



Exemplary Advances

2017 March “*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.

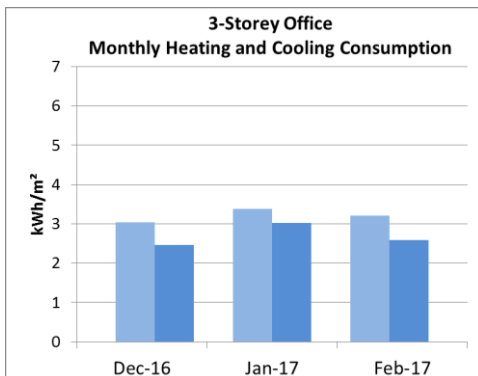
Past editions of “*Exemplary Advances*” are available on our [website](#).

Exemplary Weather and Energy (EWE) Indexⁱ - February 2017

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

2017 February	Canberra		Perth		Sydney	
	Heat	Cool	Heat	Cool	Heat	Cool
10-Storey	N.A.	14%	N.A.	-17%	N.A.	-14%
3-Storey	N.A.	15%	N.A.	-20%	N.A.	-16%
Supermarket	N.A.	20%	N.A.	-19%	N.A.	0%
Solar PV	2.6%		24.6%		-3.9%	

Canberra had warmer than average weather in February. It was the fourth consecutive month to be warmer (since November 2016). The mean maximum, minimum and average temperatures were higher by 5.5°C, 3.5°C and 1.7°C respectively. All the commercial building models had cooling consumptions higher than their averages. All four perimeter zones of the 10-storey office had over 20% more cooling than the norm due to the higher air temperatures. It was also sunnier than the average adding to the higher cooling energy and the solar PV energy yield was also 2.6% higher.



Perth had cooler and sunnier than average weather in February. The mean maximum, minimum and average temperatures were lower than average by 4.0°C, 4.0°C and 2.2°C respectively. The 10-storey office South facing zone had cooling consumption less than the average by around 27% due to the lower air temperatures. The North facing zone also had less cooling consumption, around 24% due to the cooler but sunnier weather. The PV panel efficiency benefited from this cooler weather and, in combination with the lesser cloud, the energy yield was higher by a very substantial 24.6%.

Sydney had cooler than average weather in February. The mean daily average was lower by 1.5°C although the mean maximum and minimum were 0.4°C and 0.1°C higher respectively. It was cloudier as well: hence the PV energy yield was 3.9 % lower. The cooling consumptions of our 10-storey and 3-storey office building models were lower by 14-16%. Only the supermarket was about the same as the average. The cooling consumption of the 10-storey office South facing zone was over 21% less than the norm due primarily to the lower air temperatures.

Bureau of Meteorology switches to Himawari for Solar Data

Himawari, Japanese for sunflower, is the name of 2 new geostationary weather satellites operated by the Japan Meteorological Agency ([JMA](#)) offering significant improvements in frequency, resolution and precision. As reported in our August 2016 edition, they came into service for our Bureau of Meteorology ([BOM](#)) in March 2016. Once calibrated against the BOM ground-stations, that full year data will be published and used by our team in all future weather and climate data products.

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 215 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.

ⁱ 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_{peak} 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.