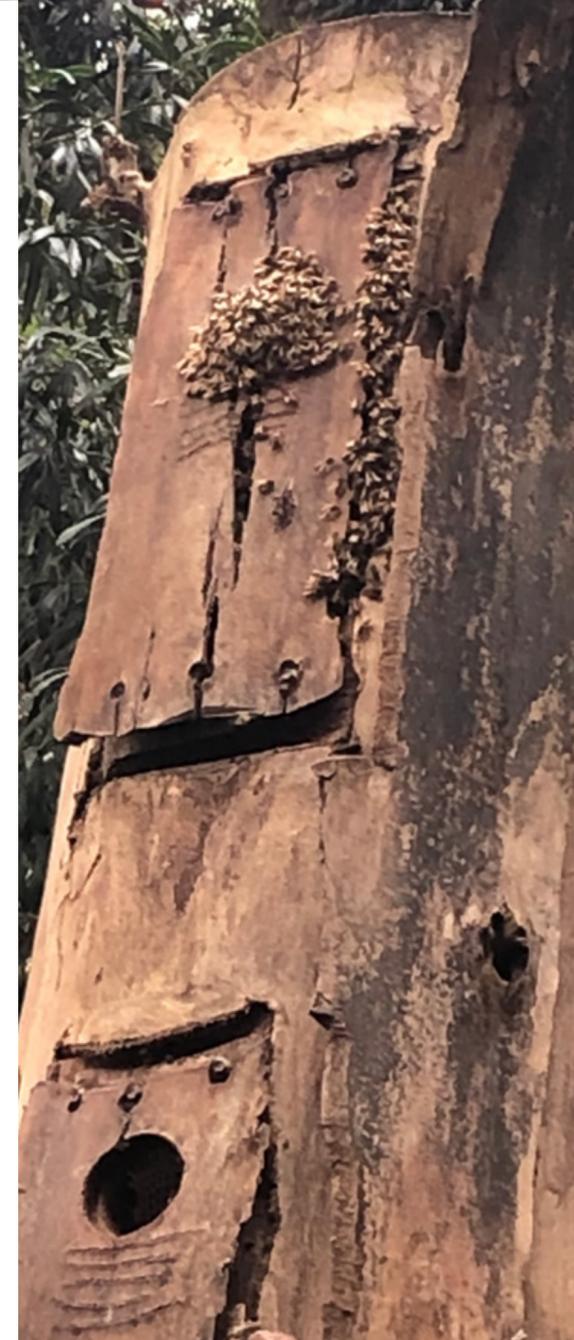
Urban Growers launches its first teaching and research garden

UNSW Urban Growers launched its first multi-purpose garden aimed at improving student learning, wellbeing and understanding of the natural environment. The initiative provides learning and teaching opportunities for students and University staff through the availability of garden beds for use in courses and research. UNSW Urban Growers is a cross-faculty working group of staff and students dedicated to creating food growing space on UNSW campuses.

[More information →](#)

Bees make Kensington campus home

In 2019, a swarm of bees established a hive in a bird box beside the Electrical Engineering building (G17). Our grounds team installed some beehive boxes but were unable to attract the bees to establish a new hive. In late 2019, Sydney was affected by bushfire smoke which may have impacted the bees and led to them relocating elsewhere. In 2020 we will be looking to bring these crucial pollinators to Kensington campus permanently.



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Energy & Water Efficiency

Highlights

- A range of energy efficiency projects implemented.
- 3.5* average NABERS Energy-equivalent rating (6% improvement).
- 46% of water consumed was bore water.



Sustainable Development Goal(s)

Our activities in this focus area contribute to the following SDGs:



And are especially focused on these targets under SDGs 6 and 7:

- 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater.
- 7.3 By 2030, double the global rate of improvement in energy efficiency.

Introduction

Our campuses are significant consumers of energy and water – resources on which we rely to carry out the majority of the core activities associated with higher education.

As a result, we are focused on improving our energy and water efficiency as we aim to create sustainable campuses for students and staff. In doing so, we also address our key environmental and operational impacts.

Recent research shows that it is possible to achieve energy savings of 5-15% when users are provided with direct and real-time information on their energy use.

This means investing in smarter buildings and systems through more efficient equipment, fittings and new technologies, which will also result in cost savings for the University.

Energy and water efficiency initiatives at all of our campuses are led by the Facilities Management Energy team, with support from other Estate Management teams and the wider University.

Commitments

- Continually improve energy efficiency and electrify our campuses.
- Reduce potable water use and return water to the hydrological cycle.

Targets

Status

Achieve a NABERS Energy equivalent rating of 4* or above for 10 existing buildings by 2022.



Increase average energy efficiency of existing buildings by 3% by 2022.



Increase water efficiency per Equivalent Full-Time Student Load (EFTSL) by 2% by 2022.



* UNSW 2019 publications from SciVal with keywords: Environment, Sustainability, Energy, or Water, as of 16 March 2020.



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Energy & Water Efficiency

2019 Progress

Overall energy and water consumption increased significantly in 2019 due to three major new buildings and refurbishments becoming fully operational: Science and Engineering Building (E8), Biological Sciences North (D26) and Electrical Engineering (G17).

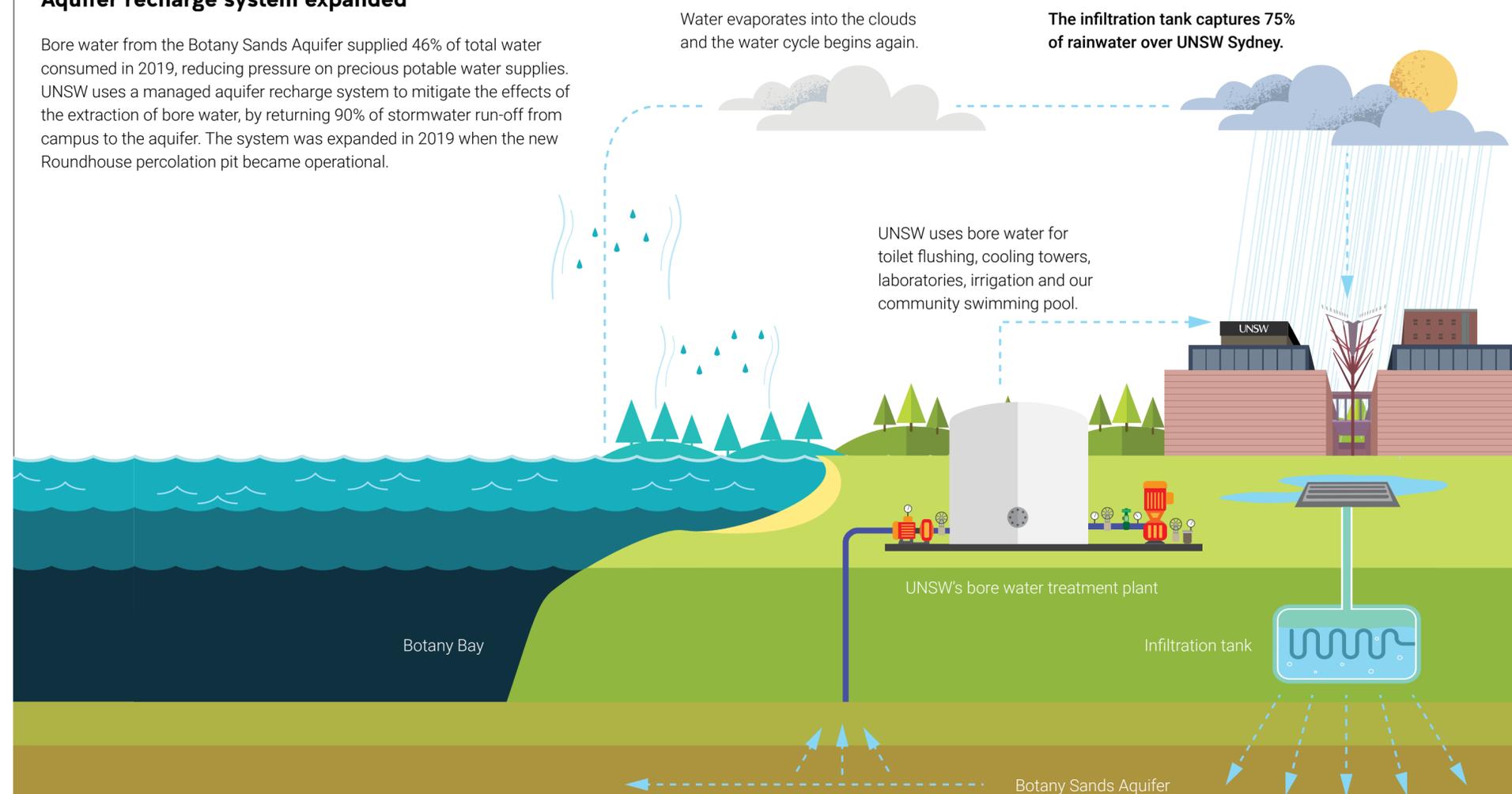
In 2019, we developed a new Energy and Water Strategy to improve the energy efficiency of our least efficient buildings. The starting point was benchmarking our portfolio using a bespoke methodology which assesses the NABERS-equivalent energy and water ratings for different building types. While the NABERS system is office-focussed, our methodology adjusts for different areas of a building. For example, a research lab is expected to use around six times the amount of energy per m² than an office space. This produces a comparable NABERS-equivalent rating for all buildings, enabling us to target our least efficient buildings with improvements. 2019 initiatives included:

- Building management system and variable speed drive upgrades to Central Lecture Block (E19) to implement variable fan speed and CO2 control, allowing building systems to provide heating, cooling and ventilation in response to demand. This work will also integrate with lecture scheduling software in future.
- Expansion of building analytics programs to include D26 and CLB buildings.
- A feasibility study to replace gas-fired heating with an electric heat pump for K17 building.
- Occupancy sensing for lighting in PC2 labs in D26 and E8 buildings.
- Trial of fume cupboard use and sash position monitoring.
- Installation of new behind-the-meter PV systems in buildings E19 and G19, and the extension of the existing PV system in C20.

Case study

Aquifer recharge system expanded

Bore water from the Botany Sands Aquifer supplied 46% of total water consumed in 2019, reducing pressure on precious potable water supplies. UNSW uses a managed aquifer recharge system to mitigate the effects of the extraction of bore water, by returning 90% of stormwater run-off from campus to the aquifer. The system was expanded in 2019 when the new Roundhouse percolation pit became operational.



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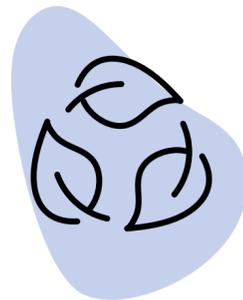
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Waste & Recycling

Highlights

- Installed 10 new water refill stations.
- Replaced under-desk bins with centralised waste and recycling stations in offices.
- Collected 257 tonnes of food waste from retailers and colleges for composting.
- Collected 24 tonnes of electronic equipment for reuse and recycling as part of a new program



Sustainable Development Goal(s)

Our activities in this focus area contribute to the following SDGs:



And are especially focused on these targets under SDG 12:

- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources.
- 12.3 By 2030, halve per capita global food waste at the retail and consumer levels.
- 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

Introduction

Waste management is a key priority for students and staff and perhaps the most visible day-to-day environmental issue on campus.

This focus area includes our efforts to eliminate single-use plastics, maximise recycling and minimise what we put in landfill, in accordance with the waste hierarchy.

By improving waste practices and behaviours we aim to conserve natural resources, make cost savings and improve waste awareness amongst our students and staff.

In 2020, we will be working closely with our key stakeholders, which include staff and students, contractors, suppliers of goods and services and our campus retail partners, to accelerate progress on the waste and recycling commitments laid out in the ESP.

Commitments

- Close the loop by minimising waste, improving resource efficiency and managing waste responsibly

Targets	Status
Reduce general waste by 10% per Equivalent Full-Time Student Load (EFTSL).	
Maintain general waste landfill diversion at 90%+.	
Achieve minimum 90% recycling of construction and demolition waste.	



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Waste & Recycling

2019 progress

The year saw a range of improvements in the way that we manage waste, as well as challenges. During the year we progressed a new Waste Management Plan (WMP) – a key Environmental Sustainability Plan activity – which will set out the future direction for sustainable waste management at UNSW. This includes an action plan to improve waste segregation, community satisfaction and sustainability outcomes. The WMP will be finalised in 2020.

We also developed a comprehensive plan to phase out single-use plastics from campus retail and hospitality food services. Our Plastic Free Dining initiative is planned to launch in 2020 and will ensure that all single-use packaging is entirely compostable. It will also make responsible disposal easier by introducing organic waste collection in key areas and a behaviour change campaign to promote reuse.

In addition to our plastic waste initiatives, several new waste reduction and recycling initiatives were introduced in 2019:

- UNSW IT established a new electronic waste collection program (see case study).
- Banned plastic straws and bags from use by campus retailers.
- We installed 10 new water refill stations, bringing the total to 24 at our campuses (see case study).
- By installing centralised waste and recycling stations in offices, we save over 1m plastic bin liners per year.
- Successfully trialled collection of food waste from office kitchenettes, with roll-out planned for 2020.

Meanwhile, several existing initiatives continued:

- Our back-of-house food waste collection program collected an average of 21 tonnes of segregated food waste per month from food retailers and college kitchens for composting.
- Collected 4.5 million drink containers in 2019 from our onsite Return and Earn reverse vending machine (eight million collected since its launch in 2018).
- Dedicated recycling facilities exist around campus for single-use containers, paper, batteries, polystyrene and mobile phones.

Our new building and refurbishment projects are required to ensure that a minimum 90% of construction and demolition waste is recycled, a requirement that is embedded in our operating procedures and contract terms. This target has been scored as 'on track' for 2019, but in 2020 we need to improve our data collection and reporting systems in order to reliably measure our performance.

⁴ General waste defined as including mixed waste from internal and external areas and segregated paper, food and mixed recyclables.

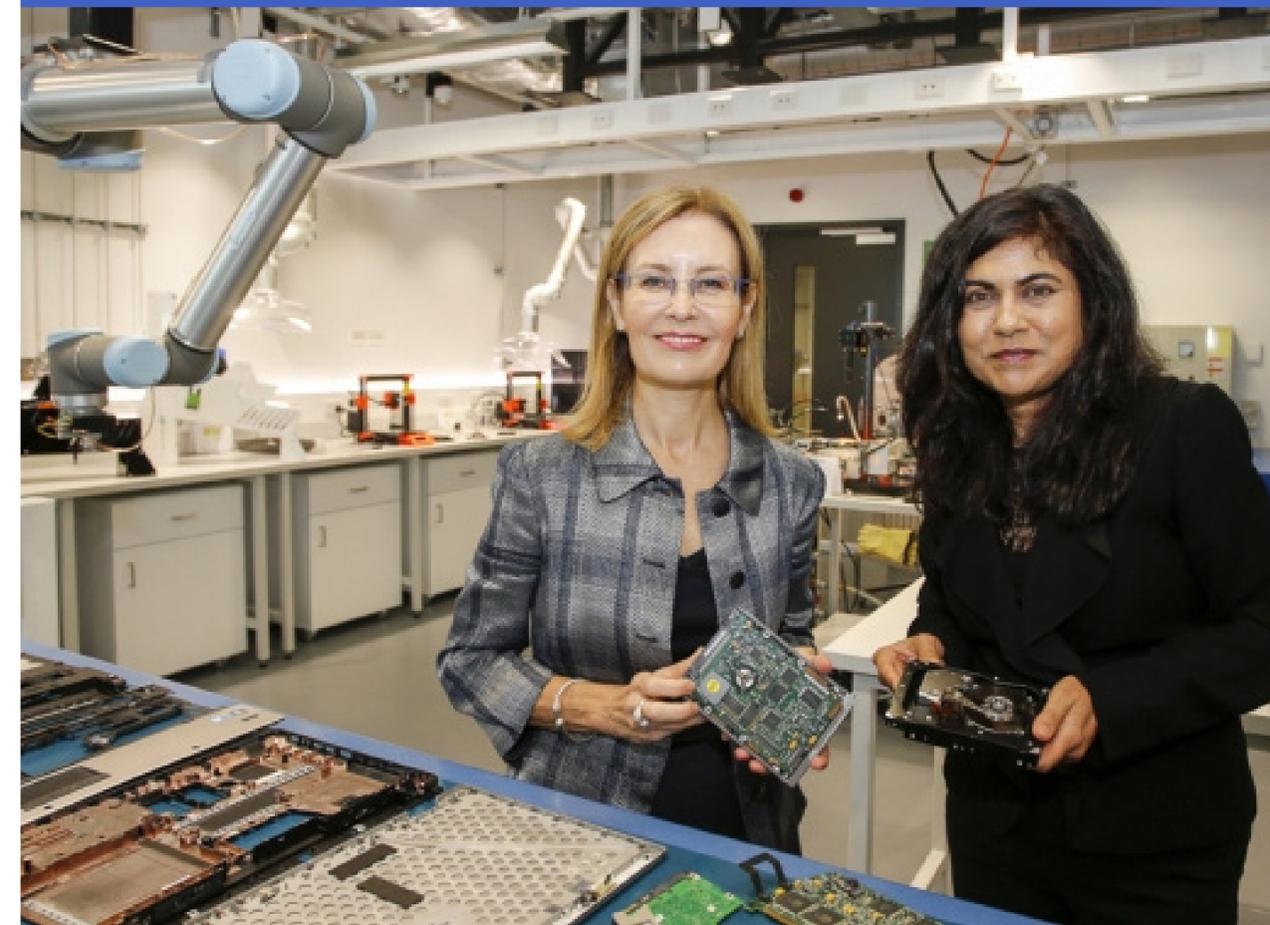
Case studies

E-waste collection success

In early 2019, UNSW established a new collection program for electronic equipment in collaboration with a leading service partner of the UNSW Centre for Sustainable Materials Research and Technology (SMaRT Centre). After the equipment is collected, any secure data is removed.

The refurbished equipment is then suitable for resale, donation to community organisations, or recycling through R2 certified responsible channels. The certified recycling process ensures that ethical labour practices are followed, and valuable gold, silver, copper and aluminium are recovered.

In the first year of the program, 24 tonnes of equipment was collected, with 78% being reused in some form and 22% recycled.



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Waste & Recycling



Fostering and delivering circular economy solutions



New innovation network to boost the circular economy

UNSW's leadership in materials science and technology research was recognised with funding to establish and lead the new NSW Circular Economy Innovation Network ('NSW Circular').

Officially launched in 2019, the initiative will receive \$1.5m to drive innovation in waste management and recycling. NSW Circular aims to better link industry with government, local councils and researchers to stimulate new ways of tackling the challenges of the circular economy.

Founding Director of UNSW SMaRT Centre, Professor Veena Sahajwalla, has been appointed Executive Director of the new Network, which will bring together stakeholders across industry, universities and local and state governments to develop sustainability in waste and recycling in NSW.

More water bubblers for our campuses

Removing the need for single-use plastic bottles is a critical component of creating plastic-free, sustainable campuses.

Ten new water refill stations were installed across Kensington, Paddington and Randwick campuses, making it easier for staff, students and visitors to rehydrate for free.

In total, there are now 20 bubblers at Kensington campus and four at other campuses. Designed to be hygienic and easy to use, the bubblers are all near popular walkways, cycle routes, food courts and main venues so refilling is as seamless as possible. They are also easy to access for wheelchair users and children.

"Our waste audits in 2019 found that 17% of material in our general waste bins is plastics, and 6% is beverage containers.

Our water bubblers have always been popular with our students and we have installed more so that wherever you are on our Kensington, Paddington and Randwick campuses you are never far from a free water refill.

Given that we need to drink at least two litres of water per day, and more if it's hot or we're exercising, it is important to make water easily accessible on campus while avoiding the need for single-use bottled water."

Will Syddall
Head of Environmental Sustainability



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Travel & Transport

Highlights

- Light Rail L2 Randwick Line opened.
- Completed Barker Street Bike Store and 90 new short stay bicycle spaces.
- Active travel increased to 25%.
- Roll-out of remote working and collaboration technologies



Sustainable Development Goal(s)

Our activities in this focus area contribute to the following SDGs:



And are especially focused on this target under SDG 11:

- 11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all.

Introduction

Access to and around our campuses is an important issue for our staff, students and visitors. In order to minimise congestion, reduce environmental impact and improve health and wellbeing outcomes, we promote the use of active and public transport modes as much as possible.

This focus area includes how people travel to and around our campuses, and how staff and students travel for University purposes as part of our efforts to address Scope 3 emissions. Other key stakeholders include local and state government as well as the local community.

Commitments

- Ensure our campuses are easily accessible by multiple transport modes and our community is supported to make active and sustainable transport choices.

Targets

Status

Increase the percentage of staff and students commuting by active travel modes to 20% by 2022.



Reduce air travel emissions by 1% by 2022.



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2019 progress

2019 saw improvements to support active and sustainable means of travel to our Kensington campus. In line with our Bicycle Masterplan, we have expanded facilities for cyclists, including the Barker Street Bike Store, our first secure bike facility, as well as 90 new short stay bicycle spaces and three repair stations.

The Barker Street Bike Store, located beside the Barker Street car park, has capacity for 39 bikes, 46 lockers, a changing room and repair station. The Light Rail works also saw the opening of a shared pedestrian and cycle path on Alison Road, connecting Gate 9 at UNSW to Alison Road and Anzac Parade. In 2019, UNSW IT expanded remote working and collaboration technologies for staff and students, with the aim of improving collaboration and reducing the need for travel (see case study).

Our first comprehensive carbon footprint, completed in 2019, allowed us to measure the emissions associated with staff travel and commuting for the first time. This, alongside the latest travel survey results (see case study), provides insight which will guide our future plans under this focus area.

Case studies

Light Rail arrives at UNSW

On 14 December, the L2 Circular Quay to Randwick Line CBD and South East Light Rail (CSELR) network opened, linking the UNSW Kensington campus with the CBD.

The development is one of the most significant pieces of infrastructure to benefit the University in its 70-year history, providing a high capacity, clean, reliable and sustainable transport option for staff and students.

UNSW President and Vice-Chancellor, Professor Ian Jacobs said the Light Rail will play a vital role in alleviating current transport issues and will improve campus accessibility.

“Students and staff alike will benefit from this modern, more efficient light rail system,” Professor Jacobs said.

“It is an exciting development that provides the UNSW community with greater connectivity to the heart of Sydney.”

[More information →](#)



2019 travel survey shows active travel on the rise

Understanding how our students and staff travel is essential to the successful operation and future master planning of the Kensington campus. Our travel survey provides insight about travel modes, habits, preferences and trends, to guide future planning.

This year, 2,772 students and 3,345 staff (5% and 36% of total populations respectively) responded to our travel survey. The results confirmed the downward trend of private car use for both groups.

The survey found that on a typical day:

- Public transport remains the most popular mode of travel with 53.4% of journeys.
- Staff and students walking to campus increased from 12% to 20%.
- 5.2% of students and 7.7% of staff cycle to campus.
- The total weighted average for walking and cycling is 25%, ahead of the Environmental Sustainability Plan target of 20% active travel by 2022.

A summary of the travel survey results can be found on the Estate Management website.

Using technology to enhance collaboration and cut travel

UNSW IT is using new technologies to support collaboration and remote working for students and staff. Highlights in 2019 included:

- Rolling out the unified communication and collaboration platform Microsoft Teams, with adoption reaching 10% of total users in December 2019 and 30% in March 2020.
- Wirelessly connecting and integrating 50 Teams-enabled rooms with screen, camera and interface, to ensure that lights are only switched on when people are in the room.
- Rolling out Voice-over Internet Protocol (VoIP) to enable staff to call external numbers from within Teams on any device. UNSW is the first University to deploy Teams as a telephony solution at such a large scale.

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Our students and staff underpin our
contribution to a sustainable world.



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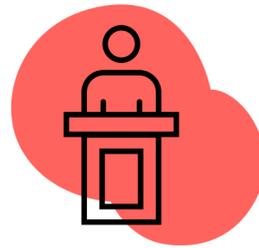
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Learning & Teaching

Highlights

- Progressed the SDG toolkit, to be completed and launched in 2020



Sustainable Development Goal(s)

Our activities in this focus area contribute to the following SDGs:



And are especially focused on these targets under SDG 4:

- 4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development.

Introduction

UNSW offers a range of educational programs in sustainability-related disciplines including renewable energy, climate science, materials science, built environment, biological, earth and environmental sciences, business, engineering and law.

All eight faculties at UNSW offer opportunities to undertake studies with a sustainability focus. While sustainability is taught as a subject in its own right, increasingly UNSW educators are embedding sustainability considerations into the fabric of all courses, with a focus on the UN Sustainable Development Goals SDGs.

Our courses aim to equip graduates with the critical thinking capabilities they will need to become future leaders in their fields, including by helping them develop an informed approach to environmental sustainability risks and opportunities. In this way, our graduates are well prepared to fulfil their potential and contribute to the society-wide challenge of nurturing a more sustainable planet and a fairer, more just society.

Commitments

- Offer learning and teaching programs that inspire students to contribute to a sustainable world.
- Provide leading interdisciplinary education in environmental management.

Targets	Status
The SDG module is offered across the FULT (Foundations of University Learning and Teaching) program by Term 1 2020.	
One course per program of study per faculty includes the SDG module as an assessed activity by 2021.	
One course per program of study per faculty incorporates SDG thinking using the SDG toolkit by Term 2 2021.	
One project per SDG is developed and integrated as an assessed activity by Term 1 2022.	
Continue to offer interdisciplinary education in environmental management in line with the Learning and Teaching Academic Standards Statement for Environment and Sustainability.	



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Learning & Teaching

2019 progress

Underpinning our approach to embedding sustainability thinking across all learning and teaching programs is a progressive three-year program to engage UNSW staff and students with the SDGs.

In 2019, we began the first stage of this program: developing a flexible SDG toolkit which can be tailored and included as part of any academic program. The toolkit provides academic staff with the flexibility to incorporate 'SDG thinking' into their courses in the manner of their choosing. Content for SDGs 1-9 was developed in 2019. The toolkit will be completed in 2020, with a soft launch expected in Term 2, 2020 (later than the Term 1 2020 target). It is anticipated that the toolkit will be integrated into a number of undergraduate courses, including:

- GEOS1701 – Environmental Systems, Processes and Issues
- ARTS3096 – Media and Climate Change
- ENGG3001 – Fundamentals of Humanitarian Engineering
- COMM1000 – Creating Social Change
- PHCM2007 – Health Leadership

Our flagship postgraduate environmental management program is the Master of Environmental Management (MEM), featured right. In Term 1, 2020, the MEM saw a 30% increase in enrolment compared to Term 1 2019).

Case study

Master of Environmental Management is revamped for a new generation of leaders

The Master of Environmental Management (MEM) is an interdisciplinary theoretical and applied set of courses that educate participants on many of the main frameworks and tools for environmental decision-making. The MEM is a face-to-face program with master's degree, graduate diploma, and graduate certificate options – which also can be completed via distance learning. Courses speak to both environmental specialists and non-specialists from other disciplines. The MEM has been offered since the early 1990s and is currently undergoing major revision centred on providing transformative postgraduate education that enables our graduates to become reflexive leaders equipped to respond to today's environmental and social issues.

The name currently under review for the revised program – the Master of Environmental Leadership and Sustainability (MELS) – reflects the program's strong social and cultural lenses on environment, its updated focus on sustainable and ethical leadership, and its addressing of current environmental concerns in Australia and around the globe. This revision also ensures alignment with Australia's Learning and Teaching Academic Standards Statement for Environment and Sustainability.



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Research & Advocacy

Highlights

- 1,294 publications in the environment, sustainability, energy or water categories.⁵
- 145 researchers associating their research with Fields of Research codes relating to water, environment, climate and sustainability.⁶
- UNSW Professor wins international award for sustainable energy technology.



Sustainable Development Goal(s)

Our activities in this focus area contribute to many SDGs, in particular:



And are especially focused on these research-focussed targets under SDGs 7 and 9:

- 7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil fuel technology, and promote investment in energy infrastructure and clean energy technology.
- 9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1m people and public and private research and development spending.

Introduction

According to a Deloitte Access Economics report, 10% of Australian GDP in 2014 could be attributed to the impact of university research. As one of the leading universities in the country, UNSW's research and advocacy is a core value-adding activity for all our stakeholders, including the community at large.

In pursuit of expanding the sum of our collective knowledge, we're continually breaking new ground in sustainability-related disciplines, including solar energy, sustainable materials technology, biodiversity and conservation, and climate science.

As an international thought leader, we also have the responsibility to ask the big questions. Our Grand Challenges program, for example, is a key part of our research and advocacy, actively confronting the greatest issues facing humanity by leading research, policy and public conversations that can change the world.

As a result, this focus area underpins our contribution to a more sustainable planet and a fairer society.

Commitments

- Support researchers to develop solutions to global environmental challenges.
- Be a leading advocate for a sustainable world by advancing policy discussion and debate.

Targets

Implement one sustainability-related research showcasing project on campus by 2020.

Status



⁵ UNSW 2019 publications from SciVal with keywords: Environment, Sustainability, Energy, or Water, as of 16 March 2020

⁶ Data from UNSW Researcher Profiles, which allow researchers to self-nominate relevant Fields of Research (FoR) codes.

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Research & Advocacy

2019 progress

In 2019, a range of sustainability-related research outputs were produced and communicated to the UNSW community and broader society. Highlights included:

- Launching the Grand Challenge on Rapid Urbanisation, in November 2018, which brought together researchers from a variety of disciplines throughout the following year to explore how we can create more sustainable, resilient and inclusive cities.
- Investing in four Futures Institutes, each of which explore a different area of scientific transformation (see case study). The initiative recognises the importance of collaboration across disciplinary boundaries and with industry, policy and community stakeholders.
- Collaborating in the NUW Alliance with University of Newcastle and University of Wollongong. Through this partnership, UNSW is contributing to the establishment of renewable industries in regional areas with a heavy dependency on the fossil fuel industry for jobs.

Case studies

Digital Grid Futures Institute secures funding milestones

The UNSW Digital Grid Futures Institute's purpose is to future-proof global energy systems to ensure reliable, secure, affordable, sustainable energy. In 2019, the initiative secured a number of funding milestones:

- As part of the Reliable Affordable Clean Energy for 2030 Cooperative Research Centre (CRC), UNSW received a 25% share of \$68m CRC and matched industry funds.
- \$1.2m from Australian Renewable Energy Agency (ARENA) for a solar friendly neighbourhoods initiative.

SMaRT tables showcase UNSW research

To showcase UNSW's research on campus, Estate Management commissioned the UNSW Centre for Sustainable Materials Research and Technology (SMaRT Centre) to manufacture coffee tables made from engineered waste glass, textiles and coffee cups.

The tables now feature in the recently refurbished seating areas in the Faculty of Arts and Social Sciences and the Division of Research.



UNSW Professor wins international award for sustainable energy tech

UNSW Scientia Professor Mattheos Santamouris, a leader in cooling the world's cities, won the prestigious 2019 World Society of Sustainable Energy Technologies (WSSET) Innovation Award in the Low Carbon Buildings and Future Cities category. The award recognised the ground-breaking heat mitigating materials and technology he and a team of researchers have developed over the last two decades.

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Engagement & Integration

Highlights

- Launched Environmental Sustainability Plan 2019-21.
- 35 teams completed 768 Green Impact actions.
- Trained 29 Green Impact student auditors.
- UNSW awarded Best Campaign Supporting Sustainability at the 2019 Edurank Social Media Awards.



Sustainable Development Goal(s)

Our activities in this focus area contribute to the following SDGs:



And are especially focused on these research-focussed targets under SDGs 7 and 9:

- 4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development.
- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources.
- 12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.

Introduction

Our students and staff are our catalysts of change, and many of them are highly engaged in environmental sustainability issues.

This focus area covers our efforts to build a culture of environmental awareness and good practice on campus, and to integrate the Environmental Sustainability Plan into the fabric of the University.

Students can get involved in sustainability through a range of Arc@UNSW sustainability groups and activities such as the Environment Collective, the Producers, eReuse, Bikeology and the Stationery Reuse Centre. Other initiatives and groups such as Green Impact, UNSW Urban Growers and the Climate Change Network actively involve both students and staff.

Engagement in sustainability issues can help our people find meaning and purpose in their lives and prepare them to be effective catalysts of change in contributing to a more sustainable world.

Commitments

- Build a community of environmental awareness and good practice.
- Integrate this Plan across University decision-making, planning and management processes.

Targets

Increase levels of student and staff engagement in environmental sustainability.

Status



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Engagement & Integration

2019 progress

On World Environment Day on 5 June 2019 UNSW launched our Environmental Sustainability Plan 2019-21 – our new plan that aims to build on, embed and deepen our commitment to environmental sustainability (see case study). This report provides a progress update on 2019 implementation.

A successful pilot of the Green Impact program saw around 200 staff across the University compete and collaborate to complete verified 768 actions to green their workplaces (see case study).

Other initiatives relating to Engagement & Integration in 2019 included:

- Our External Relations Communications team developed and executed a sustainability communications strategy, using 23 channels to promote six key campaigns.
- Strong engagement achieved through social media channels, including an average of 260,000 views and 12,500 engagements on Facebook, as well as 18,000 views and 800 engagements on LinkedIn, culminating in a 2019 Edurank Social Media Award for Supporting Sustainability (see case study).
- Launched a new Sustainability website to provide sustainability information and connect people.
- Established an Environmental Sustainability group on the Yammer collaboration platform to enable staff to share ideas and inspiration.
- Our Environmental Sustainability Steering Committee (ESSC) continued to provide expert advice on the implementation of the Environmental Sustainability Plan and helped drive improvement in our environmental sustainability performance.

A key engagement priority in 2020 will be expanding the Green Impact program.

“Our planet is facing a series of complex environmental challenges, from pollution of land and oceans to biodiversity loss and climate change.

UNSW is a major investor, consumer and landholder with the scale of a small city, so it is right that we grow and invest like any sustainable city would, with a responsible and clear plan.”

–
Professor Ian Jacobs
UNSW President and Vice-Chancellor

Case studies

UNSW unveils ambitious plan for a sustainable future

Launching the University's Environmental Sustainability Plan on World Environment Day, UNSW President and Vice-Chancellor Professor Ian Jacobs said the plan sets out a roadmap towards best practice in the higher education sector.

“Our planet is facing a series of complex environmental challenges, from pollution of land and oceans to biodiversity loss and climate change.

“UNSW is a major investor, consumer and landholder with the scale of a small city, so it is right that we grow and invest like any sustainable city would, with a responsible and clear plan.”

UNSW Head of Environmental Sustainability Will Syddall added, “UNSW's research, learning and teaching programs aim to address challenges that are critical to the future of our planet, and our students and staff are passionate about environmental issues. Through the Environmental Sustainability Plan we aim to integrate environmental sustainability best practices on our campuses.”

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“The value of Green Impact extends beyond raising awareness and completing actions that support our Environmental Sustainability Plan. It also helps us to identify sustainability champions in all parts of UNSW, for them to find each other, and to strengthen connections across teams.”

–
Arifa Sarfraz
Manager Environmental Sustainability



UNSW picks up global social media award for supporting sustainability

UNSW was recognised for using social media communities to influence social change in the global 2019 Edurank Social Media Awards. Judged by a panel of students, the University was awarded Best Campaign Supporting Sustainability for engaging people in campaigns like the Return and Earn reverse vending machine and encouraging students to use solar power to charge their devices. The work of Professor Veena Sahajwalla was also highlighted for its role in inspiring the world to rethink waste management and recycling. Finally, UNSW was highly commended in the category of Best Campaign Supporting Diversity.

Jack Breen, UNSW Social Media Lead, believes the success of sustainability campaigns at UNSW shows the power of social media to inspire change.

“Sustainability isn’t just a one-off campaign, it’s something that we’re regularly starting conversations about with our community. The task is made easier when there are so many fantastic sustainability initiatives coming out of the UNSW community”, he said.

“When you have a connected and passionate social community like ours, you have the power to raise the profile of important causes. We’ve excelled in the areas of sustainability and diversity because they are issues that our community really care about.”

[More information →](#)

Making a Green Impact on campus

Green Impact is a change and engagement program where individuals form teams to undertake a diverse range of sustainability actions. The program, organised by Australian Campuses Towards Sustainability (ACTS), saw over 200 UNSW staff sign up in 35 teams, completing 768 actions to green their workspaces. Their actions were verified by a team of 29 student auditors, who received environmental audit training and experience.

UNSW Provost Professor Anne Simmons said Green Impact shows that students and staff at every level of our University want to take the lead on environmental sustainability.

“A place like UNSW that holds such rich knowledge in climate science and renewable energy, and which has a true commitment to having a positive impact on society, must lead by example,” she said.

Arifa Sarfraz, Manager Environmental Sustainability, said, “The value of Green Impact extends beyond raising awareness and completing actions that support our Environmental Sustainability Plan. It also helps us to identify sustainability champions in all parts of UNSW, for them to find each other, and to strengthen connections across teams.”

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Roles and responsibilities

This section details the individuals responsible for the activities that support Environmental Sustainability Plan commitments and targets.

FOCUS AREA	ACTIVITIES	RESPONSIBILITY
Climate Action	• Develop a Scope 1, 2 & 3 emissions inventory and strategy to achieve net zero emissions	Head of Environmental Sustainability
	• Purchase 100% renewable electricity by 2020	Director, Facilities Management
	• Develop a Climate Adaptation and Resilience Plan	Executive Director, Estate Management
Goods & Services	• Implement the ISO20400-aligned Sustainable Procurement Roadmap	Director, Strategic Procurement
	• Implement the Sustainable Procurement priority projects.	Director, Strategic Procurement
	• Assess and monitor supply chain environmental impacts.	A/Professor, Civil & Environmental Engineering
Investments	• Complete a climate risk assessment in line with the recommendations of the TCFD	Director, Treasury and Investment Services
	• Establish a Responsible Investment Framework consistent with the Investment Policy and UN Principles for Responsible Investment	Director, Treasury and Investment Services
	• Set a portfolio emission intensity target and report annually in line with TCFD recommendations	Investment Sub-Committee
Buildings & Campus	• Establish and implement a framework to embed sustainability best practices into the Estate Improvement and Estate Development Programs	Executive Director, Estate Management
	• Ensure that all planting schemes use minimum 70% indigenous species, with a preference for drought-resistant species	Director, Facilities Management and Director, Development
	• Implement one initiative to enhance the natural environment or biodiversity each year	Director, Development
	• Establish a life-cycle Building Information Modelling (BIM) strategy and roadmap	Director, Development
Energy & Water Efficiency	• Design new buildings to be zero emission in operation	Director, Development
	• Develop and implement an Energy & Water Strategy	Director, Facilities Management
	• Expand the building active commissioning programme	Director, Development
	• Install aquifer recharge monitoring equipment	Director, Development
	• Install a bore water network for non-potable uses in all new buildings	Director, Development
Waste & Recycling	• Ensure that all new water consuming fixtures are WELS-rated	Director, Development
	• Review laboratory and equipment efficiency requirements	Director, Facilities Management
	• Develop and implement a Waste Management Plan	Director, Facilities Management
	• Implement centralised waste collection in offices and expand food waste collection	Director, Facilities Management
	• Work with retailers and hospitality partners to eliminate single-use plastics wherever feasible and practical	Director, Business & Campus Services
	• Identify and implement circular economy initiatives	Head of Environmental Sustainability
Travel & Transport	• Ensure best practice recycling of construction and demolition waste	Director, Development
	• Implement a comprehensive furniture reuse solution and platform	Director, Facilities Management
	• Develop a Campus Transport and Accessibility Plan	Executive Director, Estate Management
	• Provide secure bicycle storage and end-of-trip facilities in key campus locations	Executive Director, Estate Management
Learning & Teaching	• Establish processes to measure and offset business travel carbon emissions	Head of Environmental Sustainability
	• Identify and evaluate opportunities to expand AV and VC facilities and promote these as an alternative to travel	Vice-President, Finance & Operations
	• Develop an online 'SDG thinking' module to improve the SDG literacy of students and staff	Director, Academic Development
Research & Advocacy	• Develop an 'SDG thinking toolkit' available through UNSW Teaching Gateway	Services and A/Lecturer, Civil & Environmental Engineering)
	• Communicate UNSW environmental and sustainability-related research to the community and broader society	Head of Corporate Communications
	• Provide thought leadership on environmental and sustainability issues through the Grand Challenges program	Executive Director, Division of Research
Engagement & Integration	• Invest in new and emerging research areas including Digital Grid and Materials and Manufacturing	Futures Institutes
	• Develop a sustainability communications plan and engagement program	Head of Environmental Sustainability & Head of communications Manager
	• Complete a survey to measure engagement levels and priorities of the UNSW community	Head of Environmental Sustainability
	• Develop comprehensive data monitoring, collection and reporting procedures	Head of Environmental Sustainability
	• Complete an annual review and progress report outlining progress against the commitments, targets and actions in this Plan	Head of Environmental Sustainability
	• Report annually on the progress of activities to the Sustainability team	Action Owners

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Focus area	Target	Definition	Performance		Status
			2018	2019	
Climate Action	Reduce net GHG emissions from building energy use to zero by 2020.	Tonnes of carbon dioxide equivalent (tCO ₂ e)	81,745	84,515	○
	Expand onsite solar energy generation to 1.2MWp by 2022.	Installed capacity in megawatts potential (MWp)	0.79	1.16	○
	Reduce total Scope 1, 2 and 3 GHG emissions in line with a 1.5°C global warming scenario.	Tonnes of carbon dioxide equivalent (tCO ₂ e)	472,956	475,949	△
Goods & Services	Align procurement processes with ISO 20400 by 2022.	Processes aligned (Y/N)	N	N	○
Investments	Align investment portfolio emission intensity with Paris Agreement commitments by 2020.	Tonnes of carbon dioxide equivalent (tCO ₂ e) per \$			△
Buildings & Campus	Design and build new buildings to minimum 5* Green Star Design & As Built or equivalent and 5.5* NABERS Energy equivalent by 2022.	Number of buildings designed and/or delivered to target	0	2	○
	Ensure no net loss in tree canopy cover compared to a 2018 baseline.	Tree canopy cover (%)	28%	-	○
Energy & Water Efficiency	Achieve a NABERS Energy equivalent rating of 4* or above for 10 existing buildings by 2022.	NABERS equivalent rating	4.00	7.00	○
	Increase average energy efficiency of existing buildings by 3% by 2022.	NABERS equivalent rating	3.30	3.50	○
	Increase water efficiency per EFTSL by 2% by 2022.	Kilolitres per Equivalent Full time Student Load (EFTSL) per year	13.92	14.77	△
Waste & Recycling	Reduce general waste (mixed, paper, food and recyclables) per EFTSL by 10% by 2022.	Kilograms per Equivalent Full time Student Load (EFTSL) per year	63.71	61.46	△
	Maintain general waste landfill diversion at 90%+.	General waste diverted from landfill (%)	94%	49%	△
	Achieve minimum 90% recycling of construction and demolition waste.	Number of projects achieving the target			○
Travel & Transport	Increase the percentage of staff and students commuting by active travel modes to 20% by 2022.	Students and staff walking or cycling as main travel mode (%)	16%	25%	○
	Reduce air travel emissions by 1% by 2022.	Tonnes of carbon dioxide equivalent (tCO ₂ e)	23,595	25,958	△
Learning & Teaching	At least 1 option for the SDG module is offered across the FULT programme of study by Term 1 2020.	Option offered across FULT	-	-	△
	At least 1 course per program of study includes the online course as an assessed activity by 2021.	Number of programs offering the SDG course	-	-	○
	At least 1 course per program of study incorporates SDG thinking using the SDG toolkit by Term 2 2021.	Number of programs using the SDG toolkit	-	-	○
	At least 1 project per SDG is developed and integrated as an assessed activity by Term 1 2022.	Number SDGs for which a project is developed	-	-	○
	Offer interdisciplinary education in environmental management line with LTASSES.	Program offered (Y/N)	Y	Y	○
Research & Advocacy	Implement 1 sustainability-related research showcasing project by 2020.	Number of projects	-	1	●
Engagement & Integration	Increase student and staff levels of engagement in sustainability.	Number of verified Green Impact actions completed	-	768	○

Environmental data

Energy & Water Efficiency

(Kensington campus only)

Energy	Unit	2016	2017	2018	2019
Purchased electricity	Kilowatt hour (kWh)	82,393,960	85,338,861	89,978,545	96,878,516
Electricity from onsite solar		853,279	854,312	996,305	1,140,316
Gas		26,586,582	31,580,074	36,857,403	39,791,111

Water

Potable water	Kilolitre (kl)	361,000	367,000	351,000	367,000
Bore water		282,000	264,000	272,000	311,000
Total water		643,000	631,000	623,000	677,000
Bore water as a % of total	%	44%	42%	44%	46%

Waste & Recycling

(Kensington, Paddington and Randwick campuses)

General waste	Unit	2016	2017	2018	2019
Paper/cardboard	Tonne	1,306	1,413	1,125	658
Mixed metals	Tonne	158	164	120	29
Drink containers	Tonne	0	0	84	122
Food and organics	Tonne	382	251	278	80
Food waste	Tonne	102	118	228	257
Residual	Tonne	796	8,58	1,017	1,692
Total		2,744	2,804	2,841	2,829
Destination					
Recycling	Tonne	1,948	1,946	1,835	1,146
Processed engineered fuel (energy recovery)	Tonne	667	672	858	244
Landfill	Tonne	129	186	159	1,447
General waste recycling rate	%	71%	69%	64%	40%
General waste landfill diversion rate	%	95%	93%	94%	49%

Paper and cardboard: Segregated paper, confidential paper and paper recovered from general waste at Material Recovery Facility

Mixed metals: Reported as recovered from general waste at material recovery facility (MRF)

Drink containers: Collected through Return and Earn reverse vending machine on Kensington campus

Food and organics: Reported as recovered from general waste at material recovery facility (MRF)

Food waste: Segregated food waste collected from retailers and colleges

Residual waste: Contaminated paper, plastic, food packaging and other non-recyclable waste destined for energy recovery and landfill



Relevant standards and frameworks

THEME	STANDARD OR FRAMEWORK	DESCRIPTION
Climate Change	Paris Agreement	A 2015 international agreement within the UN Framework Convention on Climate Change, aiming to reduce greenhouse gas emissions and limit the global temperature increase to no more than 1.5-2°C.
	Greenhouse Gas (GHG) Protocol	Global standard for greenhouse gas emissions accounting and reporting, developed by the World Resources Institute and World Business Council for Sustainable Development.
Sustainable Development	United Nations Sustainable Development Goals (SDGs)	17 global goals aiming to tackle the most pressing environmental, social and economic issues by 2030. Used to connect organisational sustainability strategy and reporting to the global agenda.
Learning & Teaching	Learning & Teaching Academic Standards Statement for Environment and Sustainability	Describes the minimum or threshold learning outcomes (TLOs) that graduates of tertiary programs in environment and sustainability are expected to meet or exceed, providing a curriculum reference point for designing and teaching diverse and innovative environment and sustainability programs.
	Green Star Design & As Built	Certification standard for the sustainable design and construction of buildings, administered by the Green Building Council of Australia (GBCA).
Sustainable Buildings	NABERS Energy	Energy efficiency rating of the National Australian Built Environment Rating System, an initiative by the government of Australia to measure and compare the environmental performance of Australian buildings and tenancies.
	ISO 20400	Provides guidance on integrating sustainability principles within procurement activities.
Sustainable Procurement	UN Principles for Responsible Investment (PRI)	Six principles providing guidance for responsible investment, aiming to support signatories to incorporate sustainability issues into investment decision-making and ownership practices.
	Task Force on Climate-related Financial Disclosures (TCFD)	Industry-led initiative created to develop a set of recommendations for voluntary climate-related financial disclosures.