Power Advisory LLC

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Dear Leonard,

This submission responds to the Independent Electricity System Operator (IESO) September 28, 2020 presentation, *Resource Adequacy Stakeholder Engagement* [1], that launched the Resource Adequacy stakeholder engagement initiative.

Power Advisory LLC has coordinated this submission on behalf of a consortium of renewable generators, energy storage providers, and industry associations (i.e., the "Consortium"[2]). This submission comments on points made during the September 28 webinar, considerations and recommendations towards IESO developing a Resource Adequacy Framework for Ontario, and responses to IESO posed questions contained within the September 28 presentation.

The Consortium supports the launch of the Resource Adequacy stakeholder engagement, and is particularly pleased that IESO has acknowledged that multiple mechanisms (e.g., Capacity Auctions, Request for Proposals (RFPs) and contracts, etc.) are needed and will be used to ensure reliable and cost-effective resource adequacy and supply within Ontario's electricity market. These points have been supported by the Consortium, as documented within the following past submissions:

- May 17, 2019 submission[3] commented on the draft Incremental Capacity Auction High-Level Design, efficacy of capacity markets, and need for contracts within Ontario's electricity market;
- July 25, 2019 submission[4] recommended that IESO launch a resource adequacy stakeholder engagement to broadly explore and determine effective and pragmatic mechanisms within Ontario's unique framework to address resource adequacy and supply needs; and,

[1] See http://www.ieso.ca/en/Sector-Participants/Engagement-Initiatives/Engagements/Resource-Adequacy-Engagement

[2] The members of the Consortium are: Canadian Renewable Energy Association; Axium Infrastructure; BluEarth Renewables; Boralex; Capstone Infrastructure; Cordelio Power; EDF Renewables; EDP Renewables; Enbridge; ENGIE; Evolugen (by Brookfield Renewable); H2O Power; Kruger Energy; Liberty Power; Longyuan; NextEra Energy Canada; Pattern Energy; Suncor; and wpd Canada.

[3] See https://www.ieso.ca/Market-Renewal/Stakeholder-Engagements/Market-Renewal-Incremental-Capacity-Auction

[4] See http://www.ieso.ca/Market-Renewal/Stakeholder-Engagements/Update-Meetings

- November 7, 2019 submission recommended scope and objectives for the Resource Adequacy stakeholder engagement.

Overall, any Resource Adequacy Framework to be implemented by IESO through its development with market participants (MPs) and stakeholders should acknowledge that Ontario is unique, through necessary use of multiple mechanisms to meet resource adequacy considering its market structure and design. As seen in the table of resource adequacy mechanisms in Appendix A, compared to other jurisdictions, Ontario has used multiple mechanisms to ensure resource adequacy and should continue to do so in the future.

Applicability of Market Renewal Program Principles towards Developing a Resource Adequacy Framework

The Consortium supports the use of the following IESO Market Renewal Program (MRP) principles towards establishing a Resource Adequacy Framework.

- *Efficiency* – focus on efficient outcomes to reduce system costs
- *Competition* – provide open, fair, non-discriminatory competitive opportunities for participants to help meet evolving system needs
- *Implementability* – work together with our stakeholders to evolve the market in a feasible and practical manner
- *Certainty* – establish stable, enduring mechanisms that send clear, efficient price signals
- *Transparency* – accurate, timely and relevant information is available and accessible to participants to enable their effective participation to meet system needs

The Consortium recommends that the description of the above listed principles from MRP be reviewed and amended to better capture intent towards developing a Resource Adequacy Framework and acceptable outcomes of the Framework. For example, the description of the "certainty" principle should be expanded to include efficacy towards best ensuring resource adequacy needs are met within a timely manner. Such a principle will be key towards selection of a resource adequacy mechanism(s) that will best ensure specific power system reliability needs will actually be met on time. This point also holds true for meeting specific policy objectives relating to resource adequacy.

The Consortium also recommends that "reliability" be added as a principle, considering its importance to resource adequacy itself and therefore developing a Resource Adequacy Framework.

Scope of Resource Adequacy Framework

The Consortium supports IESO's overarching points and direction regarding a Resource Adequacy Framework to be developed for Ontario. For example, the Consortium agrees with the following IESO points, as listed within the September 28 presentation.

> "Ontario has a diverse supply mix with the majority of resources being rate-regulated or contracted; these resources provide the bulk of Ontario energy, capacity and ancillary services"
>
> "Although every resource type has strengths and limitations, in aggregate Ontario's portfolio diversity significantly enhances reliability"
>
> "IESO can build on lessons learned from past procurement practices and find ways to lower the total cost of the system by keeping acquisitions better aligned with evolving system needs"

The Consortium also agrees with IESO's proposed Resource Adequacy stakeholder engagement objective.

> "Establish a framework to competitively acquire capacity to meet short, mid, and long-term electricity system needs in a way that: effectively balances cost and risk and; ensures full implementation in time to address larger capacity needs forecast to begin in 2028"

This objective should be slightly amended to recognize on-going evolution of Ontario's wholesale electricity market, as is the case with the broader electricity sector across all jurisdictions, and reinforce cost effective reliability where competition is maximized while recognizing timing requirements of different resource types towards maintaining needed assets and developing needed new projects.

The following are additional points to work through within the Resource Adequacy stakeholder engagement, and the Consortium recommends that important linkages between key components (e.g., temporal, resource adequacy mechanisms) within the Resource Adequacy Framework and key decision points need to be discussed:

- Clear, transparent, and timely data and information from IESO power system planning documents to be used towards determining Ontario's resource adequacy needs, which will assist with determining investment decisions for existing assets and potential new projects to meet these needs;
- Potential evolution of Capacity Auctions regarding meeting short-term resource adequacy needs;
- Options for operating generation facilities post expiry of contracts;
- Decisions when to administer RFPs/contracts towards meeting medium- and long-term resource adequacy needs;

- Clear descriptions of what "short-term", "medium-term", and "long-term" timelines are and how they will be defined relative to determining timeframes of resource adequacy needs and selection of mechanisms to meet needs;
- Process to review and design RFPs/contracts towards making improvements to previously administered RFPs, other potential procurement programs (e.g., standard offers), and contracts;
- Circumstances and conditions where sole source project negotiations may be appropriately used towards executing contracts, including any framework to assess unsolicited projects;
- Eligibility rules for participation within Capacity Auctions, RFPs, and other procurement programs; and,
- Governance, decision-making, and recourse regarding design/rules of resource adequacy mechanisms and their results.

The Consortium expects these and other questions and key points to be addressed within the Resource Adequacy Stakeholder engagement throughout 2021.

As listed in Appendix B, the Consortium recommends that IESO use the High-Level Ontario Resource Adequacy Framework (which is consistent with objectives, scope, and content of the September 28 presentation) as a starting point towards building out the balance of the Resource Adequacy Stakeholder engagement. The High-Level Ontario Resource Adequacy Framework in Appendix B was created by the Consortium and supply-side associations active within Ontario[5].

Resource Adequacy Stakeholder Engagement Plan and Timelines to Develop Resource Adequacy Framework and Administering Resource Adequacy Mechanisms

After consensus has been achieved with MPs and stakeholders on a high-level Resource Adequacy Framework and stakeholder engagement objective by the end of this year, IESO should structure a series of stakeholder engagement meetings organized by the following topics towards addressing details regarding the above listed linkages between key components within the Resource Adequacy Framework and key decision points (in addition to other linkages and key components not listed in the above section):

- Outputs from IESO power system planning documents, including clear, transparent, and timely data and information, and how these outputs will be used within specific resource adequacy mechanisms (e.g., supply targets for Capacity Auctions and RFPs, locational resource adequacy needs, etc.);

[5] These associations include Canadian Renewable Energy Association (CanREA), Ontario Waterpower Association (OWA), Ontario Energy Association (OEA), Advanced Energy Management Alliance (AEMA), and Association of Power Producers of Ontario (APPrO)

- Scope of Capacity Auctions within the Resource Adequacy Framework;
- Scope of RFPs/contracts and other potential procurement mechanisms within the Resource Adequacy Framework; and,
- Resource adequacy mechanism options for generation facilities with expired contracts.

The series of stakeholder engagement meetings should be scheduled beginning later in 2020 and throughout 2021.

During the September 28 presentation, IESO stated that the latest projections for capacity needs in Ontario now emerges around 2028. This IESO declaration is a good example, in part, of why the Resource Adequacy stakeholder engagement is needed. IESO needs to be clear and transparent why projected 2028 capacity needs are now a few years beyond the mid-2020s (as previously projected by IESO) and what mechanisms will be used to meet these needs and how multiple resource adequacy mechanisms will seamlessly work alongside each other.

Even though 2028 is several years away, MPs and stakeholders require certainty of the Resource Adequacy Framework with sufficient details of its Framework well before approaching 2028. Investment decisions take years, and Ontario is just one of many jurisdictions to which the Consortium members have options towards making investments, therefore knowing and understanding the Resource Adequacy Framework will be required sooner than later in order to make sound investment decisions within Ontario – in the best interest of meeting Ontario's resource adequacy and supply needs while best assuring cost-effective decisions on behalf of Ontario's electricity customers. Therefore, the Consortium recommends that the Resource Adequacy Framework and sufficient Framework details be finalized by the end of 2021.

Responses to IESO Questions from September 28, 2020 Resource Adequacy Webinar

Below are the questions posed by IESO during the September 28 webinar followed by the Consortium's responses.

1. *Are there other principles that should be considered?*

Yes – as discussed above, "reliability" should be an added principle, and review of the descriptions for all principles is needed to best align towards developing an effective and pragmatic Resource Adequacy Framework for Ontario.

2. *Based on the framework described:*
   - *Do these three capacity acquisition timeframes (commitment and forward periods) provide sufficient options for meeting the needs of your resource type?*
   - *Which option(s) are most suited to your resource type?*

- *Based on timing when various mechanisms are going to be available, do you see timing gaps when a resource needs a mechanism before that mechanism is ready?*

Yes – the three capacity acquisition timeframes (short-, medium-, and long-term) provide sufficient options to meet needs for all resource types. However, the Resource Adequacy stakeholder engagement needs to better define the descriptions of these timeframes and the scope and linkages of these timeframes within the Resource Adequacy Framework.

All timeframes (short-, medium-, and long-term) are applicable and suited to the Consortium, as Consortium members are making investment decisions in all three timeframes and across multiple resource types (e.g., wind generation, solar generation, hydroelectric generation, energy storage, and potential 'hybrid' projects (i.e., generation plus on-site storage)) within Ontario – both transmission-connected facilities and distribution-connected facilities).

Yes – the Consortium sees timing gaps when supply resources require a mechanism(s) before that mechanism(s) is ready. As discussed in the above section, the entire Resource Adequacy Framework and details of its Framework are needed sooner than later (i.e., recommended by end of 2021) because Consortium members are in the process of making investment decisions within Ontario across all timeframes (short-, medium-, and long-term) and comparing these potential investments to other investment opportunities across multiple jurisdictions globally. Therefore, it is important to ultimately understand: Ontario's power system needs and timing these needs emerge; scope of potentially evolution of Capacity Auction design and eligible participants; scope and design of RFPs/contracts, timing to potentially administer any RFPs, and eligible participants; potential for other procurement mechanisms; and, options and potential resource adequacy mechanisms available to generation facilities with expired contracts.

3. *Engagement Plan:*

- *What needs to be considered in future engagement phases to develop the details of the mechanisms in the framework?*
- *What other areas need to be discussed with stakeholders to operationalize the framework?*

As discussed in the section above, future Resource Adequacy stakeholder engagement meetings should define the Resource Adequacy Framework for Ontario including details of this Framework, and specifically address key topic areas (i.e., power system planning and its outputs, scope of Capacity Auctions, design of RFPs/contracts and timing for administration, potential for other procurement mechanisms, and options for generation facilities with expired contracts).

The Consortium will be happy to discuss the contents of this submission with you at a mutually convenient time.

Sincerely,

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Managing Director
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cc:
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John O'Neil (Pattern Energy)
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Appendix A – Range of Resource Adequacy Mechanisms in Canada and U.S.

Options	1. Energy-Only Market	2. Capacity Market	3. Contracts	4. Rate-Regulation
Supporting Mechanisms	• Scarcity/shortage pricing • High maximum price • Hedges (contracts)	• ISO/RTO administer (e.g., target capacity, demand curve)	• Buyers (LSEs, customers, government agencies)	• Typically driven by IRPs or similar power system plans
Recent Design Changes and Trends	• Operating Reserve Demand Curve (ORDC) • FERC Orders	• Multi-year commitments • Pay-for-performance/penalties	• 'Corporate PPAs' • Policies (e.g., RPS)	• Increasing CDM • Contracts with IPPs, technology providers, etc.
Example Jurisdictions	• Alberta (AESO filed Capacity Market rules for AUC approval, Government of Alberta cancelled Capacity Market implementation (July 24, 2019)) • Texas	• New York • New England • PJM • MISO (voluntary, as LSEs ensure resource adequacy through contracts with IPPs and rate-regulated generation)	• Ontario (combined with rate-regulated generation) • Other provinces (e.g., Quebec, Saskatchewan, BC) combined with rate-regulated generation • California • Most states (e.g., VT, RI, CT, MA, NY, NJ, MD, OH, IL, MN, CO, NV, AR, ID, OR, etc.)	• Ontario, Newfoundland & Labrador, New Brunswick, Nova Scotia, PEI, Quebec, Manitoba, Saskatchewan, BC • Majority of states (e.g., NC, SC, FL, GE, AB, TN, KY, MI, MO, IN, LA, AK, OK, NB, ND, SD, CO, WA, OR, ID, MT, UT, etc.) (some in or not in wholesale energy markets, with and without Capacity Markets)
Option Combinations	• Contracts with buyers (e.g., LSEs, customers) more so in Texas, less so in Alberta (but exists)	• Integrated with wholesale energy market • LSEs have capacity obligations (participate in Capacity Markets) • LSEs and government agencies typically contract with IPPs, etc., even within Capacity Market jurisdictions	• Only option exists in combination with all other options • Customers (e.g., commercial, industrial) increasingly contracting directly with suppliers to help meet their own supply needs and manage costs	• IESO, MISO, SPP combine rate-regulated generation with wholesale energy markets and contracts

As noted in the table above, many jurisdictions use a combination of mechanisms to ensure resource adequacy.

Ontario has a history of all utilizing all four of the above listed resource adequacy mechanisms, and projects to require continued use of all four resource adequacy mechanisms in the future – mainly resulting from Ontario's relatively unique and specific market structure and design (e.g., government-owned generation that is mainly rate-regulated, most generation facilities under contracts with IESO or OEFC, lack of LSEs and other 'active market buyers' not enabling many buy-side counterparties to contracts with resource adequacy providers), political and regulatory risks (e.g., cancellation of generation contracts, review of executed contracts, etc.).

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Appendix B – High-Level Ontario Resource Adequacy Framework

OBJECTIVE

A pragmatic resource adequacy strategy to ensure Ontario's electricity supply needs are met safely and reliably at lowest possible cost to customers recognizing Ontario's specific electricity market characteristics

FACTORING IN SPECIFIC ONTARIO SUPPLY

- **Rate-Regulated Generation**: OPG's baseload generation (i.e., nuclear and applicable hydroelectric) are rate-regulated by OEB, meeting supply needs
- **Embedded Hydro Generation:** Embedded hydroelectric generation are generally not practical to be wholesale market participants, and in addition to meeting supply needs are recognized as having additional benefits (i.e., environmental, public safety, etc.)
- **Nuclear Generation**: Bruce and Darlington refurbishment programs continue as contracted and rate-regulated generation, meeting supply needs

KEY ELEMENTS OF THE STRATEGY

1. **ROBUST, FREQUENT, TRANSPARENT POWER SYSTEM PLANS**
    a. Clear and technical specifications of Ontario-wide and regional power system and supply needs, predicated on supply attributes with risk assessments of applicable resources' ability to meet needs
    b. Ontario system planning data and information must meet 'best-in-class' standards to maximize transparency and interest in opportunities for investment and competition

2. **CAPACITY AUCTIONS – VOLUNTARY, SHORT-TERM, BALANCING**
    a. IESO administered auctions meeting short-term supply needs based on power system plans
    b. Optionality for resource participation – to greatest extent possible, auctions to meet supply needs should be competitive, flexible (e.g., on term), and resource agnostic

3. **CONTRACTS – VOLUNTARY, MID- TO LONG-TERM, ENSURING INVESTMENT**
    a. IESO administered procurement processes, as needed, resulting in executed contracts for resources (existing or new) required to meet supply needs based on power system plans over period longer than short-term
    b. Optionality for resource participation – to greatest extent possible, contracting processes to meet supply needs should be competitive, flexible (e.g., on term), and resource agnostic

4. **ENERGY AND ANCILLARY SERVICES MARKET PRICES AND CAPABILITY TO SUPPLY**
    a. Energy and ancillary services wholesale market prices should reflect actual demand/supply conditions/value

b. Resources able to supply energy and ancillary services permitted to do so within competitive wholesale market, meeting supply needs in conjunction with other mechanisms (e.g., Capacity Auctions, contracts)

5. ACCOUNTING FOR DERs

a. DERs (e.g., gas-fired, combined heat and power, solar, wind generation, energy storage, demand response, etc.) that are economic and affordable require a development and integration framework to cost-effectively and reliably help meet supply needs

b. Need for regulatory framework review (i.e., regulated vs. unregulated, definition of customer, cost allocation across customers, rate design, etc.) and wholesale market design/rules to help determine cost-effective and reliable development and integration of DERs, including future roles of LDCs, DER suppliers, IESO, and OEB