



# Exemplary Advances

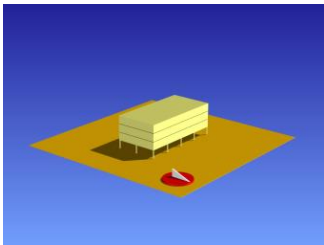
**2015 January "Exemplary Advances"** is the newsletter for Exemplary Energy Partners, Canberra. Feel free to forward it to friends and colleagues. Click here to [subscribe](#) or [unsubscribe](#). Feedback is most welcome.

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

## Latest Real Time Year (RTY)

The RTYs to the end of December 2014 are now available for CBR, PER and SYD. Click [here](#) for details. Superseded RTYs are available at a discount of 10% per month past (20% for student, academic and other non-commercial use). So please [enquire](#) about formats and delivery times.

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



2014 December	Canberra		Perth		Sydney	
	Heat	Cool	Heat	Cool	Heat	Cool
<b>10-Storey</b>	-	2%	-	-14%	-	-4%
<b>3-Storey</b>	-	2%	-	-17%	-	-4%
<b>Supermarket</b>	-100%	18%	-	-19%	-	13%
<b>Solar PV</b>	2.2%		6.9%		-6.3%	

**Sydney** had a cooler December than the reference year – although the mean minimum is slightly higher (0.6°C), the mean maximum and mean average temperatures are both lower. However the cooling consumption of our supermarket model shows a different trend from the two office models. Simulation result shows that the cooling consumption is over 13% higher.

Further analysis established that this is due to the unusually humid weather. The high humidity has only a modest effect on the two office HVAC systems. But for the supermarket customers enter and exit bringing in large volumes of the humid air through the entrance which requires more energy to cool and dehumidify the air for customer comfort and condensation and frosting control for the refrigerated display cabinets. This is reflected in the supermarket's average latent cooling energy which is 53% higher than in the reference year.

Sydney also had a cloudier December. Our PV system simulation model has an energy yield 6.3% lower than in the reference year. This is also reflected in our 10-storey office building, which has the highest glass-to-wall ratio. There the cooling consumptions in the North and West facing zones are about 10% lower than in the reference year.

**Canberra** had a hotter December – the mean maximum and average temperature are slightly higher than in the reference year (0.2°C and 1.2°C higher respectively), the mean minimum is almost 3°C higher. The HVAC systems had to work relatively harder for longer. This is reflected in the supermarket which has longer operating hours than the offices. The cooling energy consumption is about 18% higher.

The weather in Canberra was also a little bit sunnier in December. The PV model has an energy yield of 2.2% higher than in the reference year. The 10-storey office cooling consumptions in the North and West facing zones are 2% and 6.4% higher than in the reference year.

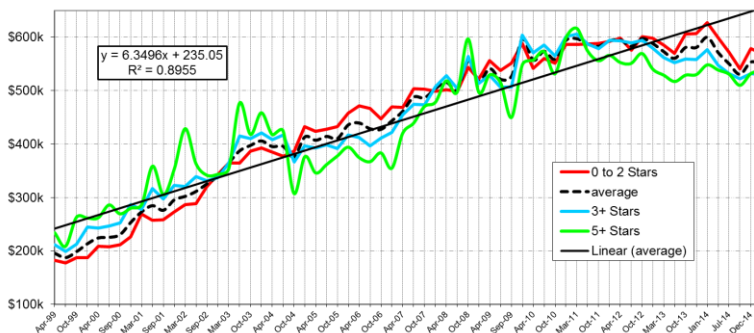
**Perth** continued to have unusually cool weather near the end of 2014 – although the mean minimum temperature is about the same as the reference year, the mean maximum and average temperatures are 3.1°C and 1.7°C lower respectively. Our three commercial building models show that the total cooling energy consumptions are all lower than in the reference year.

Although the weather was cooler, it was sunnier. The PV model has energy yield of about 7% higher than in the reference year. It is expected that the cooling consumption, especially in the 10-storey office, would be higher due to more solar heat. However the North and West facing zones have cooling consumptions of 18% and 23% lower. Our further analysis shows that the lower cooling energy is due to the drier weather. This is also reflected in our supermarket model which has an average latent cooling energy of 24% lower than in the reference year.

## Energy Efficiency Ratings and Residential Prices

Since April 1999, the results of a NatHERS compliant Energy Efficiency Rating (EER) has been a mandatory inclusion in any advertisement to sell a residence in the Australian Capital Territory (and for leasing where an EER pre-exists). At that time, Denmark was the only other jurisdiction anywhere with that requirement. Now, by virtue of the "EU Energy Performance of Buildings Directive" in 2008, it is required throughout the European Union. Separate analyses of the ACT<sup>ii</sup> and the EU<sup>iii</sup> schemes have established the effectiveness of those policies. Exemplary Energy Partners has been monitoring the nexus between EER and advertised price since the scheme's inception and occasionally publishes

Figure 2: Average Advertised House Price Trends Over 15 Years



(C) Prepared by **Energy Partners** from advertised house prices (C.T.) since the start of the EER(SOP) Act

properties (the last time this was so was almost 4 years ago). This still reflects the demand for inner suburban properties where the older and poorer rating homes predominate and are due for refurbishment or replacement.

the results. No other Australian jurisdiction has replicated this scheme as yet despite repeated resolutions of the Council of Australian Governments (COAG).

### Canberra – December 2014

Over the December quarter, asking prices dropped except the properties rating 5+ stars. The average advertised house price for 5+ stars properties is still lower than the '0 to 2+ stars' properties and the average, but it is higher than the 3+ stars

<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.

<sup>ii</sup> Australian Bureau of Statistics report to the then Department of the Environment, Water, Heritage and the Arts "Energy Efficiency Rating and House Price in the ACT", 2008.

<sup>iii</sup> "[An investigation of the effect of EPC ratings on house prices](#)" report for the UK Department of Energy and Climate Change, June 2013.