Capital Power Corporation
1200, 401 9th Ave. SW
Calgary, AB T2P 3C5
T 403.717.4600
www.capitalpower.com

July 31, 2020

Mr. Shawn Cronkwright
Director, Market Renewal Operations
Independent Electricity System Operator
1600-120 Adelaide Street West
Toronto, ON M5H 1T1

Dear Mr. Cronkwright,

Re: Market Renewal Program ("MRP") Energy Stream Design Documents ("EDD") Stakeholder Comments

In addition to feedback submitted via the attached comment matrices, Capital Power offers high-level MRP comments below. First and foremost, Capital Power appreciates the work undertaken by the IESO and its staff to advance this initiative. The IESO has demonstrated a sustained effort to communicate its plans to stakeholders – an activity made no easier by the COVID-19 pandemic. Through its engagement the IESO has, in many ways, helped stakeholders identify issues and work towards solutions while recognizing much work lies ahead. Capital Power remains committed to actively and constructively participating in the MRP design process. To this end, key areas of concern and proposed recommendations are provided for consideration.

1. Unique Ontario Features Must be Taken Into Account

   The IESO is introducing a series of somewhat standard elements of market reform in Ontario – a market with highly unique and idiosynchratic features. Capital Power's concerns with this approach are largely set out in its comments on the Market Power Mitigation Framework, but the weaknesses inherent in such an approach to market design are arguably self-evident. When the vast majority [>80%] of supply in the IESO-Administered Market ("IAM") remains subject to rate-regulation or is under contract, it remains unclear what economic function the markets for energy and ancillary services serve. Without a clear articulation of the purpose of these markets when such a large share of economic and operational incentives are de-coupled from market prices, market performance cannot be measured and market failures will be difficult to remedy. This lack of clarity and transparency is of concern to Capital Power and should be addressed by the IESO as part of the MRP EDD. An additional section, for example, could be included in the next version of the draft to show how key detailed design choices reflect the unique features of Ontario and advance the broader MRP objectives.

2. Governance Framework Needs Enhancement

   When the MRP was launched in 2016, the IESO established principles to guide its design activities.[1] As the MRP engagement progressed into detailed design however, the IESO did not demonstrate how it would objectively evaluate proposed elements and assess whether various design options would advance, or in fact undermine, these guiding principles. This has led to many remaining questions regarding not only how the proposed changes will affect market performance, participants and contracted assets, but it has also revealed deficiencies in the overall governance framework. Capital

[1] In a 1-page document, the IESO outlines its "Market Renewal Mission and Principles." The 5 principles identified were: i) efficiency, ii) competition, iii) implementability, iv) certainty, and v) transparency. Accessed online:< http://www.ieso.ca/-/media/Files/IESO/Document-Library/market-renewal/market-renewal-mission-principles.pdf>

Power recognizes that the IESO has made efforts to improve its governance framework but believes that significant work remains to be done. As part of the next versions of the MRP EDD, Capital Power encourages the IESO to explicitly include i) how the changes meet the established principles; and ii) enhancements to the governance framework for new market elements.

3. Holistic Consideration of Market Design Is Required

   By defining how the proposed details meet the MRP objectives and principles as well as providing supporting analysis, the IESO could greatly improve stakeholder confidence and help ensure the overall market design continues to meet these expectations. This principle should apply to all IESO design initiatives, including the Resource Adequacy and Capacity Auction engagements. The adoption of such a framework and holistic consideration of how each of these fundamental elements work in conjunction with each other would also help to addresse two additional concerns:

   - Ongoing challenges related to the staggered release of design documents; and
   - Design documents lack necessary clarity needed to assess the probable impact of market reform on market and contract revenue streams.

   Capital Power appreciates the IESO's efforts to ensure the timely release of Detailed Design documents and its resassurance that stakeholders will have an opportunity to review collectively. A reasonable opportunity to consider all proposed design changes together is imperative so that stakeholders can identify interdependent issues and focus on providing targeted feedback rather than seeking additional information. Capital Power also emphasizes that stakeholder comments, questions and concerns will need to be revistited once all required information has become available.

4. Ensure Reasonable Process for Contract Amendment Considerations

   Finally, as the IESO is aware, changes resulting from MRP will result in rule and manual changes triggering contract amendments. This fact only further amplifies the importance of clarity and transparency in the IESO processes, as well as the need for sufficient opportunities for stakeholders and contracted suppliers to conduct their respective reviews. Capital Power appreciates the IESO's efforts to proactively communicate its views to contracted suppliers, but suppliers must be given an opportunity to assess the impact of the proposed changes prior to the amendment process. In the context of MRP, this means that Design Documents need to be released with enough detail and time for stakeholders to effectively assess the impact of all MRP changes, taken together, on the contracts.

Capital Power would like to discuss these and the detailed comments with the IESO ahead of the forthcoming stakeholder engagement planned for the fall. Please feel free to reach out to the contacts provided in each of the attached comment matrices.

Regards,

Santi Churphongphun
Manager, Regulatory and Environmental Policy

MRP Energy Detailed Design
Design Document: GRID AND MARKET OPERATIONS INTEGRATION

Stakeholder Feedback Form

Date Submitted: *YYYY/MM/DD* **Feedback Due**: July 31, 2020	**Feedback provided by:** Company Name: Capital Power Contact Name: Chris Sutherland Phone: [redacted] Email: [redacted]

The IESO is posting a series of detailed design documents which together comprise the detailed design of the MRP energy stream.

This design document is posted to the following engagement webpage: http://ieso.ca/en/Market-Renewal/Energy-Stream-Designs/Detailed-Design.

Stakeholder feedback for this design document is due on **July 31, 2020** to engagement@ieso.ca.

Please let us know if you have any questions.

IESO Engagement

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General feedback on the Detailed Design Document (please expand this section if required)
Capital Power appreciates the opportunity to provide the following comments and questions on Grid and Market Operations Integration detailed design. Notably, the detailed design document lacks necessary details relating to the governance requirements that will apply to manual intervention by the IESO. Without clear governance controls limiting the frequency and type of manual interventions, it is not clear how price fidelity will be preserved. Weak governance controls on manual intervention decisions will affect a range of design elements, from the generation of demand forecasts to the scheduling of incremental operating reserve required for system flexibility, thereby impacting scheduling, pricing, and resource dispatches. Details of the governance framework should be published in the next round of detailed design documents. Once all detailed design decisions can be reviewed together however, Capital Power and other stakeholders will be able to provide more focused and comprehensive feedback.

Design Document: Section	**Detailed Comments (Areas of Support or Concern)**
1. Introduction	No comments currently.
2. Summary of Current and Future State	No comments currently.
3. Functional Design	
2.2.2 PD Scheduling	• If the Pre-Dispatch ("PD") scheduling run starts at 20:00, it is unclear how Non-Quick Start ("NQS") generators with a cold start profile can or will receive a

Design Document: Section	Detailed Comments (Areas of Support or Concern)
	schedule for HE1. Should the PD calculation engine detailed design document not provide this information, Capital Power requests that the IESO clarify.
3.3.1 Availability Declaration Envelope (ADE)	• The ADE framework, has the effect of a must-offer requirement, and yet it will not apply to all resources. – There are benefits to a simple must-offer requirement, but the IESO is proposing to retain the ADE while also administering a complex *ex-post* mitigation framework targeted at physical withholding. The design, taken as a whole, presents inefficiencies that will place unnecessary administrative burdens and costs on both market participants (MPs) and IESO. • If the IESO decides to move forward with the proposed Market Power Mitigation ("MPM") framework for physical withholding, any form of ADE must be necessarily flexible as capabilities and actual energy production will not be static and will frequently change due to prevailing conditions (e.g., ambient temperature, etc.). Offer quantities in the Day-Ahead Market ("DAM"), PD, and Real-Time Market ("RTM") will change based on these conditions. Therefore, considering the planned introduction of ex-post physical withholding MPM, there may be excessive administrative communication requirements between Market Participants and IESO regarding actual ADE quantities and their application to ex-post physical withholding.
3.3.4 Hourly Dispatch Data	• This section (pg.19) indicates that offering operating reserve ("OR") is optional. Capital Power strongly supports this design decision. A generator's ability to mange their contract risk is impacted by rules mandating offers of operating reserve. CES contracts are deemed on energy revenue not operating reserve. • This optionality is at odds with the requirement to offer operating reserves in the proposed MPM design. Capital Power recommends that the IESO make clear that offering operating reserves is optional and that this is consistent across all detailed design documents.
3.3.5 Daily Generator Data	• A parameter for maximum loading point for energy available to provide OR is required for MPM and pseudo unit modelling. Conflicts will occur with MPM and the restrictions under the ADE otherwise.

Design Document: Section	Detailed Comments (Areas of Support or Concern)
3.3.7.2 ADE	• Building on all comments made under 3.3.1 above, more details are needed regarding the triggers for when the IESO may request additional offers from generators that will permit energy and OR supply in RTM greater than their respective facility specific ADEs. • This design element has the potential to reduce system flexibility and cause unnecessary administrative burden to the IESO and Market Participants.
3.3.7.3 Revision Rules for NQS	• It is reasonable for the IESO to not permit revisions to associated values of respective start-up offers after that generator has received both financially binding schedules and operational commitments from DAM. However, it is not clear under what circumstances a generator will receive a financially binding schedule from DAM and not receive an operational commitment. • If NQS generators do not receive an operational commitment they should not be restricted from revising their offers in PD and RTM (i.e., start-up, speed no-load and energy). Lifting these restrictions will improve market efficiency and better ensure resource adequacy in RTM. • The IESO should consider more flexibility regarding offer revisions from NQS generators to enable better reflection of costs closer to real-time dispatch. Without additional flexibility to revise offers, even in some circumstances where NQS generators have been scheduled and/or committed from DAM, there may be instances where these generators will be forced to offer in higher prices in DAM if there is a possibility of cost increases between submission of DAM offers and real-time operations. Further, this needs to be considered within the economic withholding MPM framework.
3.3.7.6 RTM Restricted Window	• Regarding revision rule exceptions, the IESO has proposed that where PSUs are operating in combined-cycle mode, that these PSUs may only switch to single-cycle mode for RTM operations if the ST experiences a forced outage. More flexibility should be considered to permit single-cycle mode operations in RTM, if such change from combined-cycle operations enhances the generation facility's ability to best meet power system needs in RTM. This provision will be of mutual benefit to generators with this capability while enhancing market efficiency and supply adequacy.

Design Document: Section	Detailed Comments (Areas of Support or Concern)
	• MLP changes should be permitted so that when a Combined Cycle Generator utilizes the Pseudo model, they may need to change their MLP based on the configuration they secured in the DAM. Pseudo units are modelled as independent 1x1 units which may have different limitations than 2x1.
3.3.7.7 Restrictions with PD commitments	• Offer price restrictions are reasonable after pre-dispatch commitments have been made to NQS generators. However, permitted exceptions should be allowed where supported by legitimate reasons (e.g., increase in fuel costs and/or applicable fuel services). • What is the process to have the IESO approve offer changes based on fuel prices? This has the potential to be an administrative burden to both the IESO and the participant. Capital Power believes that changes should only require approval for MWs included in a binding schedule, and unscheduled energy or OR should not be bound by previous market conditions no longer observed.
3.4.2.2 OR Requirement and 3.5.2.4 Additional OR	• The IESO has the ability to secure additional 30R to meet power system needs. When determined to be required, the IESO has proposed to schedule this additional 30R as an input in the DAM calculation engines. The IESO needs to provide more details regarding under what circumstances will the IESO secure additional 30R within DAM and how the market will be notified in advance.
3.4.2.4 Security Constraints	• The IESO allows itself the flexibility to constrain on a Combined Cycle facility in Single Cycle mode to allow it to start quicker. For the same reason a Generator should be able to offer in single cycle mode during the dispatch day without restriction to provide the market with greater system flexibility.
3.4.2.5 and 3.5.2.3 Reliability Constraints. 3.6.2.1 Reliability Commitments prior to 20:00 EST	• In order to help maintain power system reliability, the IESO may require certain generators to be on-line and/or generating at a certain output level. The IESO has proposed that this requirement, when needed, will be an input to the DAM calculation engines. Considering the locations of some assets with proximity to load centres and the potential to be in a constrained area, there may be potential for the IESO to determine that certain assets will be needed on-line through the above manner to help meet power system reliability needs. This will occur more often for some generators than others. Accordingly, more details are needed regarding when the IESO will require certain generators to be on-line and how the IESO will determine which generators will be needed on-line.

Design Document: Section	Detailed Comments (Areas of Support or Concern)
3.4.5 Demand Forecast	• Demand forecasts are extremely important as they impact scheduling, prices, and dispatches. Due to the importance, more clarity is required around the rules for adjusting and overriding the demand forecasts.

3.5.4.2 Determination of Hydroelectric Generation Facility Schedules	• Hydroelectric generating units (particularly located on cascade river systems) will be afforded with increased flexibility regarding scheduling/dispatch and operations through new registration data and new dispatch data to be included within offer data – DAM, PD, and RTM:
	  ○ Minimum hourly output;
	  ○ Hourly-must run;
	  ○ Linked resources, time lag and MWh ratio;
	  ○ Forbidden regions;
	  ○ Maximum number of starts per say; and,
	  ○ Minimum daily energy limit.
	• Rationale for increased flexibility through additional facility registration data and offer data is to better respect regulations regarding water management and to therefore more efficiently schedule/dispatch energy and/or OR from applicable hydroelectric generating units (capabilities of generating units and overall market efficiency).
	• However, the proposed new framework for quick start hydroelectric generating units is untested, as nothing like it exists in any other Canadian or U.S. wholesale electricity market (due to relatively smaller shares of hydroelectric generation), and it has potential to advantage applicable hydroelectric generating units while disadvantaging other resources (i.e., due to minimum hourly output, hourly must-run, minimum daily energy limit, as this could result in other resources not being dispatched (i.e., curtailed) to permit energy production from applicable hydroelectric generating units). All other resources should be afforded the level of flexibility to ensure no one fuel or technology type is provided an unfair advantage vis-à-vis market design.

3.5.5.3 NQS Operational Commitments (also 3.7.2)	• When an NQS DAM commitment is passed to the PD a minimum constraint is put into the schedule for MLP and MGBRT. If RT/PD prices drop and a Generator loses their schedule following the constraint, the design may impose on a

Design Document: Section	Detailed Comments (Areas of Support or Concern)
	Generator a financial liability if prices subsequently spiked after being dispatched to shut down. Can the IESO please clarify?
3.6.2.1 Reliability Commitment	• The issue illustrated in this section shows that a 20:00 EST PD run is too late for NQS generators to compete for off-peak hours of the next dispatch day. Unless the generator's status is hot, they cannot receive a schedule for HE1 in the next dispatch day. The fact that the IESO recognizes this for the purposes of reliability would indicate this time is too late and suggests reconsideration for the runtime is required
3.7.2.1 De-Commitment	• NQS resources sometime double cycle, which provides the system with flexibility to cover a morning and an afternoon peak. The process described on page 69 highlights the need for the IESO to add a fourth state for NQS generators. Full Speed No Load (FSNL) will allow generators to ramp back up for a second start much quicker than a hot start, providing the system with greater flexibility. • For similar reasons, generators should be allowed to select Single Cycle mode within the dispatch day.
3.7.2.1 De-Commitment	• If a generator has received two separate schedules in the DAM, they will have financial exposure if they do not deliver on their schedule. The decommitment process appears to put a generator at risk of not meeting that schedule. If the generator is dispatched economically beyond the end of their first schedule, they may run out of time to cycle and meet their second schedule. Bridging the schedule seems to be at the discretion of the IESO. This will present DAM/RT financial risk, opportunity costs, and potentially contract risk to generators that are unmanageable.
3.8.2 Replacement Offers	• The retirement of the RT-GCG will not eliminate the need for replacement offers. If a unit trips and another unit is available to replace it, that option should still exist. The design description indicates it is unnecceasy because the system will evaluate a replacement unit economically, however this may not be the case due to timing. A participant should be able to replace the forced-out unit using the same offer prices. This may require opening the mandatory window to allow adjustments and a manual constraint to be applied to meet the timing.

Design Document: Section	Detailed Comments (Areas of Support or Concern)
4. Market Rule Requirements	• No comments currently.
5. Procedural Requirements	• No comments currently.
6. Business Process and Information Flow Overview	• No comments currently.