Exemplary Advances

2019 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.

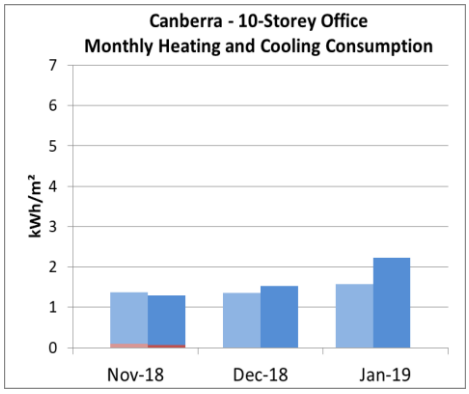
Past editions of ***"Exemplary Advances"*** are available on our website.

Exemplary Weather and Energy (EWE) Index[i] - January 2019

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

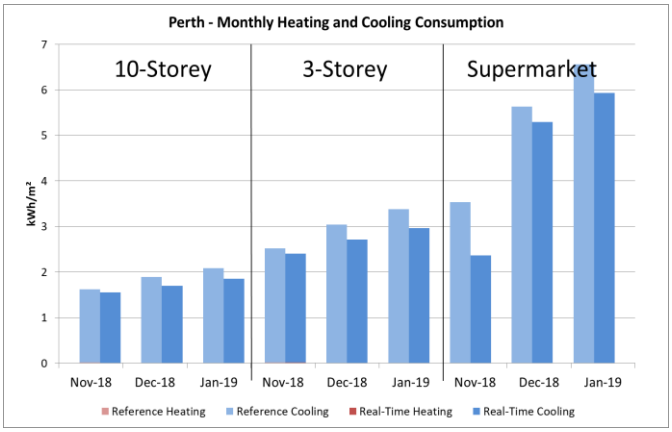
2019 January	Canberra		Perth		Sydney	
	Heat	Cool	Heat	Cool	Heat	Cool
10-Storey	N.A.	41%	N.A.	-11%	-	-
3-Storey	N.A.	45%	N.A.	-12%	-	-
Supermarket	N.A.	60%	N.A.	-10%	-	-
Solar PV	1.8%		-1.5%			

The Exemplary Real Time Year weather files (RTYs) used for these monthly simulations are available for purchase to allow clients to simulate their own designs for energy budgeting and monitoring rather than rely on analogy with the performance of these archetypical buildings and systems.



Canberra had warmer than average weather in January in terms of air temperature. The mean maximum, minimum and average temperatures were higher by 4.0°C, 2.7°C and 4.1°C respectively, therefore, the two office buildings and supermarket models had cooling consumptions higher than the averages. The cooling consumption of the 10-storey office South facing zones was close to 60% above the norm due primarily to the warmer air temperatures. Zones facing the other 3 orientations also had over 41% - 57% higher cooling consumption because it was sunnier than the average. The solar PV array had an energy yield of 1.8% higher under this sunnier but warmer weather.

Perth had slightly cooler than average weather in January. The mean maximum, minimum and average temperatures were lower by 0.3°C, 2.0°C and 1.9°C respectively. All the commercial building models had cooling consumptions lower than the norm due to the cooler air temperatures. The cooling consumption of the 10-Storey office South facing zone was close to 16% lower than the norm. The North and West facing zones also had cooling consumption 12% - 15% lower. It was slightly cloudier than average, therefore, the solar PV array had an energy yield of 1.5% lower.



Sydney – data temprarily unavailable. Regular reporting on Sydney weather and its impact on building energy consumption will resume next month.

Ersatz Future Meteorological Years (EFMYs) will be introduced next month to also show the comparative impact of projected climate change on building services and renewable energy systems.

Summer School for New Intern – Nathan Robertson

Nathan was introduced to readers in our January edition. In March he will be travelling via the United Kingdom to Iceland to attend a summer school on renewable energy systems – Iceland enjoying a 100% renewable electricity grid. We look forward to hearing from him upon his return.

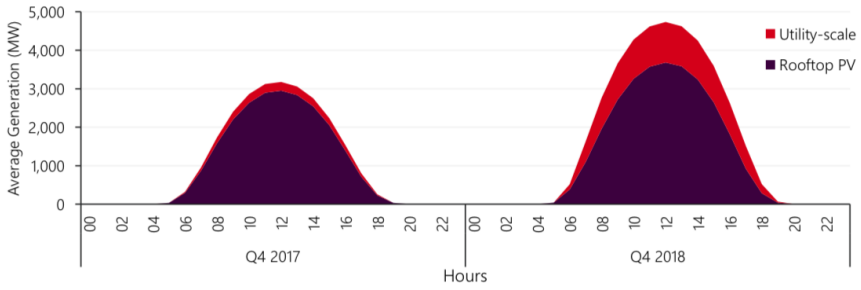
Securing a 21st century energy grid

The evolution of the energy and electrical sector in Australia is being significantly boosted with major developments, particularly in the rollout of new technology to more traditional infrastructure. Find out more on Standards Australia's website.

Solar Continues to Re-shape the Australian Electricity Grid

By Giles Parkinson

Figure 14 Average NEM hourly large-scale solar and rooftop PV generation profile across Q4 2017 and Q4 2018



The latest Quarterly Dynamics publication from the Australian Energy Market Operator (AEMO) highlights how the growing penetration of solar – both rooftop and utility scale – is continuing to reshape the grid, along with growing amounts of wind and greater energy efficiency.

The Quarterly Dynamics for Q4 2018 notes that solar has been the biggest single change in the energy mix in the latest quarter, with output from rooftop solar PV generation jumping 26 per cent to 2,140 GWh, and the combined output from rooftop solar and large scale solar jumping 56 per cent to 3,681 GWh. The average daily peak generation of rooftop solar PV increased 25 per cent to 3,878 MW.

Read more here.

Kidston pumped hydro next to solar farm

By Sophie Vorrath

Work is set to begin on the pumped hydro storage component of Genex Power's ground-breaking Renewable Energy Hub at Kidston, in North Queensland, as the company works to keep the massive project moving while it awaits financial close.

Genex said on Friday that it had entered into an agreement with McConnell Dowell and John Holland, to immediately commence an early works program on the 250 MW K2-project, which will supply up to eight hours storage, using the existing pits of a former gold mine. Read more here.

Weather Data for 2015 to 2017 coming soon

The next edition of "Exemplary Advances" will advise how to acquire this data from ACADS-BSG.

[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. RTYs are available for purchase for your own simulations.