



Distributed Energy Resource (DER) Integration Joint Targeted Call

Application Guideline

IESO Grid Innovation Fund & OEB Innovation Sandbox

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1. Overview: DER Integration Joint Targeted Call

One of the most significant changes to the electricity system in Ontario and around the world has been the rapid expansion of distributed energy resources (DERs). DERs are electricity-producing resources or controllable loads that are connected to a local distribution system or connected to a host facility within the local distribution system and can include resources such as solar panels, combined heat and power plants, electricity storage, small natural gas-fuelled generators, electric vehicles and controllable loads, such as HVAC systems and electric water heaters. DER aggregations (DERAs) bundle DERs to engage as a single entity in electricity markets or as service providers.

In Ontario today, at least 5,000 MW of DERs have already been deployed and there is potential for substantial growth driven by decreasing technology costs and increasing capability of DERs, electrification/ decarbonisation goals and federal funding, business environmental, social, and governance (ESG) goals, and municipalities' community energy planning and customers' preferences. 1,000 MW of expiring DER contracts (between asset owners and the IESO) are expected over the next decade with additional DERs being installed by residential, commercial and industrial customers independently of distribution or bulk system needs. DERs and DERAs are considered flexible assets that may be leveraged to provide services at both the wholesale market level and distribution system level. Because DERs are often installed for reasons other than distribution or bulk system needs (e.g. building automation, customer reliability preferences) a significant portion of the capital cost of these assets may be paid for by the asset owners – reducing the costs that must be recovered from ratepayers when these assets are enabled in electricity markets. Although these resources have the ability to provide value to the distribution and bulk systems, there is uncertainty around how to unlock that value and the technical and operational requirements to fully integrate DERs across wholesale market and distribution levels.

The IESO and OEB are issuing a joint targeted call ('joint call') for innovative projects focused on deriving value from DERs, to be funded through the Grid Innovation Fund (GIF) and supported by the OEB [Innovation Sandbox](#) (Sandbox). The joint call is interested in applications for projects that leverage DERs and associated technologies to provide services at both the wholesale market level and on the distribution system. Please note that references to DERs in this document refer to DERAs as well.

The IESO and OEB will accept for consideration applications submitted between November 1, 2021 and November 30, 2021. Up to \$9.5M in total funding is available for approved projects.

High-level objectives of this joint call include:

1. Demonstrate the potential for cost-effective services that DERs can provide to consumers, distribution systems and the IESO-controlled grid to unlock ratepayer cost savings.
2. Test and demonstrate effectiveness of technologies, programs, or other innovative strategies to further the IESO, OEB and the market's understanding of the dependability of DERs and improve reliability to the integrated electricity system. Specific areas of interest include real-time dispatch and compliance of various DER aggregation types, telemetry aggregation services for system visibility and forecasting, and solutions that address barriers in wholesale and distribution settlement and metering.
3. Test the effectiveness of DERs to defer or eliminate the need for traditional electricity infrastructure (e.g., poles and wires) while maintaining or improving reliability.
4. Support the development of innovative arrangements that test new activities or business models where regulatory requirements may prevent or impede those arrangements from proceeding.

2. Project Eligibility

The joint call is for projects that leverage DERs and associated technologies to provide services for both the wholesale market and the distribution system while maintaining reliability and providing value to the wholesale market, distribution system and to ratepayers. Projects must test the provision of services to distribution and/or transmission systems.

This could include projects that test the ability of DERs in demonstrations related to:

- Coordination between IESO real-time dispatch instructions (for energy and ancillary services) and similar instructions at the distribution level (e.g., including coordination protocols). This may include coordination protocols, instructions, and prioritization of services between the IESO, the DER asset(s) and a distribution system operator.
- How the IESO and a distribution system operator could have visibility into DERs on the system (i.e., telemetry) for forecasting purpose and real-time awareness, including what data collection and data-sharing arrangements may be useful with respect to DERs.
- Metering, monitoring and control solutions that can be used for settlement of wholesale and distribution level services.

In order to be eligible for funding under this joint call, applications must meet requirements associated with the following three eligibility categories: (2.1) project type, (2.2) project category, and (2.3) applicant eligibility.

Please note that applications relating to the research, development and demonstration of transmission, distribution and electricity generation technologies are not eligible for funding from this

joint call. Applications that would have a net-positive greenhouse gas emissions impact are ineligible for funding. The maximum GIF project length is 36 months.

2.1. Project Type

Unlike other IESO GIF calls, this joint call will only consider projects that fit under the GIF's 'Strategic Opportunity' stream.

To qualify for this stream, a proposed project must be a large-scale pilot that tests strategically important activities, technologies, services, practices, or program approaches that cannot be effectively piloted at a smaller scale and that demonstrate the potential for scalability within the Ontario electricity sector. For this reason, the minimum funding request from the IESO for any project will be \$1M.

The Strategic Opportunity stream includes four sub-categories. Applicants are encouraged to include more than one sub-category as part of their project scope. Sub-categories include:

2.1.1 Emerging Technology Demonstration: Demonstration, measurement and verification of emerging technologies. The project must test a near-commercial technology in a real-world environment. Projects must have a measurement and verification component to determine cost effectiveness and electricity savings potential. Projects must have a minimum technology readiness level of 7 – prototype ready for demonstration in an appropriate operational environment.¹

2.1.2 Strategic Research: Research study identifying barriers in metering and settlement of services provided to the wholesale market and/or distribution systems and describing solutions to overcome those barriers.

2. 1.3 Tool: Development and assessment of a new energy management tool or approach demonstrating reliability services for the wholesale market and distribution systems (e.g., dispatching systems, telemetry services.).

2.1.4 Program: Testing of a new program or specific program element that provides benefits to the wholesale market and distribution system. The project must test the concept in a real-world environment and should involve suitable partners with appropriate expertise. To determine cost-effectiveness, projects must have an evaluation, measurement and verification component.

¹ Innovation Canada technology readiness level descriptions can be found at <https://www.ic.gc.ca/eic/site/080.nsf/eng/00002.html>. Exceptions may be made for software technology.

2.2. Project Category

In addition to projects needing to fit within the Strategic Opportunity 'Project Type' stream, projects must also propose to test activities related to at least one of the following project categories:

2.2.1 System Integration: System integration refers to the efficient and effective integration of DERs into the electricity grid such that the DERs are able to participate in wholesale markets and also provide services to the distribution system.

2.2.1 Demand Reduction: For the purposes of this joint call, demand reduction includes the following sub-categories:

- Demand Response: Demand response occurs when customers reduce their electricity demand at certain times, such as during peak use hours (peak clipping), or shift some of their demand to off-peak hours (peak shifting); and
- Load Shifting: Load shifting occurs when electricity consumption is shifted to another time (typically, when load is shifted from on-peak to off-peak periods). This can be accomplished in many ways, including by making use of generation and storage assets.

2.2.2 Load Reduction: Load reduction occurs when customers elect to switch away from using electricity to using another fuel source, such as geothermal or solar heating or cooling. Note that applications that would have a net-positive greenhouse gas emissions impact are ineligible for the joint call.

2.2.3 Efficient Electrification: Efficient electrification occurs when customers convert from another fuel to electricity for transport, heating, and some industrial processes. Efficient electrification occurs when that conversion is managed in such a way as to avoid putting additional strain on the electricity system (for example, avoiding increasing the demand for electricity at peak times). This category excludes vehicle efficiency improvements.

Applicants are encouraged to include more than more than one sub-category as part of their project scope.

Note: Projects may also include resources that inject (e.g., storage and variable generation).

2.3. Applicant Eligibility

Applications are welcomed from non-profit and for-profit incorporated entities, including but not limited to electricity distributors, electricity transmitters, technology companies, consulting firms, industry associations, educational institutions, and public sector organizations.

Please note that applications relating to the research, development and demonstration of transmission, distribution and electricity generation technologies are not eligible for funding from this joint call. Applications that would have a net-positive greenhouse gas emissions impact are ineligible for funding. The maximum GIF project length is 36 months.

Funding is not provided to individuals, including incorporated individuals and sole proprietorships.

3. Regulatory Innovation

Unlike other IESO GIF calls, the joint call is targeting projects that meet the project type and category eligibility criteria laid out in sections 2.1 and 2.2 and that also aim to test innovative business models, activities, and services.

As a result, the Evaluation Criteria (see section 7, Application Evaluation Criteria) reflects preference for project proposals that include the following:

- Innovative arrangements that test new activities, services or business models for project proponents that are not present in the current regulatory environment or not contemplated by the current regulatory framework;
- Identification of any regulatory requirements that might prevent or impede the innovative arrangements, activities or business models being proposed; and
- Where applicants identify regulatory barriers that may prevent or impede the new activities, services or business models, identification of the Sandbox support required to address regulatory barriers to implementation.

OEB Innovation Sandbox support may include information, customized guidance, and OEB staff assistance in pursuing temporary relief from regulatory requirements. For applicants selected through the review process, OEB Innovation Sandbox staff will engage the proponent, working within the proponent's timeline requirements to the greatest extent possible. For more information about the OEB Innovation Sandbox, please go to www.oeb.ca/innovation.

The OEB may grant exemptions from its own regulatory requirements (such as OEB electricity codes, OEB natural gas rules and OEB licence conditions). Subject to certain exceptions set out in legislation,

the OEB cannot grant exemptions to requirements in statutes or regulations. Exemption applications are decided by OEB decision-makers and may require a hearing. OEB Innovation Sandbox Staff will work with proponents throughout the process.

4. Project Funding

Up to \$9.5M in funding is available for this joint call.

The GIF will provide support up to a maximum of 50% of eligible project costs (see Appendix A). Proponent and partner contributions must be at least 25% in cash to the total project value. All IESO funds and in-kind contributions must be auditable. While other non-IESO sources of funding are encouraged, duplicate funding of IESO-supported tasks is not permitted. Projects cannot receive additional funding from other IESO-administered programs such as the Save on Energy programs unless approved by the IESO.

5. Application Details

Applicants should submit completed applications (based on template set out in **Appendix B – Application Template**) and requested supporting documents (e.g., Letters of Support, project team CVs, etc.) to gridinnovationfund@ieso.ca. Applications must be submitted between **November 1, 2021 and November 30, 2021** with the words “Distributed Energy Resource Integration Targeted Call” in the subject line.

The IESO will respond by email to proponents to confirm receipt of applications within 2 business days.

6. Support, Review Process & Approval

Potential applicants are strongly encouraged to contact the GIF team at gridinnovationfund@ieso.ca and the Innovation Sandbox team at innovation@oeb.ca to discuss their project prior to submitting an application. IESO and OEB staff will meet together with potential proponents to discuss projects.

Once applications are submitted, the IESO’s GIF team, along with the OEB Innovation Sandbox team (and any subject matter experts, including any external to the IESO and OEB), will form the Business and Technical Review Committee (the Review Committee) to review and score each application. Applicants with highly ranked applications will be provided with the opportunity to work with the Review Committee to refine their applications to address any questions and/or feedback. Once

questions and/or clarifications have been addressed via an updated application, the Review Committee will bring high ranking applications forward for executive approval in Q1 2022. Applicants will be notified of the outcome by the end of Q1 2022.

7. Application Evaluation Criteria

CATEGORY	EVALUATION CRITERIA	WEIGHTING
Potential Impact	Significance of ratepayer cost reduction potential	10 points
Market Capability Building Impact	The project builds the skills and knowledge required by the market to accelerate the adoption of cost-effective DER solutions to meet the needs of customers and the electricity system	5 points
Market, program or technical advance	The project is testing a novel approach and advances the "state of the art" in Ontario	10 points
Project Team & Partners	The project team has the qualifications and experience required to execute a large-scale, strategic project. The project team provides evidence of appropriate partnerships, including a utility partner where appropriate. A minimum of three (3) partners (including lead applicant) have been listed and Letters of Support have been provided. Projects with a greater number of highly qualified, experienced and committed partners will be given greater points (due to the capacity building aspects that such projects offer).	15 points

CATEGORY	EVALUATION CRITERIA	WEIGHTING
Project funding	The project has secured funding additional to the funding requested from the IESO that is required to complete the project. The overall funding proposal satisfies IESO funding requirements (minimum 25% cash contributions from lead applicant and partners towards the total project value) and appropriately allocates risk between the proponent, partners and the IESO. The lead applicant is making a cash contribution toward the project. The financial ask of the IESO is a minimum of \$1 million. The IESO's funding will not account for any more than 50% of total project costs.	10 points
Project purpose and outcomes	The project outcomes are aligned with the high-level objectives of this joint call and have the potential to influence regulatory evolution and wholesale market participation. The project timeline allows for outcomes to be made available so that the IESO and OEB may use the results for future planning initiatives.	5 points
Project design	The project's design is reasonable and likely to meet the stated objectives. The project satisfies the criteria of section 2. The scope, work plan and scheduled tasks are contained in a clear and logical framework that supports successful completion of the project (for example, any DER assets or other resources included in the project scope have already been commissioned or will be commissioned in the near future).	15 points
Wholesale Market and Distribution Participation	The project demonstrates the prospect for mutual benefit to both the wholesale market and distribution systems and coordination between these systems. Projects that can test solutions under multiple project categories in Section 2.2 of this Guide will be awarded greater points.	15 points

CATEGORY	EVALUATION CRITERIA	WEIGHTING
Regulatory Innovation	The project includes innovative arrangements that test new activities, services or business models for project proponents that are not currently present in the current regulatory environment or contemplated in the current regulatory framework. The application identifies regulatory requirements that may prevent or impede the innovative arrangements, activities or business models being proposed. Where regulatory barriers are identified, the application identifies the Sandbox support required to address regulatory barriers to implementation.	15 points

8. Notification of Successful Applicants

The Review Committee will evaluate the applications and recommend a select number for executive approval. Applicants will be notified of the Review Committee outcome in Q1 2022.

9. Funding Disbursement & Provision of Sandbox Support

Successful applicants will be required to enter into the form of agreement provided in Appendix C – Form of Contribution Agreement. Note: **this agreement is non-negotiable**; the IESO will not make changes to the agreement for individual proponents and any applicants to the call should ensure they are comfortable signing the agreement as it is currently written before submitting an application.

Funding is disbursed on a milestone basis as projects complete key deliverables identified in the application. Submitted applications must set out the number, content, and timing of milestones in their application.

For applicants selected through the review process, OEB Innovation Sandbox staff will engage the proponent, working within the proponent’s timeline requirements to the greatest extent possible.

10. Appendices

10.1 Appendix A – Eligible Project Costs

Eligible costs are those directly related to the design, development, demonstration, installation, implementation, testing, measurement and performance verification of the project. The following table summarizes eligible and ineligible expenses.

Eligible Expenses	Ineligible Expenses
<ul style="list-style-type: none"> ✓ Project-specific materials, equipment, products and services ✓ Salaries and benefits of employees directly involved in the design, selection, purchase and installation of the project ✓ Professional, engineering, scientific, technical, management and contracting services, including training ✓ Permits and licence fees ✓ Funding for marketing, communications and workshops directly related to project activities ✓ Costs associated with the monitoring, verification and evaluation of the project’s impacts, including data collection, processing, analysis and management ✓ Equipment and products, including diagnostic and testing tools and instruments and associated software ✓ Costs associated with providing approved incentives to project participants 	<ul style="list-style-type: none"> ✗ Budget deficits ✗ Activities completed or costs incurred before the funding is approved or after the project is completed ✗ Costs over \$50,000 for any single consultant or contractor that has not been selected through a competitive process ✗ Costs associated with the purchase of real estate ✗ Any overhead costs generated by the lead applicant or third parties, such as operating costs related to general maintenance and repair ✗ Hospitality, incidental or food expenses for the project team ✗ Hospitality or travel costs not in compliance with the Government of Ontario’s Travel, Meals and Hospitality Expenses Directive ✗ Any costs not directly related to the achievement of the project’s objectives as defined in the contribution agreement between the IESO and the applicant

10.2. Appendix B – Application Template

Posted on the Grid Innovation Fund Website - <https://www.ieso.ca/en/Get-Involved/Funding-Programs/Grid-Innovation-Fund/Targeted-Call-for-Proposals>

10.3. Appendix C –Contribution Agreement

Posted on the Grid Innovation Fund Website - <https://www.ieso.ca/en/Get-Involved/Funding-Programs/Grid-Innovation-Fund/Targeted-Call-for-Proposals>

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