

IESO Engagement

From: Paul Acchione
Sent: January 27, 2016 2:18 PM
To: IESO Stakeholder Engagement
Subject: PeakSaverPlus Residential DR Program Review - Comments

Hi.

Below are my comments and suggestions for opportunities to improve the PeakSaverPlus program and hopefully make continued use the investment in the technology. Thanks.

....Paul Acchione, P. Eng.
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The Honeywell UtilityPRO programmable thermostat that I was provided can be used as a load shifting controller by pre-cooling the home at night in the summer and pre-heating the home at night in the winter.

I have been able to shift about 0.5 kW each hour during the day in the summer to the evening after midnight when the power system load is much lower. The load shift in the winter is more modest because I have natural gas forced air heating rather than electrical baseboard or heat pump heating.

If the load shift was done at different times by people with different addresses (eg: odd/even addresses) you can sustain a significant load shift for the entire neighbourhood for the entire day all summer or all winter.

The benefits to the power system is a lower peak load and a higher night time load. This reduces natural gas consumption (lower greenhouse gas emissions) during the day for peak load generation. It also increases demand at night when the power system is currently curtaining (wasting) surplus carbon-free generation like hydroelectric and nuclear.

For consumers it is economically attractive because the power is almost 50% cheaper at night and that savings can easily offset the small addition loss that is incurred due to pre-cooling or pre-heating the home at night. The home is also more comfortable at night (cooler in the summer and warmer in the winter) which makes for a more restful sleep.

Here are my suggested improvements based on my experience with the current programmable thermostat that I have:

The current thermostats have whole degree temperature adjustments and only allow 4 temperature changes over a full day in predefined time slots.

This means that pre-cooling has to be done in very coarse temperature changes during specific periods which cause the air conditioning or the heating equipment to run very hard when the temperature change occurs (at midnight or as otherwise scheduled). It would be much better if following 4 improvements can be made to the program.

(1) allow temperature changes of 0.1 degree F or C.

(2) allow temperature to be adjusted more smoothly by the consumer up or down at any time and as often as required so the temperature changes can be aligned with various price plan (TOU or APP) schedules.

(3) provide some pre-established temperature vs time profiles that the consumer can select and automatically download on-line into the device rather than manually entering each value and each time. The pre-established programs should be identified by meaningful descriptions like:

Temperature Program 1 - maximum savings (largest temperature variation)

Temperature Program 2 - more savings, some comfort

Temperature Program 3 - moderate savings, moderate comfort

Temperature Program 4 - some savings and more comfort

Temperature Program 5 - maximum comfort (constant temperature)

I have attached one daily load profile before and after I began to pre-cool my home.

