

OPTIONS FOR THE FUTURE OF *peaksaver*PLUS® RESIDENTIAL DR

Stakeholder Engagement Webinar

January 27, 2016

peaksaver® and peaksaver PLUS® are trademarks of Toronto Hydro Corporation, used under licence.

Objectives

- To seek input from stakeholders in order to establish next steps for the *peaksaver*PLUS® Residential Demand Response program for the short and medium term, as the IESO prepares to transition residential demand response to the Demand Response Capacity Auction process.

Agenda

- Current situation
 - Minister's direction
 - Program status
 - Technology
 - DR Auction
- Future options and issues
- Key questions for stakeholder input

Minister's Direction

- The Minister's direction of March 31, 2014 included the following statement regarding *peaksaver PLUS*:

A transition plan is currently being developed to evolve existing programs, potentially including the peaksaver PLUS program, to an IESO administered market. Until such time as the transition plan has been finalized, including plans for the peaksaver PLUS program, the OPA shall continue to make the program available to Distributors to deliver to customers in their licensed service areas.

Background: Program Objectives & Design

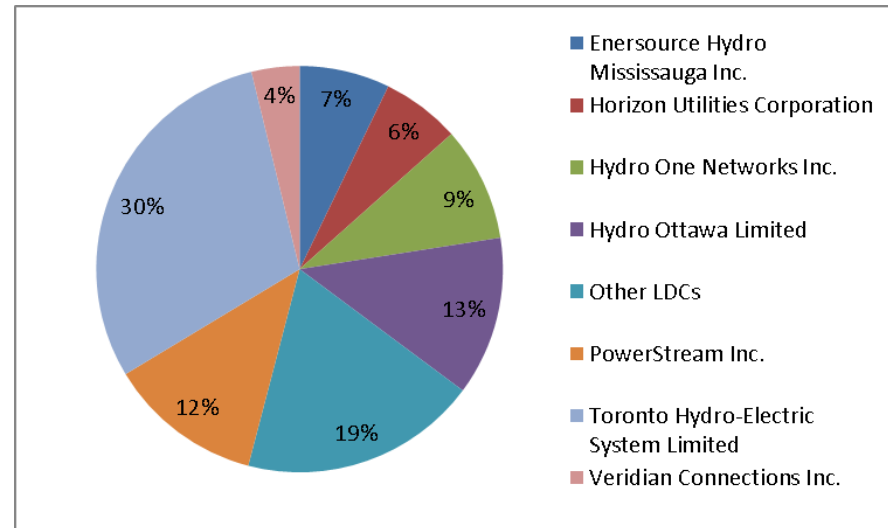
- *peaksaver*® was designed to be a “non-intrusive” residential demand response program aimed at reducing electricity consumption of participants’ enrolled appliances (i.e. air conditioners) on the hottest days of the year
 - Events may be initiated by the IESO’s Dispatch Administrator and LDC Aggregation Operators on business days between noon and 7pm and last no more than 4 hours, based on two dispatch triggers (IESO emergency; 30C and >23,000 MW)
 - During events, installed load control devices receive radio signals to cycle power of key appliances; CACs, electric water heater , and/or swimming pool pump (none installed)
- Program developed by Toronto Hydro in 2005, and has evolved to a province-wide program offered by over 40 LDCs funded through the 2011-2014 framework; *peaksaverPLUS*® in 2011 added in-home displays (IHDs) to help customers respond to TOU rates
- Forecasted benefits of the 2011-2014 *peaksaverPLUS*® program were:
 - Demand Savings: 192MW
 - Electricity Savings from IHDs: An IHD should save a homeowner, 3-5% in electricity use.

Participation (2014 Results)

- Over 300,000 load control devices have been installed to date, 78% are *peaksaverPLUS* devices
 - ~99,000 load control switches
 - ~197,000 programmable thermostats
 - ~4,000 Integrated Devices (thermostat + IHD))
- Over ~190,000 in-home-displays installed
 - 95% Blueline, 5% others
- Participation in *peaksaverPLUS*® continued to increase in 2014, a 40% increase from 2013
- Province-wide Participation Rate: 7% of households (16% of households with AC)
- 1/3 of devices are in the Toronto Hydro service territory

Demand Response End-uses	Households/ Business (2010)	Enrolled by 2014	%
Central Air Conditioners	2,490,861	~290,000	12%
Electric Water Heaters	1,423,624	~13,000	1%
Pool Pumps	264,665	~100	0%
Total	4,179,150	~300,000	7%

Proportion of Devices by LDC (2014)



Evaluation Results (2014)

Load capacity

- 113 MW demand reduction capacity in 2014 based on ex-ante impacts (60% simple cycling)
 - 0.5 kW/device (res); 0.64 kWh/device (SMB); 0.3 kW/device (water heater)
 - No events in 2014 due to cool summer; savings based on test events; demand savings have declined since 2013 from 0.57 kW to 0.5 kW per device
 - No energy savings measureable from IHD

Brand Awareness

- peaksaverPLUS® has the highest awareness (82% aided and 54% unaided) of participants engaged in other residential programs

Program Incentives & Costs

- Payment to LDC for Residential installations (Schedule B3-V5):
 - Up to **\$415/participant** - Load Control Device and IHD
 - Up to **\$215/participant** – Additional Load Control Device
 - Up to **\$220/participant** - IHD Only , where a Load Control Device is already installed)
 - **\$3.33 / load control device + \$3.33 / IHD device** - Annual Maintenance Fee (service, repair and replace devices)
- 2011-14 Average Cost per Participant (program + incentive costs / number of devices): **\$344 per participant**

Technology

- The current Peaksaver offer consists of a programmable thermostat or a load control switch plus an In Home Display of energy use
 - Demand response is triggered via the pager network with one way communication only
 - IHDs have not delivered any measurable energy savings results
- New smart thermostat options are available that provide wifi connection, smart phone apps for customer interaction, and learning behaviour for greater energy savings potential

DR Auction

- The IESO's first Demand Response Auction was held in December 2015 for two commitment periods
 - May-October 2016
 - November 2016 – April 2017
- The next auction will take place in December 2016 for capacity for the following year
- The auction was successful in enrolling 391.5 MW for the summer period and 403.7 MW for the winter period
- The first auction focused on procurement of the MW enrolled in the former DR3 program
- The DR working group will be active in reviewing the outcomes of the auction and beginning to work on improvements to the auction process

Proposed next steps:

Short term:

- Move to maintenance mode (maintain existing asset base and address existing inventory)
- Investigate potential enhancements including new technology options

Mid term:

- Modify market rules to remove any barriers to participation in DR auction for residential load

Issues for consideration

- Sunk investment and stranded assets
- Loss of market momentum
- Attractiveness of technology offer
- Funding source and system value of the resource
- Role of LDCs in future market resource
- Role of other market players

Questions for stakeholder input

- What issues do you foresee with transitioning Peaksaver to a market based structure? What barriers would need to be addressed to accomplish this?
- Recognizing the limited value of existing technology, should the IESO fund LDCs to update the Peaksaver offer to customers to allow for new technology options?
- Do you have existing inventory of devices that have not been installed? How much inventory and how do you believe this should be handled?
- What related opportunities do you see in the rapidly evolving connected home/home automation space?

Next Steps

- Written feedback to be submitted to stakeholder.engagement@ieso.ca by February 19, 2016
- IESO to respond by March 4, 2016