

Date: January 19, 2018
To: IESO
From: Brookfield Renewable
RE: Non-Emitting Resources Request for Information

Brookfield Renewable ("Brookfield") appreciates the opportunity to comment on the Non-Emitting Resources ("NERs") Request for Information ("RFI") initiative.

During the December 21st Webinar, the IESO clarified that: *"The Request for Information (RFI) will inform the IESO on a broad level, and in specific support Market Renewal and the work of the Non-Emitting Resource Subcommittee (NER-SC)"*

Given the depth and scope of ongoing IESO re-design initiatives, including projects not directly included in the Market Renewal process, Brookfield is encouraged that the NERs RFI will inform Market Renewal, and not proceed as its own parallel project. As Market Renewal seeks to completely re-design the electricity industry, it is important that IESO initiatives are funneled through Market Renewal to ensure consistency, coherence, and effectiveness of the final market design.

In addition, Brookfield offers the following suggestions:

The RFI should account for Market Renewal's unfinished design process

The NERs Subcommittee has established that "carbon-pricing" can be incorporated via different market mechanisms. Other jurisdictions' design processes have shown that capacity, energy, and/or environmental markets can all effectively price carbon and non-emitting resources. As Market Renewal has yet to finalize its capacity, energy, and ancillary service market designs, the IESO should ensure that information gleaned from the RFI can be subsequently applied to as many market design options as possible. In other words, the RFI's qualification requirements should be open-ended and not overly prescriptive. This flexibility will allow new and existing resources and/or products to more easily "fit" into Market Renewal's final designs.

The RFI should be resource-neutral

In the same vein, the RFI should be resource- and technology-neutral, and not discriminate against existing resources. The RFI should not only target new technology and new market participants, but also encourage value creation from existing assets. In fact, the introduction of new markets and/or products could further enable the potential of existing assets, and present the

IESO with low-cost yet innovative solutions. For example, creating a “ramp-down” only ancillary product could leverage wind assets’ currently untapped and unmatched ability to reduce output. And the joint optimization of hydro and other renewable resources, such as batteries, could improve grid flexibility and reduce the need to dispatch fast-acting but carbon-emitting resources. The RFI’s qualification criteria should therefore be flexible enough to capture creative solutions from new and existing assets alike.

The RFI should leverage external clean resources

Ontario currently exports capacity to NYISO, and Market Renewal’s Capacity design stream explicitly embraces external trades to balance Ontario’s demand and supply. External non-emitting capacity can help meet Ontario’s environmental and reliability needs, and should be included in the RFI. For example, Brookfield owns and operates significant hydro resources in Quebec and New York: resources that are non-emitting and available to Ontario through either capacity markets and/or contracts. In essence, the RFI should not discriminate against external assets that can satisfy both its reliability and environmental targets. External NERs in particular, offers Ontario a clean and immediate off-ramping alternative to manage nuclear refurbishment and retirement. It should also be noted that Ontario’s Cap-and-Trade regime tracks carbon-shuffling and carbon-leaking with external jurisdictions: the non-emitting nature of imported capacity is therefore readily verifiable.

Up-to-date and transparent data is crucial

Finally, for the RFI to produce relevant and informative outcome, participants require access to up-to-date, accurate, and transparent information on Ontario’s electricity sector. In particular, information on Ontario’s internal and intertie transmission constraints, regional demand forecast, and interconnection capability studies need to be updated and published for participants to produce meaningful RFI offers. The IESO should also coordinate with other government entities, such as the Ministry of Environment, to ensure that upcoming regulations and legislations amendments are coordinated with the RFI and made aware to the participants. For example, noise guidelines on wind generation can fundamentally influence the costs and timeline of a development project.

Thank you,

Julien Wu

Julien.Wu@brookfieldrenewable.com