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Mr. Stephen Buckley
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Office of Energy and Climate Change, NSW Treasury

Ref: NSW Peak Demand Reduction Scheme activity suggestions

City FM welcomes the opportunity to be involved with NSW Office of Energy and Climate Change and provide feedback on the Peak Demand Reduction Scheme (PDRS) Consultation paper for Rule 1. City FM is a facilities management business having partnerships with leading retailers and playing a key role in their energy efficiency and sustainability activities.

We support the introduction of the PDRS and look forward to participating in the scheme to assist with reducing the NSW electricity demand during hours of peak demand. As feedback to the consultation paper we would like to suggest the inclusion of **Power Factor Correction (PFC)** and **Building Management System (BMS)** activities in achieving reducing peak demand.

Please see below our reasoning and suggested calculation methods to use.

Power Factor Correction (PFC)

Installation of PFC units allow for the reduction in power flow resulting from improved power factor, which not only improve power quality for the Customer assets, but also reduces the load on the distribution system there by reducing the amount of generation required by the grid.

We recommend demand reduction in kVA through the installation of PFC unit be allowed as an activity of the PDRS, as this incentivises Customer to carry out the installation. The demand reduction can be calculated by:

$$Demand\ Reduction\ in\ kVA = \frac{Max\ Demand\ in\ kW}{Power\ Factor\ after\ install} - \frac{Max\ Demand\ in\ kW}{Power\ Factor\ before\ install}$$

For example, if a Customer has a maximum demand of 400 kW and has a power factor of 0.8 before PFC installation and 0.99 after, then the demand reduction would be:

$$Demand\ Reduction\ in\ kVA = \frac{400}{0.99} - \frac{400}{0.8} = 500 - 404 = 96\ kVA$$

Building Management System (BMS)

We also believe that the PDRS should include BMS demand lock outs. BMS is used to control lighting, air conditioning and refrigeration equipment, which can be programmed to prevent loads from running during peak demand times or optimised to run at a lower demand threshold.

BMS lockouts is an activity that we are currently exploring with our Partners to reduce demand where possible. For example, the BMS can be used to set a limit on the air-conditioners chiller capacity to 80% during the peak demand hours by actioning programming changes or sending low level voltage signals. We believe incentivising the opportunity through the scheme will provide the additional funding to install/upgrade BMS or adjust BMS programming strategies.

The demand reduction can be quantified by the Customer or their Energy Service Provider by specifying the demand threshold that they have set. This demand reduction would need to be verified by reviewing electricity interval and weather data. The Customer or their Energy Service Provider would need to prove that the demand has reduced by this amount by comparing the maximum demand against the demand of a day with comparable day before the BMS lock out was implemented. A comparable day would a day that has the most similar weather conditions in terms of Temperature and Relative Humidity.

For example, the Customer has specified that they have been able to reduce demand by 50 kW at a site. The maximum demand for the current summer period is found to be 400 kW on a 41 deg C with a Relative Humidity of 55%. In the previous year summer on a 40 deg C day with Relative Humidity of 50% the demand was 450 kW. Therefore, the Customer can claim 50 kW of demand reduction.

If you require any further details on these two proposed PDRS activities, please contact me.

Thanking you.

Yours sincerely,

Alex Hoeper

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