

Comments on Ontario Regulation 429/04 Potential Amendments

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The concept of virtual power purchaser agreements (VPPA) is appreciated and should provide more flexibility in the industry to provide economical options to continue to support the growth of new clean generation

The amendments noted permit for the Industrial Conservation Initiative (ICI) market participant's coincident peak demands (i.e. at the time of the 5 provincial peaks) to be reduced by the actual energy produced by a generator through a VPPA. This reduction of the ICI market participant's peak demand reduces their Global Adjustment (GA) cost. This solution inherits a risk that the generator will not be at its maximum generating capacity at each of the provincial coincident peaks. As a result, ICI market participants would be compelled to consider this risk, which in turn will reduce the marketability of the available generation capacity and the associated financial benefits from the ICI market participant. While balancing this risk, the ICI market participant would continue to receive the benefit of the actual generating capacity at the coincident peaks.

PUC's comments herein are aimed to maximize value from VPPA's to better support the growth of new clean generation while minimizing the ongoing energy costs for the province. PUC has assessed the proposed amendment against an alternative option that will provide a greater benefit to the province.

For the purpose of our assessment, we used a theoretical 300MW solar generating facility with an estimated capital construction cost of \$600MM. The business case considers two sources of revenue; 1) revenue generated from ICI market participant(s) ("RevICI") and 2) revenue from energy sold to the province ("RevEN") based on a kWh rate. The total revenue required ("TRR") to make the project feasible is the sum of these revenue sources noted above. As such, when one source of revenue changes, the business case requires the other revenue to inversely change to keep the same total revenue requirement and ensure project feasibility remains intact. For example, if the TRR is equal to \$100MM, assuming the RevICI is \$40MM, the RevEN would need to be \$60MM. Alternatively, if RevICI is \$60MM, the RevEN would need to be \$40MM.

Using available data for what would be expected from solar generation in the Sault Ste. Marie, Ontario region, the assessment assumes the net capacity factor (expected generation output 24 hours a day x 7 days per week) is reasonably expected to be 17.78% of the facility's name plate capacity. Additionally, the data shows that the average net

capacity factor at the provincial coincident peaks over the past 5 years is 51.77%. The data also shows that the actual generation availability at the provincial coincident peaks would range between 33% to 61% of capacity.

Through analysis of published data, the 2023 GA costs have been calculated to be \$397k/MW. With the possibility of VPPA, the assessment assumes ICI market participants would contribute 80% of this value.

Using the above information, two options have been analyzed and summarized below using Class A market participant(s) with an average peak load of 155MW. Option #1 analyzes the proposed amendments to Ontario Regulation 429/04 using actual generation and the Alternative Option analyzes using the average solar generation at the coincident peaks to maximize system benefits.

Option #1 – This option considers actual generation values at the provincial peaks through VPPA to offset the ICI market participants GA costs. Using the assumptions above, the annual revenue from the ICI market participants has been calculated to be \$32MM. The annual energy cost to the province is then required to be \$68MM to reflect the total annual revenue required of \$100MM. The \$68MM annual energy cost can also be represented as a generation cost to the province of \$0.146/kWh. In this scenario, the combined ICI market participants save an annual \$30MM comparative to the total GA paid. With this scenario, a generator could only market the minimum generation observed at provincial peaks at risk of overselling the capacity to ICI market participants at any given peak.

Alternative Option – This option considers annual average generation values at the provincial peaks through VPPA to offset the ICI market participants GA costs. Using the assumptions above, the annual revenue from the ICI market participants has been calculated to be \$49MM. The annual energy cost to the province is then required to be \$51MM to reflect the total annual revenue required of \$100MM. The \$51MM annual energy cost can also be represented as a generation cost to the province of \$0.108/kWh. In this scenario, the combined ICI market participants save an annual \$12MM comparative to the total GA paid. With this scenario, a generator could market the average generation observed at provincial peaks eliminating the risk of overselling while maximizing the capacity marketed at any given peak.

Considering the above scenarios, it is evident that there may be alternative options that would further maximize the benefits of VPPA to the province, providing benefits to both the ICI market participants and the overall global adjustment amount, while further supporting the growth of new clean generation. Permitting the average annual generation peaks within

VPPA contracts, should minimize risks for ICI market participants and therefore maximize the revenue from ICI market participants to the generation facilities, which results in reduced energy costs the province will pay. Continued promotion of clean generation facilities while lowering the energy costs of these facilities to the province will continue to reduce the overall generation costs and therefore lower the overall GA amount. This alternative solution is important to support electrification and the need to support increased electrical demands in Ontario while balancing the incremental costs to the end customers.

Additional to the direct financial savings the province will achieve by considering the average annual generation through VPPAs, the approach would also simplify the settlement process, achieving further provincial savings. Using actual generation at the provincial coincident peaks, data on actual generation at each of the peaks would be obtained and calculated after each coincident peak occurs. Leveraging the annual average method, this value would be calculated at the beginning of the year and applied at each coincident peak, maximizing administrative efficiencies and ultimately reducing costs. This approach should streamline the process, minimizing the time required to complete the settlement process and produce results for the ICI market participants in a more timely manner.

For further details and discussions on the above noted calculations and information, contact regulatory@ssmpuc.com.