Topic	Participant	Summarized Comment	IESO Response
Residential Baseline 1	OhmConnect	Allowing Demand Response Market Participants (DRMPs) to move users between treatment and control groups within the month will enable a better user experience and will reduce customer attrition caused by too many, or too few, DR events. It will also ensure that treatment and control groups remain comparable as customers inevitably change address from time to time.	*The IESO agrees that it is appropriate to have a non-static control group; however, there must be a balance between flexibility for DRMPs and manageability within the established IESO processes for data submission and settlement, which occur monthly. The IESO believes that changing the control group once per month is appropriate.*
Residential Baseline 2	OhmConnect	OhmConnect encourages the IESO to allow control groups to serve multiple treatment groups in different, but comparable, zones. This will minimize the number of customers withheld from participating in DR events, to the benefit of DRMPs and the market alike.	*The IESO believes that selecting the control group from the same zone as the treatment group will be the most accurate approach. Residential DR will be utilized in the energy market based on zones, which may vary depending on factors such as weather.*
Residential Baseline 3	OhmConnect	OhmConnect seeks clarification as to whether aggregated customers within a resource must be served by the same LDC in addition to being located in the same zone. In order to build a robust resource capable of meeting the 1 MW threshold, we encourage the IESO to allow DRMPs to aggregate customers across LDCs.	*Aggregated customers within a residential Hourly Demand Response resource will be aggregated by zone and do not need to be served by the same LDC.*
Residential Baseline 4	OhmConnect	As part of the process for qualifying capacity, the Demand Response Auction Participants (DRAPs) will submit the capacity it can offer prior to the auction. Does this mean that DRAPs should identify how much of the capacity will be provided by residential load or that DRAPs need to list all contributors that would be participating?	*DRAPs are not required to list contributors during the Capacity Qualification stage, only the amount of capacity that they would like to qualify and a load reduction plan.*
Residential Baseline 5	OhmConnect	The DRWG presentation indicated that at this time only single-family homes will be eligible to participate as contributors to a DR resource. We encourage the IESO to extend eligibility to all end-	*Multi-unit dwellings for which for each unit is individually metered using a smart meter will be able to participate as contributors to a residential Hourly Demand Response resource.*

Topic	Participant	Summarized Comment	IESO Response
		users who have Smart Meters. However, we believe that customers in multi-unit dwellings can also successfully contribute to our program.	
Residential Baseline 6	OhmConnect	We are unsure what a "partnership" with the LDCs would entail, and seek more clarification. If the LDCs are not currently equipped to provide meter data in a timely fashion, this could present a barrier to integration of the DR resource into the IESO. Likewise, if the Smart Meter repository cannot serve the requests of the participating DRMPs then the DRMPs will struggle to properly integrate their resources. We encourage the IESO to develop a process that clearly outlines what customer information is required to gain access to Smart Meter data, and to whom the DRMPs should submit that information. We also ask the IESO to further explore how DRMPs will collect the contributor information needed prior to the start of each month (e.g. SME, Green Button).	*The IESO is aware that access to meter data and/or homeowner information is a potential barrier to participation.* *The central meter data management & repository (MDM/R) operated by the Smart Metering Entity (SME) was built to manage meter data, and that data is subject to privacy restrictions. The process of extracting that data requires certain information that is only available from the LDCs (who supply the MDM/R with the data). As a result, this likely restricts the ability for a third-party to access the data unless they have already entered into some form of agreement with an LDC where the LDC has agreed to provide the meter data and the customer has given their consent to release that information.* *Green Button is an initiative of the Ministry of Energy which allows homeowners (not third parties) to access their electricity data, which can then be shared with others.* *The IESO continues to work, through the SME and other initiatives such as Green Button, to assess the requirements and next steps for making data more readily available (with customer consent), but those processes are not sufficiently advanced to be ready in time for the December 2016 DR Auction.*
Residential Baseline 7	OhmConnect	We suggest that the IESO withhold from penalizing companies if DRMPs are unable to meet their capacity obligation due to events outside of their	*DRAPs must be confident that they can meet their capacity obligations before submitting offers into the DR Auction. This is critical to ensuring the integrity*

Topic	Participant	Summarized Comment	IESO Response
		control that prevents DRMP access to Smart Meter data. Instead, the IESO could allow DRMPs to reduce their capacity if they are unable to register all of their contributors.	*of the Auction process and results. Once a capacity obligation is secured in the Auction, the only way to be relieved of it is to either buy out of that obligation or transfer it to another Demand Response Auction Participant. Given the information that has been provided to stakeholders through the DRWG about the means by which meter data access can be facilitated for the December 2016 Auction, failure to access to meter data is not considered outside of the control of the DRAP and should be addressed in advance of DR Auction participation.*
Residential Baseline 8	OhmConnect	We require clarity regarding the Capacity Charge methodology described in the DRWG presentation.	*Please refer to the Appendix. The calculation now recognizes that the number of contributors must be included to compare the DR provided with the DR activated.*
Residential Baseline 9	EnergyHub	What are the IESO's plans to automate meter data access in the future? Will the IESO set up green button for third parties to access interval data if they retrieve customer authorization? What consideration was given to the means by which this data can be made available?	*Please refer to the response to Residential Baseline 6 (above). The IESO is removing certain barriers for including RDR in the DR Auction; in tandem, stakeholders will need to partner with the respective LDCs to get access to data.*
Residential Baseline 10	EnergyHub	Will the IESO create the "approved tool" designed to randomly establish the control group? How will the IESO enforce the usage of this tool? We suggest that the IESO manage the creating of the control groups for each aggregation. This will ensure that control group is selected in an unbiased manner.	*The IESO will not create a tool. Rather, DRMPs will randomly assign contributors to either control group or treatment group, and the IESO will require DRMPs to report on the randomization strategy or tool utilized. Randomization will be confirmed through audit.*
Residential Baseline 11	EnergyHub	Is the premise/universal ID an identifier that is collected for each customer by the LDC? Are there any cases where a customer would not have one or would have multiple?	*The IESO has determined that a premises ID or universal ID will not be required. Instead, the LDC name and account # will be satisfactory to uniquely identify the contributor.*
Residential Baseline 12	EnergyHub	We believe a day-of adjustment is necessary because it corrects for discrepancies between the control and	*Thank you for your feedback. This will be discussed at an upcoming DRWG meeting.*

Topic	Participant	Summarized Comment	IESO Response
		treatment groups. We suggest an enhanced adjustment using linear regression to determine how the treatment group and control group loads are trending during the adjustment period, and then apply this information to the baseline data for the event period.	*Using the difference in slope to adjust the baseline's value may not improve accuracy and can potentially reduce accuracy of the baseline. The Availability Window, especially in the Summer, is a range of hours and can cover a variety of conditions where the load can be increasing or decreasing during the adjustment window. It is not clear that using the difference in slope during an adjustment window will bring greater accuracy.* *The IESO proposed in-day adjustment is relatively simple and has been successfully utilized for evaluation of the Peaksaver program. The IESO has made its recommendation for the adjustment based on this experience with Peaksaver, as well as considering accuracy, feasibility, robustness and best practices.*
Residential Baseline 13	Hydro One	Should the IESO choose to proceed with the RCT baseline with Treatment and Control groups of equal size, Hydro One proposes slight modifications to the strategy for assigning customers.	*IESO research indicates that it is not necessary from a statistical standpoint to have treatment and control groups of equal size when the population is large and relatively homogeneous. Further, the larger the control group, the less demand response is available to the grid. The IESO has asked stakeholders with experience in randomized control trials for demand response to provide feedback regarding the size of control group required to accurately represent treatment group behaviour in the absence of an event.*
Residential Baseline 14	City of Toronto	Does the IESO plan on utilizing the existing installed Peaksaver units in coordination with new residential DR? Has the IESO evaluated the curtailment affect from a customer participating in Residential DR and Peaksaver to ensure that no double counting will occur?	*The IESO continues to fund the peaksaverPLUS program. While the Peaksaver program is in effect, contributors with peaksaver devices are not eligible to participate in the DR Auction. Further information about the next steps for the peaksaver program will be shared at a future DRWG meeting.*

Topic	Participant	Summarized Comment	IESO Response
Residential Baseline 16	City of Toronto	Has the IESO evaluated the possibility that average loads may not perfectly align due to an aggressive pre cooling of the Treatment group? Comment: In the event of an activation the IESO proposal for an in-day adjustment may incentivize participants to pre-cool facilities of the Treatment Group to achieve a higher in day adjustment.	*Stakeholders have indicated that pre-cooling initiated by the homeowner, if it occurs at all, happens in the hour immediately before the event. Pre-cooling earlier than this does not provide additional benefit from the homeowner point of view and they are not likely to pre-cool earlier due to the cost of electricity and their perceived experience.*
Residential Baseline 17	City of Toronto	Would the IESO provide additional details on the rational for a same day adjustment for the control group on the event day? Recommendation: The City recommends that the IESO evaluate an alternative approach ensuring that the "the control group's average load would align with the treatment group's average load". This may include identifying an adjustment factor utilizing a random day of Peak Consumption.	*Although it is expected that the control group size will ensure that the loads of the treatment and control groups are generally comparable, sampling error may result in differences between the 2 groups with respect to the magnitude of the load. These differences can be accounted for by adjusting the control group by a ratio so that, at the start of the event, the average loads of the control and treatment groups are identical. The adjustment also discourages pre-curtailment which can cause reliability issues.* *Note that utilizing a random day of peak consumption would require historical meter data and may not account for other impacts on the random day, impacting accuracy.* *The IESO proposed in-day adjustment is relatively simple and has been successfully utilized for evaluation of the Peaksaver program. The IESO has made its recommendation for the adjustment based on this experience with Peaksaver, as well as considering accuracy, feasibility, robustness and best practices.*
Residential Baseline 18	City of Toronto	Has the IESO evaluated a method to verify available capacity for a Treatment Group on a day when individual contributors may be unavailable for curtailment. Many C&I facilities are weather	*The IESO currently utilizes the Market Rules and random testing to ensure DR Capacity availability from DRMPs.*

Topic	Participant	Summarized Comment	IESO Response
		sensitive and have adjusted their Demand Response Capacity to meet the IESO Availability Requirements during days of reduced HVAC usage. Recommendation: The City recommends that the IESO apply consistent Availability and Capacity Penalties for the Residential and C&I programs.	*During the Commitment Period, DR resources have the flexibility to specify their availability (which can be less than their capacity obligation), using their energy market bid quantity, on an hourly basis. RDR resources will bid based on the availability of the treatment group.* *The non-performance charges for availability and capacity are consistent for residential and C&I resources. The only difference is the baseline methodology used.*
Residential Baseline 20	Rodan	Since most C&I participants are covered by LDC metering (as is residential), it makes sense that similar Record of Installation accommodations could be made for C&I metering as for residential.	*Residential smart meter data is "settlement ready" data, whose access is limited to LDCs and is verified through LDC billing. For this reason, the IESO does not require the Record of Installation for these types of contributors.* *C&I meter data is not "settlement ready" data. Different parties have access to C&I meter data directly, which necessitates the IESO's verification of the meter data. This verification utilizes the Record of Installation (ROI) information including the "meter multiplier", derived through instrument transformer ratios to verify the information. As there are different needs for C&I meter data, the requirement for ROI data is maintained for C&I contributors.*
Residential Baseline 21	Weatherbug	The appropriate unfolding of the Green Button Connect initiative of the Energy Ministry is critical to participation of third-party service offerings in the IESO market. Until the Ontario meter data portal is completed in such a way that we can authenticate customer commitment, convey their authorization to access their meter data interval history and other needed information, and receive that data, with little	*Thank you for this feedback. See response to Residential Baseline 6.*

Topic	Participant	Summarized Comment	IESO Response
		effort on their part, residential demand response will only be offered by or through the 72 incumbent utilities in the province. It is simply not possible to offer a province-wide residential service that requires separately integrating with or achieving agreements with 72 electric utilities.	
Residential Baseline 22	Weatherbug	The 1 MW minimum contribution per zone to qualify for participation is too high, especially considering that 20% or more of the customers would be removed as a control group.	*The minimum size for to participate in the DR Auction per resource is 1MW and is common to all resources (load and generation) submitting bids and offers into the energy market. Any changes to this minimum threshold would require a broader conversation with stakeholders and is currently beyond the scope of the DRWG.* *The size of the control group is still under review/discussion and may be considerably less than 20% of contributors with a minimum resource size of 1 MW.*
Residential Baseline 23	Weatherbug	With an eye toward the longer-term, however, we would like to suggest another, related approach that retains the value of the control group methodology, allows for relatively small aggregations to participate economically, and removes any need for requiring very large aggregations per zone. Our suggestion would include the smaller minimum aggregated load reduction capacity of 100 kW and a relative of the RCT called the Propensity Score Matching Control Group (PSM). The difference with the PSM approach is primarily that non-contributor, or non-participant data is used to build a control group from the larger population of utility customers.	*See response to Residential Baseline 22. The minimum required aggregation of 1 MW will not be changing at this time. In the longer term, the IESO can investigate whether the threshold can be reduced from 1 MW to a lower threshold and whether a different baseline approach could help to facilitate this. As part of that evaluation, options such as the PSM can be discussed at that time.*
Residential Baseline 24	Weatherbug	It would be very important to understand the formula which was offered on slide 26 of the September 30 presentation. We would agree with	*Please refer to the Appendix. The calculation now recognizes that the number of contributors must be included to compare the DR provided with the DR*

Topic	Participant	Summarized Comment	IESO Response
		Ohm Connect that as presented it is unclear or confusing.	*activated.*
Residential Baseline 25	Weatherbug	It would also seem reasonable to have an intermediate penalty that was short of the entire loss of availability payment for the month. Might a proportionate penalty be leveled on the resource between 80 and 60 %? And, what if the resource is struck three times in a month and only falls below the 80% once? Would the IESO use the average performance from all the events? Has the IESO considered adding test events?	*The IESO expects all resources to comply fully with dispatch instructions. The Capacity Charge is a settlement charge applied to DRMPs for non-performance of capacity delivery. The resource will also be flagged to the IESO's compliance department.* *The IESO does have the ability to test resources with DR Capacity Obligations up to twice a Commitment Period.*
Residential Baseline 26	Weatherbug	There is a statement in the presentation that the "participant must communicate with contributors in the treatment group when standby and activation notice is received from the IESO." We are unclear of the purpose of this mandated "notice," which seems out of character with the IESO's other attempts to respond to the nature of the resource a residential aggregation represents. That is, evolving new technologies are generally being designed to minimize the disruption of the customer's life.	*Thank you for this feedback. The IESO agrees that communication with contributors for standby and activation notices are not required; however, the IESO expects that the DRMP will need to take some action when there is an activation, which we would consider to be a type of communication with the contributor. This could include communication directly with a contributor device.*
Residential Baseline 27	Oracle	DR resource performance should be assessed based on curtailment during the activation period. The same-day adjustment mechanism shifts the emphasis of performance from the activation period to the hours immediately preceding the activation period. The same-day adjustment does not improve the accuracy of an RCT evaluation design. Additionally, the same-day adjustment mechanism unnecessarily penalizes pre-curtailment, which could result in the disqualification of some residential programs, including behavioral demand response (BDR). Finally, the same-day adjustment mechanism potentially rewards "pre-consumption", which	*DR is a system tool used to effect an incremental change in load when the IESO schedules it. The IESO expects energy bids to be reflective of incremental capability to reduce consumption when scheduled. By pre-curtailing ahead of a DR event, that incremental capability has been diminished. Since IESO scheduling tools rely on accurate assumptions about resource availability, this pre-curtailment can cause reliability issues.* *The proposed same-day adjustment for RCT is consistent with the in-day adjustment applied to existing C&I resources. Further, it will account for differences between the control and treatment groups.*

Topic	Participant	Summarized Comment	IESO Response
		creates opportunities for gaming.	*See Residential Baseline 17.* *With respect to bias from pre-cooling, the adjustment window does not include the hour prior to activation. According to stakeholder feedback, residential pre-cooling only impacts the hour before an activation, which would not impact the baseline. See Residential Baseline 16.*
Residential Baseline 28	Oracle	The requirement that residential DR aggregators must submit contributor consent and participation agreements would unnecessarily preclude LDCs from administering BDR programs on an opt-out basis. There is ample precedent in Ontario for LDCs to run opt-out programs for BDR and behavioral energy efficiency (BEE). Instead of a uniform requirement for contributor consent agreements and participation agreements, DR providers should have flexibility to provide alternate documentation to verify that they have the ability to call upon the constituent contributors to deliver load reduction when dispatched. In the case of an LDC deploying an opt-out BDR program, this documentation could verify that the contributors are served by the LDC and that the LDC has the ability to send communications and collect the energy consumption data for the contributors.	*The IESO requires access to contributor-level measurement data in order to verify a DR resource's capability and performance through audit. If the documentation maintained by the participant/LDC satisfies the applicable regulatory and privacy requirements for the LDC to share contributor-level residential meter data information with the IESO, the IESO is satisfied with that documentation.*
Residential Baseline 29	Oracle	Multi-unit residential customers should be eligible to participate as part of an aggregated DR resource provided that each unit is individually metered. Multi-unit residential customers that are master-metered--i.e., where a single meter measures energy consumption for the entire building--should be excluded from using the residential RCT methodology at this time.	*Thank you for this feedback. See response to Residential Baseline 5.*

Topic	Participant	Summarized Comment	IESO Response
Residential Baseline 30	Toronto Hydro	Current residential DR (RDR) methodology leads to negative baseline bias: weather sensitivity in residential loads means more energy on typical DR days. Strong support for RCT Baseline methodology for RDR in other jurisdictions; also limits data collection to global DR participant group.	*The current RDR baseline methodology proposed utilizes RCT which addresses weather sensitivity.*
Residential Baseline 31	Toronto Hydro	THESL currently maintains dynamic peaksaver EM&V control groups and proposes their continued use for ease of development and evaluation; these were determined by IESO and their evaluation contractor, but will they meet new RCT sample guidelines?	*The IESO continues to fund the peaksaverPLUS program. While the Peaksaver program is in effect, peaksaver devices are not eligible for the DR auction. Once peaksaver resources are transitioned to the market, the control group must meet the same requirements as other residential resources.*
Residential Baseline 32	Toronto Hydro	Providing data "on an event basis" would prove quite difficult for THESL, as it involves IT involvement each time. Propose a deemed DR reduction based on historical peaksaver evidence in the first year, and then annual ex-post analysis for all event days, with potential true-up depending on settlement process.	*Meter data must be provided monthly for all hours of the event days during the previous month; for example, for June events, meter data must be submitted in late July. This meets the requirements of the IESO monthly settlement cycle.* *The IESO considered various baseline methodologies and chose the RCT methodology because it is more accurate for weather sensitive load, and it does not rely upon historical data, which is a significant data burden for a large and potentially dynamic population.* *Once peaksaver resources are transitioned to the market, they must meet the same requirements as other residential resources for determining demand response provided.*
Residential Baseline 33	Toronto Hydro	Since RDR resources are very weather sensitive, how is under-performance or over-performance relative to registered resource quantity treated in settlement? Could the registered resource be temperature dependent?	*Hourly Demand Response resources are expected to bid in their hourly DR capability in the energy market. The participant is expected to determine this value and adjust their energy bids accordingly, which would reflect weather conditions.* *Under-performing residential resources are subject to non-performance charges (availability, administration*

Topic	Participant	Summarized Comment	IESO Response
			and capacity). There is no settlement impact to over-performance.
Target Capacity and Commitment Periods 1	City of Toronto	The City of Toronto supports longer commitment periods and recommends that the IESO evaluate the benefits associated with longer commitment periods. Shorter periods result in excess risk for Demand Response investments and has limited the City's capacity for investment for DR enablement.	*Thank you for your feedback. This can be a topic of discussion at an upcoming DRWG meeting.*
Target Capacity and Commitment Periods 2	Rodan	As Rodan and others have proposed in previous sessions, the IESO should consider offering a choice of 1 or 5 year terms (as was available in DR3/CBDR). Recent comments and previous submissions reflect that some contributors desire short term agreements due to business uncertainty. However, they also show that other contributors prefer longer terms to allow them to cover investments in equipment and training, and for budgetary certainty. Rodan asks the IESO to consider that any decision on offering longer delivery periods should be predicated on cost-effectiveness and the value it brings to the market; not how easy or difficult it is for the IESO to implement.	*Thank you for your feedback. This can be a topic of discussion at an upcoming DRWG meeting.*
Dispatchable Load	Rodan	In the lead up to the 2015 auction (and in subsequent meetings), the IESO disclosed that due to limitations of its internal systems, Dispatchable Load customers were prohibited from participating through an aggregator. Has the IESO resolved the technical issues that rendered the IESO incapable of registering Dispatchable Load resources to aggregators for the 2016 auction? If not, is there a timeline for doing so?	*This issue will be discussed at a future DRWG meeting, in advance of the December 2017 Auction in which the remaining portfolio of CBDR resources, some of which may include dispatchable loads, will have their capacity transferred into the DR Auction.*

Topic	Participant	Summarized Comment	IESO Response
Registration	Rodan	Please describe the process by which aggregators will re-enroll resources and contributors that are currently enrolled in the 2016 auction for the 2017 auction.	*Contributor lists are maintained for existing aggregated resources that have a DR Capacity Obligation for the next Commitment Period. If an aggregated resource does not have a DR Capacity Obligation for the next Commitment Period then its contributor list is deleted at the end of the current Commitment Period.*

Appendix

DR Activation Compliance for Residential Demand Response

Background

For Hourly DR resources, the IESO measures capacity delivery by evaluating a resource's compliance with a DR activation event. Compliance with a DR activation is measured by comparing the resource's load against its historical baseline during the activation period to evaluate if the resource followed the DR dispatch, utilizing a 20% deadband[1]. Failure to meet the IESO's dispatch automatically results in a Capacity Charge for the participant, as well as being flagged for compliance assessment, which could result in sanctions.

Proposed DR Activation Evaluation Methodology for Residential Demand Response

At the September 30 DRWG meeting, the IESO proposed that residential demand response providers can operate in the IESO-administered market as an Hourly DR resource but with several administrative differences including utilizing randomized control trials (RCT) instead of the historical baseline method for compliance with dispatch evaluation. Although RCT and historical baseline utilize different methodologies to estimate a resource's load in absence of a DR activation, the evaluation used for RCT is similar to historical baseline evaluation, which is comparing the DR provided by the resource to the DR dispatched by the IESO.

To signal availability to provide demand response, Hourly DR resources submit hourly energy bids (price and quantity) into the energy market. These hourly energy bid quantities are determined by the participant and must be reflective of the resource's capability. Currently, Hourly DR resources are dispatched in four-hour blocks. DR is activated by the market when the HDR resource energy bid is greater than its energy schedule.

[1]Capacity charge calculation detailed in MM5.5, Sec 1.6.26.3.5; http://www.ieso.ca/Documents/settlements/se_RTEStatements.pdf

A capacity charge will be applied if, for the event:

Where:

- 'i' is an hour of the DR activation period *(a DR activation for an HDR resource is currently minimum 4-hours in duration)*
- Adjusted Control Group Load$_i$ is the actual consumption per contributor within the control group adjusted by the same-day adjustment
- Treatment Group Load$_i$ is the actual consumption per contributor within the treatment group
- Total Bid Qty$_i$ is the energy bid quantity submitted by the HDR resource (i.e. the amount by which the resource can reduce consumption)
- Schedule$_i$ is the real-time constrained energy schedule

Note:

- The difference between the Adjusted Control Group Load and the Treatment Group Load over the DR activation hours is the Demand Response provided (Resource Performance).
- The difference between the Total Bid Qty and the Schedule is the quantity of DR that is activated. When an energy schedule is less than the quantity of the energy bid then DR is activated.
- Consistent with the evaluation using the historical baseline methodology for C&I resources, if the DR provided by the resource is less than 80% of the DR dispatched by the IESO for an event, then a capacity charge is applied.

The example below illustrates how we determine if a capacity charge applies.

Assume there are 5,000 contributors in the treatment group and 350 contributors in the control group.

Consumption for event day:

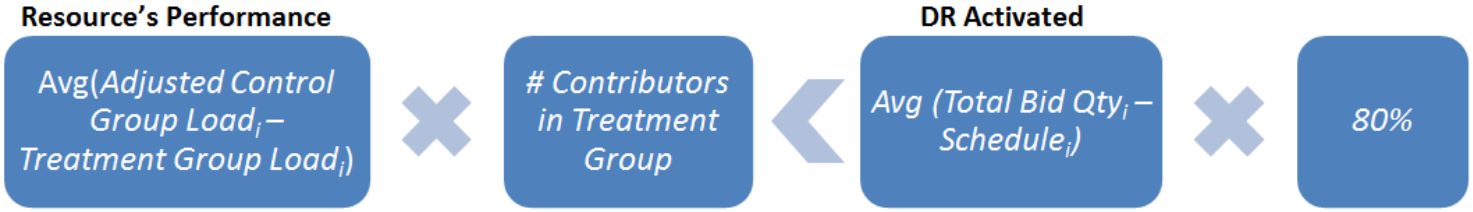
Hour Ending	Control Group Aggregated kWh	Treatment Group Aggregated kWh
1	280	4000
-	-	-
9	385	5500
10	420	6250
11	490	7000
12	490	7250
13	504	9000
14	560	6000
15	616	6600
16	644	6900
17	672	7200
18	644	9500
-	-	-
24	336	5000

Same Day Adjustment Ratio = $$\frac{3\ hour\ avg\ Treatment\ Group\ Load\ per\ contributor,\ 1\ hour\ prior\ to\ dispatch}{3\ hour\ avg\ Control\ Group\ load\ per\ contributor,\ 1\ hour\ prior\ to\ dispatch}$$

HE9	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	HE18
	Adjustment window				Activation Period				

Same Day Adjustment Ratio Calculation:

- Average Treatment Group Load per contributor = (6250+ 7000+7250)/3 hours/5000 treatment group contributors = 1.367
- Average Control Group Load per contributor = (480+ 560+560)/3 hours/400 control group contributors = 1.333
- **Same Day Adjustment Ratio = 1.367/1.333 = 1.025**



Resource's Performance:

- Adjusted control group load *per contributor for the event* =
  Same Day Adjustment of 1.025 x (560+616+644+672) / 350 control group contributors = 7.30 kW

- Treatment group load *per contributor for the event* =
  (6000+6600+6900+7200) / 5000 treatment group contributors = 5.34 kW

- Resource performance *per contributor for the event* = 1.96 kW

- *Average hourly* resource performance per contributor for the event:
  = Average (Adjusted Control Group Load$_i$ – Treatment Group Load$_i$)
  = (7.30 – 5.34) kW / 4 hours in the event = 0.49 kWh

Resource Performance is 0.49 kWh.

- Resource Performance x # contributors in treatment group = **0.49 kWh x 5000 = 2,450 kWh = 2.45 MWh total resource performance**

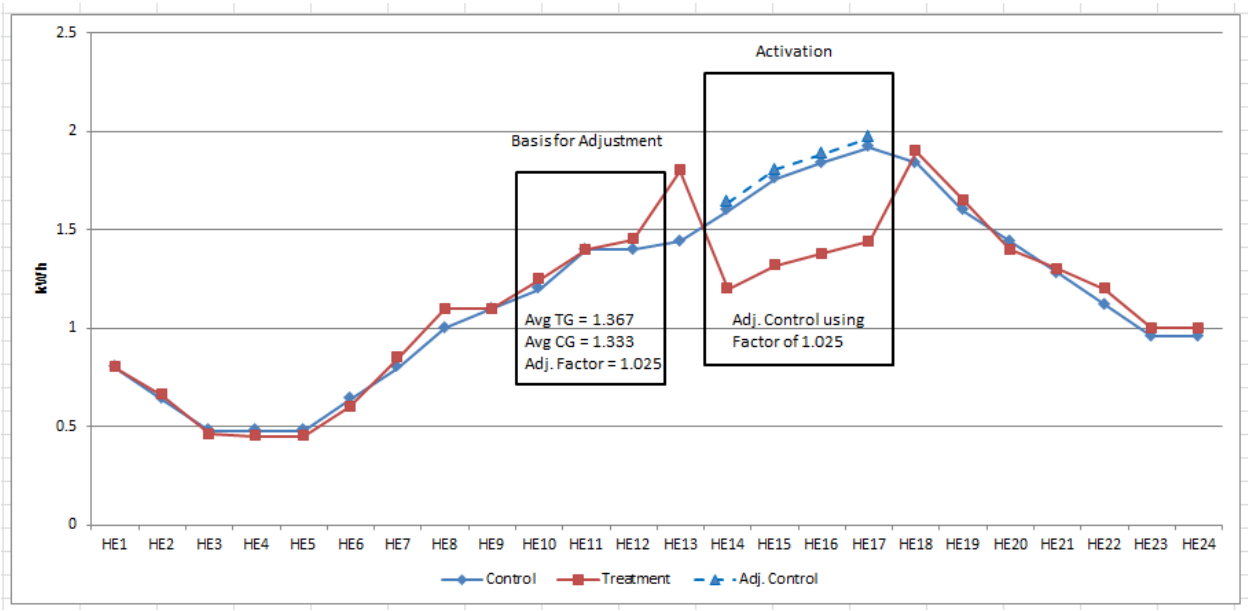
DR Activated:

- Total Bid Quantity = 3 MW *(average MW quantity of dispatchable energy bid submitted over the 4-hour activation event)*
- Schedule = 0 MW *(average MW scheduled by the IESO over the 4-hour activation event)*

DR Activated is 3 - 0 = 3 MWh.

- DR Activated x 80% = **3 MWh x 80% = 2.4 MWh minimum DR required**

Since 2.45 MWh total resource performance is *greater* than 2.4 MWh minimum DR required, a capacity charge is not applicable.


Activation
Basis for Adjustment
Avg TG = 1.367
Avg CG = 1.333
Adj. Factor = 1.025
Adj. Control using
Factor of 1.025
kW/h
2.5
2
1.5
1
0.5
0
HE1 HE2 HE3 HE4 HE5 HE6 HE7 HE8 HE9 HE10 HE11 HE12 HE13 HE14 HE15 HE16 HE17 HE18 HE19 HE20 HE21 HE22 HE23 HE24
Control
Treatment
Adj. Control