

Distributed Energy Resource (DER) Application and Connection Guidelines



These guidelines help ensure that your DER or net metering project is efficiently processed and implemented. It's important that you read and understand these guidelines before completing the following documents:

- Micro-Embedded Generation Facility Application
- Connection Impact Assessment (CIA) Application
- Connection Agreement
- Connection Cost Agreement (CCA)/Offer to Connect (OTC)

If you have any questions or concerns, please email der@torontohydro.com.

Technical requirements

For technical requirements associated with the connection of your DER project, please refer to the following Conditions of Service and reference documents, located on our Conditions of Service web page:

torontohydro.com/conditionsofservice

- **Toronto Hydro's Conditions of Service (main document)**
- **Distributed Generation Requirements (reference document 3):** This outlines the classifications and general terms and conditions for the connection of a distributed generation facility to the distribution system
- **Parallel Generation Requirements (Appendix 1(i) of reference document 3):** This provides technical requirements for interconnecting parallel generation greater than 12 kW
- **Requirements for the Design and Construction of Customer-Owned High Voltage Substations (reference document 4):** This provides guidance for the design and construction of 13.8 kV and 27.6 kV customer-owned substations, including substation switchgear and primary cables

Applications and documents

Micro-Embedded Generation Facility Application and Connection Impact Assessment (CIA) Application

How to submit

DER projects 12 kW or less require a Micro-Embedded Generation Facility DER Application.

DER projects greater than 12 kW require a CIA Application. A CIA is a detailed assessment of the proposed project's impact on the Toronto Hydro electricity grid.

Please submit the following to us:

- Micro-Embedded Generation Facility DER Application or CIA Application (depending on the size of your project)
- Single-line diagram
- Copy of your payment confirmation (e.g., a photo of a cheque or an Electronic Funds Transfer payment confirmation issued by a bank)
- Any other required documents outlined in your correspondence with our DER team

Please submit these materials using one of the following options:

Email

Submit your application and required documents to der@torontohydro.com.

Mail

Submit your application and required documents to:

Benson Lo, Distributed Energy Resource Connections, Capacity Planning and Grid Innovation
500 Commissioners Street, 3rd Floor
Toronto, ON M4M 3N7

Connection Agreement (DER projects \leq 12 kW)

Once we approve your Micro-Embedded Generation Facility Application, we'll provide you with the costs associated with connecting to the Toronto Hydro grid in the Connection Agreement.

How to submit

Please sign the Connection Agreement and submit it using the same method you used to submit your Micro-Embedded Generation Facility Application. Also, please pay the final connection fee per payment instructions in this guide.

Documents required for connection of DER projects \leq 12 kW

After the connection agreement is signed, an additional document is required in order to connect the DER facility to Toronto Hydro's distribution system:

- A scanned copy of the Electrical Safety Authority (ESA) notice of inspection must be emailed to der@torontohydro.com as soon as the final ESA inspection is completed. In the email subject line, please include: "ESA notice of inspection," the project address and the DER ID number

Documents required for processing Connection Cost Agreement/Offer to Connect (DER projects $>$ 12 kW)

For projects greater than 12 kW where a CIA is required, once we approve your CIA Application, we'll provide you with the costs associated with connecting to the Toronto Hydro grid in the CCA/OTC.

The following is required in order for us to process the CCA/OTC:

- In the case where the supplier name and the Toronto Hydro customer name for the existing service are different, a signed agreement that authorizes the supplier to have access to the property of the DER is required. Typically, this is referred to as an "Agreement"
- Construction schedule indicating relevant project milestone dates
- If you're completing a net metering project using a third party, you must complete Schedule G: Net Metering Confirmation of Disclosure, which you can find on the **Ontario Energy Board's retailer forms and templates for net metering web page**

Note: Revenue meters and instrument transformers can only be provided after there is an executed CCA/OTC between the parties.

How to submit

Please sign the CCA/OTC and submit it using the same method you used to submit your CIA Application. Also, please pay the final connection fee per payment instructions in this guide.

Documents required for connection of DER projects $>$ 12 kW

Once there is an executed CCA/OTC, additional documents are required in order to connect the DER facility to Toronto Hydro's distribution system:

- A scanned copy of the ESA notice of inspection must be emailed to der@torontohydro.com as soon as the final ESA inspection is completed. In the email subject line, please include: "ESA notice of inspection," the project address and the DER ID number

- A Commissioning Report certified by a independent professional engineer as per the Toronto Hydro Distribution Generation Requirements (section 4.7.4 Commissioning and Testing). You can submit the report by email to the DER team or to the Toronto Hydro engineer you're working with for this project

Fee schedules

Table 1 below provides initial payment requirements for the following application types:

- Micro-Embedded Generation Facility Application (no CIA required)
- CIA Application (non-micro projects)

Table 1: Estimated costs to prepare Micro-Embedded Generation Facility and CIA Applications

Size of DER project	DER connection alternating current voltage phase type	Estimate for a Micro-Embedded Generation Facility Application or a CIA Application
≤ 12 kW	One or three	\$500 + HST
> 12 kW and ≤ 30 kW	One or three	\$1,500 + HST
> 30 kW and ≤ 50 kW	Three	\$1,500 + HST
> 30 kW and ≤ 50 kW	One	\$2,000 + HST
> 50 kW and ≤ 250 kW	One or three	\$2,000 + HST
> 250 kW and < 1 MW	One or three	\$2,500 + HST
≥ 1 MW and < 10 MW	One or three	\$12,000 + HST
≥ 10 MW	One or three	\$15,000 + HST

Common connection costs and sample variances

The following section outlines typical or average connection costs in both the initial application and connection phases of a DER project up to 250 kW in size, along with sample variances for planning and informational purposes only.

For project-specific cost inquiries, email Toronto Hydro's DER team at der@torontohydro.com.

Table 2: Common cost items and their typical costs (broken down by project type)

Cost item	≤ 12 kW	> 12 kW and ≤ 30 kW (single- or three-phase)	> 30 kW and < 50 kW	≥ 50 kW and ≤ 250 kW (single- or three-phase)
Application charge	\$500	N/A	N/A	N/A
CIA application charge	N/A	\$1,500	\$2,000	\$2,000
Design, engineering and clerical costs	\$257	\$1,200	\$1,200	\$1,200
Inspection costs	\$389	\$1,200	\$1,200	\$1,200
Meter installation and labelling costs*	-	\$3,369.74	\$3,369.74	\$3,369.74
Monitoring and control solution	N/A	N/A	N/A	\$12,000
Commissioning, testing and verification costs	N/A	-	\$2,500	\$2,500

* Some cost items may not be applicable to certain projects, e.g., residential projects that already have a bi-directional meter would not be subject to metering-related costs.

Table 3: Recent actual DER project cost variance examples**

DER group/size range (in kW)	Project type (exporting or non-exporting)	OTC-CCA cost estimate	OTC-CCA actual project costs	Cost variance amount	Variance (%)	Expansion required? (yes/no)	Transfer trip required? (yes/no)	Build and energization duration (in months)	Additional context/general notes
≥ 50 kW and ≤ 250 kW (single- or three-phase)	Exporting	\$2,000	\$1,882.80	-\$117.20	-6%	No	No	24	The customer already had a bi-directional meter. The engineering work was completed faster than anticipated.
≥ 50 kW and ≤ 250 kW (single- or three-phase)	Exporting	\$2,000	\$1,506.24	-\$493.76	-25%	No	No	15	The customer already had a bi-directional meter. The engineering work was completed faster than anticipated.
≥ 50 kW and ≤ 250 kW (single- or three-phase)	Non-exporting	\$5,000	\$5,781.56	\$781.56	16%	No	No	10	The customer already had a bi-directional meter. Several site visits were required due to issues encountered with customer-owned equipment during commissioning.
≥ 50 kW and ≤ 250 kW (single- or three-phase)	Exporting	\$2,000	\$2,827.36	\$827.36	41%	No	No	8	The customer already had a bi-directional meter. Multiple site visits were required because the customer's system was not ready for commissioning.

** Table 3 shows examples of actual DER projects that connected to Toronto Hydro's system within the past two years and experienced cost variances. The examples are intended to highlight real-world cost variability to support customer project planning and budgeting.

Important notes

- DERs greater than 1 MW will also require a Transmitter CIA while those DERs greater than 10 MW also require a System Impact Assessment (SIA) to be completed
- The actual costs for a CIA may vary depending on the specific DER. You'll be advised of further costs associated with the processing and implementation of your DER project
- You must also file any material revisions to the design, planned equipment or plans for the DER facility with Toronto Hydro and a new CIA will be prepared as per Distribution System Code (DSC) section 6.2.15. The new CIA will be performed at the applicant's expense
- Costs related to Transmitter activities (e.g., CIA applications and other Transmitter-related connection activities) are not reflected in this document. For information on Transmitter costs, visit Hydro One's website: hydroone.com/business-services/generators

Payment instructions

Please make the payment fee payable to Toronto Hydro-Electric System Limited. Official invoice(s) stamped as paid will be sent for your records. You can pay by Electronic Funds Transfer (EFT) or by cheque via mail.

EFT instructions

Please use the following banking information for making an EFT payment:

Payee name: Toronto Hydro-Electric System Limited
Address: 500 Commissioners Street, Toronto, ON M4M 3N7
Bank name: Royal Bank of Canada
Bank address: 200 Bay Street, Toronto, ON M5J 2J5
Bank number: 003
Transit form: 00002
Bank account number: 1550573

Please email the payment confirmation (an EFT payment confirmation that is issued by a bank) to Toronto Hydro at der@torontohydro.com and projectpayments@torontohydro.com within 24 hours of completing the EFT. This will help ensure accurate and timely processing of your payment.

Mail instructions

Please send a cheque for the CIA payment fee and the first page of the CIA Application directly to:

Toronto Hydro-Electric System Limited
500 Commissioners Street
Toronto, ON M4M 3N7
Attn: Accounts Receivable

Note: Remember to attach a copy of your payment confirmation with your application (e.g., a photo of a cheque).

In relation to the processing and connection of the proposed DER, Toronto Hydro requires payment confirmation from customers in the form of a cheque image or Electronic Funds Transfer (EFT) payment confirmation. Payment confirmation and the information contained therein, as well as the personal information contained therein where applicable, are collected for purposes including, but not limited to application processing, preparation of agreements, site visits and the purchase of metering or other related connection infrastructure. By signing this form, you are agreeing to Toronto Hydro collecting your payment confirmation and any information and/or personal information therein, and are consenting to its usage by Toronto Hydro for the aforementioned purposes. By opting to submit your payment confirmation, you are acknowledging that you accept the risk of communications to and from Toronto Hydro not being encrypted or secure, and that any personal information contained in a payment confirmation, where applicable, including but not limited to name, service address, phone number, email address, and Toronto Hydro account number, could be intercepted and/or read by unintended parties. Toronto Hydro accepts no liability for any losses and/or damages caused by unintended parties intercepting and/or reading your payment confirmation and/or its contents. For more information on how Toronto Hydro collects, uses, and discloses personal information, please refer to Toronto Hydro's Privacy Policy at torontohydro.com/privacypolicy.