Power Advisory LLC
55 University Ave., Suite 600
Toronto, Ontario
M5J 2H7

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Mr. Darren Finkbeiner
Independent Electricity System Operator
655 Bay Street, Suite 410
Toronto, Ontario
M5G 2K4

RE: Comments on Draft Dispatch Order for Baseload Generation Discussion Paper

Power Advisory LLC represents a consortium (the "Consortium") of the following renewable energy generation developers: IPR-GDF Suez North America; NextEra Energy Canada ULC; Pattern Energy Group LP; and Samsung Renewable Energy Inc.

IPR-GDF Suez North America ("IPR-GDF") is a renewable power developer, owner and operator with wind and solar generation projects at different development stages throughout Canada. The company presently operates 129 MW of wind generation facilities in Ontario, with an additional 225 MW currently in construction in Ontario and 99 MW slated for construction in British Columbia. IPR-GDF was the developer of the 99 MW Erie Shores Wind Farm, managing all development aspects through to commissioning. In addition, IPR-GDF operates over 200 MW of wind generation in Atlantic Canada. IPR-GDF is a leading independent electricity generating company with assets on every continent and over 78,000 MW of electrical generation facilities in operation.

NextEra Energy Canada ULC ("NextEra Canada") is an indirect wholly-owned subsidiary of NextEra Energy Resources LLC ("NextEra Energy Resources"). NextEra Energy Resources owns and operates approximately 100 electrical generating facilities producing nearly 19,000 MW in 26 U.S. states and three provinces in Canada. NextEra Energy Resources is the leading producer of wind power in North America and operates the two largest solar generating facilities in the world. NextEra Energy Resources has approximately 8,200 MW of wind generation in operation, 220 MW of which are in Canada. More than 95% of NextEra Energy Resources' electrical generation is derived from clean and/or renewable sources including wind, solar, nuclear, natural gas and hydroelectric power. NextEra Energy Resources has also built approximately 500 miles of high-voltage transmission lines to connect its wind generation projects to the grid. In Ontario, NextEra Canada currently has eight wind generation projects totaling 616.5 MW that have been awarded contracts under the province's Feed-in Tariff ("FIT") Program.

Pattern Energy Group LP ("Pattern") is an independent, fully integrated energy company that develops, constructs, owns and operates renewable energy and transmission assets in the U.S.,

Canada and Latin America. With a long history in wind energy, Pattern's highly-experienced team of scientists, engineers, construction experts, and legal and financial professionals have developed, financed and placed into operation more than 2,500 MW of wind generation projects. Pattern is strongly committed to promoting environmental stewardship and is dedicated to working closely with landowners and communities to create premier renewable energy projects. Currently operating 520 MW of wind generation in North America, Pattern has 250 MW of wind generation projects in construction and expects to begin construction of more than 750 MW over the next 12 months. The company's full development pipeline exceeds 4,000 MW of renewable generation and transmission projects. Pattern has offices in San Francisco, San Diego, Houston, New York and Toronto. For more information, please visit www.patternenergy.com.

Samsung Renewable Energy Inc. ("SRE") is a subsidiary company of Samsung C&T Corporation. Samsung C&T Corporation was founded in 1938 and is the origin of SAMSUNG GROUP which has been the driving force behind the astonishing growth of the Korean economy. Since its nomination was the first-ever General Trading Company in Korea in 1975, Samsung C&T has been conducting complex trading and investment operations. With the merger of Samsung E&C in December 1995, Samsung C&T has now also balanced the two branches of Engineering & Construction Group and Trading & Investment. Samsung C&T has more than 7,000 employees in over 100 overseas offices in 45 countries and recorded 10,876 billion won (KRW). Samsung C&T designates energy as a core business area, cooperating with business partners to engage in various businesses, such as the securing and supplying of energy sources and operation of power plants. In an effort to prepare and respond to intensifying global warming, it actively engages in business in new and renewable energies such as wind and solar power, bio-fuel as well as water and environment business all over the world.

On November 2, 2011, the Independent Electricity System Operator ("IESO") released the draft Dispatch Order for Baseload Generation discussion paper and discussed its contents with stakeholders on November 21, 2011 as part of the Floor Price Focus Group.

The Consortium continues to support the IESO's leadership towards addressing successful integration of renewable generation and thanks the IESO for requesting stakeholder comments on the draft discussion paper.

Listed below are the Consortium's general comments, as well as comments specific to the draft Discussion Paper. In addition to the Consortium's comments, individual developers within the Consortium may submit separate comments to the IESO.

Significance of Meeting Ontario Government Policy Objectives in Light of Integrating Renewable Generation

Conveyed within the Ontario Government's Long-Term Energy Plan ("LTEP"), the non-hydroelectric renewable generation capacity target to be in-service by 2018 is 10,700 MW. In accordance with this policy objective, the Ontario Power Authority ("OPA") has been procuring non-hydroelectric generation projects through execution of multi-year contracts. To date, it is estimated that the OPA has over 8,000 MW of non-hydroelectric generation projects under multi-year contracts; however, less than 2,000 MW of these projects are in-service. Therefore, a significant number of projects still need to be financed and developed in order to reach the LTEP target.

Of all the non-hydroelectric renewable generation projects under OPA contracts, the Consortium is operating and/or developing 1,859.5 MW of wind and solar generation projects all scheduled to be in-service before 2014.

In light of the IESO's SE-91 Renewable Integration Initiative, it is imperative to state that present ambiguity and lack of details regarding the direction of future amendments to the IESO Market Rules will frustrate the financing and development of these generation projects. Specifically, changes under consideration that will result in energy from wind and solar generation being curtailed and/or dispatched off more frequently than under the present framework in the Market Rules represent material differences in the Market Rules that could not have been contemplated at the time developers executed their procurement contracts with the OPA. Further, and even more problematic, the OPA has not made any declarations at this point as to how applicable contracts will be amended in light of forthcoming changes to the Market Rules.

Regulatory certainty and transparency are critical in order to successfully achieve the Government's goals and objectives defined in the *Green Energy and Green Economy Act (2009)* and LTEP including creation of green jobs, economic development, and an improved environmental and public health regime for all Ontarians. Wind and solar generation developers need to understand in a timely manner all aspects of future amendments to Market Rules regarding the operation of these generators in the wholesale market and any changes to OPA contracts regarding applicable commercial provisions. If the current uncertainty and lack of transparency regarding amendments to the Market Rules and changes to contracts continue, the ability to develop and finance renewable generation projects in Ontario will be severely limited, therefore making Government's goals and policy objectives to have 10,700 MW of non-hydroelectric renewable generation in-service by 2018 much less likely.

SE-91 Process – Timing of Forthcoming IESO Market Rule Changes and Potential for OPA Contract Amendments

The vast majority of the estimated 6,000 MW of non-hydroelectric renewable generation projects under OPA contracts still to be financed and developed must contractually come into service in 2013 and 2014. Because of these contracted in-service dates, the IESO and the OPA must commit to timelines for completing amendments to the Market Rules and changes to contracts that will allow project developers to meet these in-service dates. However, the present timelines conveyed to stakeholders by the IESO and OPA do not allow for this. The IESO stated at the November 21, 2011 Floor Price Focus Group meeting that draft market rule changes regarding modifications to scheduling, dispatching and compensating wind and solar generators are scheduled to be complete by the middle of 2012. At the same meeting, the OPA stated that its discussions with contracted wind and solar generators will only commence after the draft market rules are known. Therefore, the timing for the OPA to begin contract amendment discussions is not until mid-2012 with an unknown timeline to conclude these discussions and finalize contract amendments. The SE-91 design principles have been determined and direction of forthcoming amendments to the Market Rules have appeared to be set forward (e.g., IESO draft position on dispatch merit order for baseload generators). Final amendments to the Market Rules cannot be accepted by stakeholders and market participants until there is a full understanding of the OPA's position on applicable contract changes. Applicable amendments to the Market Rules go 'hand in glove' with applicable

changes to OPA contracts. It does not make sense to decide one without an idea towards resolution on the other.

In order for wind and solar generators to meet contracted in-service dates in 2013, financing (either non-recourse third party or related party non-recourse) must be secured in 2012 in order to complete equipment orders and begin project construction. It will be extremely difficult, if not impossible, to secure project financing within the present IESO and OPA timelines to finalize amendments to the Market Rules and changes to applicable contracts due the lack of certainty and the long timelines to finalize these amendments.

In addition, for those projects constructed and commissioned under the current Market Rules, the lack of clarity regarding treatment under the forthcoming proposed amendments to the Market Rules leaves questions on project financials and issues under current credit agreements.

The uncertainty surrounding the SE-91 process, in particular the forthcoming amendments to the Market Rules regarding offer price floors and the resulting effects on scheduling, dispatching and compensating wind and solar generation, will be of great concern to lenders and equity investors in FIT-contracted generation projects. The current proposed time lines for finalizing amendments to the Market Rules and the OPA's position to only negotiate contract amendments once draft market rule amendments have been completed make it very difficult for project lenders and equity providers to assess economics of these wind and solar generation projects. Lenders and investors will be reluctant to provide needed capital for FIT-contracted generation projects with 2013 and 2014 in-service dates and those projects that are able to attract capital will receive less favorable terms given the uncertainties surrounding future Market Rules and the impact on project economics.

Comments on Draft Discussion Paper

The Consortium's comments on the draft Discussion Paper focus on two main areas: 1) IESO analysis to support the contents of the draft discussion paper and preliminary IESO conclusions; and, 2) application of offer price floors for baseload generators.

Analysis Supporting Draft Discussion Paper and IESO Positions

The Discussion Paper states that 4,700 MW of variable generation (i.e., wind and solar generation) is expected to be in-service by the end of 2013 in accordance with the LTEP target of 10,700 MW of non-hydroelectric renewable generation by 2018. Therefore, the IESO is adapting power system operations and the IESO-Administered Markets ("IAM") through forthcoming amendments to the Market Rules to accommodate the significant uptake of variable generation. The Discussion Paper then goes on to note that during instances of generation oversupply, transmission constraints, or operational power system needs, there may be times when submitted offers from generators to produce energy do not result in appropriate outcomes. As a consequence, the IESO plans to develop a dispatch order for baseload generation (i.e., wind, solar, nuclear and must-run hydroelectric generation) which will produce real-time dispatch outcomes that promote 'market efficiency' among other attributes.

Other than IESO references made to their present 18-Month Outlook document provided at the November 21, 2011 Floor Price Focus Group, stakeholders require additional analysis regarding the following information:

- Forecast oversupply beyond the timeframe projected in the 18-Month Outlook
- Forecast of transmission constraints and congested generation on a zonal basis within and beyond the timeframe projected in the 18-Month Outlook
- Forecast curtailment of generation within zones where transmission constraints prevent energy from congested generation to be successfully injected onto the IESO-Controlled Grid (ICG)
- Overall power system costs associated with scheduling and dispatching all generation units under different oversupply scenarios, as stakeholders and market participants need to understand these estimated cost and applicable scenarios is in order to facilitate proper discussion around potential solutions

More detailed analysis, as conveyed by the points above, is essential and will provide greater insight into the severity of today's oversupply issues with a more informed view on how long these issues will continue and ultimately what changes are needed within the IAM, Market Rules and/or OPA contracts in order to help address these issues in the present and future.

In addition to the points regarding further analysis of forecast oversupply, transmission congestion, and generation curtailment, additional analysis is needed regarding the technical limitations of baseload generation identified in the Discussion Paper.

For example, there are reports[1] that convey some operational flexibility of nuclear generation facilities per technology. Some of these reports examine the situation where nuclear generation comprises a significant portion of a jurisdiction's supply mix (e.g., France) and therefore at times essential to maneuver nuclear generation units in order to meet power system requirements while other reports examine the flexible capabilities of different nuclear technologies (including CANDU). The purpose of identifying these reports is to simply convey that additional analysis should be done towards assessing the technical capabilities and limitations of various baseload generation facilities so as to not draw high-level conclusions prematurely. The Consortium recognizes that after adequate analysis of the technical capabilities and limitations of various baseload generation, the economics of utilizing applicable technical capabilities and factoring applicable technical limitations into scheduling and dispatching these generation units will then lead to a final position regarding the dispatch merit order of baseload generation.

Overall, the Discussion Paper requires additional analysis prior to reaching the conclusion of a relative dispatch order that dispatches nuclear generation and must-run hydroelectric generation ahead of variable generation therefore resulting in a framework that will economically curtail variable generation ahead of must-run hydroelectric generation and nuclear generation. Based on the limited

[1] see Pouret, L., Buttery, N. and Nuttall, W.J. (2009) "Is Nuclear Power Inflexible?" Nuclear Future, 5(6): 333-341 at http://www.eprg.group.cam.ac.uk/category/research-funding/cessa/, http://canadianenergyissues.com/2011/11/09/ontarios-nuclear-electric-generation-can-be-more-flexible-than-natural-gas-fired-generation/, http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=1601510

analysis conveyed in the Discussion Paper, the proposed relative dispatch order appears to be arrived at prematurely.

Application of Offer Price Floors

The scope of the Floor Price Focus Group essentially addresses SE-91 Principle 10 that states that, "The IESO may establish various floor prices for offers from baseload generators (i.e., wind, solar, must-run hydro and nuclear) to ensure efficient dispatches during periods of local and/or global surplus baseload generation (SBG) events".

Below are a few considerations concerning the application of Principle 10.

First, it should be noted that neither in any IESO documents or proposals, nor in the FIT contracts or supporting documents, is the term 'local oversupply' defined in sufficient detail to distinguish it from 'global oversupply'. Global oversupply has been loosely defined in the FIT contract with all other curtailment being ascribed to local oversupply.

Second, even though the paper states that the IESO is "seeking to develop a dispatch order for baseload generation", the primary question should be whether distinct offer price floors for various baseload generators should be established at all, or why wind and solar generation (as opposed to nuclear generation or must-run hydroelectric generation) are in all cases the preferred alternative for priority economic curtailment. The Consortium notes, in part based on the operating experience of our members with other technologies, along with a review of the available technical reports, that both CANDU nuclear technology and various hydroelectric technologies have operational characteristics that provide dispatch flexibility. In integrating wind and solar generation, the IESO has (like other ISOs and RTOs throughout North America) increasingly required wind generation to install applicable dispatch and communications capabilities to respond in rapid fashion to power system conditions. If it is ultimately determined that wind generation facilities are better capable of responding than other technologies, then the logical response is to treat that flexibility as an added value and provide appropriate compensation (e.g., through a specific product[2] with appropriate compensation), rather than placing it at an operational and/or financial disadvantage, particularly if other generation resources are not required to provide the same degree of dispatching capability as wind generation.

Third, if the appropriate amendments to the Market Rules are combined with appropriate changes to OPA contracts, generators will be motivated to provide energy offers that help achieve market efficiencies. Generators should not be restricted by rules that restrict their offer prices by different and distinct price levels. No other North American jurisdiction with a similar wholesale electricity spot market provides for distinct offer price floors based on generator type differentiated by fuel.

Given lower electricity demand growth in all other North American jurisdictions, especially for those coupled with increased supply from variable generation, oversupply and/or SBG occurs from time-to-time in these electricity markets along with resulting power system operability challenges. However, these markets have not introduced distinct or discriminatory offer price floors for any

[2] See Plugging into Savings: A New Incentive-Based Market Can Address Ontario's Power-Surplus Problem (July 2011) at http://www.cdhowe.org/pdf/ebrief120.pdf

generation types. Rather, these markets have been integrating variable generation within their scheduling, dispatching and price setting rules and processes where economics, market dynamics and competition drive decisions regarding dispatch order (and therefore order to curtail generation output if required). For example, in NYISO and PJM, all generators may submit offer prices less than $0/MWh (i.e., conveying their economic desire to be dispatched) where market clearing prices may settle below $0/MWh indicating oversupply and/or SBG. Under the circumstances where market clearing prices settle below $0/MWh, all generation facilities that receive dispatch instructions from the system operator to curtail generation output are curtailed first based on economics and then on a pro rata basis. In other words, these power markets do not have hard-wired rules and protocols (i.e., distinct offer price floors by generation type) to determine which generators are economically curtailed first – the market dynamics through competitive offer prices from generators yield dispatch instructions for economic curtailment.

While it is true that most generation facilities/projects are under multi-year contracts with the OPA, the Consortium acknowledges that commercial incentives in applicable OPA contracts can drive different offer strategies to schedule energy for dispatch in the IAM. However, the Consortium does not see this point as being a sufficient additional driver for the IESO to administratively determine a dispatch merit order for various baseload generation through distinct offer price floors. Consistent with the points made in the preceding paragraph, many baseload generators in other power markets have multi-year bilateral contracts and/or receive different capacity market revenues that can commercially incentivize their offer strategies to schedule energy within those power markets yet those applicable ISO/RTO system operators have simply let competitive market forces determine the scheduling, dispatching and pricing results within oversupply and/or SBG time periods without the need for distinct offer price floors.

In fact, such discriminatory scheduling and dispatching rules and protocols should generally be avoided. The Consortium notes that the U.S. Federal Energy Regulatory Commission (FERC) recently[3] issued an order prohibiting discriminatory curtailment of wind generation despite the fact that these resources may at times represent low marginal cost resources on respective power systems. It is clear based on this recent FERC order that public policy goals and objectives that help ensure development and operation of variable generation is of high importance and at times can take precedent over other power system considerations. This logic is consistent with the development and operation of renewable generation regarding the Ontario Government's goals and objectives embodied in the *Green Energy and Green Economy Act (2009)* and the LTEP.

It is essential that the IESO first consider broader market design implications in terms of inadvertently creating inefficiencies in other areas (e.g., 'seams' issues regarding intertie transactions, etc.) if distinct offer price floors for baseload generation type are to be established. For example, consideration needs to be given to the design integration and dispatch coordination of supply resources that are 'locked-in' to produce and inject energy onto the ICG for an applicable real-time dispatch hour (e.g., self-scheduling generation facilities and import transactions) and whether the application of offer price floors and applicable dispatch instructions (both hourly and intra-hour) result in efficient scheduling and dispatch solutions for all generators and dispatchable loads to meet power system needs.

[3] Iberdrola Renewables, Inc., PacifiCorp, NextEra Energy Resources, LLC, Invenergy Wind North America LLC, Horizon Wind Energy LLC v. Bonneville Power Administration, Order Granting Petition (Docket No. EL11-44-000, Issued December 7, 2011)

If after careful analysis of any inadvertent market design issues it is determined that distinct offer price floors should be set by baseload generation type, then the application of these offer price floors must be carefully defined.

The application of distinct offer price floors for baseload generation types should consider:

- When offer price floors will apply (e.g., always, during specific timeframes, etc.), therefore requiring clear definition of an SBG event and when Ontario's power system is experiencing an SBG event
- Dynamic application of SBG events in so far as different SBG events exist (e.g., short-term events lasting a few hours versus longer-term events lasting several weeks) potentially requiring specific solutions matched to different SBG events (e.g., matching outage coordination and maintenance schedules for sufficiently large baseload generation facilities and the feasibility of having scheduled shutdowns for these facilities in those periods where SBG events are projected to occur for prolonged periods of time)
- Any differences between global SBG events versus local SBG events and whether different offer price floors are needed for different areas of the ICG (even for the same baseload generation type)

In summary, the Consortium is not convinced that distinct offer price floors for baseload generation types should be applied. To the extent that the IESO provides appropriate analysis and support for the deployment of distinct offer price floors for baseload generation, we then suggest that the IESO apply the use of such offer price floors and their forthcoming amendments to the Market Rules in proper coordination and integration with other applicable Market Rules and appropriate changes to applicable OPA contracts such that wind and solar generation development and operation remains viable in Ontario.

Closing Comments and Recommendations

Once again, the Consortium supports the IESO's leadership towards addressing integration of renewable generation and thanks the IESO for requesting comments from stakeholders.

In addition to the comments presented above, please consider the following points.

First, in order to understand the practices in other jurisdictions so as to help develop solutions for the Ontario's electricity market, the Consortium requests that the IESO provide stakeholders with research and analysis involving a benchmark from at least the U.S. jurisdictions regarding the integration of variable generation relating to scheduling, dispatching, and the compensation and application of offer/bid/price caps (both positive and negative) to applicable generators.

Second, current Ontario Government policies ultimately support and encourage the development of variable generation. Therefore, any amendments to the Market Rules should not frustrate achievement of this Government policy. In order to ensure that these policy goals and objectives are met, the IESO and the OPA should reach out to key stakeholders in a timely manner, including those that typically do not participate in IESO consultation processes (e.g., lenders and financiers), in order to increase their understanding of the issues and derive workable solutions.

Third, given the Ontario Government's goals and objectives for the progressive and rapid uptake and development of renewable generation embodied in the *Green Energy and Green Economy Act (2009)* and the LTEP, applicable renewable generators who are working to meet these goals and objectives should not have to take on development and operational risks within the Market Rules or applicable OPA contracts that essentially result from the present oversupply and SBG in Ontario.

Finally, the Consortium offers the following specific recommendations:

- Contract amendment discussions with the OPA and applicable variable generation developers/operators should begin immediately
- For stakeholders, market participants, and variable generators to properly assess impacts in the IAM, Market Rules, and OPA contracts, additional data/information is required regarding present and future oversupply scenarios/situations and any resulting dispatch instructions from the IESO resulting in curtailment orders to variable generators
- Consider alternate market mechanisms that can help address oversupply situations first prior to establishing distinct offer price floors for baseload generation types
- Additional supporting analysis that assesses unintended or inadvertent market design issues and consequences resulting from the application of any mechanism that may be used to address oversupply situations (including the application of distinct offer price floors for baseload generation types)
- If it is then determined that distinct offer price floors are required for baseload generation types, provide clear definition on what constitutes an oversupply situation and when offer price floors will be applicable
- Assess different applications of offer price floors or other mechanisms that may be more effective in addressing prolonged oversupply and SBG events

Sincerely,

Jason Chee-Aloy
Managing Director
Power Advisory LLC

cc: Bruce Campbell, IESO
JoAnne Butler, OPA
Darryl Yahoda, OPA
David Timm, IPR-GDF Suez North America
David Applebaum, NextEra Energy Resources Canada ULC
Kellie Metcalf, Pattern Renewable Energy Holdings ULC
JT Lee, Samsung Renewable Energy Inc.
stakeholder.engagement@ieso.ca