

Response information to the Technical Panel regarding the Market Rule Amendment Submission initiated by Resolute and discussed March 5, 2019.

In an effort to clearly address the questions presented to the IESO by members of the Technical Panel with respect to the Resolute's proposed market rule amendment, and to report on the outcome of IESO's continued assessment of the DR design change entailed by the submission, the IESO has prepared a response to the Technical Panel in two parts:

Part 1: provides an overview of the IESO's position with respect to the submission;

Part 2: provides direct answers to the questions raised by the Technical Panel with respect to the submission and elements of IESO's response at the March 5, 2019 Technical Panel meeting.

Part 1: Summary of the IESO's Position with Respect to the Market Rule Amendment Submission

1. The IESO does not support Resolute's Market Rules amendment submission as it would allow DR participants to continue to leverage features of historical demand response programs that were eliminated in the design of the contemporary demand response auction (DRA). This would have an adverse impact on the IESO's reliable and efficient operation of the IESO-controlled Grid (ICG), and would introduce inconsistency in the manner in which participants are treated in the IESO-administered Markets (IAM).
2. The IESO utilizes market mechanisms, including the demand response auction (DRA), to support the reliable and efficient operations of the IESO-controlled grid (ICG). The DRA was designed as a mechanism for securing DR capacity through reduced withdrawals from the ICG.
3. The measure of DR capacity for hourly demand response (HDR) resources participating in the DRA, like Resolute's Thunder Bay facility, is premised on establishing a baseline measurement (highest 15 of 20 days) of consumption at the ICG. Activations are also measured at the ICG, and the difference between the baseline consumption and consumption after activation levels determines the success of the activation.
4. Resolute's proposed amendment would allow DR participants to satisfy their DR capacity obligation, not through load reduction at the ICG, but through a combination of reductions at the ICG and behind-the-meter activities that may not result in the expected DR capacity contribution being realized at the ICG.

5. Resolute's proposed method for demonstrating delivered DR capacity was permitted under the former DR3 program, which was a contract based capacity procurement designed and administered by the former Ontario Power Authority. The method was not designed with full regard to its value for system operations. It persisted into the CBDR program as a transitional element, but has never been a feature of the DRA.
6. Incorporating DR3 methodologies for calculating delivery of DR capacity into the DRA would represent a regressive design change that would detract from, rather than support the reliable and efficient operation of the ICG. It would also entail settlement treatment for DR participants that would be inconsistent with treatment of participants across programs, raising concerns of fairness and equity.
7. **Reliability:** A physical DR resource's withdrawal from the ICG is measured by an IESO Revenue Meter. When the IESO activates a DR resource, it expects to see a corresponding reduction at the ICG as measured by an IESO Revenue Meter. If Resolute's amendment were to be adopted, the IESO may never see the full reduction of consumption at the ICG corresponding to a DR activation since some portion of the load reduction could occur behind-the-meter. The IESO would therefore be unable to rely on DR participants for load reductions at the ICG. This scenario presents an unacceptable outcome impacting the reliability of the ICG.
8. **Efficiency:** Even if the technical challenge of anticipating and planning for fractions of DR capacity obligations being realized at the ICG were to be resolved, the resulting program would constitute a grossly inefficient DR mechanism; participants would receive payment for a certain level of availability while only being expected to provide a fraction of that level when activated. Fundamentally, ratepayers would not get all that they are paying for. This inefficiency is inherent in Resolute's proposed model and cannot be remedied through a refinement of their Market Rule amendment submission.
9. **Consistency:** Applying consistent settlement methodologies is fundamental to the fair treatment of market participants in their participation in the IAM. Consistent treatment of participants is also key to maintaining ratepayer equity in establishing market charges and payments. In order to apply consistent settlement methodologies, a participant's metering configuration must also be consistent for all programs in which they participate. Resolute's proposal would result in DR participants accessing metering configuration options for demand response that would differ from the configurations they have registered for their participation in every other program. This would result in inconsistent and unfair treatment, and cannot be supported for that reason.
10. Market Participants have the ability to change the ways in which they participate in the IAM by adjusting their registration and metering configurations. DR participants with behind-the-meter generators who wish to make the gross load of their facility available for participation in the DRA are able to do so under the existing market rules (by

registering their load and generation as separate resources). However, any changes they make to their registration details for DR may impact the treatment they receive in other programs. As stated above, a participant's metering configuration must be consistent for all programs in which they participate for reasons of consistency, fairness and equity.

11. The IESO has not changed its interpretation of the DR Market Rules, and has always operated under the same understanding of the DR Requirements. Resolute's interpretation, according to which they have relied upon the DR3 methodology, only became apparent to the IESO when Resolute failed a DR activation in December, 2017. Resolute's purported justifications for relying on their interpretation are currently the subject of an ongoing dispute before the dispute resolution panel. Whatever the outcome of that dispute, the IESO does not support Resolute's rule amendment submission for the reasons outlined above and further articulated in the answers to the TP questions below.

Part 2: Technical Panel member questions on the Resolute market rule amendment

A. General Questions:

- 1. Could the IESO clarify why it doesn't support Resolute's Market Rule Amendment submission? Is it because in effect it i) results in a design change or ii) it would result in unintended consequences or iii) both?**

The IESO does not support Resolute's Market Rule (MR) amendment submission for both reasons. IESO's initial opposition to Resolute's proposed MR amendment was grounded on the fact that the submission was not a simple clarification of the MRs, contrary to Resolute's assertion; it entailed a design change with implications for metering, settlements, and operations. The IESO's position was that the submission required a more thorough assessment in order to identify and address potential unintended consequences and technical challenges it presented.

In fact, a range of negative consequences would result from adoption of the amendment. Upon further assessment, the IESO does not believe these consequences can all be mitigated because the configurations permissible in the historic DR programs do not appropriately reflect the load reduction provided at the ICG. The proposed amendment entails reliability risks and problems of efficiency and consistency. It cannot be supported for these reasons.

- 2. What Market Rule or Manual did Resolute violate that caused the reduction of 25-30 MW of DR capacity that was registered in the OPA programs?**

The DR Auction (DRA) is not a continuation or extension of OPA Demand Response Programs. The IESO's DRA operates under its own program requirements, designed with full regard to its

impact on system operations, and Resolute has not achieved its load reduction capacity obligation per those requirements. Rather, Resolute has confused the market rules that applied to the former CBDR program with the market rules that apply to the DRA; it wishes to rely on old rules that do not apply to current DR market participants.

The DRA requirements have always distinguished between resources that are revenue metered by IESO and resources that are not revenue metered by IESO (i.e. resources that are LDC revenue metered). Physical HDR resources, like Resolute's Thunder Bay facility, are revenue metered by IESO (MM 12 ss. 4.3; 6.2.1; 6.3.2).

A revenue meter is the designated source of metering data used by the IESO for settlement purposes (MR Chapter 11 – definitions). A physical load on the IESO-controlled grid, including Resolute's Thunder Bay facility, is represented by the measurements taken by its associated IESO revenue meter.

The IESO determines whether a physical DR participant has contributed its DR capacity when activated in the DR program with reference to the reduction in load as measured by the participant's IESO revenue meter.

Participants in the DRA are aware of the IESO revenue meter associated with their DR resource; The IESO meter association with a facility is made clear to participants when they register the facility.

Resolute's proposal would allow a DR participant to demonstrate DR capacity contribution, not by demonstrating reduction of load at the grid, but on the basis of a calculation combining measurement data from both the IESO revenue meter and Resolute's "Mill meter" (which measures the output of their behind-the-meter generator). The resulting calculation does not measure the load reduction at the ICG. There are no Market Rules or Manuals applicable to the DRA that allow DR participants to do this.

In contrast to the DRA, the former Capacity Based Demand Response Program (CBDR) did accommodate the approach to demonstrating DR capacity contributions that Resolute wishes to reintroduce. That approach was provided for by MR Chapter 7, section 17.2¹, and applied only to CBDR participants, not DRA participants. The approach set out in that section was a transitional element from the old OPA DR3 capacity contracts, and was never included in the DRA.

¹ Market Rules, Chapter 7, section 17.2.1.2; Market Manual 5.5, article 1.6.23.1 and 1.6.23.4; Market Manual 5.5, Appendix E, E.3.1

The CBDR approach required CBDR participants to reconcile meter data from both IESO and non-IESO revenue meters and provide the meter data to the IESO with reference to IESO approved Measurement and Verification (M&V) Plans, as registered by CBDR participants.

Resolute has confused the CBDR with the DRA. The CBDR method for demonstrating DR capacity is not part of the DR Program; no rule provides for, or accommodates it, unlike the clear provision made for it in the CBDR. The method was a transitional vestige from the OPA's DR3, and was not designed with full consideration for its impact on the operation of the ICG.

3. From where does the IESO draw its authority to change requirements in a DR Program and is authority absolute?

The IESO has not changed the requirements in the DR Program since the inception of the DRA. Rather, Resolute had been operating under its own interpretation of the program requirements, which interpretation relates to past programs; their interpretation of the DRA only became apparent to the IESO when Resolute's Thunder Bay facility failed a DR activation and Resolute contested the resulting non-performance charges.

4. If we accept Resolute's position, going forward should we not consider demand response and incremental capacity as the same thing?

From a capacity perspective, going forward, under the Incremental Capacity Auction, both demand response and generation will hold capacity values commensurate to their ability to contribute to system reliability (i.e. capacity qualification). Given that Resolute's proposal is focused on clarification of the Market Rules for the existing DR auction, it is important to note that the current DR auction is meant to only compensate the DR capacity available through load reduction at the ICG. The Incremental Capacity Auction will have its own process for qualifying capacity from each resource.

B. Questions on process:

1. An issue was raised with respect to submitting an Exemption Application by Resolute on this issue. I did not follow the IESO response during the TP meeting - what was the reason the IESO was not in favour of this?

The IESO does not oppose Resolute submitting an Exemption Application on this issue. We would note, however, that any Exemption Application would have to be with reference to a specific Market Rule (or Market Rules), and would be subject to approval by the Exemption Review Panel, a subset of the IESO's Board of Directors. For clarity, the IESO is unaware of any DR Market Rule, the exemption from which would assist Resolute in achieving their objective. Rather, Resolute's objective would require the Market Rules to be supplemented with new provisions.

As a point of further clarification, the IESO is unaware of any Market Rule provisions that unfairly discriminate against resources with self-generation, like Resolute's. We are also unaware of any technical limitation preventing Resolute from registering its load facility differently such that it would be capable of providing demand response at the ICG equivalent to the demand response it can provide behind the meter. Resolute is free to register its facility differently, for future auctions, if it elects to do so.

- 2. Are the IESO and Resolute working on a market rule amendment that would ensure that there are no unintended consequences but that would accept the Resolute configuration that was approved in the past? If yes, when will a revised Market Rule Amendment be shared in advance of the April Technical Panel meeting? If no, why not?**

The IESO has worked to identify potential strategies for addressing the inherent risks and challenges Resolute's amendment submission entails. To date the IESO has been unable to identify a way to accept Resolute's proposed configuration for reasons explained in Part 1 above. In good faith, we have invited Resolute to meet and further discuss the obstacles we have identified, and we are open to the possibility that they may be able help us identify potential solutions we have not considered. The IESO has proposed dates for a meeting and remains prepared and willing to meet with Resolute.

C. Questions on reliability / operations::

- 1. From an operations point of view, do we see load management/demand response and generation flowing into the system as equivalent? If not, then what are the operators concerns?**

From an operations point of view, load management and generation flowing into the system are different and cannot be equated. Changes in injections and withdrawals result in different loading on the power system and create different power flow distribution across the power system. When the IESO dispatches a DR resource, it expects a certain reduction in consumption at the ICG and plans its operations accordingly. In the case of injection, the IESO may need to operate differently as the resulting power flow distribution on the power system will be different. Unanticipated flows on the power system may impact both the efficiency of the IAM and the reliability of the ICG.

Aside from operational differences between injections and withdrawals, a key operational concern with Resolute's proposal is that it would result in DR participants reducing less load at

the ICG than they had been activated for. If our market systems economically schedule, or the IESO manually activates a DR resource for 50 MW, the IESO expects a 50 MW reduction at the ICG. On Resolute's proposed amendment, the total ICG demand may only be reduced by a fraction of the expected 50 MW load reduction. On Resolute's proposed amendment, the IESO may only receive a fraction of the activated load reduction at the ICG. This raises a significant reliability concern.

- 2. The Market Manual, part 7.6, System Operations, (Public), page 12, defines demand management as "Measures initiated by the IESO ,... to influence the amount and timing of customer electricity demand." In my opinion this does not include generating and providing power/energy to the grid. Is the definition wrong or being used in a different manner now? The definition has been supplied by the IESO.**

The definition provided is correct. Behind-the-meter generation can assist DR participants in achieving their demand response capacity obligations, but only to the extent that it reduces their load consumption at the ICG.

D. Questions of registration / qualification:

- 1. During the registration process for the DRA, did Resolute provide information in the optional field that asked how the MW's would be delivered? If so, please provide this information if it isn't confidential.**

Since the inception of the DR auction, Resolute has only submitted its load reduction plan once and that was for the 2019 DR auction. For the 2019 DRA, Resolute's Load Reduction Plan stated:

Load reduction plan for the Thunder Bay facility is to shut down its operation of its TMP (thermal mechanical pulp mill) and Paper Machine to obtain and even exceed the level of required contracted capacity obligation.

- 2. It appears that the IESO had no pre-auction qualification test for loads. Loads only had to write down on a Registration Application how much Demand Response they could achieve. Testing only occurred after the fact. Please confirm.**

Yes, the IESO does not conduct any pre-auction qualification tests. The IESO relies on in-market and test activations to assess the performance of DR resources and DR participants are subjected to non-performance charges for not delivering capacity in accordance with their capacity obligation.

3. **Was it a flaw in the IESO process to qualify a resource in the DR Auction by the MW quantity it submitted in its registration? To clarify this question: It seems there is no requirement to prove the DR MW qualification until an IESO DR Activation Test is undertaken. This test was not held in the first year of the DR Auction but it was held in the following year. As a result, had a test been required in an earlier year, this item would have come to light sooner. Conversely, if a test had never been undertaken, this item may never have been noticed.**

The IESO does not believe there is a flaw in how the IESO qualifies resources in the DR Auction. The DR Auction was created to provide a transparent and cost-effective way to select the most competitive providers of DR, while ensuring that all providers are held to the same performance obligations.

The DR Auction's qualification process was designed to balance between encouraging DR participation and appropriately capturing DR resource capabilities. Based on stakeholder feedback received during the DR Auction design, the IESO was made aware that requiring DR participants to prove DR capability prior to the commitment period can cause a higher barrier to participation and would discourage competition. The reason provided by stakeholder participants was that in the capacity qualification timeframe, aggregators may not have fully contracted their contributors' capacity for the commitment period and directly-participating loads may not have finalized their DR capabilities over the commitment period due to commercial uncertainty. Based on this feedback, for the DR Auction, the IESO chose to rely on in-period testing for DR resources to ensure that capacity is available and deliverable. Resources that do not clear testing are subject to non-performance charges and could be further referred to the IESO's compliance department.

As the IESO transitions from the DR Auction into the Transitional Capacity Auction, and eventually the Incremental Capacity Auction, the IESO believes that the value of upfront capacity qualification increases in order to maintain reliability.

4. **Please provide the documentation showing Resolute's proposal for their current demand response configuration. (Resolute)**
5. **Please provide the documentation showing that the IESO (or OPA) accepted Resolute's demand response configuration.**

The online registration process is participant driven. Through an online submission tool, HDR participants select one of their non-dispatchable load resources—already registered with the IESO—to participate in the DRA as an “HDR resource.” The non-dispatchable load resource is already associated with an IESO revenue meter, and the same IESO revenue meter continues to be the associated with the resource when it is selected as an HDR resource. The meter association with the non-dispatchable load facility was made clear to Resolute when they

registered the facility. The IESO has accepted no other metering arrangement for Resolute in the DR Auction.

6. When Resolute transitioned from Contracted DR (CBDR/DR3) into the DRA, did they make any changes to their configuration that triggered the reduction in DR MW's?

Participant DR Capacity Obligations were not transferred from CBDR into the DRA. DR Capacity Obligations are set annually within the DRA, as such, there was no reduction to Resolute's MW when they entered DRA as a participant. Rather, the rules that Resolute wished to rely upon in order to achieve their capacity obligation were not carried into the DRA for the reason described in Part 1, and the IESO's answers in Part 2, section A. The IESO believes that Resolute could still achieve this MW capacity under the rules applicable to the DRA, but it has elected to register and operate its facilities in a manner that excludes this possibility, for its own business reasons.

E. Questions on cost:

1. It is my understanding from the discussion last week that Resolute is compensated by two revenue streams: a power purchase agreement for the energy and a demand response commitment. In light of the Resolute configuration (and without discussion the specific contractual terms) does the 2 streams of revenue generate over compensation? If not, why not?

The IESO is unable to answer this question directly as it is under an obligation of confidentiality to Resolute pursuant to the terms of Resolute's PPA.

In general terms unrelated to Resolute's PPA or to revenues received by any market participant arising directly from generation, a DR participant could utilize Resolute's proposed amendment in ways that would provide no additional benefit to Ontario's ratepayers. For example, a DR participant's facility with a behind-the-meter generator could receive treatment as a gross load for the purposes of calculating its DR capacity contributions while inconsistently being treated as a net load for the purposes of calculating their global adjustment charge (resulting in a lower charge than they would receive if they were treated consistently throughout the IAM).

2. From a consumers point of view, I would prefer that the IESO use the lowest cost option, demand response / incremental capacity, to keep the system stable. Do we have any insight as to what option is best for the consumer?

Resolute's proposed amendment would result in a dramatically less cost effective demand response product for Ontario ratepayers. By reintroducing the inefficient DR3/CBDR method for calculating DR capacity, DR participants would receive availability payments for MW they would not be required to deliver to the ICG on activation. A hypothetical facility receiving

payment for a 50MW capacity obligation may, for example, only be expected to provide 30 MW to the ICG on activation.

- 3. If some compromise were to be provided to accommodate Resolute, are we certain that others in a similar circumstance will not want the same treatment? Are we obligated to treat all market participants in the same manner?**

The IESO is committed to treating equally all market participants who share the same circumstances. If Resolute's proposal were accepted, it would result in other market participants in the same circumstances being treated in the same manner, increasing the risk to reliability, and resulting in significant unwarranted costs to ratepayers.

- 4. The IESO presentation (page 14) acknowledged that the Resolute configuration could potentially benefit ratepayers. Is the IESO able to quantify this benefit even in general terms? Specifically, does the combination of 30 MW of reduced demand and 25 MW of injection provide a similar benefit to 55 MW of demand reduction?**

The IESO does believe that injections can be beneficial to a market based Capacity Product. However, as stated above in question C1, from an operations point of view, load management and generation flowing into the ICG are not operationally equivalent.

Moreover, DR capacity is realized through load reduction. DR resources, or DR combined with generation resources, will continue to participate in the TCA and ICA as distinct from generation only resources. However, redefining DR capacity as a combination of load reduction and generation injection to the ICG requires careful examination in order to avoid unintended consequences to reliability and to ratepayers cost.

On the IESO's current understanding of Resolute's proposed operational model for its own DR resource, they are not, in any case, proposing to achieve their capacity obligation through direct injections to the ICG.

F. Questions related to the Transitional Capacity Auction

- 1. I assume that the new Transitional Capacity Auction (TCA) will be of no immediate value to Resolute's issues for the following reason:
The TCA Phase 1 is only looking at dispatchable Generators**

Phase 1 of the TCA program is focused on enabling generation from non-contracted, non-regulated dispatchable generators that can provide capacity to the ICG.

- 2. Will the treatment of behind-the-meter injection resources be dealt with in the upcoming Transition Capacity Auction (Phase 1 or Phase 2) consultation?**

We will seek to enable existing market resources to participate in a future TCA. Phase 1 of the TCA will only enable dispatchable generators. As such, market participants with non-contracted, non-regulated behind-the-meter generators could participate in Phase 1 by separately registering their generator as a standalone dispatchable generator (not behind the meter self-scheduling generator), enabling them to participate as an HDR (load) and a dispatchable generator for all IESO programs.

G. Questions on Resolute's facility / operations:

- 1. Could the IESO provide a detailed definition of the two categories of Demand Auction participants identified in section 6.2.1 of Market Manual 12.0, and used in section 6.3.2 Measurement Data Submissions, and reflect on whether these are sufficiently well defined, including appropriate Revenue Meter channels references, to unambiguously capture the unique configuration of Resolute's Thunder Bay facility if the additional Revenue Meter (non-dispatchable generator) is included in the measurement and calculation.**

An hourly demand response resource (HDR) may consist of either physical or virtual contributors. Physical contributors are non-dispatchable load facilities which are IESO revenue metered and virtual contributors are distribution-connected load facilities which are LDC revenue metered.

Market Participants that withdraw and inject energy from and into the ICG participate in the physical market as both a load facility (as measured by channel 1 of the IESO revenue meter) and a generation facility (as measured by channel 3 of the IESO revenue meter). HDR resources can only be associated with non-dispatchable load facilities and by virtue of this association, only the withdrawal from the ICG (channel 1 of the IESO revenue meter) is used to measure the DR capacity.

To ensure that DR capacity for virtual contributors is measured in the same manner, section 6.3.2 of Market Manual 12 describes how meter data from the LDC meter must be processed and submitted to the IESO by the demand response market participant (DRMP). This detail is needed to ensure that injections into the distribution grid from virtual contributors are not used to measure the DR capacity.

The IESO revenue meter associated with Resolute's non-dispatchable load facility measures the electricity it consumes from the ICG and is used to settle all market transactions including their DR capacity obligation.

In the IESO's opinion, all of the above is sufficiently well defined.

2. **Confirm that the energy in question that is being injected into the IESO grid under the DR Program is from the generation facilities that received an award from the Ontario Centres of Excellence (OCE) TargetGHG Industrial Demonstration Program? (for Resolute)**
3. **Confirm that no IESO or OPA funding has been or is being provided or awarded to the generation facility in question?**

Resolute is a party to a CHP III contract with the IESO.

4. **Does acceptance into the IESO DR Program obligate the IESO to procure services from Resolute?**

No, acceptance into the DRA program as a Demand Response Auction Participant (DRAP) only allows the participant to participate in the auction. Only DRAPs that clear the DR auction receive a DR capacity obligation (and they become Demand Response Market Participant).

5. **Can the IESO identify in any program, documents or contracts that Resolute is restricted from injecting energy into the IESO controlled grid under the DR Program in question?**

Resolute is not restricted from injecting energy into the ICG. However, as per the design of the DRA program, generation injections would not count towards their DR capacity obligation.

6. **Does the IESO hold the authority to curtail or reject Resolute's energy injections into the IESO grid? If so under what conditions?**

The IESO holds the authority to direct any market participant including non-dispatchable load or self-scheduling generation to take, or to refrain from taking, any action as necessary to maintain reliability of the IESO-controlled grid (as per Market Rule Chapter 5 Section 5.1.2.6).

7. **Was Resolute aware that the IESO DR related program had changed a few years back? I assume as part of their Market Participant Agreement they should have been? It appears that the DR program went from a contract based mechanism to an auction. Presumably, this means that it went from a "one-on-one" negotiated contract mechanism to a market based auction mechanism with its own Market Rules. (Resolute)**

