



# Exemplary Advances

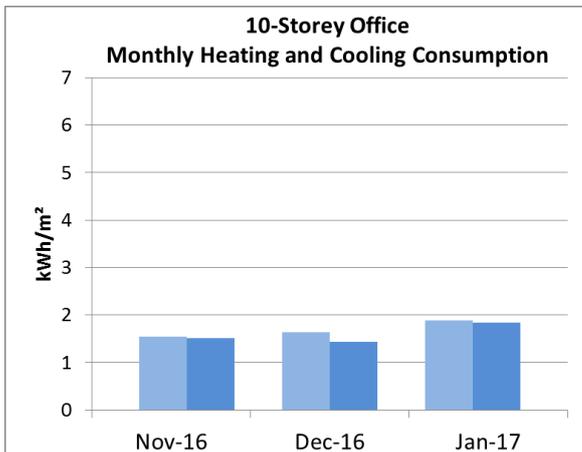
2017 February “*Exemplary Advances*” is the newsletter for Exemplary Energy Partners, Canberra. Feel free to forward it to friends and colleagues. Click here to [subscribe](#) or [unsubscribe](#). Feedback is most welcome. Past editions of “*Exemplary Advances*” are available on our [website](#).

## Exemplary Weather and Energy (EWE) Index<sup>i</sup> - January 2017

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

2017 January	Canberra		Perth		Sydney	
	Heat	Cool	Heat	Cool	Heat	Cool
10-Storey	N.A.	18%	N.A.	-9%	N.A.	-2%
3-Storey	N.A.	20%	N.A.	-11%	N.A.	-1%
Supermarket	N.A.	32%	N.A.	-19%	N.A.	10%
Solar PV	1.9%		0.6%		-13.1%	

**Canberra** had warmer than average weather in January. The mean maximum, minimum and average temperatures were higher by 0.2°C, 1.9°C and 2.3°C respectively. All the commercial building models had higher than average cooling consumptions. The 10-storey office South facing zones had 26.5% 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 more than 16% to 25%. It was also sunnier than the average, contributing to the higher cooling energy consumptions and also the solar PV energy yield was 1.9% higher than normal, despite the lower efficiencies at higher temperatures.



**Perth** had cooler and cloudier than average weather in January. Although the mean maximum temperature was higher by 1.7°C, the mean minimum and average were lower by 0.5°C and 1.2°C respectively. The 10-storey office North and West facing zones had cooling consumptions less than the average by around 11% to 13% due to the cooler and cloudier weather. South facing zones also had around 14% less cooling consumption. Although it was cloudier, the PV panel efficiency benefited from the cooler air temperature. Therefore, the energy yield was slightly higher by 0.6%.

**Sydney** had slightly cooler than average weather in January. The mean maximum was higher by less than 0.1°C and the mean minimum was 0.5°C higher, the mean average was lower by 0.4°C. It was substantially cloudier than the average. The solar panel efficiency was on par due to average maximum temperatures but the energy yield was 13.1% lower. The cooling consumptions of our 10-storey and 3-storey office building models were about the same as the average. Only the supermarket had 10.0% more cooling consumption than the average due to the warmer temperature and higher humidities in the late afternoon. The cooling consumption of the 10-storey office North and West facing zone was less than the average by around 9% to 13% under this cooler and cloudier weather.

## WREC XVI at Murdoch University, Perth WA

The World Renewable Energy Congress ran over 5 to 9 February, 2017, gathering over 300 experts from around the world in wind, wave solar and low energy buildings including the current President of the International Solar Energy Society ([ISES](#)) **Dave Renne** from Boulder CO, USA and Past President **Monica Oliphant** from Adelaide, SA, and local solar



and low energy building researcher and developer Garry Baverstock. A noted absentee from the Congress was past long-serving editor of "[Solar Progress](#)" Dr **Bill Parker**, who sadly died of medical complications at his home a week later.

Exemplary Energy's Director of Buildings, **Trevor Lee**, presented two papers at the [WREC](#) on related science: 1. *Weather Affects Building Performance - Simulation v Monitoring - real time solar and coincident weather data for building optimisation and energy management* (a joint paper with Dr **Grant Edwards**, Department of Environment and Geography at Macquarie University) and 2. *Comparison of Satellite Estimated Hourly Solar Data with Coincident Ground Based Measurements and their Applications in Industry and Commerce.*

Both papers will be published on our website in the near future.

### Murdoch University Weather Station - Upgrade



While attending the WREC XVI (above) Exemplary Energy's Director of Buildings, **Trevor Lee**, took the opportunity to inspect the recent improvements to the Murdoch University Weather Station ([MUWS](#)) at the northern end of the campus. **Philip Good**, Technical Manager – Environmental and Conservation Sciences, provided a tour of the facility and gave some background on its recent upgrading, including instrumentation that is not used as



yet in building energy simulation, like rainfall and subsurface soil temperatures (bottom left). We look forward to continuing to tap that data stream for our Real Time Year ([RTY](#)) weather data service and the Exemplary Weather and Energy ([EWE](#)) Indexes for the foreseeable future.



### Mandatory Home Energy Rating in the ACT for 214 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 archetypical 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.