

EDUCATION DIRECTORATE

ABOUT THE DIRECTORATE

The Education Directorate delivers quality public school and early childhood education to shape every child's future and lay the foundation for lifelong development and learning. Our vision is that every student will learn, thrive and be equipped with the skills and attitudes to lead fulfilling, productive and responsible lives. We strive to ensure that every child and young person in the ACT benefits from high quality, accessible education and early childhood education and care.

The Directorate oversees the management and maintenance of 87 public schools at 91 sites, including 76 preschools and two Education Support Office (ESO) sites. Strategic priorities for carbon emission reduction are informed by the strategic pathway outlined in AP2: A new climate change strategy and action plan for the Australian Capital Territory and the Carbon Neutral ACT Government Framework. Our emission reduction program is focused on maximising the efficient and sustainable use of energy resources while enhancing the thermal comfort of student learning and teaching spaces. The Directorate pursues a strategic approach that targets school buildings as a system, implementing solutions that incorporate the building envelope, mechanical systems and control systems while also building capacity within schools to identify and solve site specific issues.

KEY PERFORMANCE INDICATORS

The Education Directorate's performance targets identify key areas for increased operational efficiency of buildings and reduction in the emissions from the Education Support Office fleet vehicles. The targets are set out below.

A carbon emission reduction target of 3% across the schools and the ESO, comprised of:

- > A reduction in gas consumption of 2% across the school portfolio and Education Support Office;
- > A reduction in electricity consumption of 3% across the school portfolio and 5% at the ESO site, Hedley Beare Centre for Teaching and Learning (HBCTL); and,
- > ESO fleet fuel reduction target of 3%.

In addition to integrating energy performance considerations into new school buildings, upgrades, repairs and maintenance, the Infrastructure and Capital Works branch of the Directorate implements a building tuning program that targets emission reduction through gas use efficiency. Schools selected for the program are identified by their gas use intensity (Megajoules gas/Gross Floor Area), with the highest intensity users targeted for energy efficiency investment. Each year focus schools are selected across each school type (early childhood school, primary school, primary to year 10, high school and college).

Energy use by Gross Floor Area (Megajoules/m²) is a key performance indicator of energy intensity and is used to track the performance of individual schools year on year and to compare energy use intensity between schools of the same type. For example, to compare high schools against their peers. The performance indicator assists in prioritising schools for further investigation regarding energy conservation measures and allows the impact of these measures to be tracked over time.

COMMENTS ON THIS QUARTER

- > The carbon emission reduction target of 3% across the school portfolio and Education Support Office (ESO) was achieved. While performance includes the decrease in the ACT specific electricity emissions, all energy consumption performance indicators were met or exceeded.
- > The quarter saw a modest reduction in electricity consumption across the school portfolio and ESO, -3.5% and -6% respectively.
- > A gas consumption reduction of 14.1% across the school portfolio and Education Support Office was achieved for Q4 2017-18 when compared to Q4 2016-17 after allowing for weather adjustments (analysis of heating degree days conducted by the Environment, Planning and Sustainable Development Directorate).
- > Reductions in energy consumption were achieved at sites targeted for emission reduction in addition to sites receiving major plant or infrastructure improvements in the period preceding the reporting year. Key initiatives contributing to the performance results include the following:
 - o roof upgrades at Mount Stromlo High School and Melrose High School saw average annual reductions of 8% in electricity and 22% in gas consumption.
 - o boiler upgrades achieved significant gas reductions in the fourth quarter (the systems were commissioned in April 2018). Farrer Primary School achieved a 31% reduction in Q4 2017-18 compared to Q4 2016-17 and Lyneham Primary School achieved a 40% reduction across the same period. Additional savings for these two sites will register in 2018-19.
 - o building management system at Erindale Education and Recreation College enabled a 33% reduction in electricity consumption and a 22% reduction in gas consumption.
 - o draught proofing and building thermal upgrades enabled a reduction in gas use of between 8% and 24%. Solutions applied included sealing gaps around doors, thermal window film, thermal window coverings and refinement of the location of temperature sensors. The reduced heating loss allowed building heating temperatures to be lowered resulting in further gas use efficiency at some school sites.

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COMMENTS

ACHIEVEMENTS

- > Improved solar performance, fine tuning of the building heating temperatures, glazing upgrades and progressive upgrades to lighting at the Hedley Beare Centre for Teaching and Learning (HBCTL) saw the site exceed target expectations.
- > Capacity building workshops for Building Service Officers proved highly successful with the four school sites that hosted the workshops achieving a larger than expected reduction in gas consumption. The workshops were conducted prior to the winter heating season and included practical demonstration of draught proofing solutions suitable to schools.

UNCERTAINTIES/CONSTRAINTS

- > One of the Directorate's two electric vehicles was replaced with a hybrid electric vehicle due to battery failure. An electric vehicle was not available at the time. This saw a significant increase in fleet fuel use for the quarter.

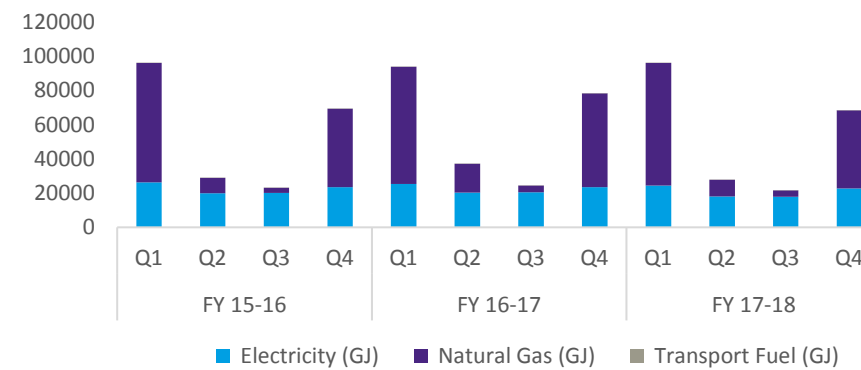
FOCUS AREAS/OPPORTUNITIES

- > Behavioural change relating to the closing of doors and windows during winter and the draught proofing of doors present opportunities for gas use reduction across most school sites.
- > Of the schools showing an increase in gas consumption in the quarter, the majority are primary schools. This may indicate that a dedicated focus on education and energy conservation measures tailored to these sites is required to reduce gas consumption.
- > Further electricity and gas savings are anticipated at HBCTL in 2018-19 as the internal LED lighting upgrade is completed and refinements to building thermal performance are realised.
- > Further electricity and gas use reductions are anticipated at Calwell High School as a building control system comes on line in 2018-19.

DATA EXTRACTED

12/09/2018 – 1.7% of gas consumption data is modelled data as the data for associated sites was not available at the time of reporting.

3 YEAR ENERGY CONSUMPTION PROFILE



FINANCIAL YEAR TO DATE ENERGY CONSUMPTION AT FOCUS SITES

Location	Energy (GJ) [#]	Difference [*]	tCO ₂ -e [^]
Hedley Beare Centre for Teaching and Learning	4,176	-17.52%	341
Erindale College/Theatre	11,232	-26.85%	886
Southern Cross Early Childhood School	1,111	-15.11%	82
Calwell High School	2,528	-16.59%	203

SCHOOLS QUARTERLY ENERGY CONSUMPTION

	Q4 17-18	Difference [*]	tCO ₂ -e [^]
Electricity (GJ)	22,051	-3.51%	2,787
Gas (GJ)	44,928	-16.54%	2,315
Total energy (GJ)	66,979	-12.63%	5,102

^{*} Compared to the same period previous year

[^] Related to current reporting period

SCHOOLS FINANCIAL YEAR TO DATE ENERGY CONSUMPTION

	YTD 17-18	Difference [*]	tCO ₂ -e [^]
Electricity (GJ)	80,328	-7.54%	10,153
Gas (GJ)	128,530	-9.07%	6,623
Total energy (GJ)	208,858	-8.39%	16,776

^{*} Compared to the same period previous year

[^] Related to current reporting period

DG INDICATOR

Q4 2017-18

(April to June 2018)

A carbon emission reduction target of 3% across the school and ESO comprised of: A reduction in gas consumption of 2% across the school portfolio and Education Support Office (ESO). A reduction in electricity consumption of 3% across the school portfolio and 5% at the Hedley Beare Centre for Teaching and Learning (HBCTL) and an ESO fleet fuel reduction target of 3%.

PERFORMANCE AGAINST TARGET

	Target ¹	Result
Electricity at schools	-3%	-7.23%
Electricity at HBCTL	-5%	-22.05%
Gas	-2%	-2.48%
ESO fleet fuel	-3%	-11.43%
Carbon Emission Reduction Target	-3%	-27.85%

¹ Target based on calendar year 2016 data and reflects Director-General performance indicator results

EDUCATION SUPPORT OFFICES QUARTERLY ENERGY CONSUMPTION

	Q4 17-18	Difference [*]	tCO ₂ -e [^]
Electricity (GJ)	663	-6.04%	84
Gas (GJ)	856	-22.55%	44
Fuel (GJ)	106	27.55	7
Total energy (GJ)	1,625	-15.12	135

^{*} Compared to the same period previous year

[^] Related to current reporting period

EDUCATION SUPPORT OFFICES FINANCIAL YEAR TO DATE ENERGY CONSUMPTION

	YTD 17-18	Difference [*]	tCO ₂ -e [^]
Electricity (GJ)	2,627	-6.50%	332
Gas (GJ)	2,615	-12.64%	135
Fuel (GJ)	386	-2.79%	27
Total energy (GJ)	5,628	-12.48%	494

^{*} Compared to the same period previous year

[^] Related to current reporting period