Exemplary Advances

2016 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[i] - January 2016

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

2016 January	Canberra		Perth		Sydney	
	Heat	Cool	Heat	Cool	Heat	Cool
10-Storey	-	-0.5%	-	-3%	-	-11%
3-Storey	-	-1%	-	-3%	-	-11%
Supermarket	-	-8%	-	2%	-	3%
Solar PV	-15.3%		-9.6%		-20.7%	

Canberra had cooler than average weather in January. The mean maximum temperature was higher than average by a negligible 0.1°C, however the minimum and average were 1.4°C and 0.3°C lower respectively. As a result, there were slightly lower cooling energy consumptions for all three commercial building types. It was also cloudier than average. The solar PV model had an energy yield of -15.3% less than average. The cooling consumptions of the 10-storey office East and West perimeter zones were around 6.4% to 8.7% lower due to the cooler and especially cloudier weather.

Perth also had a warmer and cloudier than average January. Although the mean minimum was lower by 0.2°C, the mean maximum and the average were 3.6°C and 0.7°C higher than the reference year values respectively. The PV model had an energy yield of 9.6% lower than the reference values. The cooling consumptions of our office building models were accordingly 3% lower than the averages due to the cloudier weather. The 10-storey office East and West perimeter zones had around 5.7% lower cooling consumptions as well. The supermarket model, which has a longer operating hours extending well into the evening, was affected more by the warmer temperature and had a 2% increase in cooling consumption.

Sydney had a mean maximum temperature higher than the average by 0.1% in January, and the mean minimum and average were both lower by 1.0°C. The weather was slightly cooler than average in terms of air temperature; however, it was a lot cloudier. The PV model had an energy yield of 20.7% lower than the average. The cooling consumptions of our two office commercial building models were 11% lower than the average January. The cooling consumptions of the 10-storey office North and West perimeter zones were 19.3% and 17.2% lower respectively due to the cooler and cloudier weather. The East and South perimeter zones were also lower by over 20% due to the cooler air temperature. Only the supermarket model had a 3% increase in cooling due to the slightly warmer than average temperatures after sunset.

Mandatory Home Energy Rating in the ACT for 201 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.

Introducing Engineering Intern from ANU

Steffan Kosky started work with us on a casual basis in January of 2015. One of his first tasks at Exemplary was calculating the parallax error associated with geosynchronous satellites scanning the full extent of Australia to estimate solar irradiation on an hourly basis, which he worked on in collaboration with fellow intern, **Fangwei Ding**. See the resultant paper on *"Comparison of Satellite Estimated Hourly Solar Data with Coincident Ground Based Measurements"* (Lee, Ding and Davy) presented at the ICEM in Boulder CO last June. Since then, he has frequently been one of the editors for the *"Exemplary Advances"*. His most recent task was assisting with the development of the new Exemplary Energy website which will be going online to replace its predecessor soon. Steffan is currently in his second year at the Australian National University studying a flexible double degree of genetics and engineering with honours. He continues to play an active role at Exemplary and is passionate about environmental sustainability.

Eco-Estate Residential Development in Malua Bay NSW

Exemplary Energy Partners is engaging in an Eco-Estate Residential Development in Malua Bay NSW in which a Community Title of 15 lots is being developed with shared facilities and private road access.

Called Escape @ Malua, its neighbourhood management plan includes building approval conditions favouring care for the amenity of neighbours and for environmental construction including energy efficiency beyond the current minima set out in BASIX for homes within NSW - generally lower standards than the 6 Stars (NatHERS) required elsewhere in Australia. More detail will be presented in future editions of ***"Exemplary Advances"***.

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.