

2013-14

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

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# Chief Executive Officer's Message

The priority of our team at Western Health will always be the delivery of exceptional care to patients.

The Western Health Environmental Management Strategy (EMS) 2013-2015 has been developed to complement the Strategic Plan and support the strategic priority statement: "Self-sufficiency and Sustainability". It ensures continual improvement in environmental performance whilst maintaining our compliance obligations. Western Health Environment Policy reinforces this by promoting environmentally sustainable work place practices and operations.

It is apparent to me that Western Health's action in this area translates to broader benefits, which are harder to measure, like positive staff culture change through 'greening' behaviours. Western Health's journey towards improved sustainability has steadily gained momentum over recent years, taking staff with it, particularly in the area of waste as they engage in myriad recycling programs available to them. Our environmental research program provides opportunity for staff interested in this developing field of enquiry to demonstrate leadership and promote change towards more sustainable healthcare practices.

THE INSTALLATION OF A 'COOL ROOF'  
AT HAZELDEAN TRANSITIONAL CARE  
FACILITY MAY REDUCE ENERGY  
CONSUMPTION BY UP TO

# 20%

OVER THE SUMMER MONTHS

At Western Health staff are encouraged to 'be the change they want to see'. This year has seen the formation of a Bicycle User Group (BUG) initiated by enthusiastic staff and supported by provision of better end of trip facilities. Such initiatives exemplify action on climate change that are also good for wellbeing, fitness and health. Western Health is focussed on promoting choices, such as walking instead of driving, fresh food instead of processed, conserving water and switching off lights, in order to benefit health and the natural environment in our workplace and broader community.

The installation of a 'Cool Roof' at Hazeldean Transitional Care Facility is an example of how Western Health is working with external stakeholders (University of Melbourne and Dulux Paints) to explore innovations that may help to reduce environmental impacts. In this research study we hypothesise that deflecting the sun's rays off the roof will reduce internal heat load and cooling requirements. Modelling shows that energy consumption may be reduced by up to 20% over summer months.

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

# 1. Introduction

In its chapter on human health, the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report, “Impacts, adaptation and vulnerability” (March 2014), acknowledges many previously anticipated health impacts are now materialising.

The directly harmful paths are familiar: deaths and hospitalisations from heatwaves; dehydration and injuries in overheated workplaces; traumatic impacts of severe floods, storms and fires; and exacerbation of urban air pollution.

The entire Western Health team is implicated in reducing environmental impacts and endeavour to do so via rollout of actions in the *WH Environmental Management Strategy 2013-15*. Western Health prides itself on the strong engagement of particular clinicians undertaking environmental research as part of their professional life, which subsequently informs broader dialogues on how to best minimise the numerous environmental impacts of healthcare. Management actively participate in planning activities to improve efficiency and ‘green’ their sphere of influence. ‘Green champions’ voluntarily demonstrate stewardship over the recycling programs in their area to maintain compliance and educate new staff and peers to make a difference.

## ‘GREEN CHAMPIONS’

VOLUNTARILY DEMONSTRATE STEWARDSHIP OVER THE RECYCLING PROGRAMS IN THEIR AREA

# 2. Activity and Expansion

## Activity

Changes to patient activity are reflected in Figures 1 through 3 (beside); *Occupied Bed Days*, *Patients Treated* and *Separations*. Recent changes to Department of Health's Victorian Hospital Admission Policy (since July 1st 2013) affect the way direct admissions are classified via ED, which may in turn affect the distribution of data, however together these indicators form a picture of increased activity overall in the health service.

Other factors affecting the environmental data presented include:

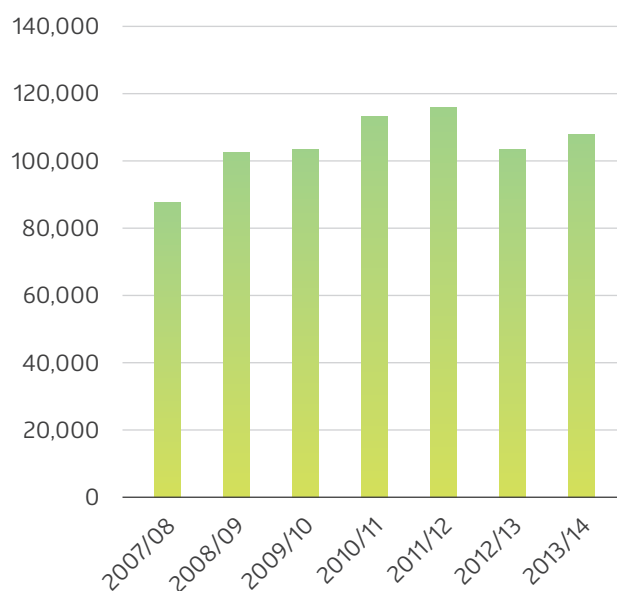
- A strong research focus has developed with the addition of Western Centre for Health Research and Education (WCHRE). The addition of 9,400m<sup>2</sup> non-clinical space and 100+ non-clinical staff masks overall energy efficiency in the activity data
- In 2013/14 11,549m<sup>2</sup> was added in the Acute Services Building (ASB). In the absence of extra funded beds, it has been used to decant wards into, diluting the energy efficiency outcomes when quantified by activity.

Total patient activity increased despite capital works (115,000 more patients or 16% from the previous year) suggesting the efficient use of existing beds and building spaces has achieved benchmark productivity of the health service.

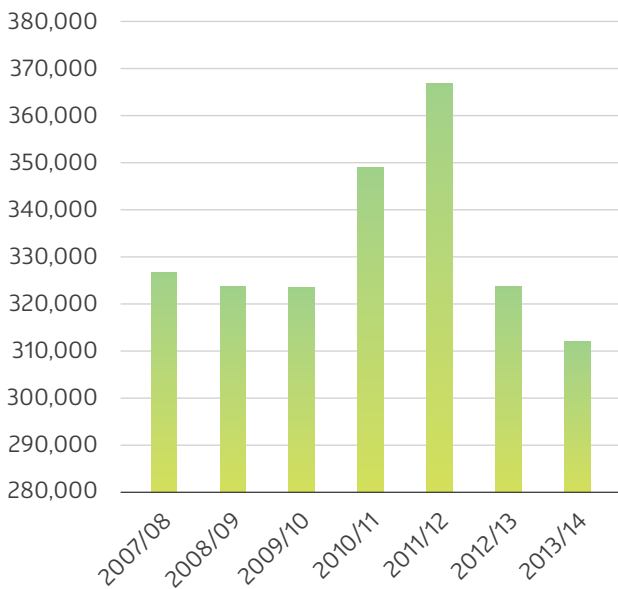
Capital works include:

- Addition of two new operating theatres at Williamstown Hospital and subsequent surgical ward closures
- Commencement of the Critical Care and Maternity Services capital development project
- Transition of Hazeldean Nursing Home to Hazeldean Transitional Care Facility and its subsequent change in patient type

**FIGURE 1: SEPARATIONS AS REPORTED FOR THE 2013/14 FINANCIAL YEAR**



**FIGURE 2: OCCUPIED BED DAYS REPORTED FOR THE 2013/14 FINANCIAL YEAR**



**FIGURE 3: PATIENTS TREATED FOR THE 2013/14 FINANCIAL YEAR**



**115,000**

MORE PATIENTS OR

**16%**

FROM THE PREVIOUS YEAR

## Expansion

Western Health completed Stage 3 of its five-year capital expansion program in November 2012. This saw the addition of more efficient buildings and increased flexibility of beds. Figures 4 and 5 show the area added to the building footprint together with the improvement in the efficiency of the building portfolio over time.

### FIGURE 4: RECENT ADDITIONS TO BUILDING FOOTPRINT

Recently Western Health's building footprint has been adjusted to agree with 2012 Master Plan building measures. This data will also be correlated to Department of Health's environmental data management system (EDMS) as it goes live this year.

Capital Works Projects Schedule	2009	2010	2011	2012	2013	2014
Add Sunbury Day Procedure Centre	3,155					
SH - Add Building N (Portables)		329				
SH - Add Building O (WCHER)			9,400			
SH - Add Building P (Radiotherapy)				3,141		
SH - Add Building Q (Acute Services Building)					11,549	
WT - Add two Operating Theatres					250	
WHF - Remodel ED tearoom, MRI Extension, Nuclear Med						17
SH - Add Dialysis Building, Remodel internals						638
SH - Nuclear Medicine, Audiology, Gym / Rehab extension						0



# 3. Environmental impacts

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

- Greenhouse gas emissions (Scope 1 & Scope 2)
- Energy use
- Water use, and
- Waste generation

The reporting boundary used for greenhouse, energy, water and waste impacts in this report is those operations and services where Western Health pays energy and fuel bills (all sites). This includes all Western Health services and extra utilities from services shared with Melbourne Health (NorthWest Mental Health and Westside Lodge), in line with Western Health's National Greenhouse and Energy Reporting (NGER).

# Greenhouse Gas Emissions

It is all too easy to think that the risks associated with global warming exist 'out there'. Western Health is undertaking actions to reduce its greenhouse footprint, such as attuning facilities and improving the energy efficiency in new capital works.

During 2013/14 Western Health installed extensive metering and monitoring capacity (electricity, gas and water) to its Sunshine Hospital to better understand specific impacts and guide actions to reduce emissions. Metering will offer valuable information to assess impacts as the energy intensive Critical Care Services are introduced this year. Western Health's challenge will be to continue to operate within the 10% reduction target (compared to 2007/08 baseline) it has achieved this year.

Emergency planning necessarily encompasses (more likely and more frequent) intense weather patterns and Western Health continues to develop appropriate actions based on community needs for issues such as fire, flood and heatwave. Collaborative dialogues guide direct ways in which Western Health can adapt to climate change and minimise its impacts on its community.

WESTERN HEALTH'S CHALLENGE WILL BE TO CONTINUE TO OPERATE WITHIN THE

# 10%

REDUCTION TARGET (COMPARED TO 2007/08 BASELINE) IT HAS ACHIEVED THIS YEAR.

BROWN COAL FUELS

# 92%

OF THE ELECTRICITY GENERATED IN VICTORIA, MAKING IT A HUGE CONTRIBUTOR TO OUR TOTAL GREENHOUSE GAS EMISSIONS.

Local co-benefits from undertaking actions to reduce greenhouse gas emissions include the gain in physical health from cleaner urban-industrial air, better public transport and reduced car reliance; reduced exposure to temperature extremes in energy-efficient housing; and healthier diets due to transformative changes in producing and processing food.

Brown coal fuels 92% of the electricity generated in Victoria, making it a huge contributor to our total greenhouse gas emissions. It creates more pollution than other fuels such as black coal, natural gas and much more than clean renewable energy, making Victorians among the most greenhouse polluting people per capita on the planet.

**FIGURE 5: SCOPE 1 & 2 GREENHOUSE GAS EMISSIONS FROM ENERGY CONSUMPTION**

Total greenhouse gas emissions (tonnes CO <sub>2</sub> -e)	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Scope 1	5,426	5,714	5,478	5,851	5,861	6,650	5,972
Scope 2	29,822	29,844	30,864	31,568	32,307	35,000	34,896
Total	35,249	35,558	36,342	37,419	38,168	41,649	40,867
Normalised greenhouse gas emissions	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Emissions per unit of floor space (kgCO <sub>2</sub> e/m <sup>2</sup> )	0.38	0.38	0.39	0.39	0.34	0.34	0.34
Emissions per bed day (kgCO <sub>2</sub> e/activity)	0.11	0.11	0.11	0.11	0.10	0.12	0.13
Emissions per separation (kgCO <sub>2</sub> e-/activity)	0.40	0.34	0.35	0.33	0.32	0.39	0.37

**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 December 2014 available at <http://www.environment.gov.au/system/files/resources/b24f8db4-e55a-4deb-a0b3-32cf763a5dab/files/national-greenhouse-accounts-factors-dec-2014.pdf>

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

GHG = greenhouse gas

1 kWh of electricity purchased from the Victorian grid = 1.18 kg CO<sub>2</sub>e

1 GJ of natural gas = 51.2 kg CO<sub>2</sub>e

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

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

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

# Energy

During 2013/14 Western Health tracked a slight change in energy composition and a decrease in energy overall. Energy efficiency (energy /m<sup>2</sup> of floor space) is improved by approximately 11% overall, indicating better efficiency of buildings and plant.

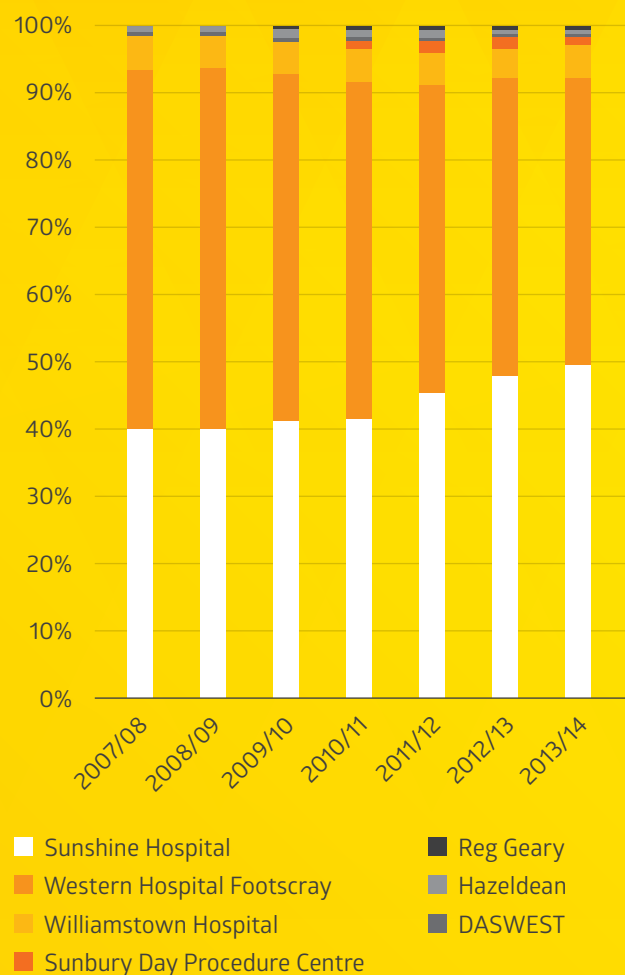
Sunshine Hospital demonstrates largest consumption as it continues to grow in activity, however energy use is consistent per occupied bed day (OBD).

Maintaining overall energy reduction per m<sup>2</sup> floor space will be challenging for Western Health as new energy intensive critical care facilities open in March 2015 at Sunshine Hospital.

Specific projects undertaken in this period by WH Engineering Department that will assist cementing enduring energy reductions include:

- Rollout of 3,000 LED replacement lamps in the North Block at Footscray Hospital
- Evacuation of MUMS Building at WHF and cessation of it's heating, cooling and ventilation (HVAC) services
- Installation of 'Cool Roof' Project at Hazeldean Transitional Care Facility.

FIGURE 6: ENERGY CONSUMPTION OF INDIVIDUAL SITES AS A PERCENTAGE OF WESTERN HEALTH



**FIGURE 7: ENERGY CONSUMPTION DATA**

Total energy by energy type (GJ)	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Electricity (GJ)	90,219	90,285	93,371	95,500	97,736	105,881	105,890
Renewable electricity (GJ)	Solar install 17/7/2009		40	36	41	56	58
Natural gas (GJ)	100,491	106,308	102,056	108,794	109,645	123,886	110,921
Other energy types (GJ)	-	193	19	608	8	317	129
Total (GJ)	190,710	196,786	195,486	204,938	207,430	230,139	216,997
Normalised energy consumption	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Energy per unit of floor space (GJ/m <sup>2</sup> )	2.07	2.14	2.11	2.14	1.89	1.92	1.82
Energy per bed day (GJ/activity)	0.58	0.61	0.60	0.59	0.56	0.71	0.70
Energy per separation (GJ/activity)	2.16	1.92	1.90	1.82	1.77	2.21	2.01

**Notes**

Data includes electricity, gas and onsite fuel consumption (diesel) only. Fleet is not included in this dataset.

GJ = gigajoules

ENERGY EFFICIENCY IS  
IMPROVED BY APPROXIMATELY

**11%** OVERALL

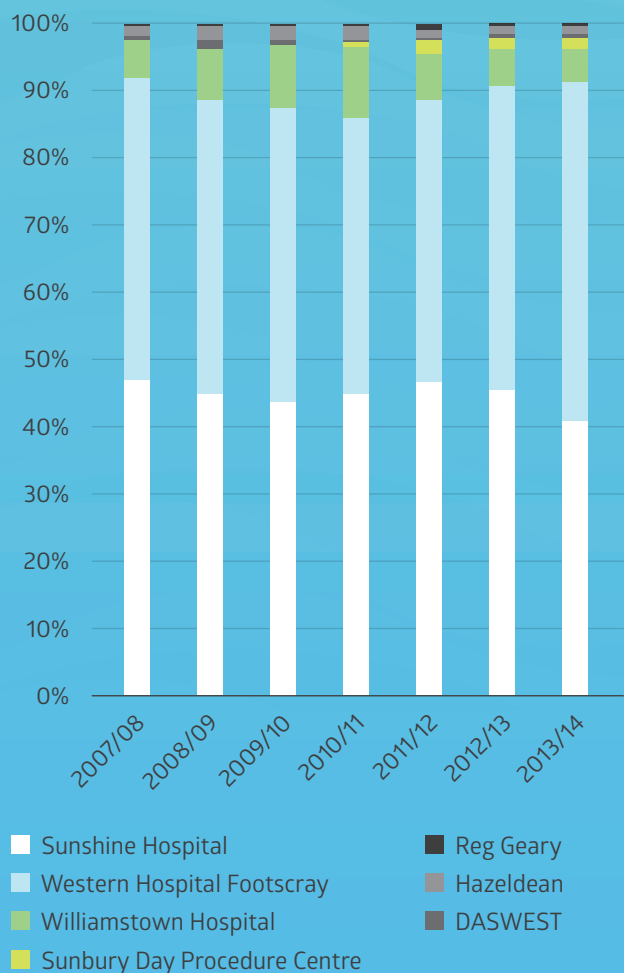
# Water

Australia faces special challenges in achieving sustainability. As the driest inhabited continent on earth, water resources are scarce and must be carefully managed. It ranks 40 out of 188 countries for water availability.

Water consumption has increased markedly over recent years with the addition of buildings and services. Dialysis is particularly water intensive and whilst Sunbury and Sunshine Hospital reuse some of its reject water for irrigation purposes, impact remains in the data. Water efficiency has remained constant in relation to floorspace, however fluctuations are apparent when quantified by activity. In 2011/12 overall water consumption increased 17% on the previous financial year, and a further increase of 7% in 2012/13 with loss of a large dialysis water reuse project. In 2013/14 this trend has modified with a large water reclamation / reuse project coming online with the Acute Services Building. This masks extra dialysis services added in the same period.

AUSTRALIA RANKS  
**40 OUT OF 188**  
 COUNTRIES FOR WATER AVAILABILITY

FIGURE 8: WATER CONSUMPTION OF INDIVIDUAL SITES AS A PERCENTAGE OF WESTERN HEALTH



Western Health maintains its 3% water reduction target (/m<sup>2</sup> floor space) by June 2015, and works towards increasing the reuse of water within operations. Harvesting of rooftop water for use on extensive gardens at all sites is improving the natural landscapes and amenity of grounds for patients.

In 2013/14, effort has been directed towards co-ordinating a Water Sustainability Plan for Sunshine Hospital and tracking water usage more accurately overall. Internal metering has been installed at Sunshine Hospital and will ensue at Footscray in 2014/15. Waste water from the Dialysis Unit (recently moved) has been redirected to feed the 'Baby Garden', a space dedicated to families grieving lost babies.

WESTERN HEALTH MAINTAINS ITS

**3%**

WATER REDUCTION TARGET  
(/M<sup>2</sup> FLOOR SPACE) BY JUNE 2015

**FIGURE 9: WATER CONSUMPTION**

Total water used (kilolitres)	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Potable water	186,133	174,663	181,531	189,186	221,206	236,300	247,757
Re-used/recycled water	0	0	4,298	4,603	4,814	5,250	5,406
Total	186,133	174,663	185,829	193,789	226,020	241,550	253,163
Normalised water consumption	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Water per unit of floor space (GJ/m <sup>2</sup> )	2.02	1.90	1.96	1.97	2.04	1.97	2.07
Water per bed day (GJ/activity)	0.57	0.54	0.57	0.56	0.62	0.75	0.81
Water per separation (GJ/activity)	2.11	1.71	1.81	1.73	1.95	2.32	2.43
Water re-use and recycling	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Water reuse / recycling rate (%)	-	-	2.31	2.38	2.13	2.17	2.18

# Waste

The rollout of the Green Office Program this year meant that staff of 6,500 is now able to recycle paper, cardboard, bottles, cans and hard plastics in their immediate area.

Staff embrace of the program has been quintessential to its success. Some recycling programs increase costs, while others save money, however the expansion of recycling opportunities have been cash neutral overall. This is satisfying as it enables comprehensive action to substantially lighten the waste impact of operations.

It is heartening to see generation of landfill reducing in the face of increased activity and a greater proportion recycled. 33% of waste is now being diverted from landfill to recycling. The extra 63 tonnes of recycling in this period is due to the positive impact of the Green Office (recycling) Program in November 2013, and adoption of comprehensive battery and metals recycling programs. Volumes continue to grow with staff buy in.

In June 2014, Western Health partnered with Donations In Kind, an international aid organisation under the auspice of Rotary International, to direct reusable equipment and furniture no longer required by Western Health to a third world need. The program is proving well utilised, particularly by Engineering (furniture) and Bioengineering (equipment).

In the 2013/14 period landfill generation has reduced overall in the face of increased activity however clinical waste generation continues to be stable (per patient treated) despite programs to improve awareness and education on this issue. The adoption of single use (SU) items remains an intractable challenge to waste minimisation in healthcare. Western Health remains committed to carefully considering adoption of new disposable equipment and bases decision-making on broader benefits (social, technological, environmental). Onsite environmental research that compares the overall benefit of reusable items with their disposable counterpart is ongoing.

FIGURE 9: WASTE GENERATION OF INDIVIDUAL SITES AS A PERCENTAGE OF WESTERN HEALTH





**FIGURE 10: WASTE GENERATION DATA**

Waste type	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Clinical waste (tonnes)	211	276	228	237	268	278	297
CW Bagged (tonnes)	190	253	205	212	241	257	270
CW Sharps (tonnes)	21	23	23	25	27	21	28
Landfill (tonnes)	1,795	1,301	1,177	1,155	1,297	1,380	1,309
Recycling (tonnes)	8	100	176	216	293	367	430
Total waste generation	2,014	1,677	1,581	1,608	1,858	2,025	2,036
Normalised data	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Waste /OBD (kg)	6.16	5.18	4.89	4.61	5.07	6.25	6.52
Waste /pt treated (kg)	3.52	2.93	2.72	2.57	2.86	3.27	2.78
Waste recycling rate (%)	0.4	7.9	14.9	18.7	22.6	26.6	33.8
Diversion from landfill Target by July 2015 (%)	35	35	35	35	35	35	35

**Notes**

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

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

*Waste recycling rate* is calculated as a percentage of General Waste as clinical waste is not able to be recycled. It could also be termed 'diversion from landfill'.

Recycling includes paper, confidential paper, cardboard, PVC, other plastics, printer/toner cartridges, sterile wrap, batteries, mobile phones, metals, fluorescent tubes and furniture.

Data is sourced from waste and recycling service providers and converted where necessary to weight using the Victorian public healthcare waste reporting tool available at <http://docs.health.vic.gov.au/docs/doc/Victorian-Public-Health-Services-Waste-Tool-Version-26-December-2013>

Normative waste data uses total waste volume (clinical waste, general waste and recycling combined)

Sanitary waste volumes are not included as this is charged as a service (bin volumes likely include excessive ghost waste and actual waste weight is unavailable) as bin contents are considered to be immaterial (<5%).

# 4. Progress against environmental impact reduction targets

In July 2013 Western Health committed to:

REDUCE GREENHOUSE GASES /  
M<sup>2</sup> OF FLOOR SPACE BY

**10%**

COMPARED TO 2007/08 BASELINE  
BY JULY 2015.

REDUCE WATER CONSUMPTION /  
M<sup>2</sup> OF FLOOR SPACE BY

**3%**

COMPARED TO 2007/08 BASELINE  
BY JULY 2015.

REDUCE ENERGY CONSUMPTION /  
M<sup>2</sup> OF FLOOR SPACE BY

**10%**

COMPARED TO 2007/08 BASELINE  
BY JULY 2015.

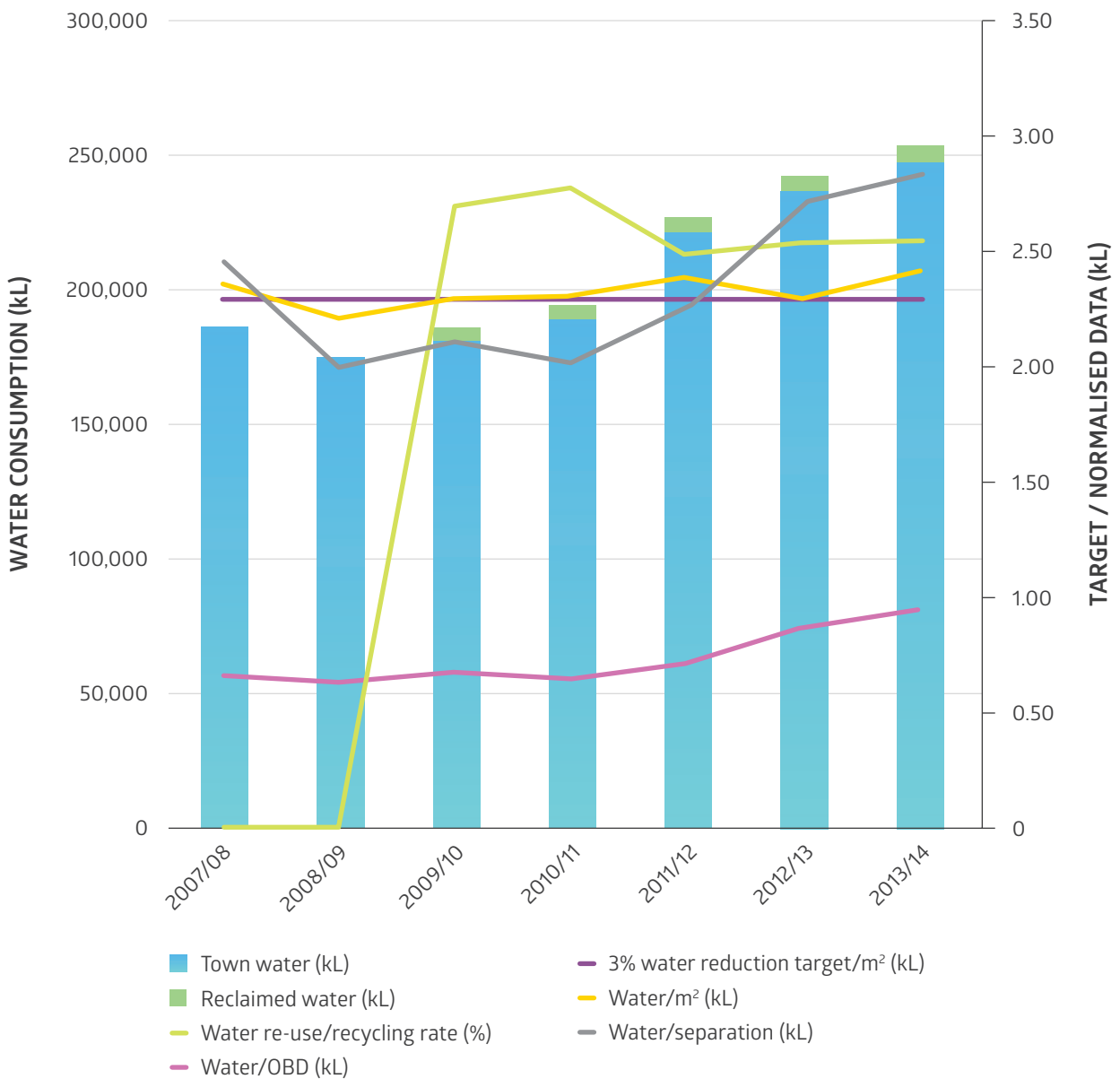
INCREASE DIVERSION OF WASTE  
FROM LANDFILL TO RECYCLING BY

**35%**

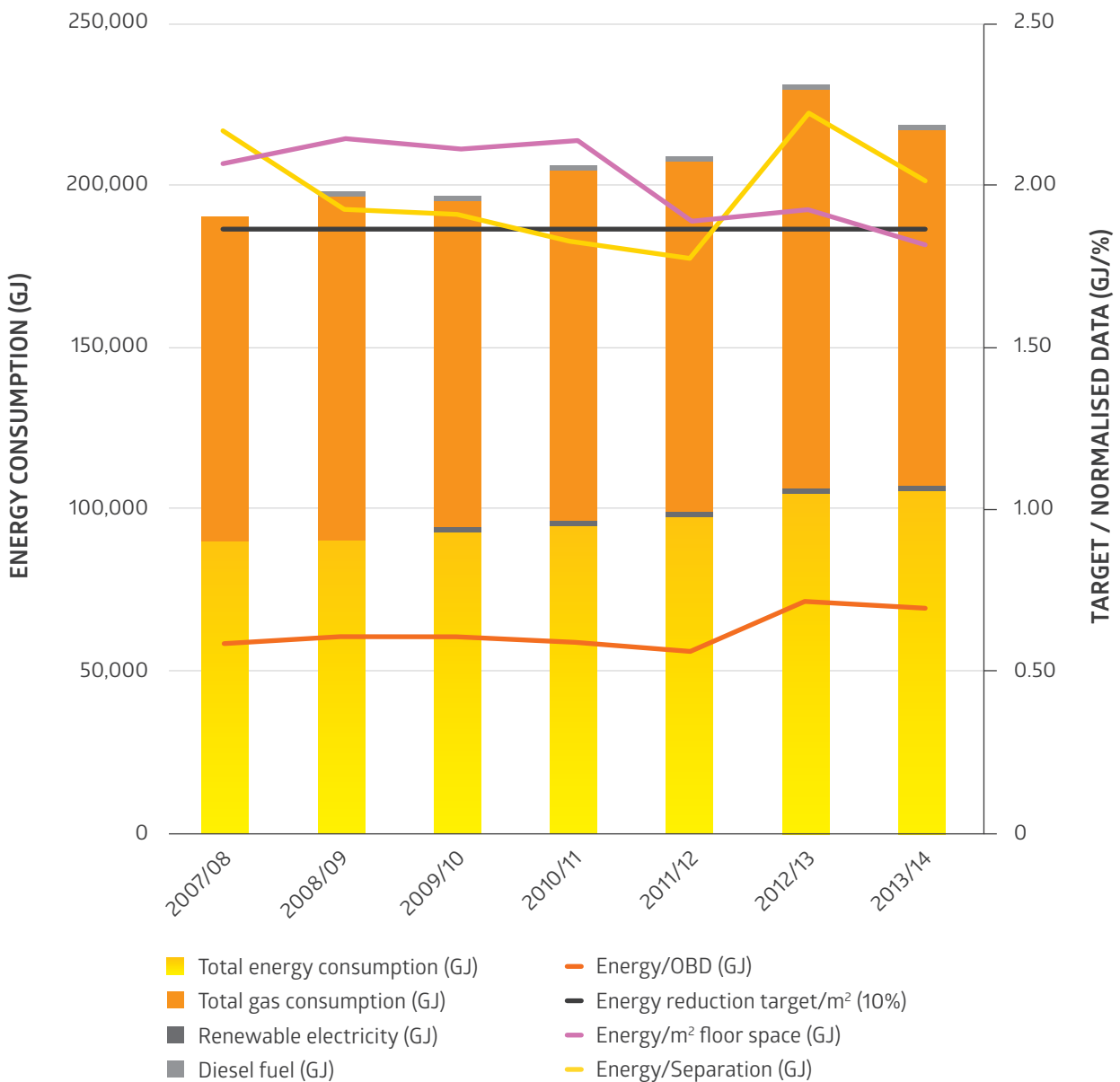
COMPARED TO 2007/08 BASELINE  
BY JULY 2015.

Progress towards these reduction targets is illustrated in the graphs below.

**FIGURE 11: PROGRESS ON WATER REDUCTION TARGET REDUCE WATER CONSUMPTION / M<sup>2</sup> OF FLOOR SPACE BY 3% COMPARED TO 2007/08 BASELINE BY JULY 2015.**



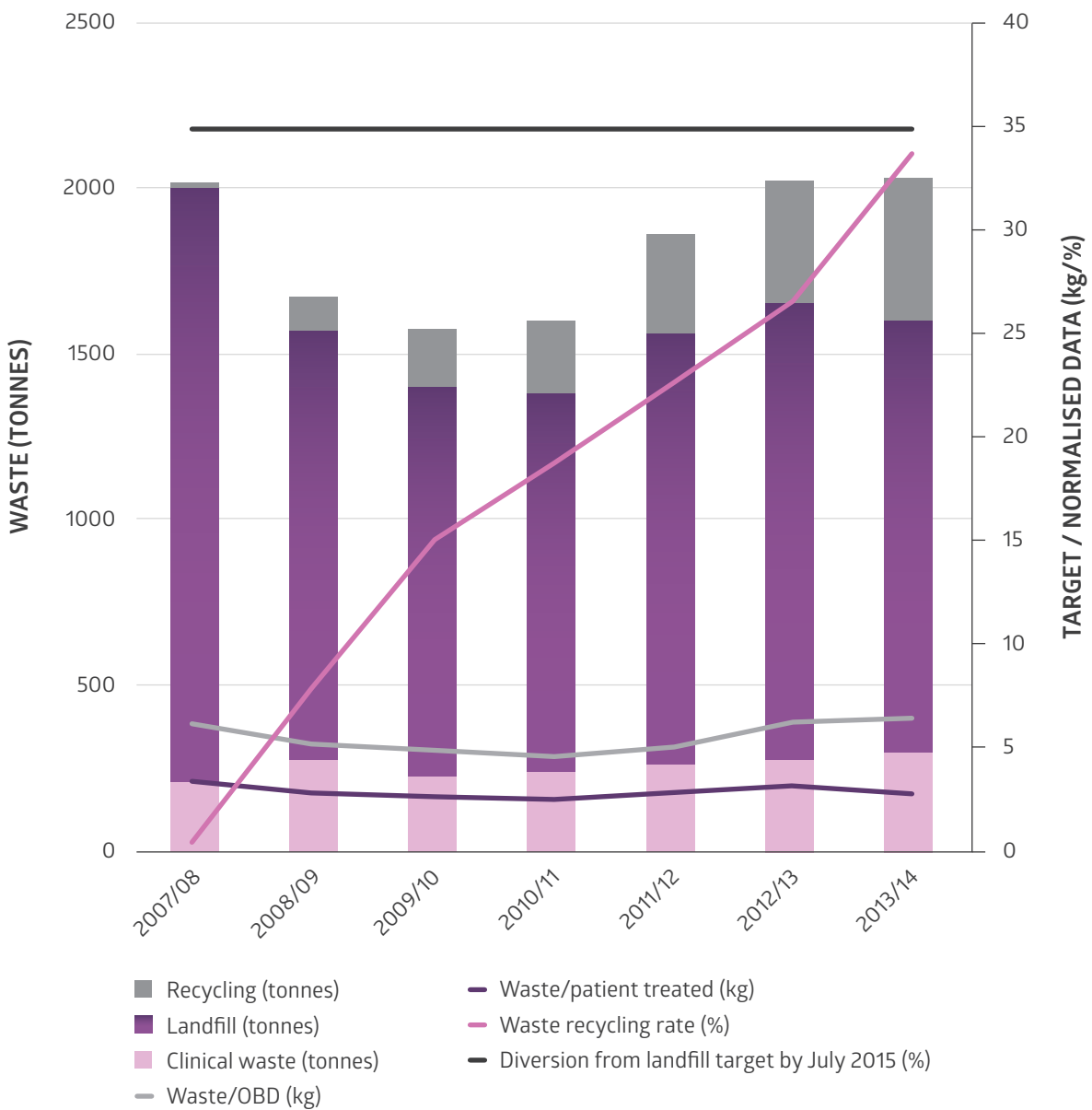
**FIGURE 12: PROGRESS ON ENERGY REDUCTION TARGET TO REDUCE ENERGY CONSUMPTION PER M<sup>2</sup> FLOOR SPACE BY 10% COMPARED TO 2007/08 BASELINE BY JULY 2015.**



**FIGURE 13: PROGRESS ON GREENHOUSE REDUCTION TARGET TO REDUCE GREENHOUSE GASES PER M<sup>2</sup> OF FLOOR SPACE BY 10% COMPARED TO 2007/08 BASELINE BY JULY 2015.**



**FIGURE 14: PROGRESS ON WASTE REDUCTION TARGET TO INCREASE DIVERSION OF WASTE FROM LANDFILL TO RECYCLING BY 35% COMPARED TO 2007/08 BASELINE BY JULY 2015.**





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RESEARCH AND EDUCATION**

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**WILLIAMSTOWN HOSPITAL**

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9393 0100

**DRUG HEALTH SERVICES**

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**HAZELDEAN TRANSITION CARE**

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[www.westernhealth.org.au](http://www.westernhealth.org.au)



Western Health