



THE UNIVERSITY OF  
**NEWCASTLE**  
AUSTRALIA

# 2011–2013 ENVIRONMENTAL SUSTAINABILITY PLAN



# CONTENTS

	<b>MESSAGE FROM THE VICE-CHANCELLOR</b>	<b>02</b>
<b>1</b>	<b>INTRODUCTION</b>	<b>03</b>
	1.1 OUR COMMITMENT	03
	1.2 ENVIRONMENTAL SUSTAINABILITY FOR UNIVERSITIES	04
	1.3 VISION	04
	1.4 OBJECTIVES	04
	1.5 PLAN FORMATION AND GOVERNANCE	05
	1.6 ALIGNMENT WITH OTHER STRATEGIC PLANS	05
	1.7 NAVIGATION	06
<b>2</b>	<b>SUSTAINABILITY THEMES</b>	<b>08</b>
	2.1.1 CAMPUS MANAGEMENT THEME	08
	2.1.2 SUB-THEME: ENERGY AND CARBON EMISSIONS	08
	2.1.3 SUB-THEME: WATER	10
	2.1.4 SUB-THEME: LANDSCAPE AND BIODIVERSITY	12
	2.1.5 SUB-THEME: WASTE	13
	2.1.6 SUB-THEME: SUSTAINABLE TRANSPORT	14
	2.1.7 SUB-THEME: SUSTAINABLE BUSINESS AND PROCUREMENT	16
	2.1.8 SUB-THEME: ASSET PLANNING AND ENVIRONMENTAL COMPLIANCE	16
	2.1.9 RESEARCH AND INNOVATION THEME	17
	2.1.10 TEACHING AND LEARNING THEME	20
<b>3</b>	<b>IMPLEMENTATION</b>	<b>22</b>
	3.1 COMMUNICATING OUR INITIATIVES AND PERFORMANCE	22
	3.2 CELEBRATING OUR ENVIRONMENTAL CHAMPIONS AND EVENT ENGAGEMENT	22
	3.3 ENVIRONMENTAL PROGRAM OPERATIONAL PLAN AND RESOURCING	22
	3.4 CONTINUOUS IMPROVEMENT	22
	<b>APPENDIX 1: ENVIRONMENTAL SUSTAINABILITY POLICY</b>	<b>24</b>
	<b>APPENDIX 2: SUMMARY OF KEY PERFORMANCE INDICATORS FOR THE ENVIRONMENTAL SUSTAINABILITY REPORT CARD</b>	<b>26</b>



## MESSAGE FROM THE VICE-CHANCELLOR

The University of Newcastle is proud to be a leader in environmental management in the higher education sector. We are one of the lowest consumers of energy among Australia's universities, and we are continually working on new, sustainable strategies to improve our energy efficiency. Significant effort is directed to blending ecological conservation with campus functionality, and as a result our bushland campuses are highly valued by staff, students and the community.

The University's strategies to manage waste, water, biodiversity, transport and energy strive to meet the highest standards. Environmental principles guide campus upgrades and building development. We endeavour to raise environmental awareness among staff and students. Newcastle is a signatory to the Talloires Declaration – a voluntary international 10 point action plan that incorporates sustainability and environmental literacy into teaching, research and campus operations. The University's new strategic plan includes environmental sustainability as one of seven priorities over the next five years.

Newcastle is committed to building on our environmental credentials.

The inaugural Environmental Sustainability Plan is the next step in the University's drive to ensure sustainable perspectives and actions in our activities. The plan is the work of our staff, students and partners, and importantly reflects the priorities of our diverse University community.

The plan aligns our commitments under three themes: campus management, teaching and learning, and research and innovation. Not only is the plan a blueprint for future action, it is also a point of accountability. Each year we will provide a report card of our performance against each theme.

The Environmental Sustainability Plan sets an ambitious agenda for the University of Newcastle over the coming years. The continued commitment and enthusiasm of staff, students and partners will ensure the plan's success – offering a win for the University and, more importantly, a win for the environment.

A handwritten signature in black ink, appearing to read 'N. Saunders', written in a cursive style.

**Professor Nicholas Saunders**  
Vice-Chancellor and President  
Chair, Committee on Environmental Sustainability

# 1

## INTRODUCTION

### 1.1 OUR COMMITMENT

The University of Newcastle is recognised internationally as a progressive and dynamic higher education institution of distinction. This reputation stems from the University's research achievements, quality teaching and its commitment to equity and diversity in education. Past and recent achievements in environmental sustainability, particularly through having native bushland on our Newcastle and Central Coast campuses, our use of water sensitive urban design within our landscape, and ecological sustainable principles demonstrated through our architecture, provides a solid foundation to our reputation as a university of environmental distinction.

Our exemplary record in sustainability is illustrated by the range of excellence awards the University has received from leading experts, industry and government. As an example, the University received the Banksia Foundation National Environmental Inaugural Award in the Buildings category in 2001 in recognition of a decade of excellence in sustainability. Other high profile awards have been received for sustainable building design, energy efficiency, landscape design and general environmental management.

The University's Board of Environmental Studies was formed in the 1970s and the Centre for Environmental Management in 1991. The Board and the Centre have a long history of lobbying for the establishment of interdisciplinary environmental management courses at a time when the preference was to offer degrees designated to one area of science. The University became one of a small group of universities, nationally, to provide leadership in the late eighties and early nineties in the multi-disciplined area of environmental management. This led to the University offering undergraduate and post graduate degrees in environmental management from the early 1990s. Since then the portfolio of electives and degrees in areas of environmental sustainability has grown substantially.



A significant event, the groundbreaking international Pathways to Sustainability Conference for sustainability, was hosted by the University in partnership with local Councils in 1997. This conference followed on from the 1992 Rio Earth Summit and the Agenda 21 agreement for local initiatives to create sustainable cities and towns. This heralded the University's commitment to ongoing active engagement in sustainable initiatives.

The Tom Farrell Institute was established later, in 2006, to draw together the University's research expertise, and engage with the community through regular public environmental forums to exchange information and ideas. Engagement in community initiatives and innovative research continues as a priority direction under this Environmental Sustainability Plan (ESP).

Further momentum for environmental sustainability, as a key institutional area of interest and growth, has come with the formation of the University Committee on Environmental Sustainability, established in 2007 by the University Council. This Committee has the purpose of investigating and coordinating the University's ongoing action in environmental sustainability. The Committee's representatives consist of students, academic staff, researchers and campus management staff, providing a multi-disciplined approach to activities.

Innovation in sustainability will also be advanced through the Newcastle Institute of Energy and Resources (NIER) which was announced in 2010. NIER brings leading energy and resources researchers together under an umbrella institute, with facilities on a scale unrivalled at any other education and research centre in Australia. Through the collaboration of industry and academia, NIER aims to deliver solutions that contribute to the sustainability of energy, resources and the environment with the ultimate goal of driving long term social change.

In the last decade, environmental sustainability has shifted from being an interest group issue to being a lifestyle necessity, now featuring as a key focus of communities. Environmental topics are regular features in news broadcasts with climate change, loss of biodiversity, water supply shortages and the peaking of global oil production, to name a few. As well as being compatible with its research and learning aims, leadership by the University in environmental sustainability will give rise to positive participatory experiences, be integral to our business acumen and provide a potential marketplace edge in the higher education sector stemming from student demand for career skills in environmental management.

A growing awareness of environmental matters and sustainability is being incorporated into our planning for the development of the University's campuses and surrounds. This includes employing environmentally sustainable practices, strategies to build environmental awareness and preparing our graduates to practice in sustainability.

## 1.2 ENVIRONMENTAL SUSTAINABILITY FOR UNIVERSITIES

The University must ensure it is capable of sustaining its people, partnerships, governance and finances in the rapidly changing and increasingly complex higher education sector. Our organisational capability must therefore be functional across local, national and global scales. This demands specialist marketing and sound business systems to sustain the University for the longer-term. Environmental sustainability is a key part of this broader sustainability agenda.

Universities across Australia have been participating in the Tertiary Education Facilities Management Association (TEFMA) higher education sector reporting over a range of campus management activities, including sustainability. At the time of drafting this Plan TEFMA had commenced scoping further environmental sustainability measures. This expansion in sector reporting will support the staged advancement of environmental programs and associated metrics within Australian universities generally. The University therefore looks forward to collaborating with other universities on ideas and solutions for environmental sustainability.

The higher education and research funding structure will reward high quality teaching and learning, look for improvements in quality and equity outcomes, and encourage links between universities and schools. The University is embracing this change and sees environmental sustainability as making a significant contribution. Working with state and local government, improving the educational qualifications of communities, contributing to the workforce requirements for the future, and improved economic outcomes are core to our environmental sustainability agenda.

Globally, universities are committing to leadership in environmental sustainability through the Talloires Declaration. Talloires consists of a ten-point action plan around incorporating sustainability and environmental literacy in teaching, research, operations and outreach at colleges and universities across the world. The Vice Chancellor of the University signed the Declaration in 2009, highlighting our involvement in this global higher education sector movement.

## 1.3 VISION

Our vision for environmental sustainability is:

*To provide leadership, innovation and inspiration to our staff, students and the broader community in environmental sustainability through our campus management, teaching and learning, research and community engagement activities.*

## 1.4 OBJECTIVES

The Vision statement is underpinned by a platform of 5 key sustainability commitment statements, expressed as Objectives. These Objectives are also stated in our Environmental Sustainability Policy (refer to Appendix 1) along with specific sustainability Principles from the Theme Chapter.

The objectives have been formed around the actions of the Talloires Declaration, while also reflecting our University's circumstances.

Our sustainability objectives are to:

- increase awareness amongst our staff, students and the community of environmental sustainability and its importance to the wellbeing of current and future generations.
- ingrain environmental sustainability and environmental responsibility into our institutional culture and across all of our campuses
- lead by example in the way we manage our natural and built campus assets, through achieving environmental compliance and adopting best practice
- deliver leading-edge interdisciplinary teaching and learning experiences to equip students with knowledge, confidence and enthusiasm so they can positively engage in fostering environmentally sustainable solutions through their careers and everyday living
- strive for effective pathways and partnerships across the University organisational structure, and with local and state government, business, industry, research and community leaders to achieve environmental management solutions.



## 1.5 PLAN FORMATION AND GOVERNANCE

The drafting of the Plan has considered:

- feedback from staff, students, state and local government, and the public, including suggestions from the 2008 Environmental Forum and 2010 Energy Forum
- University sector sustainability initiatives
- regulatory requirements and Australian best practice
- the University's strategic directions.

The ESP, including the Policy in Appendix 1, is overseen by the University Committee on Environmental Sustainability. As the inaugural strategic Plan for environmental sustainability, it has a term of 3 years (2011 – 2013), connected with performance reporting through an annual Environmental Sustainability Report Card.

A major review of the Plan will be undertaken in its final year to develop the succeeding ESP. A companion internal operational document (Environmental Program Operational Plan) will have implementation detail around annual resourcing, priorities and specific responsibilities. The interrelationship of the Plan, Report Card plus the Operational Plan is illustrated in Figure 1 below.



Figure 1: The interrelationship between the Environmental Sustainability Plan, the annual Report Card and the program's Operational Plan.

## 1.6 ALIGNMENT WITH OTHER STRATEGIC PLANS

The ESP is part of the University's publicly available strategic plans and will be placed on the University's website. It is important for the ESP to align with the key planning documents of the University. This includes the Institutional Strategic Plan (ISP), Masterplan, Research, Academic and Service plans. The ESP has been written so that it is responsive to these plans, while also underlining its influencing role in environmental sustainability.

The ESP aligns directly to the overarching strategic plan for the University, the ISP, thereby setting directions for environmental sustainability through its Goals, Principles and activities. The ESP also interconnects with the Masterplan and the Strategic Asset Management Plan (SAMP). The Master Plan and SAMP provide a framework for the coordinated development of our campuses through priority infrastructure and building projects aimed at renewal and future growth.

A key objective for the SAMP is the inclusion and integration of environmental sustainability. The ESP's sustainability Principles for campus management and its specific infrastructure activities will guide the University on how best to manage our buildings and infrastructure assets in a more sustainable manner.

Equally important are the strategic plans for the Academic Division, Research Division and the Services Division, as well as the Faculty plans for teaching, learning and research. Seeking to optimise student experiences and to advance world class research and teaching, these plans reflect current student needs and learning aspirations, for which environmental sustainability must be a major consideration. Student aspirations for environmental sustainability must also be considered as part of overall planning. For instance, the Environment Collective of the Newcastle University Student Association (NUSA) provides a student voice for sustainability and the Newcastle University Bike Users Group (NUBUG) advocates for bike transport needs.

The union of environmental policies, plans and procedural documents arising from the ESP with the above mentioned plans will face timing challenges around synchronising the various strategic planning processes. The pathway of influence is two-way, with the ESP influencing these other plans, and visa versa, to ensure environmental sustainability is fully ingrained into our institutional culture. Tied to this will be the need for persons experienced in environmental sustainability to translate options and solutions to institutional facilitators of planning processes.

Looking more broadly, the ESP aims to line up with regulatory compliance and best practice guidelines established by our external stakeholders including local, state and federal government plans. Collaborative partnerships with these stakeholders provide the University with opportunities to source external funding and share resources.

By way of example, the University will be a significant contributor to the participatory learning and environmental actions for the Education sector of the Newcastle City Council's Carbon and Water Management Action Framework. Furthermore, as a founding member of the Hunter's environmental Together Today initiative, the University actively engages with industry and government partners over ideas and projects. At national policy level, the Federal government has the National Action Plan for Education for Sustainability to align with. These inter-plan two-way influencing relationships are illustrated in Figure 2 below.

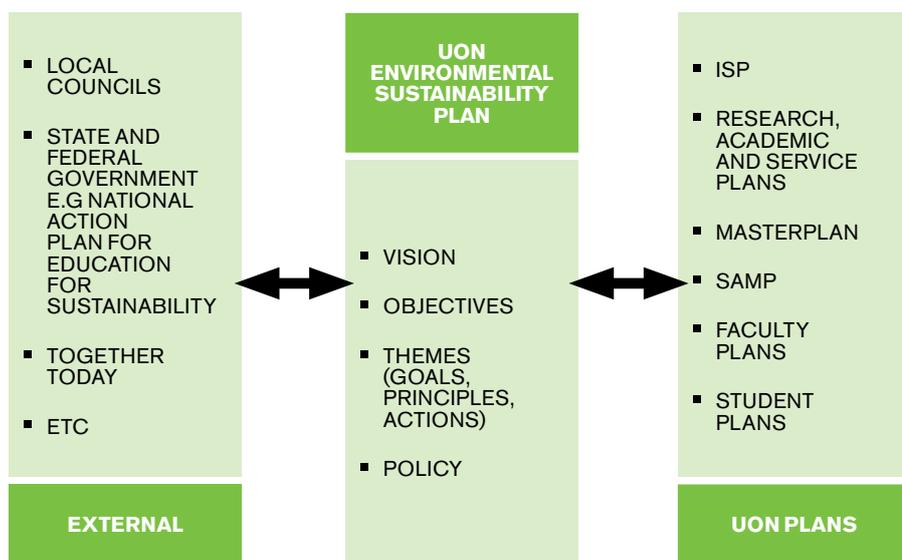


Figure 2: Relationship of the Environmental Sustainability Plan to other strategic planning documents

## 1.7 NAVIGATION

The Theme chapter follows this Introduction to present our 3-year proposed priority actions for sustainability for 2011 – 2013.

Three interlinked themes have been identified to aid in presenting initiatives in a logical grouping (refer to Figure 3):

- campus management – with subthemes of energy and carbon emissions, water, landscape and biodiversity, waste, sustainable transport, sustainable business and procurement, and asset planning and environmental compliance
- research and innovation
- teaching and learning.

Each Theme has the following structure:

- goal – an aspirational statement of what we aim to achieve
- principles – key statements of requirements and constraints to be followed for our institutional operations
- reflecting on our past track record – background on our activities to date
- challenges and opportunities – the influencing factors at play during the Plan term
- proposed activities – the activities we are committed to deliver
- key performance indicators (KPI's) and targets – how we will measure our performance.

Having interlinking themes maximises opportunities for organisational innovation, understanding and positive engagement in environmental sustainability. This cross-theme connection builds pathways for importing and exporting solutions, both within the University, and between the University and its external stakeholders. As an example, the Green Building Program, described under the Campus Management Theme, would deliver staff and student engagement activities for the energy, waste and water subthemes.

In order to measure our performance, indicators have been identified for each Theme using the S.M.A.R.T approach. This promotes the selection of indicators that are: specific, measurable, achievable or attainable, relevant and time-bound.

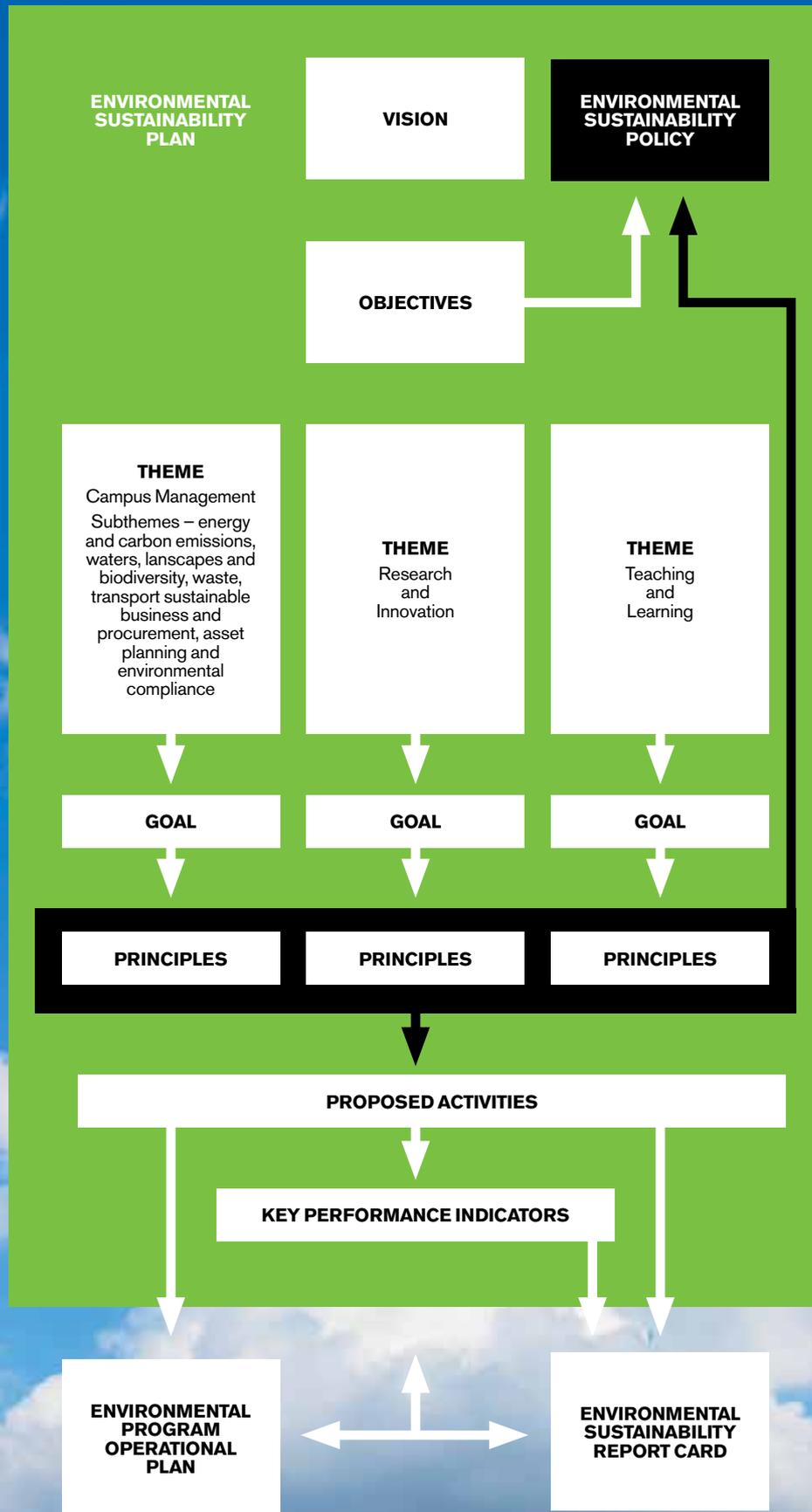
Targets have been set for indicators in instances where there is enough information available to make a reasonable judgement of performance and where the target itself can be justified. Having this constructive approach for our inaugural plan will ensure that resources support stepwise improvements to grow our capacity in environmental sustainability metrics. This investment in information and understanding will ensure the next plan has a full portfolio of indicators and accompanying targets.

Timelines and role allocations for proposed activities identified under the Themes will be captured in the companion operational document which will be reviewed annually, or as deemed necessary, by the University Committee on Environmental Sustainability. The ESP closes with Implementation chapter, covering:

- communication of our initiatives and performance
- celebrating our environmental champions and event engagement
- environmental program operation plan and resourcing
- continuous improvement.

As Figure 3 illustrates, the objectives and principles from the plan feed into the policy which sits in Appendix A as a supporting document to the plan. The policy also functions in its own right as a stand-alone document through the University's policy library. The Proposed Activities and KPIs inform what is reported on in the Environmental Sustainability Report Card.

Figure 3: Plan Structure



# 2

## SUSTAINABILITY THEMES

### 2.1.1 CAMPUS MANAGEMENT THEME

The University is a multi-campus institution, offering programs in a number of locations. The University has a significant property portfolio of mostly specialised facilities and infrastructure under its direct management responsibility at the following campus locations:

- Newcastle (Callaghan)
- City Precinct (Newcastle)
- Central Coast (Ourimbah)
- Sydney

The University is also a tenant in buildings at:

- hospitals in Tamworth, Armidale, Taree and Moree (for the Department of Health and Rural Clinical School)
- Port Macquarie (a multi-sector campus for nursing, teaching and foundation studies and TAFE programs).

Through the partnership arrangement for the delivery of degree programs with the PSB Academy, the University is also part of the Academy's campus near Tiong Bahru MRT Station in Singapore.

The University's corporate real estate that supports core learning and teaching functions exceeds 269,018 sq m gross floor area with an asset replacement value exceeding \$1,143M. The University also owns and operates a number of student residential facilities.

The University has 20,168 equivalent full time student load (EFTSL) and 2,480 staff. The University anticipates growth on the Newcastle (Callaghan) (including the City Precinct) and Central Coast (Ourimbah) campuses between 2009 and 2014 of at least 700 students. This will require the University to find additional space at Callaghan (and/or Newcastle CBD) of up to 10,000 sq m. Space upgrades are needed within the Callaghan Campus to bring it more into line with contemporary standards for teaching, learning and research.

The space needs present environmental challenges in that they are often inefficient and lacking the design features of contemporary sustainable buildings. While retrofitting and refurbishment offers adaptive management opportunities for environmental sustainable design, it has budgetary and coordination implications which will need to be carefully considered.

Space requirements for new student accommodation and the City campus are not yet determined. Potentially though, there might be 18,000 sq m gross floor area of new space for student accommodation and 40,000 sq m for the initial stages of the City Campus. Also, the City campus may be split between new builds and refurbishments.

To accommodate this growth the University will need to provide additional space, or be more efficient with current space, for teaching. As an example, for every additional sq m of new space, the University incurs approx \$60 per sq m in operating costs and \$54 per sq m in maintenance liabilities. Accordingly, this growth in new space will bring with it increased demands for energy and water. The mounting challenge that comes with this is to manage our carbon footprint sustainably and to minimise our impacts on the environment.

The student base of the University has entered a period of rapid growth in the part-time student base. Many students now require a mix of time efficient travel options to be able to move between the campus, part-time work and other lifestyle needs. The preference for car travel has become apparent in recent years with carparks often being full to capacity. These space growth demands pose challenges to the University and its bordering communities in planning for, and achieving, sustainable transport aims. Planning for growth also provides an opportunity for the University to explore the potential of further online course delivery<sup>1</sup> as part of a wider societal transition to a low transport economy.

The largely bushland landscapes at Newcastle (Callaghan) and Central Coast (Ourimbah) face pressure from the need to site new buildings and transport infrastructure, including the need for increased car park spaces. At 140ha for Newcastle (Callaghan) and 28ha for Central Coast (Ourimbah), the campus landscapes face more pedestrian movements which will place additional pressure on the existing hard landscaping and the local ecology.

The need to develop more sustainable waste practices is acknowledged as a critical environmental improvement need for the University's campuses. Through the feedback received on the draft Plan, the need for improved recycling services drew the most staff and student requests for action. As student numbers grow there will be an increase in the volume of waste generated. This will need to be matched with more sustainable waste management strategies, including upgrades to our waste collection facilities and waste contract arrangements.

### 2.1.2 SUB-THEME: ENERGY AND CARBON EMISSIONS

#### Goal

To manage our energy consumption and carbon emissions responsibly to reduce our carbon footprint through energy efficiency measures and carbon offsets.

#### Principles

For energy and carbon emissions, the University will:

1. utilise the solar advantages offered by our bushland landscape to provide daytime and passive heating needs strive for best practice in energy efficiency design and fit-outs for new buildings, retrofits and refurbishments optimise our use of renewable energy sources, including purchasing green power from accredited sources minimise embodied energy in construction materials and product purchases

Further policy requirements are stated in the UoN's Sustainable Energy Management Policy and the Air Conditioning Policy and Procedure.

#### Reflecting on our past track record

Energy management has been at the forefront of the University's successful actions in environmental sustainability to date:

- energy audits and the energy efficiency program, including funding from NSW Sustainable Energy Development Authority. Over 60 energy efficiency projects were implemented and resulted in 15% improvement in energy efficiency per floor area

- release of the Air Conditioning Policy and Procedure (1997)
- implemented Australia's first commercial application of a natural gas-powered microturbine to realise both financial and environmental benefits. This 30kW co-generation unit is situated in the Callaghan Medical Sciences building
- UoN Sustainable Energy Working Party formed and developed the Sustainable Energy Management Policy (2009). This included the target to reduce our CO<sub>2</sub> emissions by 20% by 2015, working towards carbon neutrality in the longer-term
- the University Council supported the push by students and the Working Group to purchase 10% of our power from green power sources, with the first contract being signed in 2009 using the NSW Government scheme of accredited suppliers
- produced its Energy Savings Action Plan in 2006 as per NSW government requirements
- met its greenhouse gas emissions reporting requirements under the National Greenhouse and Energy Reporting Act 2007
- launched the 6 Building Energy Pilot in 2009 to trial ways of providing energy use information to staff and students. The six buildings selected were the David Madison Building, University House, The Chancellery, Engineering Science, Chemistry and the Ourimbah Information Resources Centre
- the University has been participating in the national Tertiary Education Facilities Management Association (TEFMA) reporting process and this has shown the University to have performed responsibly in energy use
- the Tom Farrell Institute hosted an Energy Forum in 2010. The Forum highlighted the imminent peaking of fossil fuel production and the need to combat climate change. Energy efficient buildings and renewable energy were emphasised as part of providing solutions.

## Challenges and opportunities

### *Our challenges*

- aging building stock
- need for new infrastructure for increasing student numbers
- present political uncertainty in terms of carbon reduction policy directions and increases in electricity pricing
- to work in different ways and across the University organisational structure to meet the challenge of developing effective solutions for use on campus and for exporting for use in the broader community
- (as for the water sub-theme) The National Australian Built Environment Rating System (NABERS) rates the performance of buildings while the Green Building Council of Australia's green star approach rates the design of buildings. Understanding which approach to invest in and apply is challenging
- universities nationally are currently focussed on Scope 1 (CO<sub>2</sub>, CH<sub>4</sub>, NO<sub>2</sub> emissions etc – natural gas) and Scope 2 emissions (stationary energy use – electricity use) reporting due to their capacity to report on these aspects
- like many organisations, including the other universities, UoN has not yet established data sources and approaches for Scope 3 emission reporting (i.e. electricity generation, travel, waste disposal and waste water treatment). Some carbon emission metrics for staff can be sourced from fleet use though. By contrast, capturing student and other staff travel use would require method design.

### *Our opportunities*

- to formalise into our building fit-outs, the use of the national guide to choosing energy efficient appliances which has been developed by state governments and the federal government
- NABERS and Green Star joined forces through a Memorandum of Understanding in 2010 to improve technical consistency between the two. Clarifying how to apply these rating systems will help with integrating their application as a core requirement of facilities planning activities
- collaboration with other universities and the Newcastle City Council's Climate Cam program (and their Carbon and Water Management Action Plan) in the development of our carbon footprint metrics and reporting
- engagement in the sustainability programs offered by state and Federal governments
- to develop our capacity to stimulate and support innovation to achieve energy management solutions through multi-disciplined engagement of research, teaching and campus management leaders (also discussed in the Research and Innovation Theme re online learning)
- engagement of staff and students in campus consumption information and energy saving behaviours.

## Proposed activities

Our proposed activities for 2011 – 2013:

- undertake a cost benefit analysis to identify priority energy efficiency initiatives to inform budgetary allocations for campus energy efficiency strategies
- develop building design standards for strategies for use in refurbishments, retrofits and new buildings for energy efficiency and carbon footprint reduction, incorporating best practice rate of return and payback approaches. These standards would include the identification of passive solar advantages offered by our bushland landscape.
- linked to the building design standards, build organisational capacity in the application of NABERS and/or Green Star
- advance our data and reporting approaches for Scope 1 and 2 emissions to incorporate Scope 3 emission reporting to ensure full reporting coverage of our carbon footprint. Share experiences with other universities and Newcastle City Council programs for Callaghan as part of developing metrics and methods.
- grow the 6 Building Energy Pilot into a Green Building Program involving participatory learning for staff and students around behavioural change in energy, water and waste
- grow our sub-metering coverage and improve our data management approaches to report trends and provide information to stakeholders
- invest in renewable sources of power as a carbon offset strategy, maintaining a minimum annual purchase of 10% Green Power with annual cost benefit and budgetary reviews to inform the amount purchased. Australian universities are purchasing between 0 and 15% so the UoN is within the sector's current range of purchase.
- examine the implications of the Commonwealth and state government's carbon reduction policy agendas as they evolve.



### Key performance indicators and targets

*Note: KPIs related to fleet / vehicle use and video conferencing are listed in the Sustainable Transport subtheme.*

KPI	TARGET
Reduction in carbon emissions	As per the 2009 Sustainable Energy Policy: 20% reduction in carbon emissions by 2015 – using Scope 1 and 2 reporting for all years, with Scope 3 reporting to be bought online as soon as feasible and in line with TEFMA directions
Total campus energy and electricity consumption relative to university sector	Maintain or improve our position relative to the University sector using the TEFMA reporting approach of Equivalent Fulltime Staff and Student (EFTSS) and Gross Floor Area Note: Up until 2010, the University performed in the bottom and second quartile (i.e. best efficiency) for consumption in the sector
% of campus energy use from accredited renewable sources	Maintain, or increase, 10% green power purchase

### 2.1.3 SUB-THEME: WATER

#### Goal

To adopt further water sensitive urban design practices to minimise potable water consumption.

#### Principles

For water efficiency, the University will:

1. integrate water sensitive stormwater treatment approaches into landscape, building and carpark designs to provide for multiple benefits including water quality protection, runoff management, biodiversity and amenity
2. capture stormwater and rainwater for reuse for non-potable purposes
3. facilitate opportunities for on-site treatment and reuse of grey-water
4. install water efficient facilities and equipment, including automated monitoring systems
5. apply soil and water management best practices to protect surface water and groundwater quality.

#### Reflecting on our past track record

The University has implemented a range of water efficiency initiatives:

- the installation of auto flush urinals and upgrades to building cooling towers
- in the 1990's the University introduced water sensitive urban design principles into the landscape. This includes a complex system of swales, buffer strips and artificial wetlands
- with the help of federal funding under the Community Water Grants Program, implemented a project to capture site run off in dams for reuse in the watering of our sports ovals
- the University signed up to the Hunter Water Business Savers Program in 2010 to have water audits and water efficiency retrofitting actions completed in the higher use buildings
- the University has participated in the national Tertiary Education Facilities Management Association (TEFMA) reporting process and this has shown the University has maintained its record of performance on par or better than the sector average in water consumption. Additionally, our total water consumption has decreased gradually over time.



## Challenges and opportunities

### Our challenges

- aging building stock
- need for new infrastructure for increasing student numbers
- (as for the energy and carbon emissions sub-theme) The National Australian Built Environment Rating System (NABERS) rates the performance of buildings while the Green Building Council of Australia's green star approach rates the design of buildings. Understanding which approach to invest in and apply is challenging.

### Our opportunities

- the WELs, water efficiency and labelling scheme, offers easy to use guidance on the purchase of water efficient appliances
- the Australian Government's water efficiency guides for offices and public buildings outlines technical and behavioural opportunities
- NABERS and Green Star joined forces through a Memorandum of Understanding in 2010 to improve technical consistency between the two. Clarifying how to apply these rating systems will help with integrating their application as a core requirement of facilities planning activities
- further collaboration with Hunter Water Corporation through the Hunter Water Business Savers Program over water audits and metering
- share information and solutions with Newcastle City Council in relation to their Carbon and Water Management Action Plan
- engagement in the sustainability programs offered by the NSW government.

## Proposed activities

Our proposed activities for 2011 – 2013:

- develop building design standards and strategies for use in refurbishments, retrofits and new buildings for water efficiency. This is to include the identification of passive solar advantages offered by our bushland landscape
- linked to the building design standards, build organisational capacity in the application of NABERS and/or Green Star
- grow our sub-metering coverage and improve our data management approaches to report trends and provide information to stakeholders
- continue collaboration with Hunter Water to achieve audits and water efficiency installations
- continue to integrate water sensitive urban design principles with landscape practices

- review the current irrigation practices for the sports ovals to identify water efficiency and drought proofing strategies
- evaluate the effectiveness of current building tank infrastructure and identify opportunities for refits and new tanks
- grow the 6 Building Energy Pilot into a Green Building Program involving participatory learning for staff and students around behavioural change in energy, water and waste.

## Key performance indicators and targets

KPI	TARGET
Total campus potable water consumption	Maintain or improve our position relative to the University sector using the TEFMA reporting approach of Equivalent Fulltime Staff and Student (EFTSS) and Gross Floor Area. Note: Up until 2010, the University performed in the bottom and second quartile (i.e. best efficiency) for consumption in the sector.
Building specific total potable water consumption	To be developed
Water used for irrigation for landscape maintenance purposes	To maintain or reduce the total amount of water used

## 2.1.4 SUB-THEME: LANDSCAPE AND BIODIVERSITY

### Goal

To identify strategic zones for campus landscape management, incorporating biodiversity protection, and broader campus functionality<sup>2</sup> requirements.

### Principles

For landscape and biodiversity, the University will:

1. preserve the bushland character and image of the University through the protection of our native flora and fauna
2. seek a practical balance between biodiversity and a safe and usable environment, minimising potential risks to people, buildings and property
3. use Australian plant species, and preferably local provenance species, for new and supplementary landscape plantings
4. utilise water sensitive urban design techniques to manage rainwater and stormwater onsite and capture for reuse
5. apply best practice bush regeneration and landscape maintenance techniques
6. target noxious weeds and feral animals through the use of integrated pest management approaches
7. actively promote the ecosystem services and amenity benefits of the bushland campus
8. promote a 'bushwise' and environmentally sensitive approach to occupying and moving around the campus to engender tolerance and appreciation of our flora and fauna
9. minimise, or at best avoid, native vegetation removal in capital works projects, and employ compensatory offsets where native vegetation must be removed
10. avoid development in locations of high ecological value
11. maximise the opportunities for building occupants to have a view to the outside, and to source fresh outside air
12. integrate building and landscape design to provide external meeting and teaching and learning spaces.

### Reflecting on our past track record

The University has a long history of preserving the bushland character of our campuses:

- the density and coverage of native vegetation has increased markedly across the Newcastle campus over time through an active bushland revegetation and water sensitive urban design program which supplemented the remnant vegetation that was present when the University was established some 25 years ago
- the Don Morris walk at Callaghan, that weaves its way through the various native forest types and alongside the wetlands, was completed in 1996 to commemorate his role as the University Planner (1975-88) in preserving the character of the bushland campus
- the Campus Book Committee produced the Bushland Campus book which presents the natural history and highlights the ecological assets of the Newcastle Campus
- the Central Coast Community Environment Network, which includes some academic staff, has described the biodiversity assets of the Central Coast Campus in its Sustainable Campus Report
- facilities Management produced a Landscape Management Technical Manual to guide landscape maintenance

<sup>2</sup> This functionality involves wayfinding and access, campus amenity, bushfire risk reduction, event and recreation locations, indoor environmental quality, and outdoor teaching and learning spaces.

- facilities Management established the Newcastle Campus Landscape Consultative Group in 2009, consisting of staff, students and external representatives to set strategic directions the landscape
- in 2009-10, the University undertook bushfire hazard reduction planning to develop a long-term works program to meet the environmental and asset protection zone requirements of the NSW Rural Fires Act
- the University was successful in its grant application to the Hunter and Central Rivers Catchment Management Authority for a bush regeneration project at the Central Coast campus to control weeds and protect biodiversity. The 2.5 ha project area includes remnant native vegetation along the riparian corridor that runs through the campus. Protection of the remnant of Riverine Alluvial Gallery Rainforest-Moist Forest vegetation community has been identified in as a catchment management priority. Interpretive signs will be introduced to promote the ecological assets and aboriginal cultural connections of the area.

### Challenges and opportunities

#### Our challenges

- to manage the landscape to preserve the bushland character while achieving a balanced approach to campus functionality
- to deliver specialist bush regeneration activity in areas which warrant that treatment

#### Our opportunities

- through the drafting of the Landscape Management Plan, clarify management zones and best practice
- to strategically link our landscape management activities with community and catchment landscape targets for vegetation management and biodiversity protection, for example the Catchment Action Plan of the Hunter and Central Rivers Catchment Management Authority

### Proposed activities

Our proposed activities for 2011 – 2013:

- implement strategic Landscape Management Plans for Newcastle and Central Coast campuses based on identified management zones, targeted strategies and action-based priorities.
- facilitate Landscape Consultative Groups under Facilities Management, for the Newcastle and Central Coast campuses, to engage staff, students and external expertise in decision-making
- improve landscape maintenance practices through the review of existing procedures to reflect the strategic directions of the Landscape Management Plan
- delivery of a program of bushfire hazard reduction works in line with regulatory requirements under the NSW Rural Fires Act.

### Key performance indicators and targets

Note: Water use KPIs for landscape maintenance are stated under the Water subtheme.

KPI	TARGET
Extent of significant native vegetation conserved/protected in line with the management requirements identified in the Landscape Management Plan	As per Landscape Management Plan

## 2.1.5 SUB-THEME: WASTE

### Goal

To deliver waste management services reflecting the waste management principles of avoid, reduce, re-use and recycle.

### Principles

For waste management, the University will:

1. reduce the amount of waste generated and going to landfill through avoidance, waste minimisation and resource recovery (reuse, recycling, reprocessing and energy recovery)
2. maximise the use of recycled content material and recycling of existing materials, where cost effective
3. provide robust outdoor bin infrastructure that will restrict fauna access and foraging, reducing waste spillage and detrimental fauna impacts
4. provide food and beverage services that deliver recycling and minimise waste generation
5. minimise building materials that have damaging ecological effects during harvesting, manufacturing, and/or construction
6. use materials and equipment that have minimal maintenance and longevity of expected useful life
7. employ building designs that can be readily adapted to meet changing growth and use needs.

The Sustainable Business and Procurement subtheme includes a commitment to working with our suppliers to reduce unnecessary packaging as much as possible or use biodegradable packaging and recycling options.

### Reflecting on our past track record

The University generates office waste, trade waste, chemical and hazardous waste, food waste and green landscape waste. A snapshot of our waste management activities to date:

- staff offices have under-the-desk bins and designated printing area bins for recycling paper products
- staff kitchens have comingled bin for recyclables
- fluorescent tubes removed as part of electrical maintenance activities are placed in designated tube recycling collection bins
- toner collection and recycling program through its printer providers
- contract arrangements for staff IT services includes an e-waste recycling requirement
- clippings from mowing are mulched or composted for re-use onsite as part of landscape works. Similarly, any shrub or tree pruning material is put through a chipper and the mulch is re-used on site. At Ourimbah other green waste is exported off campus to a tub grinder for recycling
- chemical and hazardous waste management has been systematically improved through the Chemical and Radiation Technical Committee
- a review and upgrade of paper recycling and comingling bins for staff buildings and the libraries at Callaghan was commenced by Facilities Management in 2010 to better service waste disposal needs and to standardise bin coverage.

### Challenges and opportunities

#### Our challenges

- our waste streams are managed under several waste contracts. The UoN needs a more consistent approach to the separation and disposal of waste, particularly recyclables
- in past years there has been inconsistencies, as well as, considerable variations in the waste type volumes being reported, making it problematic for planning and target setting
- to raise awareness of what rubbish can be disposed of in the various bin types to avoid contamination of waste streams

- the current array of outdoor bins are not suitable to prevent fauna from rubbish foraging and, in some instances, these bins are completely open. The upgrade has been delayed previously based on the high cost of bins with suitable design features around this purpose and being fire and vandal proof.

#### Our opportunities

- the waste hierarchy from the Sustainability Program area of the NSW Dept of Environment, Climate Change and Water (DECCW) that was established under the Waste Avoidance and Resource Recovery Act 2001 provides a useful decision support tool. Also, DECCW's Better Practice Guide for Public Place Recycling can be utilised to help with planning for further recycling improvements
- revisions to waste contract arrangements to provide more accurate waste data to inform decision making
- there is an opportunity for the University's capital program to apply a 'closed loop' approach to building demolition work to see that demolition materials are recycled for reuse on campus or returned to the local community for use
- with the prevalence of the coffee 'culture', a noteworthy amount of food and beverage waste coming from the cafeteria is from disposable coffee cups. The opportunity exists to introduce a University reusable, or 'keep cup', for staff and students to reduce this waste stream
- the provision of bubbler stations across campus would help to reduce the amount of plastic water bottle waste.

### Proposed activities

Our proposed activities for 2011 – 2013:

- develop a waste management improvement strategy document to capture waste stream management improvements, standard operating procedures, standardised electronic waste reporting, effective contracting arrangements and Key Performance Indicators for waste types
- building design standards which will include closed loop approaches and strategies to meet the waste goal
- locate bubbler stations in strategic locations throughout the campus
- develop, implement and evaluate a pilot to trial improved recycling services for the cafeteria areas and residences
- work with campus coffee outlets to welcome the use of personal coffee cups, including exploring the potential of price reduction incentives and promotion of supporting outlets
- grow the 6 Building Energy Pilot into a Green Building Program involving participatory learning for staff and students around behavioural change in energy, water and waste
- review the cost estimates for robust outdoor bin infrastructure to formulate a staged rollout program for bin replacement for known fauna impact areas, areas of high bin use and high visibility areas.

### Key performance indicators and targets

KPI	TARGET
Total volume of waste to landfill	Through improved data collection, a baseline and target will be established during the Plan term and applied for subsequent Plans
Volume of waste per waste type	
Recycled paper (per type 50%/ 80%) used compared to total	
Amount of green waste diverted to composting	100%
Hazardous and chemical waste managed	Compliance with procedures



## 2.1.6 SUB-THEME: SUSTAINABLE TRANSPORT

### Goal

To provide and promote environmentally sustainable travel options for everyday travel to, from and around the University.

### Principles

For sustainable transport, the University will:

1. provide campus-to-community sustainable transport options that also support broader lifestyle needs around reasonable travel times, access, safety, wellbeing and an active healthy lifestyle
2. facilitate sustainable travel alternatives around walking, public transport, cycling and carpooling to seek to reduce the use of single-occupancy vehicles for University commuting and business travel
3. engage in regional transport strategies to represent public transport service needs of staff and students
4. provide IT solutions for communication needs to aid in reducing car use
5. deliver secure bike facilities with lockers and showers, which showcase environmental design principles
6. integrate shower and locker facilities into buildings to support sustainable transport users and healthy lifestyle options around cycling, walking and recreational pursuits.

### Reflecting on our past track record

The University has promoted sustainable transport initiatives:

- the 'On the move' area of the University's website promotes alternatives to single occupant car use such as walking, public transport, cycling and carpooling
- our fleet contract arrangements include a fleet carbon emission reduction target
- video conferencing facilities have been installed in some staff buildings to provide an alternative to car and air travel for meetings
- previous involvement with the review of bus and train timetables
- student lobbying for a railway station led to the Warabrook station which opened in 1997 to service Callaghan
- conducted transport surveys in 2010.

- staff and student involvement in the National Ride to Work Day event
- in 2010 the University produced a Sustainable Fleet Strategy
- secured resourcing for the development of the Sustainable Transport Management Plan, including the engagement of experienced transport consultants to provide advice and justified options
- commenced the development of an online carpooling system
- over 2009-10 the NUBUG (the Newcastle University Bike Users Group) grew to over 150 members, united by a goal to improve bike pathways and facilities for the Callaghan campus and the broader community.

### Challenges and opportunities

#### Our challenges

- poor train service and timing
- lack of connectivity between public bus and train timetables
- dependence on car travel
- changing student expectations
- lack of Ourimbah – Callaghan train connection
- lack of safe and well defined bike ways to the University
- safety for walkers and bike users
- sustainable transport options for the City Precinct.

#### Our opportunities

- transport scenarios developed for the Sustainable Transport Management Plan will consider stakeholder needs, model options and apply best practice transport guidelines
- the Sustainable Transport Management Plan will present directions that can be translated into capital works programs, including the construction of improved and new end of bike facilities
- the Sustainable Transport Management Plan will support future discussions between the University and state and local government transport planning for the Lower Hunter
- NUBUG provides a good point of contact for coordinating consultation over bike user needs for Callaghan
- the level of interest in new bike facilities, expressed through the 2009 and 2010 Ride to Work events (Ourimbah and Callaghan) highlights the interest in cycling to campus and growing concerns over the need to improve bike facilities and pathways.



### Proposed activities

Our proposed activities for 2011 – 2013:

- the Sustainable Transport Management Plan for the Callaghan campus will:
  - assess road and movement networks
  - ensure bicycle, pedestrian and public transport networks complement and improve the efficiency of the existing regional road networks
  - establish the right balance of private vehicle use to and from Callaghan campus against other modes of more sustainable transport
  - improve the current internal traffic movement network including intersections in the surrounding area and recommend treatments to improve campus transport efficiency
  - ensure future transport movements and distribution networks reflect and consider the recognised growth plans and campus trends.
- make improvements to end of trip facilities for bicycle users through the bike strategies that arise from the Sustainable Transport Management Plan
- work with local government to assist in more direct and safe bicycle routes from the major suburbs around the University
- launch and maintain the online carpooling software for staff and student use
- establish further video conferencing and include as a standard requirement for meeting rooms in new buildings
- actively engage in local and regional transport studies and reviews of bus and train services
- (refer to the Research and Innovation Theme) host an electric car use forum.

### Key performance indicators and targets

KPI	TARGET
Total CO2 emissions for fleet	As per contract arrangements: reduce the fleet by 5% and reduce CO2 emissions by 10%
Total CO2 emissions for air travel	Through improved data collection, a baseline and target could be by the end of the Plan
CO2 emissions saved through video conferencing and record on video conferencing infrastructure server	Increase savings annually
Participation in the annual national Ride to Work Day event	Increase in annual participation relative to 2009 event
Sustainable Transport Management Plan KPIs	requirements identified in the Sustainable Transport Plan

## 2.1.7 SUB-THEME: SUSTAINABLE BUSINESS AND PROCUREMENT

### Goal

To ensure socially, ethical, environmental and economic responsibility is integral to the University's procurement and business processes.

### Principles

For sustainable business and procurement practices, the University will:

1. employ sustainable procurement practices which take a whole of life cycle approach to minimising waste and damage to the environment, while achieving value for money benefits for the University and the broader community
2. incorporate the cost and impact of environmental externalities into decision making
3. purchase local products and services where possible
4. employ business practices that support the global fair trade movement aimed at tackling poverty and empowering producers through trade.

### Reflecting on our past track record

The University has implemented a range of sustainable procurement initiatives:

- in 2010 the University drafted its Socially Responsible Procurement Policy and the Sustainable Fleet Strategy
- in 2020, the University's iLEAD (International Leadership Experience and Development) Program hosted a Tackling Poverty Through Trade seminar
- NUSA (The Newcastle University Student Association) hosted Fair Trade events, such as fair trade coffee stalls, to encouraging coffee outlets at the University Newcastle campus to sell Fairtrade coffee.

### Challenges and opportunities

#### Our challenges

- procurement strategies that position sustainability alongside of other value-for-money considerations such as price, quality and service
- easy to use procurement processes for staff to apply to buy commonly used products
- assessing the status of socially responsible and ethical suppliers when 'green wash' terminology is commonplace to many products without necessarily being accurate.

#### Our opportunities

- utilise the Socially Responsible Procurement Policy as part of contract arrangements
- explore the use of preferential tendering to source products and services from sustainable sources, to reduce the environmental impact and to have a positive social impact through using local suppliers
- work with our suppliers to reduce unnecessary packaging as much as possible or use biodegradable packaging and recycling options
- the Fair Trade Association of Australia and New Zealand offers support and pathways to achieve Fair Trade workplace status

### Proposed activities

Our proposed activities for 2011 – 2013:

- bring together a blend of University representatives with interests Fair Trade and the coffee outlet managers to facilitate, and celebrate, involvement in the fair trade global movement to achieve Fair Trade workplace status
- develop data collection and KPIs for our sustainable procurement model
- promote and audit the uptake of procurement practices for environmental sustainability.

### Key performance indicators and targets

KPI	TARGET
Sustainable procurement KPIs	To be developed
Number of outlets offering Fair Trade coffee	100% by Plan end
Number of forums promoting fair trade	

## 2.1.8 SUB-THEME: ASSET PLANNING AND ENVIRONMENTAL COMPLIANCE

### Goal

To meet our environmental compliance statutory obligations and ingrain best practice in environmental sustainability into our asset planning processes.

### Principles

For environmental compliance, the University will:

1. employ campus management practices that minimise environmental impact through the use of best practice and ensure compliance with regulatory requirements
2. build staff understanding of, and procedural capacity in, environmental sustainability as it applies to work activities and activities undertaken by external contractors, lessees, project managers and consultants managed by the University.

### Reflecting on our past track record

The University has implemented a range of environmental compliance initiatives:

- commenced documentation of its environmental aspects and impact register as part of a gap analysis for preparing an Environmental Management System
- environmental compliance has been integrated into the University Risk and Compliance Framework for prioritised risk monitoring
- incorporated environmental compliance considerations through Job Safety Analyses and maintenance inductions for staff and contractors
- environmental legislative obligations reflected in programming and contract administration for capital works
- hunter Water Corporation trade waste permit requirements for maintaining our grease traps have been incorporated into the Maximo asset management system.

- in terms of licensing under the NSW Protection of the Environment Operations Act 1997, the University fulfilled its licence obligations for its Environment Protection Licence associated with a research program for groundwater remediation
- fulfilled the emissions reporting requirements set by the National Greenhouse Energy and Reporting Act 2007
- produced its Energy Savings Action Plan in 2006 as required by the NSW Energy and Utilities Administration Act 1987.

### Challenges and opportunities

#### Our challenges

- with new buildings and building upgrades that will be required to meet increasing student needs there will be a complex array of capital works projects that will require careful planning for environmental legislative requirements.

#### Our opportunities

- utilisation of the University's Risk and Compliance Framework to address identified priority risks
- once procedures have been embedded, there is the opportunity to conduct internal and external audits as part of continuously improving our capacity to comply with regulatory requirements and procedures.

### Proposed activities

Our proposed activities for 2011 – 2013:

- continue the application of the Risk and Compliance Framework to identify, prioritise and address environmental risks
- through the development of our Strategic Asset Management Plan (SAMP), further integrate ESP sustainability Principles for campus management to guide the University on how best to manage our buildings and infrastructure assets in a more sustainable manner
- ensure the SAMP includes an environmental aspects and impacts register, a program of audits, corrective and preventative measures for non-conformance control, emergency response, training and communication
- ensure all statutory maintenance is programmed into the Maximo Asset Management database
- determine if the University will aim to continuously improve the environmental management plan component of the SAMP in order to eventually seek accreditation under ISO 14000 Environmental Management Systems.

### Key performance indicators and targets

KPI	TARGET
Environmental management addressed as a key theme in the Risk and Compliance Framework	Ongoing
Legislative compliance	Full compliance
Environmental sustainability integrated into Strategic Asset Management Plan	SAMP incorporating environmental sustainability as a strategic requirement
Regulatory reporting	Submitted on time and to required standard

## 2.1.9 RESEARCH AND INNOVATION THEME

### Goal

To be renowned as a national leader in research aligned with environmental sustainability, with a particular focus on sustainable energy and resources, and biodiversity.

### Principles

For research and innovation, the University will:

- enhance the University's reputation as a hub of research excellence in the sustainable energy and resources fields
- expand the University's contribution to national and international research on a range of environmental sustainability issues
- foster collaboration between research, teaching and learning, campus management practitioners and external stakeholders to achieve environmental improvements and innovations in the University's campus facilities
- establish external partnerships to develop and export environmental solutions for community and commercial use
- grow our partnerships with external agencies, including industry, government and other research institutions, to provide collaborative solutions to global environmental sustainability challenges.

### Reflecting on our past track record

The University is consistently ranked in the top 10 Australian universities for externally funded research.

Research aligned with environmental sustainability, particularly in the energy and resources field, is considered a major research strength of the University, and an area in which we enjoy both national and international achievement.

### Challenges and opportunities

#### Our challenges

- access to external research funding remains competitive.

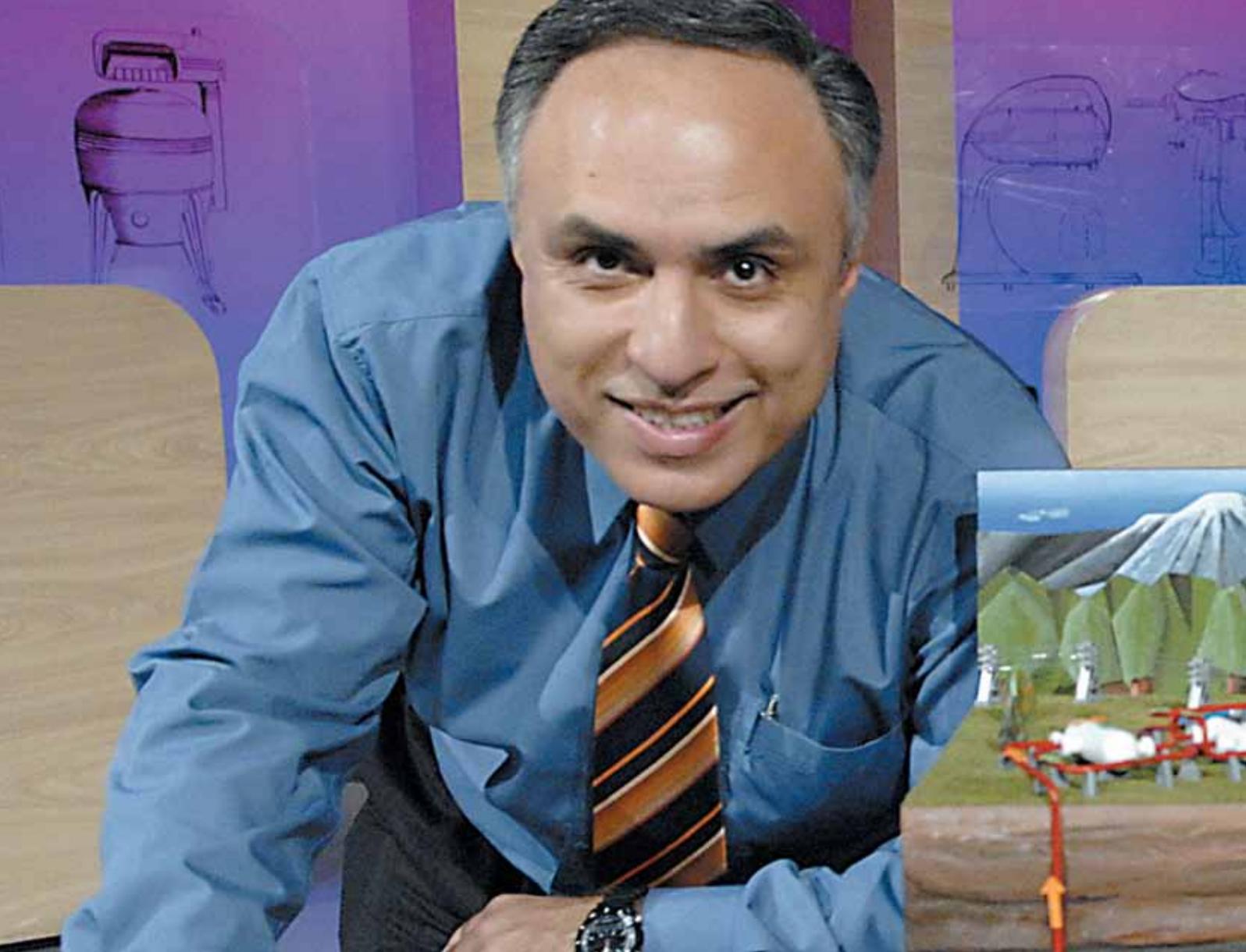
#### Our opportunities

- the University is well positioned to deliver innovative and practicable research in environmental sustainability through the shared contribution of the University's portfolio of research centres and institutes, for which an overview is provided below
- Newcastle Institute for Energy and Resources (NIER).

Addressing the complex issues of sustainable energy use requires flexibility and imagination. Currently being established at the former BHP-Billiton Newcastle Technology Centre, a world-class industrial research facility, NIER's research programme will be aimed at producing a range of solutions targeting major industry sectors and using a variety of approaches.

The major interests of the NIER include:

- reduction of energy (and water) consumption in industries of national significance
- reduced carbon emissions through next-generation Carbon Capture and Storage technologies
- alternative energy sources, including geothermal and polymer solar cells
- improved efficiency in power generation
- smarter and more efficient grids for distributed electricity generation.



■ Newcastle Institute for Energy and Resources (NIER)

NIER will be an inclusive research centre, with operations extending into the related areas of water resources, climate change adaptation, control engineering and geotechnical modelling.

The co-location of all the University's energy and resources researchers, across faculty and discipline boundaries, will allow cross-fertilisation of ideas and approaches.

NIER will be greatly enriched by extensive collaboration with researchers from other universities (including the UNSW, Wollongong), major industry (Energy Australia, Ampcontrol, BHP – Billiton, Laing O'Rourke) and government, including Industry and Investment NSW.

■ Tom Farrell Institute for the Environment (TFI)

The TFI was established to draw together the University's research expertise, and engage with the community in an integrated way.

TFI's mission is threefold:

- build university and community partnerships to meet future environmental challenges
- advance the development and application of environmental knowledge
- integrate cultural, social and economic values into environmental solutions.

The TFI Institute's Strategic Business Plan 2009-2011 articulates clear goals for the institute's growth and development at a regional level, and nationally. At the regional level, the TFI aims to be the 'first port of call' for accessible expertise and authority on the environment. Nationally, the institute's aim is to be an innovator in developing regional solutions for a sustainable future

■ Priority Research Centre for Energy (PRCfE)

The PRCfE brings together academics with research interests in the abatement of greenhouse gases, and in clean and sustainable energy production

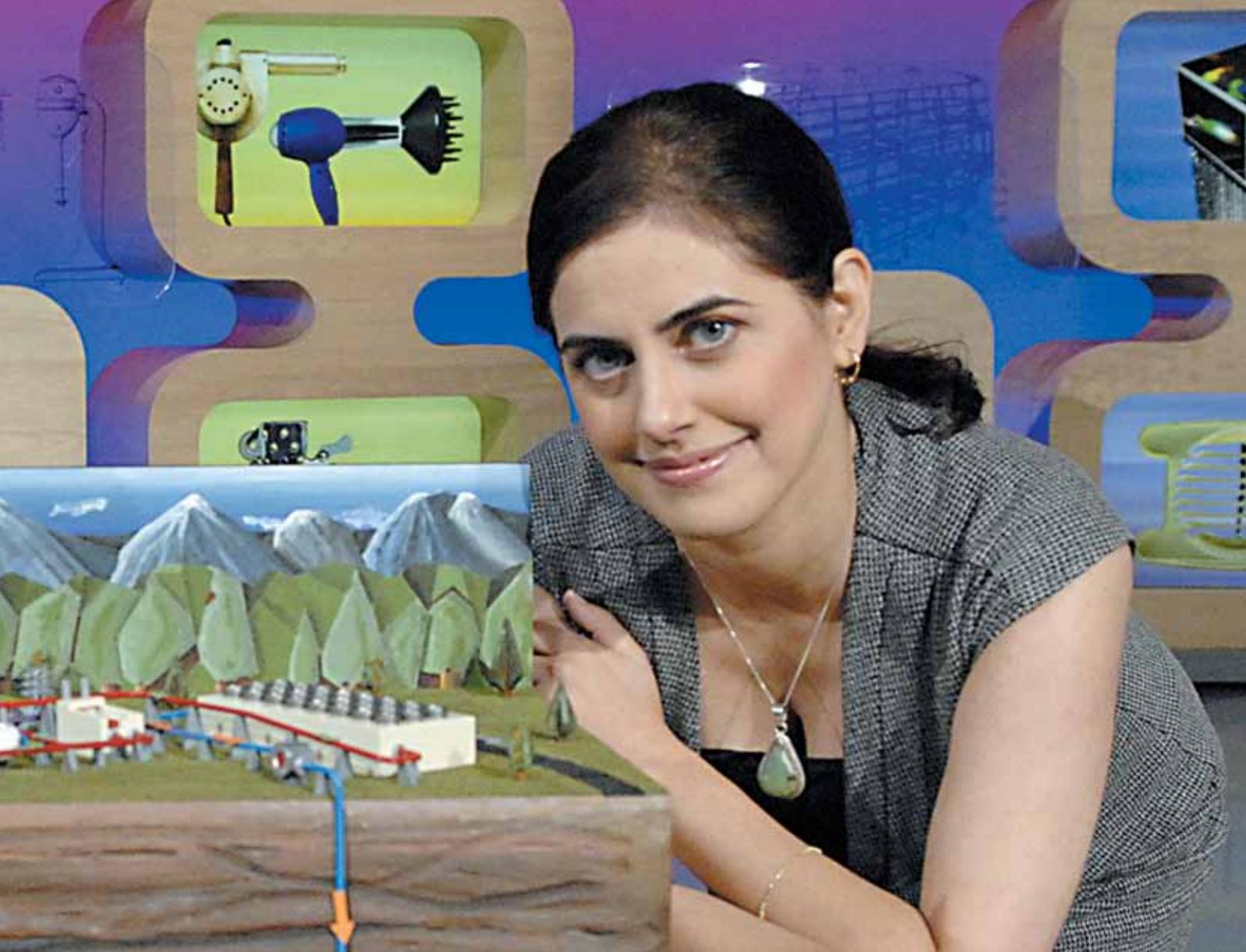
The PRCfE aims to provide new opportunities flowing from the interaction between industry, government agencies and university researchers interested in the growing field of clean and sustainable energy production.

■ Centre for Sustainable Ecosystem Restoration (CSER)

The CSER aims to bring together academics, researchers, students, community groups, industry and government to provide skills in all disciplines linked to ecology, and to address significant ecological problems

■ Enterprise Connect Clean Energy Centre (CEIC)

The CEIC is part of a suite of programs under Enterprise Connect – Innovation Centres. CEIC offers a range of business improvement services to help clean energy companies find and adapt the latest research and technology to improve products and manufacturing processes



■ Centre for Climate Impact Management (C2IM)

C2IM draws together the environmental research strengths of the Environmental Engineering Research Group in the Faculty of Engineering and the Environmental and Climate Change Research Group in the Faculty of Science around the key issues of natural climate variability and climate change, and their impacts on water availability

■ Centre for Urban and Regional Studies (CURS)

The CURS focuses on geographical analysis of the factors driving urban and regional transformations, their outcomes and the policy challenges they present

**Proposed activities**

Each Centre will have business delivery documentation that is not replicated here.

For the purposes of this Plan though, the following proposed activities have been highlighted for 2011-2013:

- NIER will accelerate research within the context of global environmental sustainability challenges and make a real and substantial contribution to sustainable energy use not only in Australia, but internationally
- in terms of playing a key communication and knowledge brokering role for the University's environmental sustainability research, the TFI will continue to host public discussion and information sessions through its Environmental Forums, Research Higher Degree Seminars and the Promotion of Visiting Scientists.

- TFI will host institutional capacity building initiatives to provide leadership and coordination to engender innovative thinking in environmental sustainability
- the University will host a forum to showcase research into electric car design and community use.

**Key performance indicators and targets**

KPI	TARGET
Public environmental forums hosted by the Tom Farrell Institute	Four per year
Research and Higher Degree seminars hosted by the Tom Farrell Institute	Four per year
Number of type of research initiatives commenced and completed	Funding dependent
Number and type of capacity building initiatives in leadership and coordination for innovation in environmental sustainability.	



## 2.1.10 TEACHING AND LEARNING THEME

*Note: This theme includes staff training and development initiatives as well as student academic pursuits.*

### Goals

To ensure students graduate with an understanding of environmental sustainability issues, both in their own disciplines and as members of society.

To engage staff environmental sustainability through their day-to-day work practices.

### Principles

For teaching and learning, the University will:

1. prepare graduates with the knowledge and skills to practice and advocate sustainable energy use
2. engage students and staff with curricula and projects that promote sustainable practices
3. share and exchange environmental sustainability knowledge and experience with other universities, community groups, and others in the public and private sectors
4. optimise online learning as part of contributing to a wider societal transition to a low transport economy
5. actively engage in professional affiliations to build institutional capacity in environmental sustainability.

### Reflecting on our past track record

The University has implemented a range of teaching and learning initiatives in sustainability:

- offered the Bachelor of Environmental Science and Management and a suite of environmental management programs at post-graduate level
- offered the Graduate Certificate in Environmental and Business Management online through GradSchool.com.
- in 2010 fourteen undergraduate electives were offered that had a substantial sustainability component, available across four faculties
- the iLead international leadership program, launched in 2009, offers students the option to undertake volunteer programs with an environmental focus
- provision of University of Newcastle Industry Scholarship in Environmental Science
- staff and student participation in the 2008 Environmental Forum and the regular TFI Forums has been encouraged
- the University has been involved in the following professional affiliations and networks for higher education sector involvement in environmental sustainability:
  - International Sustainable Campus Network (ICSN)
  - Association for the Advancement of Sustainability in Higher Education (AASHE)
  - Australasian Campuses Towards Sustainability (ACTS)
  - Tertiary Education Facilities Management Association (TEFMA)
  - Sydney Basin Universities Network.



### Challenges and opportunities

#### Our challenges

- focus and coordination of sustainability activities across faculties, schools and divisions.

#### Our opportunities

- support from the Federal Government through the National Action Plan for Education for Sustainability
- strong existing programs offered through the School of Environmental and Life Sciences
- leadership, commitment and focus through the Tom Farrell Institute on developing knowledge and skills for a sustainable future (also refer to the Research Theme re capacity building)
- information and experience-sharing with other universities through professional affiliations and networks.

### Proposed activities

Our proposed activities for 2011 – 2013:

- develop an online sustainability elective that will be available to all undergraduate students
- identify courses where sustainability could be included as a component
- identify opportunities for further sustainability experiences and seminars as part of the iLead program
- liaise with appropriate environmental businesses and organisations to encourage provision of further Industry Scholarships in environmental science, management and engineering
- investigate opportunities for environmental sustainability projects through the Work Integrated Learning program, including campus management projects within Facilities Management (UoN)
- identify professional development opportunities with sustainability themes to be delivered to academic staff
- incorporate environmental sustainability into the staff induction briefings to raise awareness of the University's commitments in this plan
- develop an introductory online training course in environmental sustainability for staff
- staff and student engagement in professional affiliations and access to resource material
- continue active involvement in the Together Today initiative (refer to p6).

### Key performance indicators and targets

KPI	TARGET
Development of an online sustainability elective	Available by 2013
Number of students completing at least one course with a substantial sustainability content	To be reviewed and developed over the life of the plan
Number of academic staff participating in professional development programs with a sustainability focus	To be reviewed and developed over the life of the plan
Number of workplace integrated learning arrangements for environmental management	
Number of new staff completing staff induction briefing which includes environmental sustainability as a topic	100%
Number of professional affiliations	Maintain existing affiliations and engage in new networks where relevant.

# 3

## IMPLEMENTATION

### 3.1 COMMUNICATING OUR INITIATIVES AND PERFORMANCE

The Vice Chancellor launched the environmental sustainability area of the University's website in 2010 to showcase our activities and to provide campus management related information. An annual Sustainability Report Card for the Plan will be produced to report on the Key Performance Indicators (refer to Appendix 2 for a summary) and progress towards the proposed activities.

The Plan, along with the annual reports cards, will be placed on the website to promote and communicate our environmental sustainability activities. In time, marketing and promotion for our environmental program may follow the lead of other universities by looking to incorporate a unifying green 'logo'.

### 3.2 CELEBRATING OUR ENVIRONMENTAL CHAMPIONS AND EVENT ENGAGEMENT

Across the life of the Plan, staff and students that have an interest in, and passion for, environmental sustainability will have the opportunity to engage with the activities outlined in the Plan. It is hoped that engagement activities, such as the proposed Green Building Program, will also yield environmental champions who will enthuse their colleagues to work and live more sustainably.

The opportunity exists to develop a green awards program for staff and student 'environmental champions' to celebrate their achievements. This will also provide inspiration amongst the broader University community for leaders in environmental management. Fun competitions around reducing energy and water consumption could be established and tied to a green building shield, or award.

A green grants program should be explored as a means to fund sustainability initiatives that are put forward by Divisions, Faculties and student groups that would otherwise not be eligible for opex and capex budgetary pathways. This would be an ideal way to foster environmental champions and innovation.

It is anticipated that staff and student interest will grow in having organised environmental events to engage the University in local, state and international environmental event days. In turn, this involvement should spawn further interest and enthusiasm for sustainability. With the myriad of events on offer, however, targeting is needed to select the events that best align with the activities in this Plan.

For this inaugural Plan, event involvement should be prioritised towards events with a good history of involvement, such as the Ride to Work Day. For events to be a success, adequate event organising resources need to be made available. Development of the Environmental Program Operational Plan should therefore incorporate resources for environment events. Two useful online directories to target environmental events are the:

- NSW Green Dates Calender – NSW Government
- Calender of Environmental Events – Australian Government Department of Environmental Sustainability, Environment, Water, Population and Communities

### 3.3 ENVIRONMENTAL PROGRAM OPERATIONAL PLAN AND RESOURCING

The companion internal operational document will be used to identify specifics around budget allocations, timeframes, people resourcing, collaborations and project management responsibilities. The University Committee on Environmental Sustainability, or an appointed steering group, will provide resourcing decisions around the necessary tasks to complete the activities proposed in this Plan.

The Operational Plan will identify resourcing needs for internal budgetary allocations, as well as opportunities to leverage external funding through government programs and philanthropy. The University Foundation, for example, may be able to direct some philanthropic contributions towards environmental sustainability initiatives.

### 3.4 CONTINUOUS IMPROVEMENT

There may be influencing factors, positive or negative, that arise during implementation of the Plan that will require attention as part of continuous improvement activities. Where evaluation of our progress identifies changes to specific items in the Plan, or a new opportunity arises to support the Plan's activities, an Addendum update to the Plan will be developed.





# APPENDIX 1

## ENVIRONMENTAL SUSTAINABILITY POLICY

### INTRODUCTION

The Environmental Sustainability Policy is the uppermost environmental policy for the University. It is supported by issue specific policies for its campus management, teaching and learning and research activities, including the Sustainable Energy Management Policy, the Air Conditioning Policy and the Air Conditioning Procedure.

The University is a signatory to the Talloires Declaration, an international, voluntary ten-point action plan for incorporating sustainability and environmental literacy in university activities. This policy underpins the University's commitment to action as a signatory.

It is associated with the sustainability aims stated within the University's Institutional Strategic Plan Building Distinction and the University's vision statement for sustainability expressed in the Environmental Sustainability Plan:

To provide leadership, innovation and inspiration to our staff, students and the broader community in environmental sustainability through our campus management, teaching and learning, research and community engagement activities.

### POLICY SCOPE

This Policy applies to all University staff, conjoiners, students, volunteers, visitors and members of advisory and governing bodies, in all campuses and locations of the University and at all times while engaged in University business or otherwise representing the University.

The scope encompasses affiliates, contractors and consultants, appointed or engaged by the University to perform duties or functions, and/or recognised for their contribution to the University.

### POLICY INTENT

This policy provides a framework for the University's commitment to sustainable actions and responsible environmental management practices.

This policy and the associated Environmental Sustainability Plan have the following objectives, formed around the actions required by the Talloires Declaration while also reflecting the University's particular circumstances:

1. increase awareness amongst our staff, students and the community of environmental sustainability and its importance to the wellbeing of current and future generations
2. ingrain environmental sustainability and environmental responsibility into our institutional culture and across all of our campuses
3. lead by example in the way we manage our natural and built campus assets, through achieving environmental compliance and adopting best practice
4. deliver leading-edge interdisciplinary teaching and learning experiences to equip students with knowledge, confidence and enthusiasm so they can positively engage in fostering environmentally sustainable solutions through their careers and everyday living
5. strive for effective pathways and partnerships across the University organisational structure, and with local and state government, business, industry, research and community leaders to achieve environmental management solutions.

### POLICY PRINCIPLES

The University will strive to minimise its environmental impact and carbon footprint, and provide leadership in environmental management by ensuring environmental sustainability is integral to all of its activities. To achieve this, the University has committed to the following set of Principles.

The Principles are grouped around the three theme areas in the Environmental Sustainability Plan – campus management, research and innovation and teaching and learning. For campus management, the principles are further aligned to a subtheme.

#### **Campus management**

##### *Energy and carbon emissions*

The University will:

1. utilise the solar advantages offered by our bushland landscape to provide daytime and passive heating needs
2. strive for best practice in energy efficiency design and fit-outs for new buildings, retrofits and refurbishments
3. optimise our use of renewable energy sources, including purchasing green power from accredited sources
4. minimise embodied energy in construction materials and product purchases.

##### *Water*

The University will:

1. integrate water sensitive stormwater treatment approaches into landscape, building and carpark designs to provide for multiple benefits including water quality protection, runoff management, biodiversity and amenity
2. capture stormwater and rainwater for reuse for non-potable purposes
3. facilitate opportunities for on-site treatment and reuse of grey-water
4. install water efficient facilities and equipment, including automated monitoring systems
5. apply soil and water management best practices to protect surface water and groundwater quality.

##### *Landscape and biodiversity*

The University will:

1. preserve the bushland character and image of the University through the protection of our native flora and fauna
2. seek a practical balance between biodiversity and a safe and usable environment, minimising potential risk to people, buildings and property
3. use Australian plant species, and preferably local provenance species, for new and supplementary landscape plantings
4. utilise water sensitive urban design techniques to manage rainwater and stormwater onsite and capture for reuse
5. apply best practice bush regeneration and landscape maintenance techniques
6. target noxious weeds and feral animals through the use of integrated pest management approaches
7. actively promote the ecosystem services and amenity benefits of the bushland campus
8. promote a 'bushwise' and environmentally sensitive approach to occupying and moving around the campus to engender tolerance and appreciation of our flora and fauna

9. minimise, or at best avoid, native vegetation removal in capital works projects, and employ compensatory offsets where native vegetation must be removed
10. avoid development in locations of high ecological value
11. maximise the opportunities for building occupants to have a view to the outside, and to source fresh outside air
12. integrate building and landscape design to provide external meeting and teaching and learning spaces.

#### *Waste*

The University will:

1. reduce the amount of waste generated and going to landfill through avoidance, waste minimisation and resource recovery (reuse, recycling, reprocessing and energy recovery)
2. maximise the use of recycled content material and recycling of existing materials, where cost effective
3. provide robust outdoor bin infrastructure that will restrict fauna access and foraging, reducing waste spillage and detrimental fauna impacts
4. provide food and beverage services that deliver recycling and minimise waste generation
5. minimise building materials that have damaging ecological effects during harvesting, manufacturing, and/or construction
6. use materials and equipment that have minimal maintenance and longevity of expected useful life
7. employ building designs that can be readily adapted to meet changing growth and use needs.

#### *Sustainable transport*

The University will:

1. provide campus-to-community sustainable transport options that also support broader lifestyle needs around reasonable travel times, access, safety, wellbeing and an active healthy lifestyle
2. facilitate sustainable travel alternatives around walking, public transport, cycling and carpooling to seek to reduce the use of single-occupancy vehicles for University commuting and business travel
3. engagement in regional transport strategies to represent public transport service needs of staff and students
4. provision of IT solutions for communication needs to aid in reducing car use
5. deliver secure bike facilities with lockers and showers, which showcase environmental design principles
6. integrate shower and locker facilities into buildings to support sustainable transport users and healthy lifestyle options around cycling, walking and recreational pursuits.

#### *Sustainable business and procurement*

The University will:

1. employ sustainable procurement practices which take a whole of life cycle approach to minimising waste and damage to the environment, while achieving value for money benefits for the University and the broader community
2. incorporate the cost and impact of environmental externalities into decision making
3. purchase local products and services where possible
4. employ business practices that support the global fair trade movement aimed at tackling poverty and empowering producers through trade.

#### *Asset planning and environmental compliance*

The University will:

1. employ campus management practices that minimise environmental impact through the use of best practice and ensure compliance with regulatory requirements
2. build staff understanding of, and procedural capacity in, environmental sustainability as it applies to work activities and activities undertaken by external contractors, lessees, project managers and consultants managed by the University.

#### **Research and Innovation**

The University will:

1. enhance the University's reputation as a hub of research excellence in the sustainable energy and resources fields
2. expand the University's contribution to national and international research on a range of environmental sustainability issues
3. foster collaboration between research, teaching and learning, campus management practitioners and external stakeholders to achieve environmental improvements and innovations in the University's campus facilities
4. establish external partnerships to develop and export environmental solutions for community and commercial use
5. grow our partnerships with external agencies, including industry, government and other research institutions, to provide collaborative solutions to global environmental sustainability challenges.

#### **Teaching and Learning**

The University will:

1. prepare graduates with the knowledge and skills to practice and advocate sustainable energy use
2. engage students and staff with curricula and projects that promote sustainable practices
3. share and exchange environmental sustainability knowledge and experience with other universities, community groups, and others in the public and private sectors
4. optimise online learning as part of contributing to a wider societal transition to a low transport economy
5. actively engage in professional affiliations to build institutional capacity in environmental sustainability.

## ESSENTIAL SUPPORTING DOCUMENTS

*Environmental Sustainability Plan*

## RELATED DOCUMENTS

*Sustainable Energy Management Policy*

*Air Conditioning Policy and Procedures*

**Key Words:** environment, sustainability, waste, recycling, biodiversity

Policy Sponsor: Director Infrastructure

Policy Owner: Environmental Manager

Policy Contact Position: Environmental Manager

Approval Authority: Vice-Chancellor

Date Approved: refer to the UoN online policy library

# APPENDIX 2

## SUMMARY OF KEY PERFORMANCE INDICATORS FOR THE ENVIRONMENTAL SUSTAINABILITY REPORT CARD

THEME	Sub-Theme	KPI	TARGETS	
			Established	To be developed in 2011 – 2013
Campus Management	Energy and carbon emissions	Reduction in carbon emissions	As per the 2009 Sustainable Energy Policy: 20% reduction in carbon emissions by 2015 – using Scope 1 and 2 reporting for all years, with Scope 3 reporting to be bought online as soon as feasible and in line with TEFMA directions.	
		Total campus energy and electricity consumption relative to university sector	Maintain or improve our position relative to the University sector using the TEFMA reporting approach of Equivalent Fulltime Staff and Student (EFTSS) and Gross Floor Area. Note: Up until 2010, the University performed in the bottom and second quartile (i.e. best efficiency) for consumption in the sector.	
		% of campus energy use from accredited renewable sources	Maintain or increase 10% green power purchase.	
	Water	Total campus potable water consumption	Maintain or improve our position relative to the University sector using the TEFMA reporting approach of Equivalent Fulltime Staff and Student (EFTSS) and Gross Floor Area. Note: Up until 2010, the University performed in the bottom and second quartile (i.e. best efficiency) for consumption in the sector.	
		Building specific total potable water consumption		✓
		Water used for irrigation for landscape maintenance purposes	To maintain or reduce the total amount of water used.	
	Landscape and biodiversity	Extent of significant native vegetation conserved/protected in line with the management requirements identified in the Landscape Management Plan		as per the Landscape Management Plan
	Waste	Total volume of waste to landfill		through improved data collection, a baseline and target will be established
		Volume of waste per waste type		as above
		Recycled paper (per type 50%/80%) used compared to total		as above
		Amount of green waste diverted to composting (onsite and local composting facility) and mulched onsite		as above
		Hazardous and chemical waste managed as per regulatory requirements and procedures	Compliance with procedures	
		% of coffee outlets on campus offering personal coffee cup use	100%	

<b>Campus Management</b>	Sustainable Transport	Total CO2 emissions for fleet	As per contract arrangements: reduce the fleet by 5% and reduce CO2 emissions by 10%	
		Total CO2 emissions for air travel		through improved data collection, a baseline and target will be established
		CO2 emissions saved through video conferencing and record on video conferencing infrastructure server	Increase savings annually	
		Participation in the annual national Ride to Work Day event	Increase in annual participation relative to 2009 event (Callaghan 70; Ourimbah 10)	
		Sustainable Transport Management Plan KPIs		as per the Sustainable Transport Plan
	Sustainable business and procurement practices	Sustainable procurement KPIs		✓
		Number of outlets offering Fair Trade coffee	100% by Plan end	
		Number of forums promoting fair trade		
	Asset planning and environmental compliance	Environmental management addressed as a key theme in the Risk and Compliance Framework	Ongoing	
		Legislative compliance	Full compliance	
		Environmental sustainability integrated into Strategic Asset Management Plan	SAMP incorporating environmental sustainability as a key strategic requirement	
		Regulatory reporting	Submitted on time and to required standard	
	<b>Research and Innovation</b>	Public environmental forums hosted by the Tom Farrell Institute	Four per year	
		Research and Higher Degree seminars hosted by the Tom Farrell Institute	Four per year	
Number of type of research initiatives commenced and completed		Funding dependent		
Number and type of capacity building initiatives in leadership and coordination for innovation in environmental				
<b>Teaching and Learning</b>	Development of an online sustainability elective	Available by Plan end		
	Number of students completing at least one course with a substantial		To be reviewed and developed over the life of the plan	
	Number of academic staff participating in professional development programs with a sustainability focus		To be reviewed and developed over the life of the plan	
	Number of workplace integrated learning arrangements for environmental management			
	Number of new staff completing staff induction briefing which includes environmental sustainability as a topic	100%		
	Number of professional affiliations			



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