

Software services: an essential part of Consumer DSP.

A submission to the AEMC 'Power Of Choice' Directions Paper

**by
Listening Post Pty Ltd**



Software to empower the electricity consumer
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Summary

Our society's growing consumption of electric power poses many challenges, some of which provide the basis for the Australian Energy Market Commission's (AEMC's) current Review. The Review itself and its supporting documentation set out the matter well and it is not required to go into detail in here. It is taken for granted in this submission that the reader is well aware of the context. However, a summary presenting the challenge in our own words is perhaps helpful.....

Much of our commercial and domestic life depends on the reliable availability of electricity, on demand, in any quantities we want at any instant. And, that demand is growing. Interestingly, for most domestic and small business consumers, the price point of electricity is only loosely related to their consumption behaviour.

Superficially, one might think that suppliers into a market like that would be pleased, so where's the problem? Looking beyond broader questions of sourcing base load and whether some parsimony in our demands for that is warranted, there is one critical technical complexity in the electricity market. This complexity is *peak* demand which happens for only a few hours each year and which is a different 'beast' entirely from *average* demand. It is peak demand which dictates the generation capacity and local distribution infrastructure required to deliver the product. In many places, that infrastructure is stretched to its limits and further unfettered growth in peak demand cannot realistically be met without huge investment. The amounts of money involved are staggering: every percentage point of peak demand avoided is worth \$millions and every opportunity to delay building new base load capacity is worth \$billions.

An attractive approach, then, is to work from the "other end": to modify society's demand profile to live with the infrastructure we have,

or grow it more modestly than would be needed with unmodified demand. This is much easier said than done.

This whole concept goes by the acronym DSP (Demand Side Participation). Whereas large enterprises already exhibit price sensitivity and flexibility in their power consumption in the context of pre-agreed consumption profiles and price signals, domestic consumers do not have that history or present disposition. Getting this group "on board" with DSP is a key challenge. We believe it can be done and there is recent experience we have been involved with to show that.

We believe the modern Australian domestic consumer is sensitised to green issues, understands the need for sustainability, appreciates that profligate consumption of any sort is no longer socially acceptable, and is ready to participate in DSP-style initiatives. But, at the very least, the consumer needs leadership, and information. Armed with those, we believe people will make decisions both for self-interest and the wider interest which, in this case, will align well. With smart-meter technology and information collection and distribution in place to provide average consumers with the knowledge they need, they will choose wisely, modifying consumption and in so doing ameliorate peak demand and, probably, average demand as well.

Trials have shown the way. We have been information-processing providers in two of those, and foresee how those model processes can be applied more widely. **Our input to the Review is to urge:**

- **that a national information repository be created for the data SmartMeters and other meters provide, and**
- **that value-add providers like ourselves be enabled to enter into commercial relationships with retailers to mine that repository to provide consumer-friendly information to electricity customers which will lead to their willing "DSP".**

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Listening Post - who we are

We are a software development and services firm based in Lane Cove West, a suburb of greater Sydney. We have several lines to our business, a couple of which overlap in this broad arena of customer empowerment. We have a general interest and a significant client base in “voice of the customer” software and services (and there is clearly an aspect of that in the whole DSP context) but our principal interest in this Review is as a developer of specialised software to analyse and present electricity consumption data to customers. Some examples are presented herein.

Our interest / credentials in making a submission

A critical component in making DSP work as the Review envisages is to provide consumers with information in a way that they can understand and which, based on that understanding, helps them make good choices about their future behaviour in ways which differ from past behaviour, and then to see that it makes a difference. We have experience in helping do exactly that.

We became involved in this as part of the federal government’s Solar Cities program. “Solar Cities” is a \$7m, 5-year demonstration program put in place by the Federal Government in 2008 and due to conclude in 2013. It is designed to promote smart meters, energy conservation, solar power and new approaches to electricity pricing, with a view to proving that change to a sustainable energy future in urban locations throughout Australia is possible. Participant cities in the Program are Adelaide, Alice Springs, Blacktown, Central Victoria, Moreland, Perth and Townsville. It is a partnership approach which involves all levels of Government, the private sector and the local community.

To briefly describe the Solar Cities program: selected consumers in project areas have smart meters fitted. Some have PV arrays. Consumption (and, in the case of PV-equipped premises, supply-to-grid) information is provided to involved households in a user-friendly way. As a result, customers better understand their (net) energy use, see opportunities to modify that use and then see the results of doing so. Upon analysing that data, electricity companies understand the extent to which demand can realistically be modified by this type of DSP, and governments have evidence on which to base new energy options and policies.

One ingredient in the project – some would say the most important one – is providing information to participant consumers in way that is comprehensible and compelling. Slabs of numeric data and impenetrable tables and formulas simply are not the right way to proceed. User-friendly graphics based on the underlying complex data are, by far, the preferable approach. When delivered online through a secure, easily accessible web-portal, customers can and do readily consume that information.

Our role has been to provide software services to two of the Solar Cities: Perth and Alice Springs. That experience forms the basis of this submission. We urge the AEMC recommends future consumer information empowerment which draws inspiration from the Solar Cities program.

What we know can be done

Collecting foundation data from households is the essential first step. This counts things like number and size of windows, building construction details, various appliances in the household, and so on. Whilst the Solar Cities pilot program used dedicated interviewers to initially collect most of this, there is no reason whatever that a household fresh to DSP should not self-assess these matters and build their own baseline profile on a secure data portal similar to the ones we have built and supplied to the Solar Cities Program.

Electricity usage data is harvested from the SmartMeters every 30 minutes (and, where available, information about the output from the solar PV array) and stored in the household's secure repository (see footnote¹). Energy usage changes, such as deliberate decisions to modify the times when certain appliances are routinely used, or to record when certain appliances are either acquired or disposed of, can be recorded in this data repository. As time passes, the information presented to the household shows the usage trends and the effects of these various events. We believe it's quite compelling, and our Solar Cities for whom we provide these graphical data services would agree it really does inform households and modifies their behaviours.

¹ As an aside, it is worth noting that there is some contention about whose data this is. Our opinion aligns with a number of advocates: that it's the consumer's data, and that other parties in the scene play various value-add roles but don't own the data. Of course, often the matter is moot if the household cannot access their data. As we envisage the future of an energy usage portal that households can access as part of their DSP and involvement in their own usage planning, that problem vanishes. It will require mature policies and business processes amongst the various parties to ensure that the household's ownership of their data remains clear as they move addresses and / or change retail providers.

On the following pages take a look at some of these outputs which have been created to inform customers:

- Figure A. electricity usage by time-of-day comparing weekdays to weekends;
- Figure B. electricity usage by time-of-day for each season;
- Figure C. comparison of electricity usage in peak and off-peak times across the months of the year;
- Figure D. average electricity usage also showing daily maximum temperature. This graphic also shows when milestone events/decisions occurred);

and, for households with PV arrays:

- Figure E. average daily household electricity usage by month of the year and the average daily electricity generated;
- Figure F. average output power of the PV array by time of day across the four seasons.

It is helpful to also note that whilst the graphs which follow draw on data from SmartMeters (which provide measurements in 30-minute periods), a similar concept but with less granularity can also be applied to households with ordinary meters. Whilst those households await the roll-out of SmartMeters, they can still be "on board" with the DSP concepts and obtain meaningful insights from the more limited data which is available from them.

Figure A

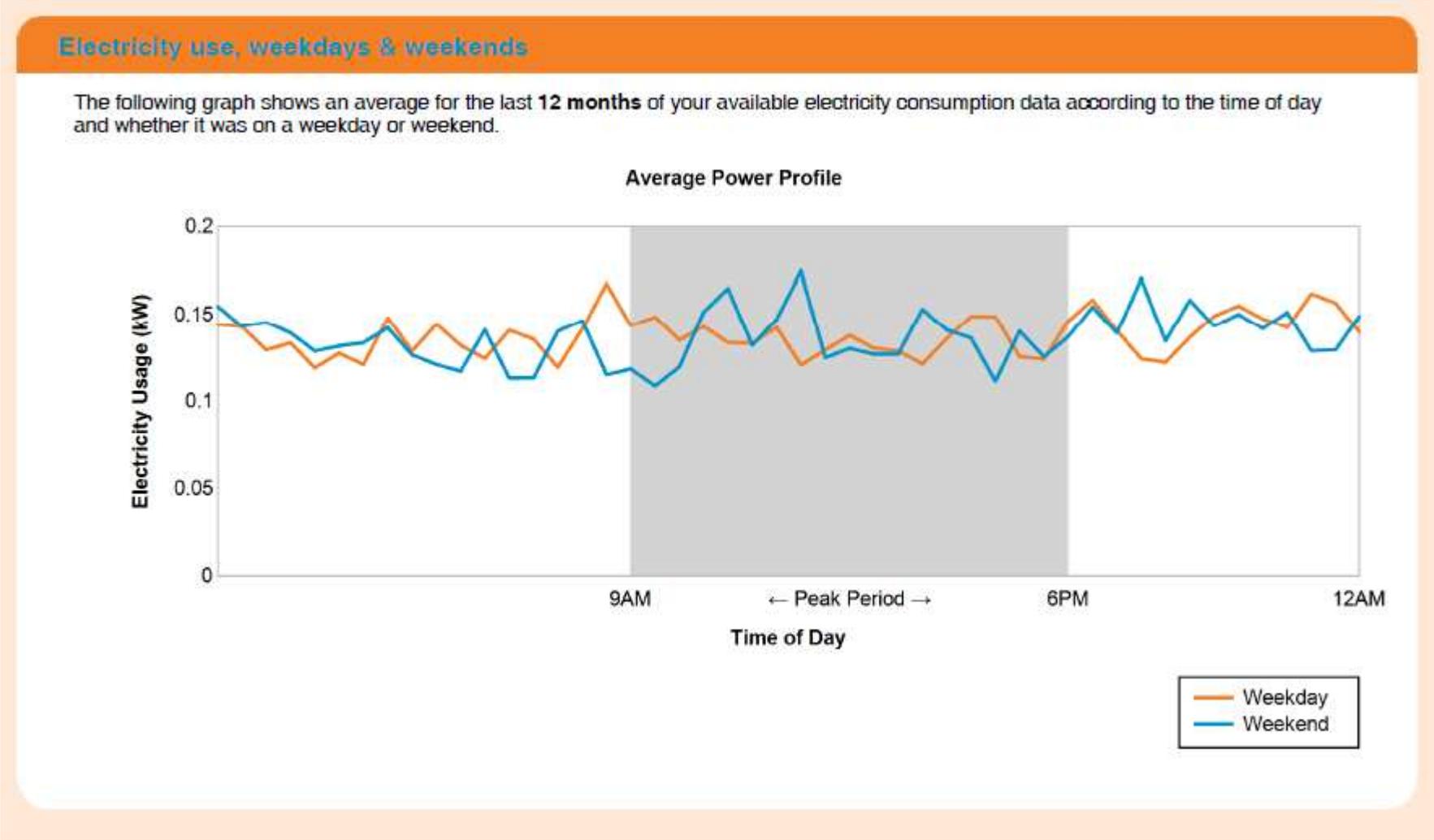


Figure B



Figure C

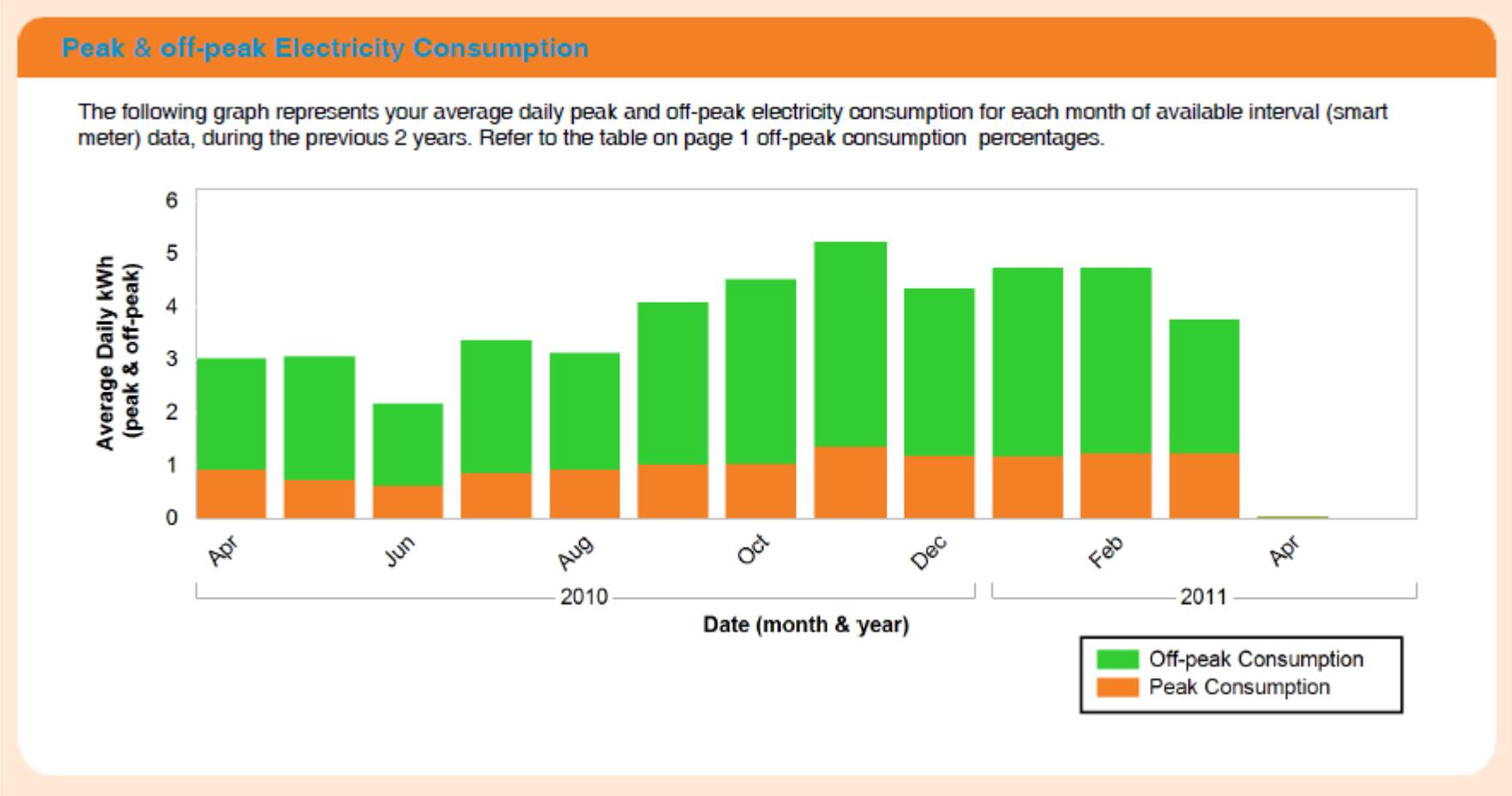


Figure D

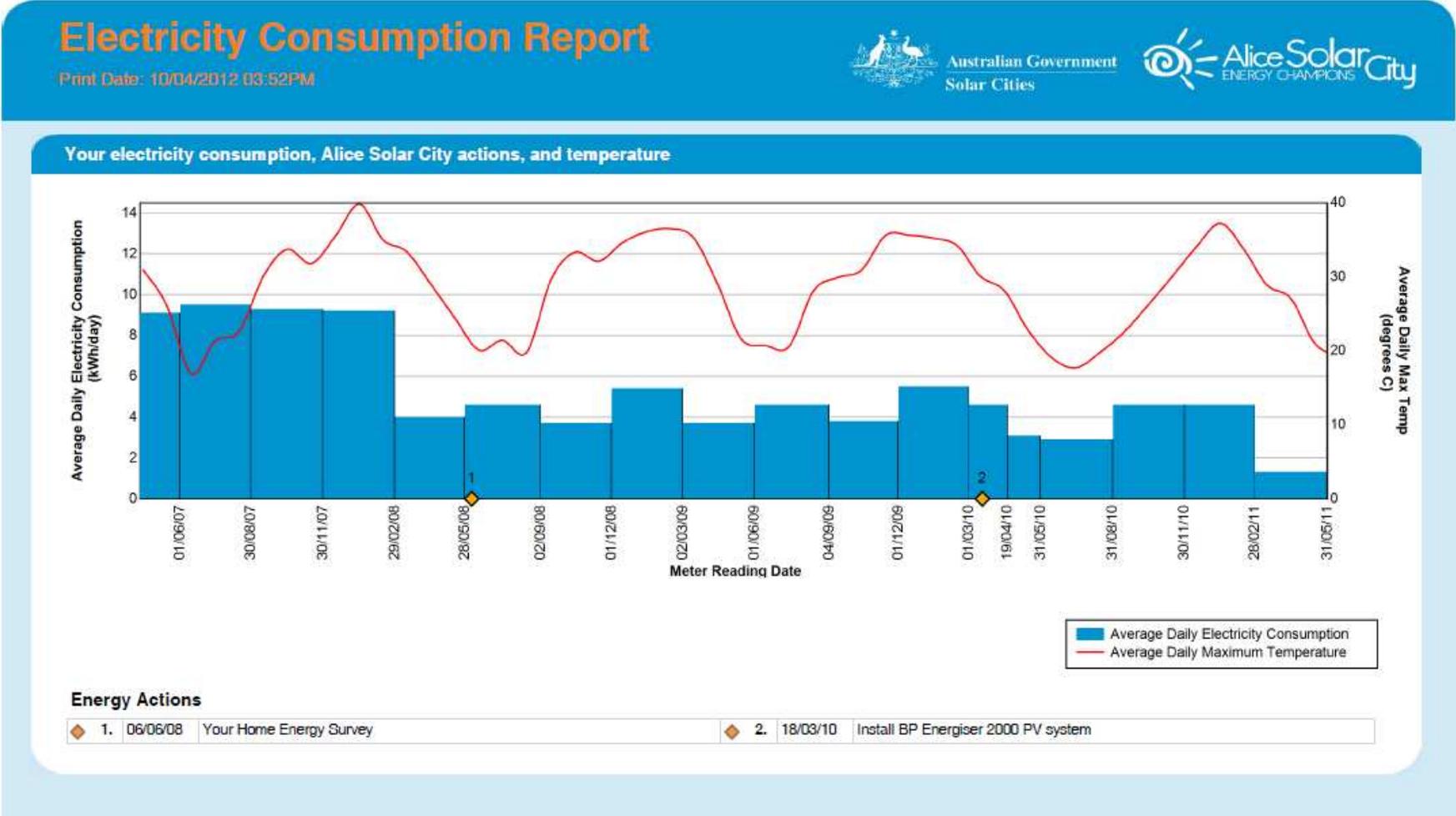


Figure E

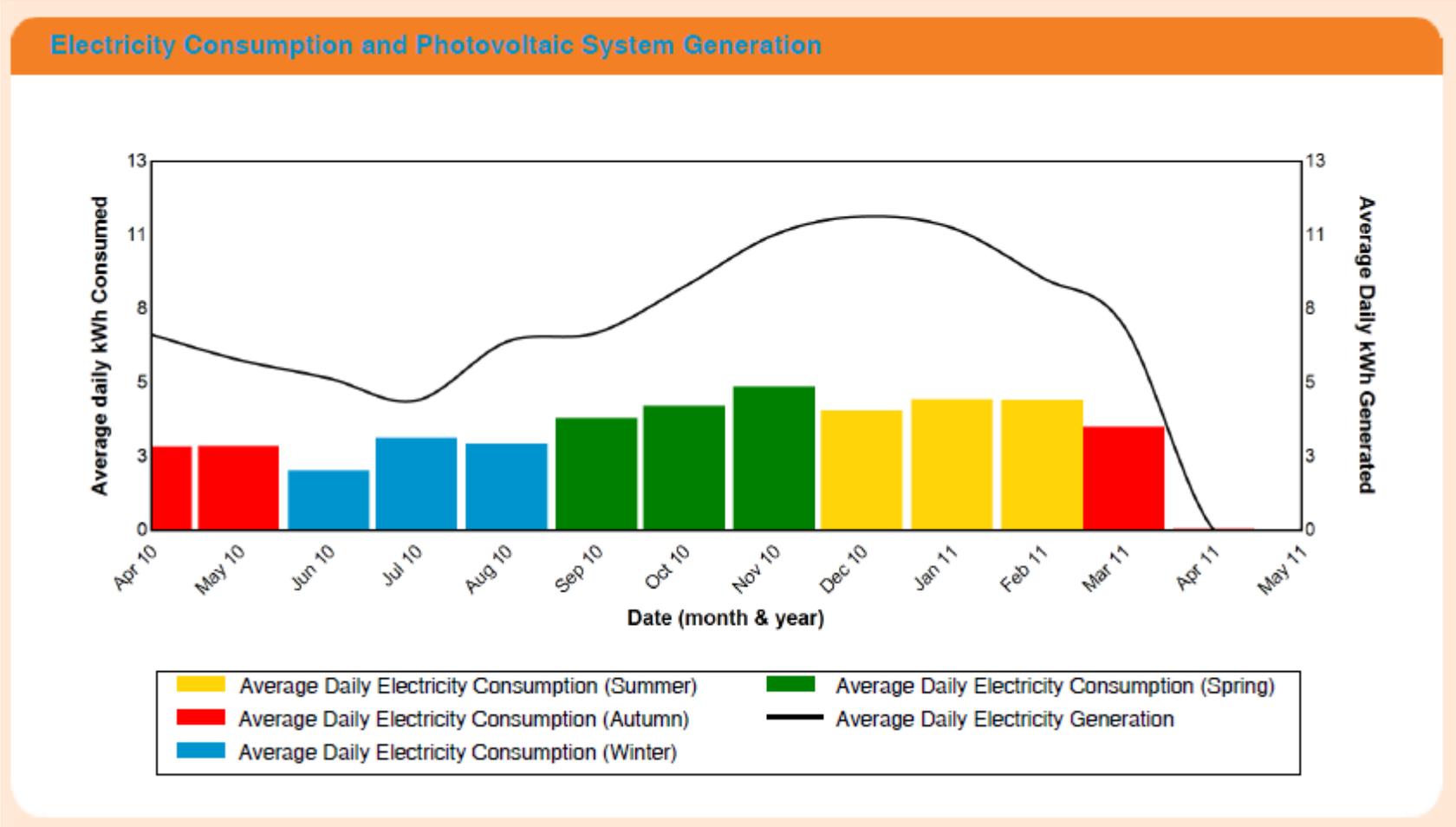
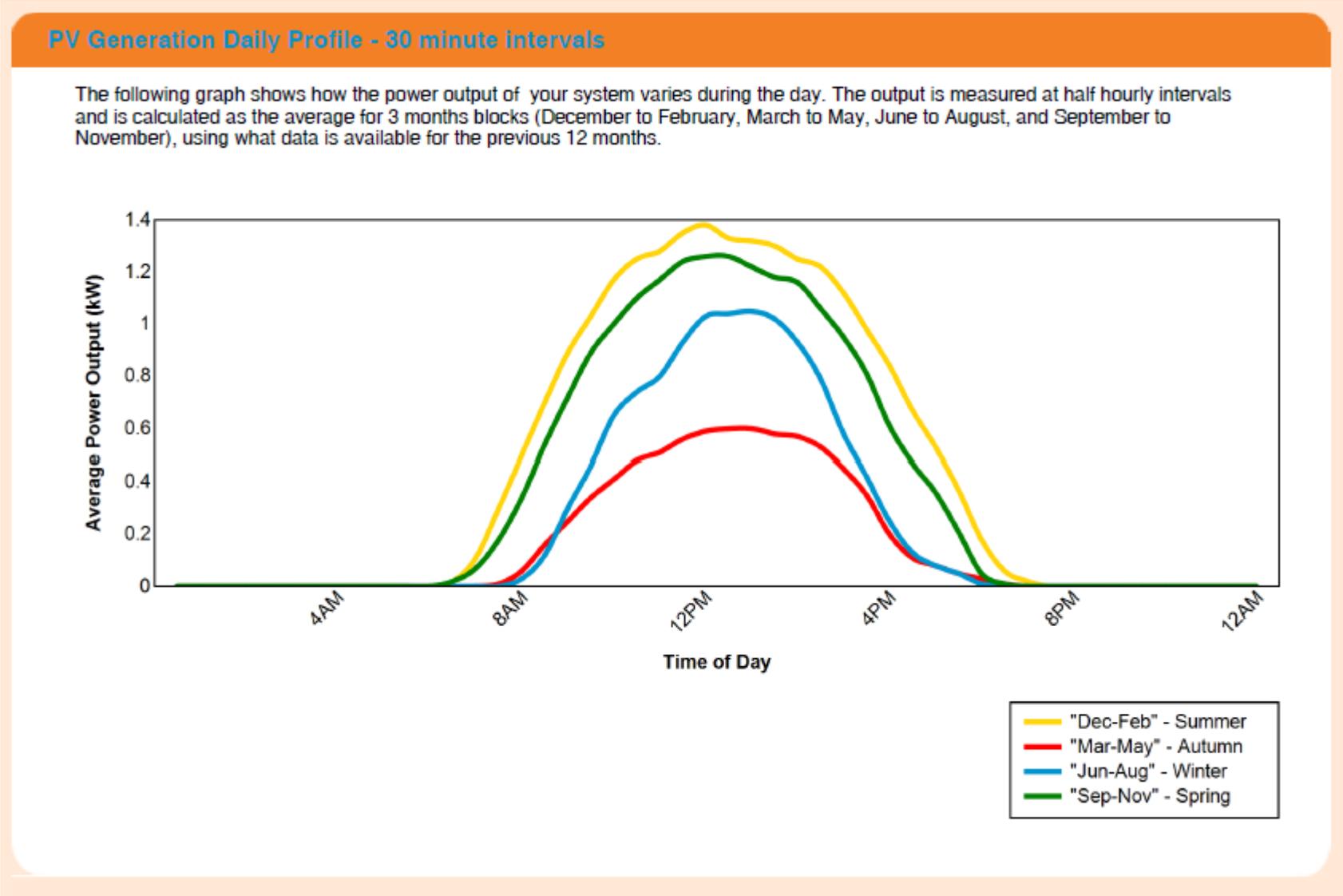


Figure F



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What we would like to see now

As good corporate citizens, we understand and are in sympathy with the aspirations of the AEMC Review and the need for Demand Side Participation as an important component in the changes to come. Our involvement with the Solar Cities Program has given us the opportunity to see at close range what is possible. In the end, though, we acknowledge our interest is commercial.

We believe the business case for involving consumers in modifying their electricity consumption behaviour is clear, indeed, overwhelming. The costs of providing an information portal for households and the associated graphical data services is trivial – of the order a few dollars per household per year.

Rather than build-in the potential chaos of retail energy providers each doing their own thing (and DSP is not, in the end, their core business) we believe that a single repository for raw meter data and household information will prove to be the best and most reliable delivery model. This single point of data capture, storage and processing could be overseen by federal officers but perhaps is best outsourced to a credible host company. We could provide that service. However, our interest is also in the next point.....

There is a commercial niche here where software suppliers such as ourselves could bid for business offered to the marketplace by the electricity retailers, to provide data services along the lines of what is presented herein to the consumers/households of those retailers.

This promises a competitive model where, whilst there would be obvious similarities between the information services offered by various contracted software houses, each would have its own strengths and the incentive for innovation that goes with competition.

Whether or not the electricity retailers are, in turn, re-paid or subsidised by other parties in the national energy market, or directly by government, for providing this information service to their customers is beyond the scope of these remarks, but it seems to us that would make sense.

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In conclusion

We believe there is useful experience the AEMC can draw upon from the Solar Cities Program which shows that DSP is possible, and works. By our involvement in that Program we have real examples of the information empowerment that motivates households. We would be keen to put that experience to work in the wider society's DSP-based changes that are now within sight as the AEMC completes its Review and plans its next steps.

Thank you for the opportunity of making this submission.

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