



Exemplary Advances

2015 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](#).

We have moved

On 2 February 2015 we started work in the TT Architecture Centre, 35 Kennedy Street, PO Box 5282, Kingston ACT 2604, Australia, Phone: +61 437 373 844. Email and internet are unchanged.

Happy New Year
2016



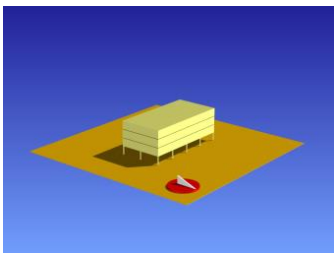
Latest Real Time Year (RTY)

RTYs to the end of February 2015 are now available for CBR, PER and SYD. Click [here](#) for details. Superseded RTYs are available at a discount of 10% per month past, up to 50% total (20% per month past for student, academic and other non-commercial use). So please [enquire](#) about formats and delivery times.

Chinese (Lunar) New Year Greetings

Chinese New Year began with the new moon on Thursday 19 February (and in China the celebrations didn't stop until Tuesday 24th). It is now the Year of the Sheep (sometimes translated as Goat).

Exemplary Weather and Energy (EWE) Indexⁱ



| 2015 February | Canberra | | Perth | | Sydney | |
|---------------|----------|------|-------|------|--------|------|
| | Heat | Cool | Heat | Cool | Heat | Cool |
| 10-Storey | - | 6% | - | -7% | - | - |
| 3-Storey | - | 6% | - | -7% | - | - |
| Supermarket | -100% | 13% | - | -3% | - | - |
| Solar PV | -4.8% | | 0.5% | | - | |

Canberra had a hotter February than the reference year. The mean maximum is 0.5°C lower than typical, but both the mean minimum and average temperatures are higher (by 6.6°C and 1.2°C respectively). This is reflected in all our three commercial buildings which have higher cooling consumptions by 6% to 13%. It was also cloudier in February. The PV model has an energy yield 4.8% lower than in the reference year. Although there was less sun, the 10-storey office cooling consumptions in the West and North facing zones are still 8.4% and 11.2% higher respectively than in the reference year due to the hotter weather. There is no significant departure from the average humidity.

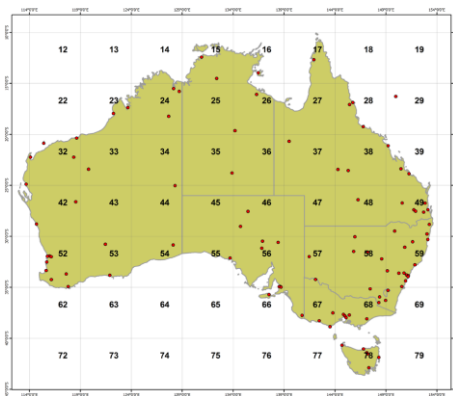
Perth had a cooler than typical February – the mean maximum and average temperatures are lower by 4.2°C and 0.7°C respectively. However, the mean minimum is 0.3°C higher. The average relative humidity is higher by a factor of about 12% but all our building models still have lower than typical

cooling energy consumptions. It was also slightly sunnier. The solar PV model has an energy yield 0.5% higher than in the reference year. However, the increased sunshine had only a minor impact on the building cooling energy consumption due to the cooler weather: our 10-storey office cooling consumptions in the Western and Northern zones are each still 8.2% and 7.4% lower than typical.

Sydney data is not available in the short term. A power failure at Macquarie University disabled its weather station for several weeks. We will advise on this in more detail in the next edition.

Weather and Climate Data for 100 Extra Sites

Our published set of climate files (Reference Meteorological Years, RMYs) and the 23 years of weather files that they are derived from (Real Time Years, RTYs, 1990-2013) have recently been doubled to 200. Click [here](#) for a list of the new locations. The price for the extra 100 sites is the same as for the original 100 sites but clients purchasing the full 200 pay only an extra 50% on the [price](#) for 100. Naturally, this 50% discount applies to clients who already own the original set of 100.



Ersatz Future Meteorological Years

Ersatz Future Meteorological Years (EFMYs) have now been produced in collaboration with the CSIRO Ocean and Atmosphere Flagship for 2030 and three different global greenhouse gas emission scenarios for the years leading up to 2050. The CSIRO team produced a set of monthly Projected Change Values (PCVs) for temperature (max and mean and min), humidity, wind and solar radiation relative to the climate as measured over the period 1975-2004 (i.e. 30 years centred on 1990). The sets of PCVs were

generated for a grid of 5° latitude by 5° longitude. To cover the continent, 8 quasi-square cells east-west and 7 cells north-south are required. For details of how this was done, please see the CSIRO report, [“Future climate data for 100 prospective Australian solar energy sites”](#). In the next edition we will describe how the EFMYs were made from these PCVs. Meanwhile, the EFMY data sets are available for purchase [here](#).

SERREE Network Members

Exemplary Energy has joined the growing network of the ACT and NSW-based South East Region Renewable Energy Excellence (SERREE). Click [here](#) to see their latest newsletter describing their priorities, events and projects for 2015. Free subscription is available.

Interns

Fangwei Ding is currently a 4th year engineering student at the Australian National University. He recently joined Exemplary as an intern and has been trained in using EnergyPlus to analyse and understand the energy efficiency of different buildings. In collaboration with the CSIRO Oceans and Energy Flagship, he is also manipulating and analysing solar data from satellite observations and ground station measurements for comparative purposes.

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.