



# Exemplary Advances

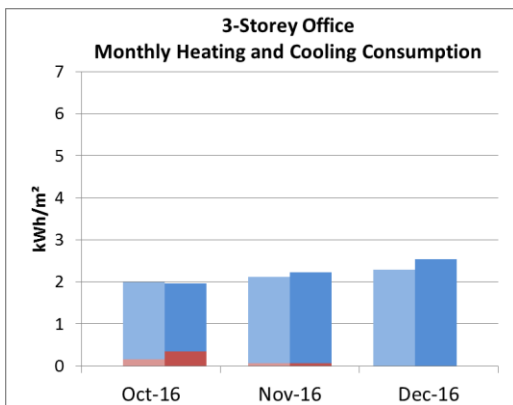
2017 January "Exemplary Advances" is the newsletter for Exemplary Energy Partners, Canberra. Feel free to forward it to friends and colleagues. Click here to [subscribe](#) or [unsubscribe](#). Feedback is most welcome. Past editions of "Exemplary Advances" are available on our [website](#).

## Exemplary Weather and Energy (EWE) Index<sup>i</sup> - December 2016

Monthly tabulation and commentary relative to the climatic norm – the Reference Meteorological Years

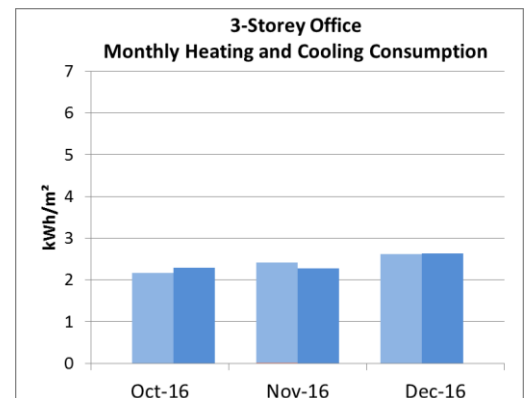
2016 December	Canberra		Perth		Sydney	
	Heat	Cool	Heat	Cool	Heat	Cool
10-Storey	N.A.	9%	N.A.	-16%	N.A.	-0.1%
3-Storey	N.A.	11%	N.A.	-19%	N.A.	0.7%
Supermarket	N.A.	49%	N.A.	-28%	N.A.	11%
Solar PV	-3.1%		13.4%		-6.3%	

**Canberra** had warmer than average weather in December. The mean maximum, minimum and average temperatures were higher by 1.7°C, 0.8°C and 2.1°C respectively. All the commercial building models had higher than average cooling consumptions. The 10-storey office South facing zones had 19.5% more cooling than the norm due primarily to the higher air temperatures. The cooling consumption in the North, East and West facing zones were also more than the average by over 12% to 18%. The supermarket cooling consumption was almost 50% more due to the warmer than average air temperature during the evening. It was cloudier than the average, which degraded the solar panel output and hence the energy yield was 3.1% lower.



**Perth** had cooler and sunnier than average weather in December. Although the mean minimum temperature was higher by 0.2°C, the mean maximum and average were lower by 0.5°C and 2.0°C respectively. The 10-storey office North and West facing zones had cooling consumptions less than the average due to the cooler weather, by over 20%. The South facing zone also had around 25.6% less cooling consumption. The PV panel efficiency benefited from cooler daytime temperatures and therefore the energy yield was 13.4% higher.

**Sydney** had slightly cooler than average weather in December. The mean maximum was lower by 0.1°C, and, mean minimum and average temperatures were both lower by 0.3°C. The cooling consumptions of our 10-storey and 3-storey office building models were about the same as the average. Only the supermarket had 11.0% more cooling consumption than the average. It was cloudier than the average as well. The solar panel output has reduced and hence the energy yield was 6.3% lower.

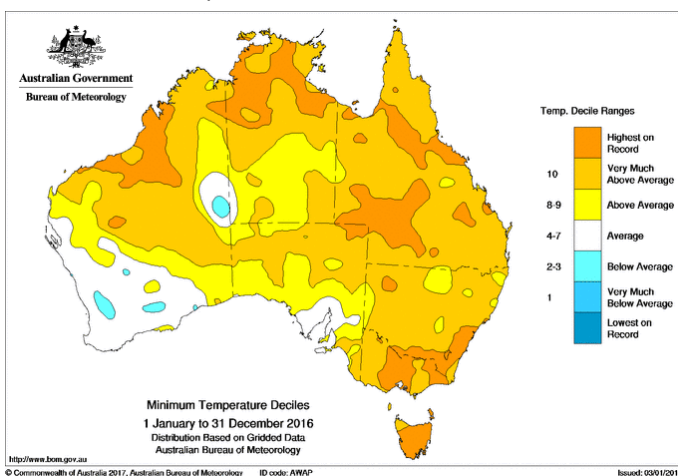


# Australia's fourth-warmest year on record – Met Bureau

Australia's Bureau of Meteorology published its annual climate [statement](#) for 2016, including the following key points:



- Australia's fourth-warmest year on record, with the annual national mean temperature 0.87 °C above average (the national observational dataset commences in 1910 when the now-world-standard [Stephenson screen](#) louvered white boxes to shade the thermometers were installed).
- Ocean temperatures the warmest on record for the Australian region, with an annual mean sea surface temperature 0.73 °C above average
- March and autumn as a whole were the warmest on record for Australian mean temperature
- Amongst the ten warmest years on record for Queensland, New South Wales, Victoria, Tasmania and the Northern Territory
- Darwin and Sydney had their warmest years on record for both maximum and minimum temperature, whilst Hobart had its warmest nights on record and warmest annual mean temperature, and for Brisbane the annual mean temperature was warmest on record.



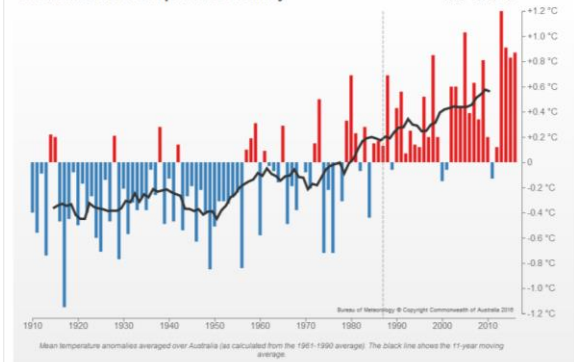
- Rainfall was above average for most of Australia, but below average for areas of the northern coasts between the Gascoyne in Western Australia and Townsville in Queensland, and pockets of coastal southeast Queensland and northeastern New South Wales

- Nationally-averaged rainfall was 17% above average for the year, at 544.99 mm (1961–1990 average 465.2 mm)
- A strong [El Niño](#) influenced Australia's climate at the beginning of the year, before breaking down during autumn
- A strong negative Indian Ocean Dipole influenced Australia's climate from May to November
- The central tropical Pacific approached [La Niña](#) thresholds during spring, but a La Niña did not develop

## Another warm year, with a record-warm autumn

Warmth was persistent over Australia throughout 2016, with national average maximum temperatures cooler than average for only September and October, and minimum temperatures cooler than average for only October. Mean temperatures for each month from February to July were amongst the nine warmest on record for their respective months, with mean temperature anomalies ranging from +0.92 °C to +2.60 °C.

## Australian mean temperature anomaly



Annual mean temperatures were in the highest 10% of historical observations for much of northern Australia, an area of coastal southern New South Wales, and much of Tasmania, and above average for most of the rest of Australia. Mean temperatures were only cooler than average for an area of southwestern Western Australia. It was the warmest year on record for Tasmania, equal second-warmest for Queensland, fourth-warmest for the Northern Territory, fifth-warmest for Victoria and sixth-warmest for New South Wales.

## Mandatory Home Energy Rating in the ACT for 213 Months

Mandatory [rating](#) and disclosure of the energy efficiency of existing homes at the time of sale has been [law](#) in the ACT since April 1999 and we have tracked the \$/star value correlation since then. Recently, we have disaggregated the data by housing type and will be publishing those results soon.

## Home Energy Rating OptiMizer – HERO - available for free trial

The service is now available for AccuRate and BERS Pro files with a version to handle FirstRate5 files under advanced development. [Contact us](#) for your free trial.

<sup>i</sup> Exemplary publishes the [EWE](#) for three archetypal buildings and a residential solar PV system each month; applying the RTYs to [EnergyPlus](#) models developed using [DesignBuilder](#) for a 10-storey office, a 3-storey office and a single level supermarket as well as an [SAM](#) model of a typical 3 kW<sub>peak</sub> solar PV system designed by [GSES](#). All values are % increase/decrease of energy demand/output relative to climatically typical weather. Especially during the mild seasons, large % changes can occur from small absolute differences.