

2011-13

# SUSTAINABILITY REPORT



Western Health

## Glossary

### Normalising factors used throughout this report

**Floor area** - Meter squared of floor space of buildings

**Bed-days** - Includes the number of in-patient bed days for the reporting period reported through the Victorian Admitted Episodes Dataset (VAED) and the number of public sector residential aged care bed days for the reporting period reported to the Aged Care Branch, Department of Health

**Separations** - Includes the number separations for the reporting period reported through the Victorian Admitted Episodes Dataset (VAED)

**Patients treated** - Includes the number of in-patient bed days for the reporting period reported through the Victorian Admitted Episodes Dataset (VAED); the number of public sector residential aged care bed days for the reporting period reported to the Aged Care Branch, Department of Health and the number of emergency presentations over the reporting period reported through the Victorian Emergency Minimum Dataset (VEMD). The number of out-patients for the reporting period reported through Agency Information Management System (AIMS)

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# CHIEF EXECUTIVE OFFICER'S MESSAGE

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This Sustainability Report demonstrates the foundational work Western Health has undertaken to acknowledge the environmental impact of its operations and services and reduce those impacts. This inaugural report hopes to highlight Western Health's sincere commitment to environmental improvement in healthcare.

The Western Health Environmental Management Strategy (EMS) 2011-2013 has been developed to complement the Strategic Plan and support the strategic priority statement: "Self-sufficiency and Sustainability". Our Environment Policy promotes environmentally sustainable work place practices and operations, ensuring continual improvement in environmental performance whilst maintaining our compliance obligations.

An overall increase in energy efficiency per m<sup>2</sup> of floor space has been achieved and energy reduction targets based on implementation of energy conservation projects have been surpassed. However the data also reveals a drop in efficiency when qualified only by patient activity. As Western Health finalises Stage 3 of its capital works program the absence of funding for new beds is felt throughout the environmental data. Increases in water and energy consumption are related to construction and commissioning of new buildings at Sunshine Hospital and decanting old beds into these buildings.

With the construction of new buildings come the extra environmental impacts, for example the immense water consumed in creating concrete. Such anomalies have been felt within the data and reduced the capacity to deliver on anticipated water reduction target.

Environmental awareness is growing and positively affecting staff culture as further opportunities for improvement in environmental performance are offered. Waste targets are convincingly surpassed as a direct result of the positive staff engagement on recycling opportunities introduced. Western Health has led dialogue with the Australian Government's Climate Commission about the impacts of healthcare and shared their successful PVC recycling program via the development of online resources with industry partners.

Western Health has exceeded all mandatory obligations to provide information to various state and federal agencies including the Federal Government's National Greenhouse Energy Reporting Scheme (NGERS) and their National Pollutant Inventory (NPI); Victorian Government's Environmental Protection Authority (EPA) Environmental Resource Energy Efficiency Plan (EREP) and their Department of Health's (DH) Agency Information Management System (AIMS) reporting and this mandatory environmental reporting requirement for Victorian public health services, in accordance with the Department of Health Policy and Funding Guidelines 2012-13.

**Associate Professor Alex Cockram**  
**MBBS, M.Med (Psych), FRANZCP**  
**Chief Executive**

# 1. INTRODUCTION

The health sector's mandate is to prevent and cure disease. Yet the delivery of health care services - most notably in hospitals - often inadvertently contributes to the problem. Hospitals generate significant environmental health impacts both upstream and downstream from service delivery, through the natural resources and products they consume, as well as through the waste they generate.

Western Health is no exception to this as it provides acute and subacute public health services to a population of approximately 800,000 people across the western region of Melbourne. In fact demand is growing rapidly and in response, a strong capital works program has ensued to service that need into the future. Today Western Health operates three acute public hospitals located at Footscray, Sunshine and Williamstown, a day hospital at Sunbury and one residential care facility at Melton.

Western Health takes its environmental responsibilities seriously and to that end developed WH Environmental Management Strategy (EMS) 2011 - 2013 to guide improvements in environmental performance.


As per the requirements for Victorian public health services in accordance with the Department of Health Policy and Funding Guidelines 2012-13, details are provided about the following environmental impacts:

- Scope 1 & Scope 2 greenhouse gas emissions from energy consumption
- Energy use
- Water use and
- Waste generation

The reporting boundary used for greenhouse, energy, water and waste impacts in this report cover those operations and services associated with all sites where Western Health pays energy and fuel bills together with some extra utilities issued from services that are shared with Melbourne Health (NorthWest Mental Health and Westside Lodge). This approach is in line with that adopted in Western Health's National Greenhouse and Energy Report (NGER) obligation.

## 2. ENVIRONMENTAL IMPACTS

### GREENHOUSE GAS EMISSIONS



**Western Health's intensive energy use contributes to climate change, pollution, respiratory ailments and the accumulation of persistent toxic materials.**

As energy costs continue to rise, and as accelerating climate change becomes a pressing medical and global health issue, health care leaders are searching for strategies to reduce energy costs and be good stewards of our stressed and fragile ecosphere.

The capital development program has been successful in driving energy efficiency into new buildings and activities have been undertaken to improve the operating efficiencies of older buildings.

**Figure 2.1** Scope 1 & Scope 2 greenhouse gas emissions from energy consumption

Total greenhouse gas emissions (tonnes CO2e)	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Scope 1	5,402	5,676	5,455	5,827	5,837	6,622
Scope 2	29,822	29,844	30,864	31,602	32,344	35,020
Total	35,224	35,520	36,319	37,430	38,181	41,643
Normalised greenhouse gas emissions						
Emissions per unit of floor space (kgCO2e/m2)	0.38	0.39	0.40	0.39	0.35	0.33
Emissions per bed day (kgCO2e/activity)	0.11	0.11	0.11	0.11	0.10	0.13
Emissions per separation (kgCO2e/activity)	0.40	0.35	0.35	0.33	0.33	0.40

**Notes:**

Data includes Scope 1 and Scope 2 emissions.

Scope 1 direct (or point-source) emissions include all emissions produced onsite that are material (>5%) to the operations and services of Western Health; transport fuel used in operation of WH fleet; gas consumption for all sites and diesel consumption for generators (volumes estimated; not material).

Scope 2 (indirect) emissions from the generation of the electricity purchased and consumed by Western Health are produced by the burning of fuels (coal) at the power station, namely peak & off peak electricity consumption for all sites.

Data has been sourced from energy retailers / suppliers (electricity and gas), fuel receipts (diesel for generators) and fuel cards (transport fuel).

Fuel types have been converted to GHG emissions by using the listed emissions factors from the current National Greenhouse Accounts (NGA) Factors publication July 2012, available at <http://www.climatechange.gov.au/publications/greenhouse-acctg/national-greenhouse-factors.aspx>.

tCO2-e = tonnes of CO2 equivalent

GHG = greenhouse gas

1 kWh of electricity purchased from the Victorian grid = 1.21 kg CO2e

1 GJ of natural gas = 51.3 kg CO2e

1 GJ of LPG = 59.9 kg CO2e

1 GJ of diesel used for standby electricity generation = 69.2 kg CO2e

1 GJ of automotive gasoline (petrol) = 66.7 kg CO2e

1 GJ of automotive diesel oil (diesel) = 69.2 kg CO2e

1 GJ of automotive LPG = 60.8 kg CO2e

1 GJ of ethanol for use as a fuel in an internal combustion engine = 0.26 kg CO2e



**Most of the environmental and public health harm produced by energy consumption at Western Health is from the combustion of fossil fuels, such as oil, coal and gas. These emissions contribute to global climate change and local health problems.**

In recent years Western Health has undertaken energy efficiency projects such as the replacement of inefficient chillers; reconfiguration of chilled water ring main; replacement of 20 inefficient instantaneous hot water units; application of timers to zip boil kettles and HVAC to switch them off out of hours in areas with reduced operating hours; widening of temperature tolerances of buildings where able. Purchase of a power meter to provide baseline data of electricity consumption has enabled metering of various hospital devices and machines. LED lighting

trials and research projects such as those analysing sterilizer consumption and 'cool roofs' may provide further opportunities for reduction in the future.

Moving forward WH is currently looking to participate in and conclude an energy performance contract (EPC), which hopes to see dramatic reduction in energy consumption by implementing a major energy efficiency retrofit. The model hopes to see the payment for the retrofit being paid back from energy savings over 7 years of the contract.



**Figure 2.2** Energy consumption data

Total energy by energy type (GJ)	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Electricity (GJ)	90,219	90,285	93,371	95,500	97,736	105,881
Renewable electricity (GJ)				103	112	64
Natural gas and LPG (GJ)	100,491	106,308	102,056	108,794	109,645	123,886
Other energy types (GJ)	0	193	19	608	8	317
Total	190,710	196,786	195,446	205,005	207,501	230,148
Normalised energy						
Energy per unit of floor space (GJ/m <sup>2</sup> )	2.08	2.14	2.13	2.11	1.89	1.90
Energy per bed day (GJ/activity)	0.58	0.61	0.60	0.59	0.57	0.71
Energy per separation (GJ/activity)	2.20	1.96	1.94	1.85	1.82	2.25

**Notes:**

Data includes Scope 1 and Scope 2 emissions.

Scope 1 direct (or point-source) emissions include all emissions produced onsite that are material (>5%) to the operations and services of Western Health; transport fuel used in operation of WH fleet; gas consumption for all sites and diesel consumption for generators (volumes estimated; not material).

Scope 2 (indirect) emissions from the generation of the electricity purchased and consumed by Western Health are produced by the burning of fuels (coal) at the power station, namely peak & off peak electricity consumption for all sites.

Data has been sourced from energy retailers / suppliers (electricity and gas), fuel receipts (diesel for generators) and fuel cards (transport fuel).

Fuel types have been converted to GHG emissions by using the listed emissions factors from the current National Greenhouse Accounts (NGA) Factors publication July 2012, available at <http://www.climatechange.gov.au/publications/greenhouse-actcg/national-greenhouse-factors.aspx>.

tCO<sub>2</sub>-e = tonnes of CO<sub>2</sub> equivalent

GHG = greenhouse gas

1 kWh of electricity purchased from the Victorian grid = 1.21 kg CO<sub>2</sub>e

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1 GJ of diesel used for standby electricity generation = 69.2 kg CO<sub>2</sub>e

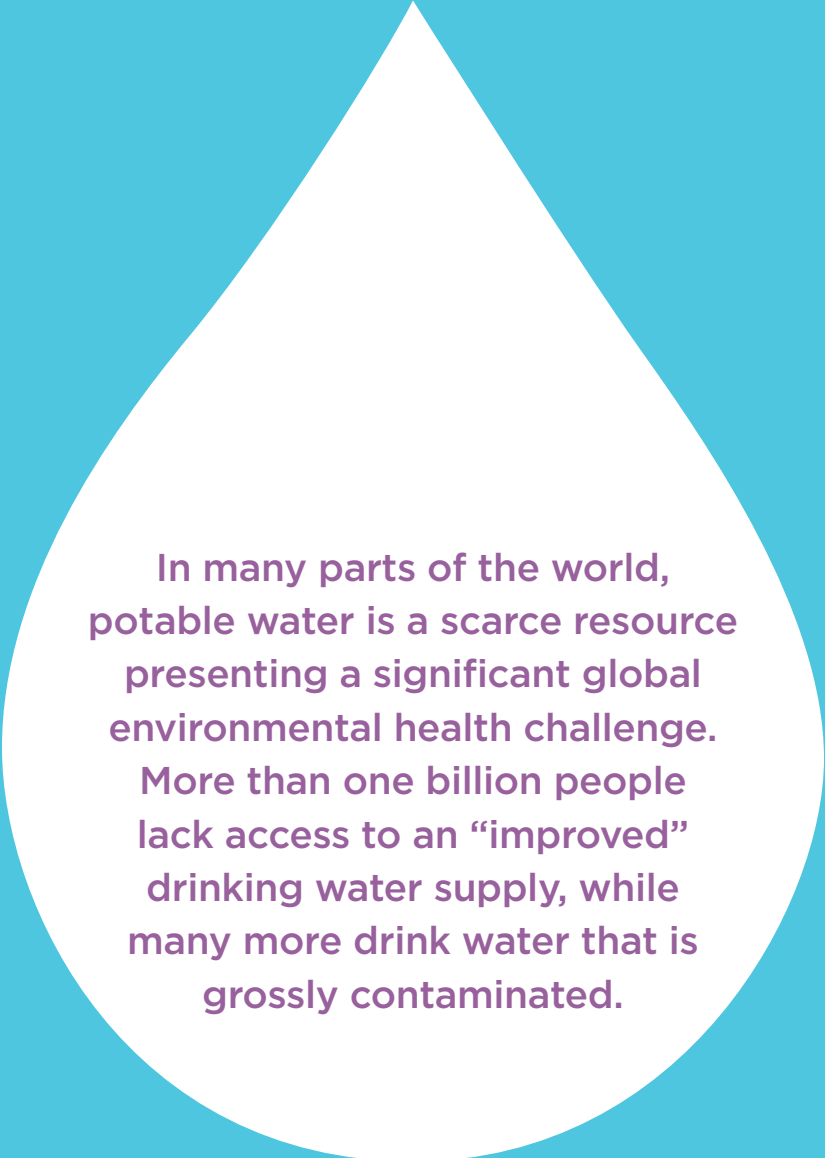
1 GJ of automotive gasoline (petrol) = 66.7 kg CO<sub>2</sub>e

1 GJ of automotive diesel oil (diesel) = 69.2 kg CO<sub>2</sub>e

1 GJ of automotive LPG = 60.8 kg CO<sub>2</sub>e

1 GJ of ethanol for use as a fuel in an internal combustion engine = 0.26 kg CO<sub>2</sub>e

## WATER



**In many parts of the world, potable water is a scarce resource presenting a significant global environmental health challenge. More than one billion people lack access to an “improved” drinking water supply, while many more drink water that is grossly contaminated.**

Patient activity has remained stable in relation to separations and bed days. It is anticipated that over time infrastructure such as energy efficient tapware will demonstrate better efficiencies overall.

Significant water saving projects includes: the reuse of water from water intensive operations such as dialysis treatment at the Sunshine Hospital; and retrofitting tapware with aerators and energy efficient showerheads to improve water conservation.

Rainwater collection also supplements supply of non-potable water to toilet flushing at the Sunshine site.

Other initiatives over time have included reuse of water from chillers; a switch from film-based radiological imaging equipment, which uses large quantities of water, to digital imaging, which uses no water and no polluting radiological chemicals. Landscaping of grounds now use drought-resistant plants to minimize water use.

**Figure 2.3** Water consumption data

Total water used (kilolitres)	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Potable water	186,133	174,663	181,351	189,186	221,206	236,300
Re-used/recycled water	0	0	4,298	4,603	4,764	5,000
Total	186,133	174,663	185,829	193,789	225,970	241,300
Normalised water consumption	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Water used (kilolitres) per metre squared	1.90	1.78	1.85	1.87	1.94	1.87
Water used (kilolitres) per bed day	0.57	0.54	0.57	0.56	0.62	0.74
Water used (kilolitres) per separation	2.11	1.71	1.81	1.73	1.95	2.32
Water re-use and cycling	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Re-use / recycling rate (%)	0	0	2.31	2.38	2.11	2.07

**Notes:**

Data includes mains (potable) water, rainwater and reclaimed reverse osmosis water. It does not include reclaimed process water. Data is sourced from water retailers / suppliers, water meters on potable water reticulation system and water meters on non-potable water reticulation system.

Data is sourced from water retailers / suppliers and water meters on reverse osmosis / rainwater collection tanks.

- kL = kiloliter
- % = percentage
- 1 kilolitre = 1,000 litres
- 1 megalitre = 1,000 kilolitres

## WASTE



Inroads into waste minimisation have come mainly through waste recycling activities. In 2011 Western Health conducted an organisational WH Waste Balance Study that has informed waste priority areas for action, and led to the following major recycling program rollouts. The Pharmacy Department incorporated a 'back of house'

returnable tote boxes system instead of cardboard boxes, whilst Radiology revised the Angiogram Pack to only include items that are essential to every case.

Western Health is the first health service to achieve Silver Certification in the Waste Wise Program of Waste Management Group (mwmg) (November 2012).

**Figure 24** Waste generation data

Total waste generation by type (tonnes)	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Clinical waste (CW)						
- Bagged (tonnes)	190	253	205	212	241	257
- Sharps (tonnes)	21	23	23	25	27	21
General waste (tonnes)	1,795	1,301	1,177	1,155	1,250	1,313
Recycling (tonnes)	8	100	176	216	293	367
Total (tonnes)	2,013	1,677	1,581	1,607	1,811	1,958
<b>Normalised water consumption</b>						
Waste per overnight bed day (OBD) (kilograms)	6.81	6.04	5.59	5.28	5.67	6.88
Waste per patient treated (kilograms)	3.52	2.93	2.72	2.57	2.79	3.17
<b>Waste recycling</b>						
Waste recycling rate percentage (%)	0.43%	7.68%	14.94%	18.68%	22.55%	26.58%

**Notes:**

Clinical waste includes bagged clinical waste; sharps waste, cytotoxic, anatomical, pharmaceutical and radioactive wastes from operations.

Landfill includes all bagged general waste and 'hard waste', for example furniture discarded via a skip.

Waste recycling rate does not include clinical waste, as it is not able to be recycled. This recycling rate is more correctly termed 'diversion from landfill to recycling'.

Recycling includes materials diverted from landfill including paper, confidential paper, cardboard, PVC, mixed plastics, printer/toner cartridges, sterile wrap, batteries, mobile phones, metals, fluorescent tubes. It does not include hard waste for example furniture.

Data is sourced from waste contractors and recycling contractors and converted by waste type to kilograms using the Victorian public healthcare waste reporting tool available at [www.health.vic.gov.au/sustainability](http://www.health.vic.gov.au/sustainability)

Per patient treated is the number of in-patient bed days for the reporting period reported through the Victorian Admitted Episodes Dataset (VAED) The number of public sector residential aged care bed days for the reporting period reported to the Aged Care Branch, Department of Health

The number of emergency presentations over the reporting period reported through the Victorian Emergency Minimum Dataset (VEMD) The number of out-patients for the reporting period reported through Agency Information Management System (AIMS)

kg = kilograms

### 3. PROGRESS AGAINST ENVIRONMENTAL IMPACT REDUCTION TARGETS

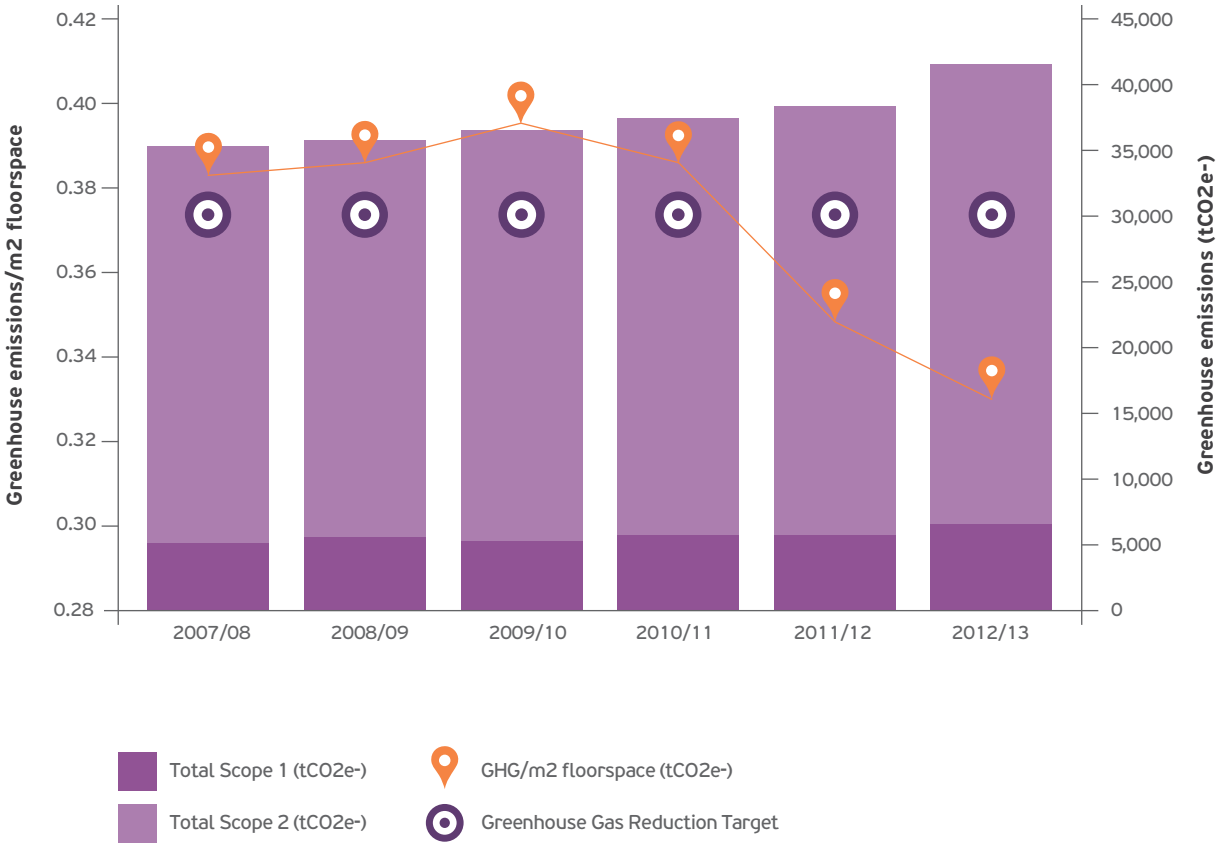
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#### In November 2011 Western Health committed to:

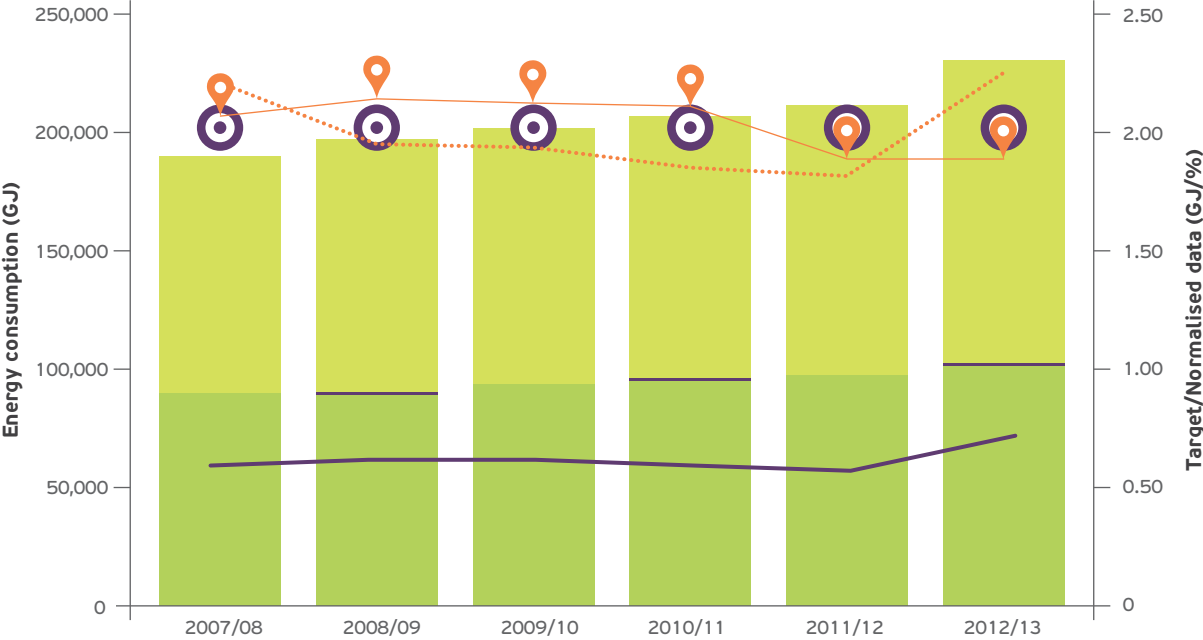
- Reduce greenhouse gases per meter square of floor space by **2.5%** compared to 2007/08 baseline by July 2013.
- Reduce energy consumption per meter square of floor space by **2.5%** compared to 2007/08 baseline by July 2013.
- Reduce water consumption per meter square of floor space by **8%** compared to 2007/08 baseline by July 2013.
- Reduce energy consumption per meter square of floor space by **2.5%** compared to 2007/08 baseline by July 2013.

The following graphs illustrate Western Health's major environmental impacts and progress on targets set.

# Greenhouse Gas Production



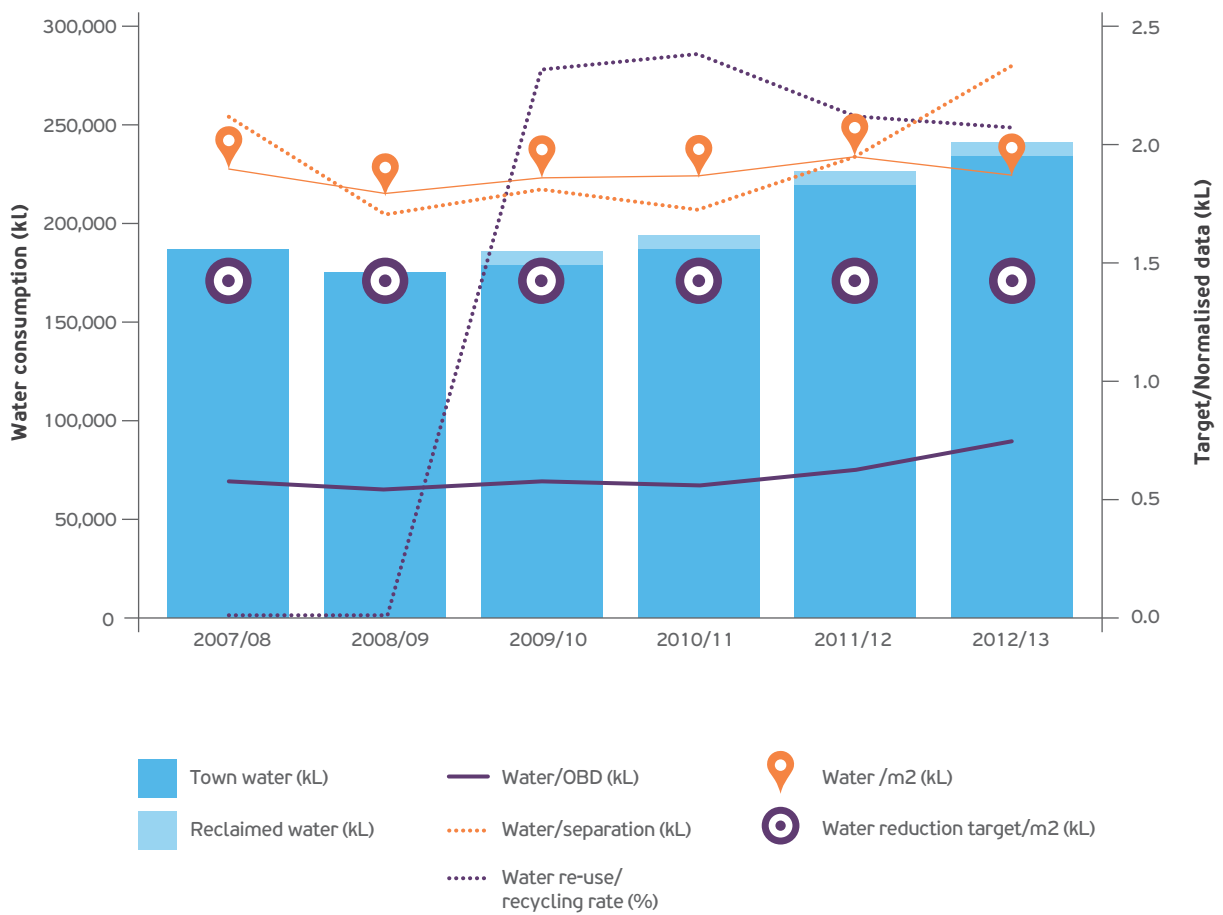
# Energy Consumption



- Total Electricity Consumption (GJ)
- Total Gas Consumption (GJ)
- Diesel Fuel (GJ)
- Energy/OBD (GJ)
- Energy/separation (GJ)
- Energy/m2 floor space (GJ)
- Energy Reduction target/m2 (%)



## Water Consumption



# Waste Generation







# Western Health

## **WESTERN HOSPITAL**

Gordon Street  
Footscray VIC 3011  
Locked Bag 2, Footscray VIC 3011  
8345 6666

## **SUNSHINE HOSPITAL**

Furlong Road  
St Albans VIC 3021  
PO Box 294, St Albans VIC 3021  
8345 1333

## **SUNSHINE HOSPITAL RADIATION THERAPY CENTRE**

176 Furlong Road  
St Albans VIC 3021  
8395 9999

## **WESTERN CENTRE FOR HEALTH RESEARCH AND EDUCATION**

Sunshine Hospital  
Furlong Road  
St Albans VIC 3021  
8345 1333

## **SUNBURY DAY HOSPITAL**

7 Macedon Road  
Sunbury VIC 3429  
9732 8600

## **WILLIAMSTOWN HOSPITAL**

Railway Crescent  
Williamstown VIC 3016  
9393 0100

## **DRUG HEALTH SERVICES**

3-7 Eleanor Street  
Footscray VIC 3011  
8345 6682

## **HAZELDEAN TRANSITION CARE**

211-215 Osborne Street  
Williamstown VIC 3016  
9397 3167

## **REG GEARY HOUSE**

54 Pinnacle Crescent  
Melton South VIC 3338  
9747 0533