

25 Adelaide St. E
Suite 1602
Toronto ON, M5C 3A1



APPRO
ASSOCIATION OF
POWER PRODUCERS
OF ONTARIO

May 11, 2018

Independent Electricity System Operator
Attention: Market Renewal Project Team
1600 – 120 Adelaide St. West
Toronto, ON M5H 1T1

**RE: Written Submission of the Association of Power Producers of Ontario (APPRO)
Enhanced Real-Time Unit Commitment (March 29, 2018 Materials)**

The Association of Power Producer of Ontario (APPRO) would like to thank the IESO for the opportunity to comment on the Enhanced Real-Time Unit Commitment (ERUC) materials presented at the March 29, 2018 session. APPRO is a trade association representing Ontario independent power producers and over 100 suppliers of services, equipment and consulting services. APPRO members produce power from co-generation, hydro-electric, gas, nuclear, wind, energy waste wood and other sources. Generator members include:

- | | |
|--------------------------------|-------------------------------------|
| 1. Algonquin Power | 11. Kruger |
| 2. Bruce Power | 12. Markham District Energy |
| 3. Brookfield Renewable Energy | 13. Northland Power |
| 4. Capital Power | 14. Oakville Enterprises |
| 5. Capstone | 15. Portlands Energy Centre |
| 6. ENGIE | 16. Regional Power |
| 7. Goreway Station | 17. St. Catharines Hydro Generation |
| 8. Greenfield Energy Centre | 18. TransCanada Energy Ltd. |
| 9. GTAA | 19. TransAlta |
| 10. H2O Power | 20. Toromont |

APPrO's comments will focus on the following design elements:

- Design Element 3: Timing and Frequency of Runs
- Design Element 8: Market Participant Data (Lead Time)
- Design Element 10: Offer Changes
- Design Element 13: Failure Charge
- General Comments

DESIGN ELEMENT 3: TIMING & FREQUENCY OF RUNS

With respect to T+1 and T+2, the IESO indicated that schedules will be published no later than 15 minutes past the hour. In this circumstance, a generator will likely only receive 45-minutes notice with respect to shut down, making it difficult for some facilities to initiate and complete the shutdown sequence. Although, it is feasible, it is important to note that operations of the equipment in each facility differs from facility to facility and in some instances 45-minutes may not be sufficient. This is a difference from current market requirements. In the current market the generator is able to determine when it will shut down, providing it enough time to initiate and execute the shutdown sequence. In the future market with market power mitigation (MPM), and the hour-to-hour commitment by ERUC, it will become increasingly difficult for generators to determine their shutdown hour.

With respect to shutdown, APPrO would like to reiterate a comment that has made previously: there needs to be clarity provided as to how MPM is expected to work alongside shutdown offers. Generators will need to have the capability/flexibility to signal when they need to come off-line without being unduly mitigated and/or forced to operate when they may not be capable of doing so (e.g., due to transport or fuel limitations).

DESIGN ELEMENT 8: MARKET PARTICIPANT DATA (LEAD TIME)

The ERUC project, when complete, is expected to make the most economic commitment decisions with the introduction of three-part offers and the elimination of after-the-fact cost submissions in the real-time. As currently anticipated, the ERUC engine is expected to make commitments on an hour-by-hour basis; however, APPrO believes this could limit the IESO's operational flexibility and likely diminish the benefits expected to be achieved by ERUC. APPrO believes that ERUC could provide even greater economic and commitment efficiencies if it were to allow for/capture full-speed no load (FSNL) operations of natural gas fired (NGF) generators.

Currently, Ontario's electricity system has two peaks, a morning peak and an evening peak. Generators who are on-line for the morning peak often times get dispatched-off after their MGBRT and dispatched back on-line several hours later in time for the evening peak; bringing with it additional costs associated with the second start. ERUC could eliminate the second start-up cost component and provide considerable savings if the market participant had the option to inform the IESO that it could operate at FSNL up to a maximum number of hours (max number of FSNL hours to be determined by the individual participant). This indication could provide the IESO operational flexibility by allowing the DSO to optimize the remainder of the day and dispatch the generator to operate at FSNL in order to help bridge the gap between the morning and evening peak. In conjunction with multi-interval optimization (MIO), this would allow the ERUC engine to determine whether it is more efficient to completely shut down a generator and

restart it (or another unit) later in the day, or request that it operate at FSNL. The benefits associated with implementing a FSNL indicator is both in operational flexibility and cost savings to the market by providing a make-whole payment only for the fuel consumed during FSNL operations rather than for the initiation of a second start.

Should the IESO agree and include consideration of FSNL operations, this would require market participants to register their FSNL lead time data, in addition to those highlighted on slide 36.

DESIGN ELEMENT 10: OFFER CHANGES

APPPrO understands the rationale for restricting certain offer price and non-price offer changes after a unit is committed. However, some flexibility will be required in situations where an offer price (and non-price offer) change may be warranted.

To enforce offer restrictions, APPPrO does not believe attempts to change offers should be automatically prevented. As mentioned in our submission on market power mitigation, there may be occasions where generators may need to offer outside of the safe-harbours. Similarly, there may be rare occasions a change to offer prices may be valid. In these circumstances the generator should have the flexibility to change its offer and discuss with the appropriate IESO personnel without the offer being automatically overridden or referred to the Market Assessment and Compliance Division (MACD).

However, in an attempt to reduce potential breaches of the market rules and in turn reducing compliance infractions, APPPrO suggests the IESO implement a pop-up window warning the market participant that it is attempting to change its offer. This would serve as a warning (in case the participant mistakenly attempted to change the offer or if the change was in fact valid) but provides the flexibility for the participant to make the change. In the detailed design stage, it could be contemplated that a “reason code” for the offer (or non-price offer) change could be applied alongside the change.

DESIGN ELEMENT 13: FAILURE CHARGE

It is important to note that failure charges will be a new construct in a future market, and with it bringing additional (new) risks that suppliers are currently not exposed to. Generators will have a binding financial commitment associated with the Day Ahead Market (DAM), and should that generator incur a forced outage in real-time (RT) *not only* will it be exposed to price differences between DAM and RT, but it will also be exposed to failure charges for not meeting its commitment in the real-time market. APPPrO would like the IESO to clarify whether it is the IESO’s intent to penalize the generator twice for the same event (which seems both excessive and unworkable). These potential new risks will also have contractual implications.

Lastly, the IESO has communicated that insufficient fuel is not an acceptable reason for failing to meet a commitment and is within the control of the generator. However, the decision to procure or arrange for gas is influenced by both the IESO’s commitment timelines and prescribed gas procurement/nomination timelines. Therefore, exemptions and/or flexibility may be required with respect to this operational restriction and the associated failure charge. As an example, a NGF generator who does not receive a DAM schedule will be solely reliant on ERUC for a potential commitment; impacting their ability to procure fuel and access

transportation services in real-time. Although fuel procurement and delivery can be accommodated, NGF generators require enough lead time after receipt of the ERUC commitment to arrange for the procurement/delivery of fuel to the facility.

Understanding the fundamentals of how the natural gas market operates and procurement/nomination timelines would provide benefit with respect to determining any potential exemptions and/or flexibility required with respect to this design element and the inability to access fuel and/or transportation.

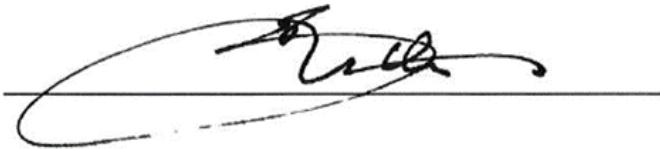
APPPrO reiterates its recommendation from its April 16, 2018 (Pre-Approved Operating Restrictions) submission that the IESO hold a session between NGF generators, the IESO and natural gas transportation companies (i.e. Enbridge, Union and TCPL) to better understand the interplay between the natural gas market and the electricity market and the specific concerns of APPPrO on this issue and others highlighted in prior submissions.

GENERAL COMMENTS

APPPrO would like reiterate comments made at one stakeholder engagement session where it was suggested that the pseudo-unit model (PSU) should be incorporated into the ERUC model. This would allow for more efficient scheduling of combined cycle units, ensuring the operational relationship between the steam turbine and the combustion turbines is preserved.

Should you have any further questions on this submission, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Butters', is written over a horizontal line. The signature is stylized and cursive.

David Butters
President & CEO