

Memorandum

To: Stakeholder Advisory Committee

From: Katherine Sparkes, Director of Innovation, Research and Development

Date: June 28, 2022

Re: IESO Business Update – Innovation

The following provides an update to members of the Stakeholder Advisory Committee (SAC) on the IESO’s innovation work.

Ontario’s electricity supply and demand situation is changing, and we face emerging needs in the coming years. At the same time, technologies are evolving and creating new options, particularly at a local level. One of the IESO’s key priorities this year is to create opportunities for more resources and unlock the innovation of Ontarians to support electricity affordability, reliability and growing customer preferences for clean energy.

Two of the IESO’s key Innovation-related deliverables for 2022 include the Distributed Energy Resources (DER) Achievable Potential Study (APS) and report back to government on options for the development of a Clean Energy Credit (CEC) registry (further to the Minister of Energy’s January 26 letter to the IESO). Both initiatives have identified important opportunities to meet emerging system needs with clean and distributed resources. Further details on these initiatives and the IESO’s other ongoing Innovation activities are captured below.

DER Potential Study

In 2021, the IESO initiated a DER Potential Study to understand the types and volumes of DERs capable of providing cost-effective electricity system services and the extent to which these DERs may emerge over a 10-year time horizon. Final results of the study were presented at the IESO’s June engagement days identifying between 1.3 – 4.3 GW of achievable summer capacity by 2032, enough to meet approximately 40 – 45% of Ontario’s incremental capacity needs.

Results of the study also indicate that a small group of DERs are expected to contribute to the vast majority of the achievable potential. Conventional large commercial and industrial demand response (DR) opportunities currently represent the majority of DR participation in the capacity auction, and are expected to grow over the next decade. Key emerging resources will include

residential HVAC¹ DR, electric vehicle smart charging and V2B/V2G² applications, behind the meter energy storage and behind the meter solar.

The IESO will aim to unlock the identified potential through the foundational and enhanced participation models being developed through the DER Market Vision Project (MVP). Prior to implementing new participation models in 2026, however, the DER Potential Study highlights that there is untapped opportunity with specific resources within Ontario today (residential HVAC DR is a key example). Through its ongoing Conservation and Demand Management (CDM) activities, the IESO will explore opportunities to capture latent near-term potential in order to leverage DERs to meet emerging resource adequacy needs, while paving the way to market participation over the longer term.

Clean Energy Credits

Earlier this year, the Ministry of Energy asked the IESO to explore options for creating a voluntary Clean Energy Credit (CEC) registry in Ontario to help businesses further meet their environmental goals, leveraging the province's clean energy advantage to attract jobs and investment to Ontario. In order to identify options and assess opportunities and risks, the IESO held extensive engagements with municipalities, non-governmental organizations, Indigenous communities, businesses and energy suppliers.

Work to prepare the final document reporting back to government on options to implement a CEC registry as of January 1, 2023 is currently underway.

Other Innovation Activities

- Successful projects for the 2021 IESO/Ontario Energy Board (OEB) **Grid Innovation Fund** Joint Targeted Call have been selected and are now underway. Seven projects were chosen, with an investment of \$17.2M from the Grid Innovation Fund (total project value \$56M) in partnership with the OEB to test solutions to enable DERs in support of the DER MVP and the OEB's Innovation Sandbox objectives.
- In June, the IESO presented options and criteria for foundational DER participation models as part of the **DER Market Vision Project**. The IESO will present proposals for foundational models in Q3 of this year (to be implemented in 2026) and proposals for enhanced models by year end of 2022.
- Foundational participation models for the **Hybrid Integration Project** were presented in June for feedback, with the final design to be published in July and implementation to begin September 2022.

¹ Heating, ventilation and air conditioning

² Vehicle to building/vehicle to grid