# 2012 Sustainability Report

Strategic Capital Infrastructure & Projects

University of Ballarat
Learn to succeed

2012 has been a significant year for initiating sustainability programs that will provide financial, environmental and social benefits to the University over the coming years.

The State Governments “Greener Government Building” program is the largest infrastructure efficiency program undertaken by the University. The appointed contractor (Siemens) is about to commence an energy and water audit on every building that will find up to 30% in savings. The savings will be achieved through on-site electricity generation and efficient infrastructure such as lighting replacements and new gas boilers.

Other initiatives include a new waste and recycling program to reduce landfill waste and increase recycling and the continued replacement of petrol vehicles with diesel in the car pool fleet. The highlights for 2012 are:

- Greenhouse gas emissions are similar to 2011 levels. University is on track to meet 2013 target of 16,000 tonnes.
- Consumption of electricity and natural gas are similar to 2011 levels
- Increase in water consumption by 6 million litres (10%)
- Reduced fuel consumption by 18,000 litres (9%)
- Increase in staff train travel between Ballarat and Melbourne by 25%
- Increase in paper consumption by 3,341 reams (19%)
- Increase in waste to landfill by 32 tonnes (10%)
- Amount of waste recycled is 22% of total waste

# Utility Consumption by Campus

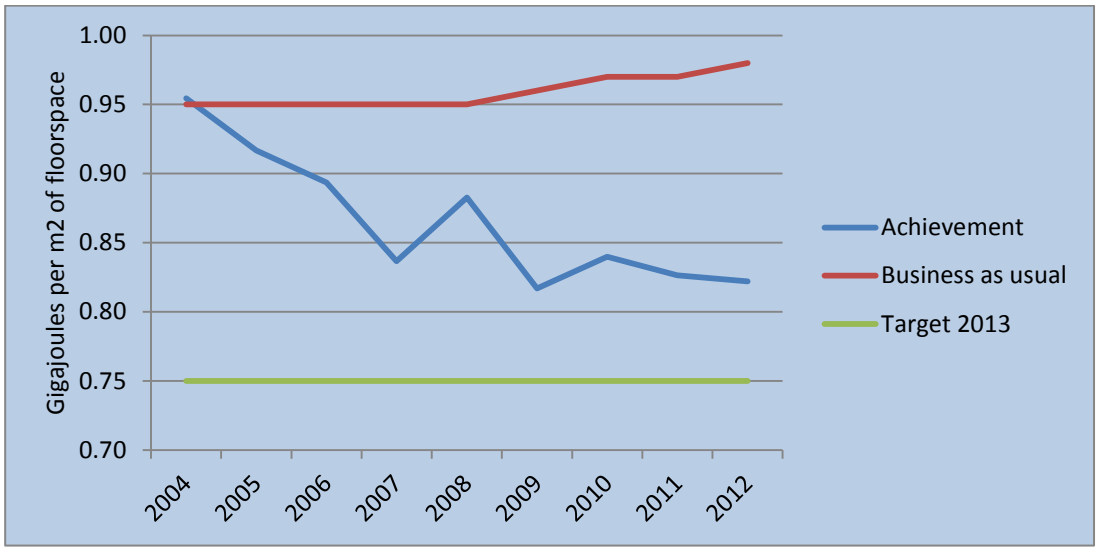
| | Jan - Dec 2006 | Jan - Dec 2007 | Jan - Dec 2008 | Jan - Dec 2009 | Jan - Dec 2010 | Jan - Dec 2011 | Jan - Dec 2012 | Change from 2011 % |
|---|---|---|---|---|---|---|---|---|
| **Electricity consumption (kwh)** | | | | | | | | |
| Mt Helen | 5,436,270 | 5,564,833 | 5,360,667 | 5,358,830 | 4,988,813 | 4,820,909 | 4,851,002 | 1% ↑ |
| SMB | 1,799,921 | 2,159,240 | 2,248,098 | 2,141,847 | 2,109,409 | 1,947,865 | 2,057,840 | 6% ↑ |
| Camp St | 841,295 | 807,697 | 736,243 | 722,962 | 697,437 | 661,983 | 559,955 | 15% ↓ |
| Horsham | 647,075 | 621,151 | 644,832 | 620,221 | 552,582 | 503,839 | 554,628 | 10% ↑ |
| Stawell | 156,755 | 167,070 | 161,085 | 155,142 | 134,633 | 137,961 | 149,159 | 8% ↑ |
| Ararat | 69,194 | 57,264 | 57,481 | 80,828 | 83,402 | 50,249 | 62,934 | 25% ↑ |
| | 8,950,510 | 9,377,255 | 9,208,406 | 9,079,829 | 8,566,276 | 8,122,806 | 8,235,518 | 1% ↑ |
| **Natural gas consumption (gj)** | | | | | | | | |
| Mt Helen | 46,890 | 42,182 | 43,769 | 40,392 | 43,479 | 44,491 | 44,202 | 1% ↓ |
| SMB | 7,826 | 5,918 | 8,447 | 7,334 | 9,137 | 8,661 | 8,799 | 2% ↑ |
| Camp St | 6,019 | 5,477 | 6,196 | 5,771 | 6,078 | 5,810 | 5,799 | 0% ↑ |
| Horsham | 1,487 | 1,580 | 2,033 | 1,591 | 1,323 | 1,291 | 1,659 | 28% ↑ |
| Stawell | 298 | 101 | 131 | 145 | 68 | 4 | 3 | 38% ↓ |
| Ararat | 377 | 316 | 264 | 275 | 221 | 189 | 246 | 30% ↑ |
| | 62,898 | 55,573 | 60,841 | 55,508 | 60,306 | 60,447 | 60,708 | 0% ↓ |
| **Water consumption (kl)** | | | | | | | | |
| Mt Helen | 56,348 | 45,206 | 42,148 | 42,283 | 42,049 | 40,235 | 42,792 | 6% ↑ |
| SMB | 5,053 | 3,420 | 3,052 | 5,301 | 11,097 | 6,280 | 6,783 | 8% ↑ |
| Camp St | 6,901 | 5,763 | 5,032 | 3,313 | 5,593 | 5,954 | 6,163 | 4% ↑ |
| Horsham | 4,991 | 2,695 | 4,004 | 4,370 | 5,544 | 5,517 | 8,999 | 63% ↑ |
| Stawell | 684 | 172 | 233 | 215 | 297 | 164 | 109 | 34% ↓ |
| Ararat | 698 | 85 | 64 | 89 | 412 | 661 | 57 | 91% ↓ |
| | 74,675 | 57,340 | 54,533 | 55,571 | 64,992 | 58,811 | 64,903 | 10% ↑ |

## Energy

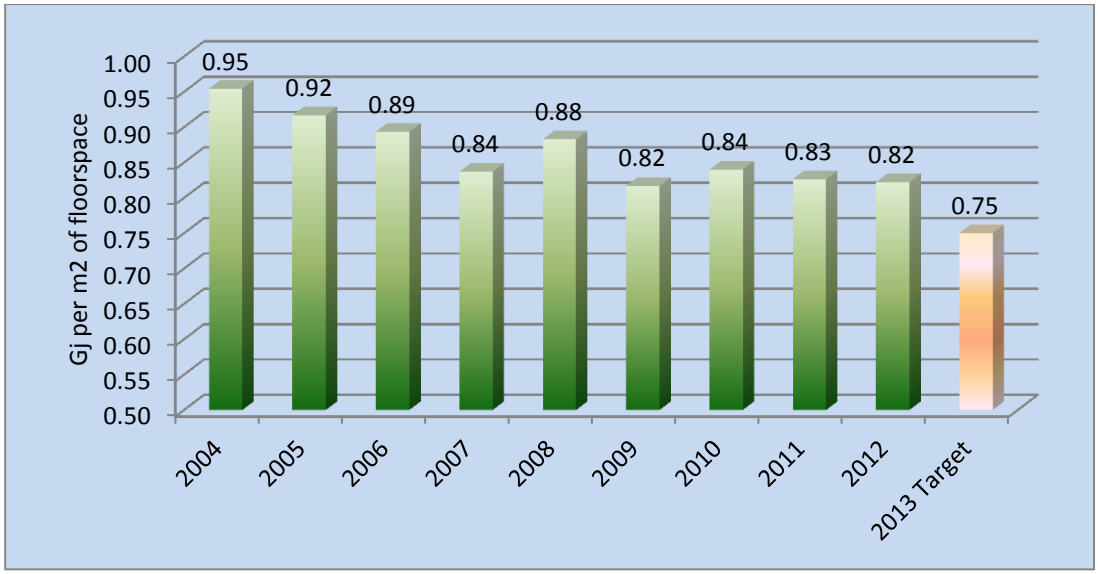
2012 utility costs have increased due to the introduction of the Carbon tax and increasing network and distribution charges. Electricity and natural gas costs in 2012 were $ 2.3 million, a $ 252,000 increase on the previous year. Considering the carbon tax was introduced on 1 July, the impact in 2013 will be even greater as the tax will apply for the full year.

Consumption of natural gas and electricity in 2012 was consistent with the previous year. Our 2013 target is to reduce energy consumption by 15% (baseline 2008). To the end of 2012 we are approximately half way to achieving this goal.

### Energy per $m^2$ of floor space 2004-2012




### Energy per $m^2$ of floor space 2004 - 2012



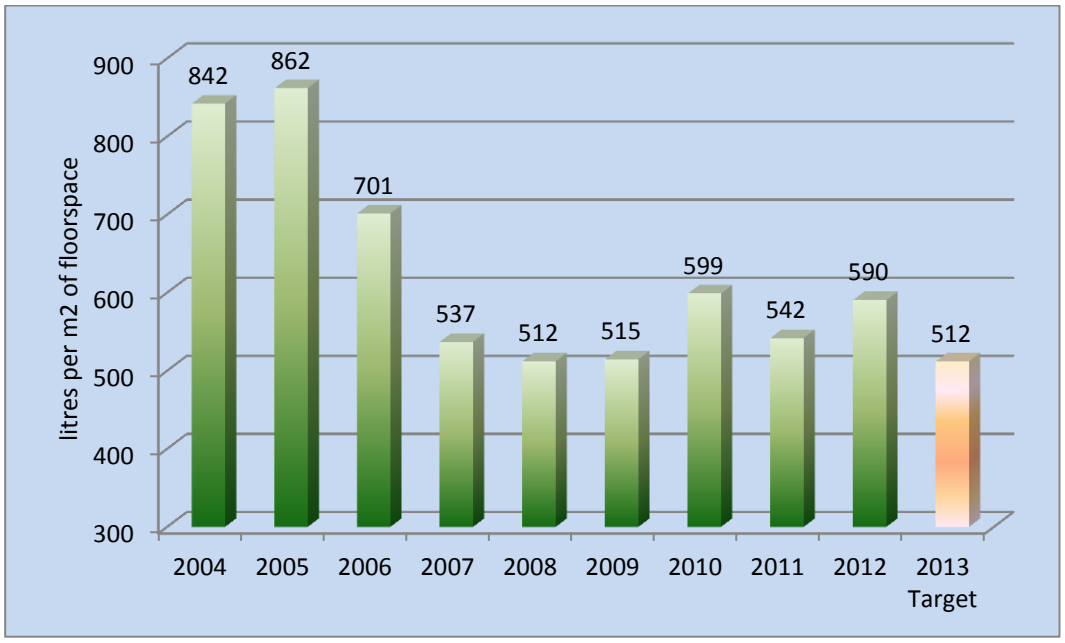

## Potable Water

Unfortunately major leaks at Horsham campus have increased the University's water consumption by 10%. Horsham campus consumed 9 million litres of water (compared with 4 million for a typical year). Significant leaks were also detected at the Mt Helen swimming pool.

Under the Greener Government Building program, Siemens has recommended a water sub-metering system for all campuses. A sub-metering system will immediately detect unusually high water consumption.

**Potable water per m$^2$ of floor space 2004-2012**


**Potable water per m$^2$ of floor space 2004-2012**



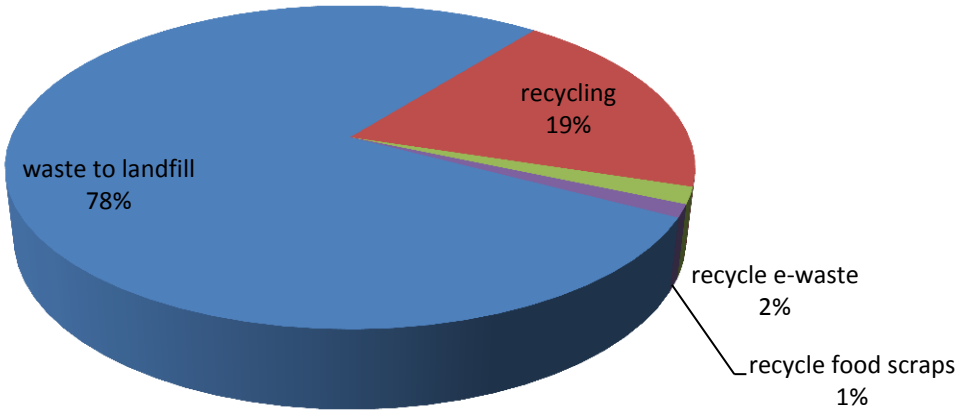
## Waste and Recycling

The University is committed to reducing waste to landfill and increasing recycling rates to protect our natural resources and reduce our footprint.

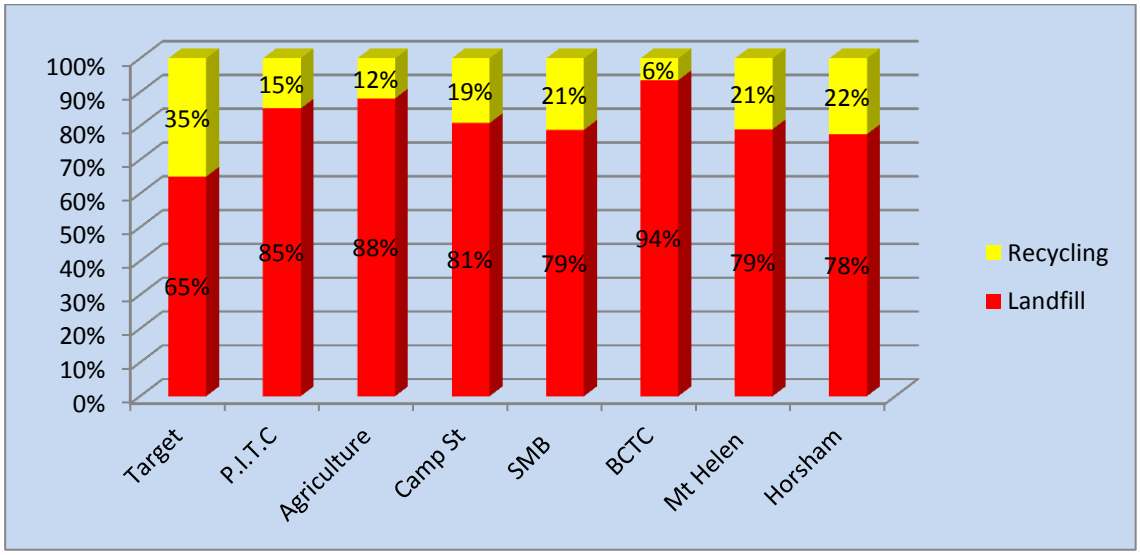
In 2012 waste to landfill increased by 32 tonnes and this was due to the number of building renovations and relocations occurring at Mt Helen campus. Recycling rates are consistent with previous years.

The University is rolling out a new waste and recycling program for all campuses. Staff will receive two new bins (red waste bin and blue recycling bin). The size of the red landfill bin encourages behaviour change and the cleaners are reporting large reductions in landfill waste and a subsequent increase in recycling.

### Waste and recycling percentages 2012




### Waste and recycling % per campus



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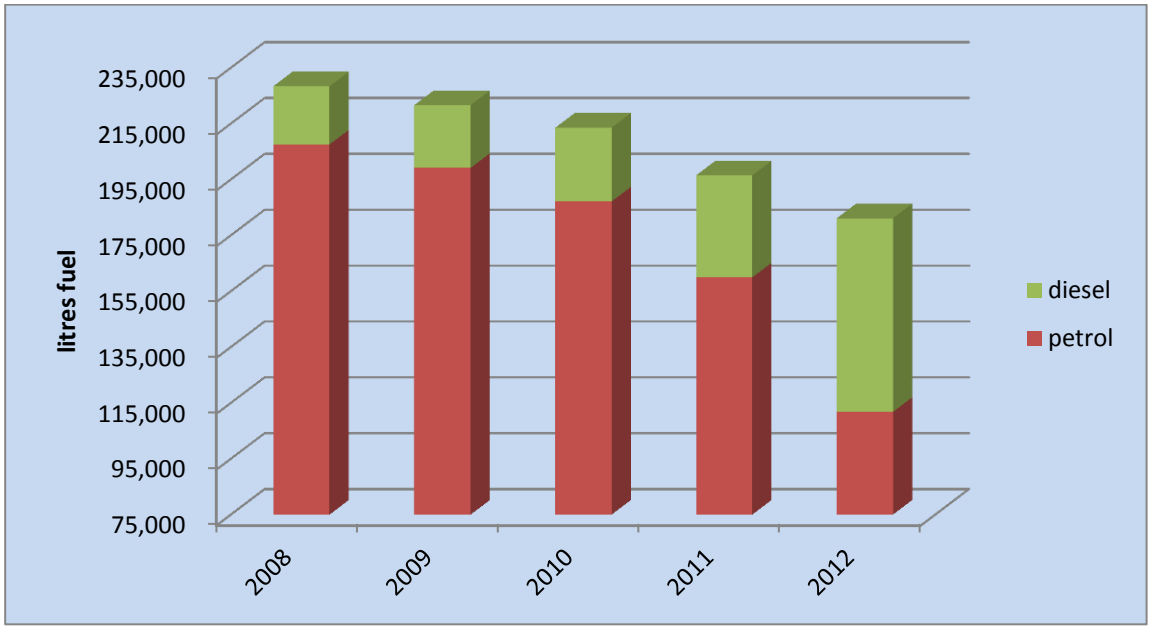
## Fleet Management

Over the past 2 years the University has made changes to the 60 vehicles in the car pool fleet to reduce emissions and costs. Petrol vehicles are gradually being replaced with diesel vehicles such as the Ford Mondeo and Holden Cruze. Diesel vehicles now make up 50% of the fleet. The switch to diesel has impacted on the amount of fuel the University purchases.


In 2012 the University reduced fuel consumption by 9%, a saving of 18,000 litres. The past 4 years has seen a 20% reduction. The University is on target to achieve a 10% reduction in vehicle emission by 2013 (baseline 2008)

### Fuel Consumption 2008-2012

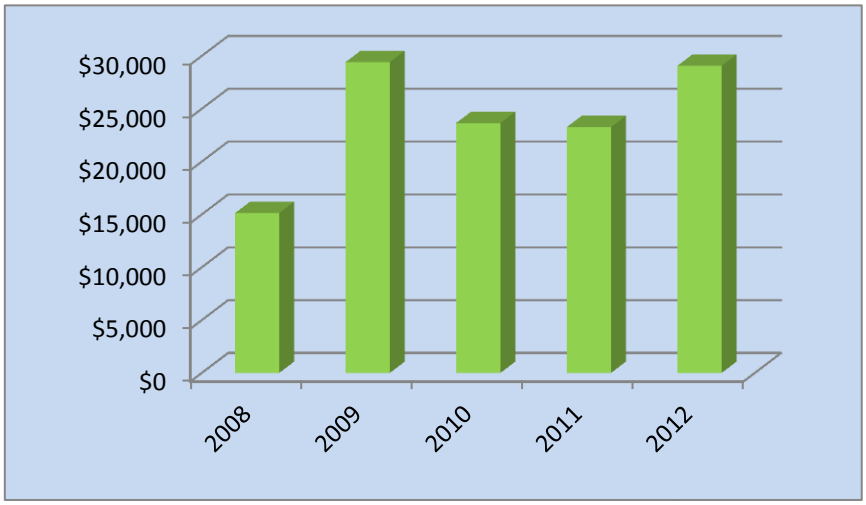



## Train Travel

Patronage by University staff on V/Line trains between Ballarat and Melbourne has increased in 2012 by 25%. Staff are finding the service faster, cheaper and more productive with the ability to work while travelling.

Myki ticketing system will be available on V/Line services in the second half of 2013.

### Spend on V/Line train to Melbourne

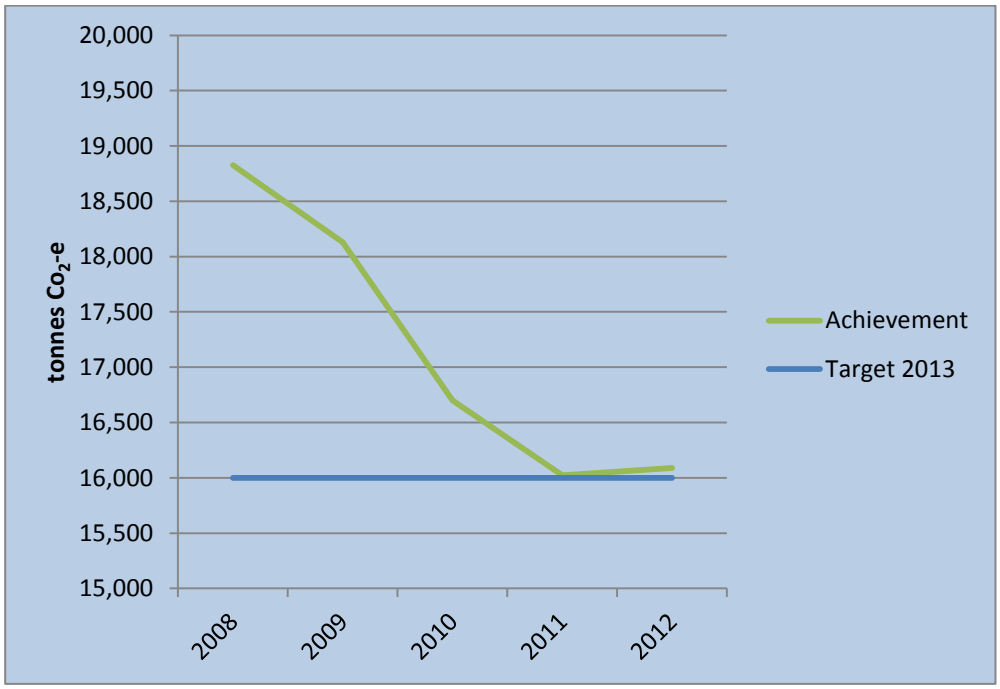


## Paper Consumption

Over the past few years the University has dramatically reduced the consumption of paper, yet in 2012 paper consumption increased by over 3,000 reams. This is the first increase since 2008.


## Greenhouse Gas Emissions

Since 2008 the University has reduced greenhouse gas emissions by 15% and this was achieved through a reduction in electricity consumption and the purchase of 25% Green power for the TAFE division. We're expecting to see further savings when the energy saving infrastructure is installed through the Greener Government Building program.



## 2012 Greenhouse Gas Emission Report

| Emissions source | Consumption units | Consumption | Target emissions (tonnes) 2013 | Actual Emissions (tonnes) 2012 | Actual Emissions (tonnes) 2011 | Change from 2011 % |
|---|---|---|---|---|---|---|
| **Direct emissions (Scope 1)** | | | | | | |
| Natural Gas | GJ | 60,708 | 2,900 | 3,116 | 3,103 | 0% |
| Petrol for vehicles | kL | 121 | 304 | 277 | 394 | 30%↓ |
| Diesel for vehicles | kL | 69 | 152 | 187 | 96 | 94%↑ |
| Petrol for hire vehicles | kL | 13 | 50 | 31 | 57 | 46%↓ |
| **Total Scope 1** | | | 3,406 | 3,611 | 3,650 | |
| **Indirect emissions (Scope 2)** | | | | | | |
| Electricity | kWh | 8,122,806 | 9,800 | 9,800 | 9,823 | 0% |
| **Optional Emissions (Scope 3)** | | | | | | |
| Electricity - transmission & distribution losses | kWh | 8,122,806 | 1,200 | 1,235 | 1,218 | 1%↑ |
| Flights | km | 4,908,288 | 1,339 | 1,280 | 1,283 | 0% |
| Waste - landfill | tonnes | 328 | 342 | 394 | 355 | 11%↑ |
| Extraction of natural gas | GJ | 60,708 | 330 | 243 | 242 | 0% |
| Train travel | $ | 27,622 | 45 | 160 | 135 | 19%↑ |
| Water consumption | kL | 64,903 | 128 | 152 | 138 | 10%↑ |
| Paper consumption | reams | 20,603 | 90 | 69 | 59 | 17%↑ |
| Emissions from fuel extraction for petrol | kL | 134 | 30 | 22 | 33 | 33%↓ |
| Emissions from fuel extraction for diesel | kL | 69 | 7 | 14 | 7 | 102%↑ |
| **Total scope 3** | | | 3,511 | 3,569 | 3,470 | |
| **Scope 1 + 2 + 3** | | | 16,717 | 16,980 | 16,943 | |
| **Reduction measures** | | | | | | |
| AGL Green power | kWh | 663,603 | -717 | -889 | -921 | |
| **Net Emissions** | | | 16,000 | 16,091 | 16,022 | 0% |

**Scope 1** – Greenhouse gas emissions from burning combustible fuels. These are emissions from burning natural gas and vehicle fuel for business related travel.
**Scope 2** – Emissions from the consumption of electricity.
**Scope 3** – Indirect emissions associated with running the University. Eg waste generation, staff travelling via public transport, air travel and consumption of paper and potable water.