GENERATION CONNECTION

INFORMATION PACKAGE

Date: May 1, 2026

Revision: 1

Table of Contents

Introduction

In accordance with OEB Requirements Festival Hydro Inc. is providing a Generator Connection Information Package to provide customers with the information needed to connect a distributed energy resource to Festival Hydro's distribution system.

This package will provide you with the steps, containing all the required information and links to forms, to provide consistency when planning your generation project.

For any inquiries regarding this document or generation projects in general please contact Festival Hydro's Generation team.

Email: DER@festivalhydro.com

Phone: 519-271-4700 ext. 303

Preliminary Consultation

To begin the process of connecting, complete a Preliminary Consultation Information Request (PCIR) form and submit to der@festivalhydro.com

Festival Hydro, within 15 days of receipt of complete PCIR form will respond to the request with the following high-level information in a Preliminary Consultation Report (PCR):

a. Confirm if there is connection capacity at the location, subject to the completion of a Connection Impact Assessment (CIA)
b. Any conditions on capacity and likelihood of Transfer Trip being a requirement
c. What connection studies will be required for CIA (e.g. distributor and host distributor)

CIA studies are required based on the DER Classifications below, with the CIA form completed for Small, Mid-Sized and Large applications:

DER Classification	Rating	Potential Studies:
Micro	≤ 12 kW	None
Small	(a) ≤ 500 kW connected on distribution system voltage < 15 kV (b) ≤ 1 MW connected on distribution system voltage ≥ 15 kV	1. Distributor 2. Host Distributor (if applicable)
Mid-Sized	(a) ≤10 MW but > 500 kW connected on distribution system voltage < 15 kV (b) > 1 MW but ≤ 10 MW connected on distribution system voltage ≥ 15 kV	1. Distributor 2. Host Distributor (if applicable) 3. Transmitter
Large	> 10 MW	1. Distributor 2. Host Distributor (if applicable) 3. Transmitter 4. IESO System Impact Assessment

If the proposed connection is for a Micro generation facility (≤ 12 kW) and Festival Hydro's Preliminary Consultation Report indicates there is capacity to accommodate the request, a CIA is not required and you can proceed straight to the Build and Energization section of this document for next steps.

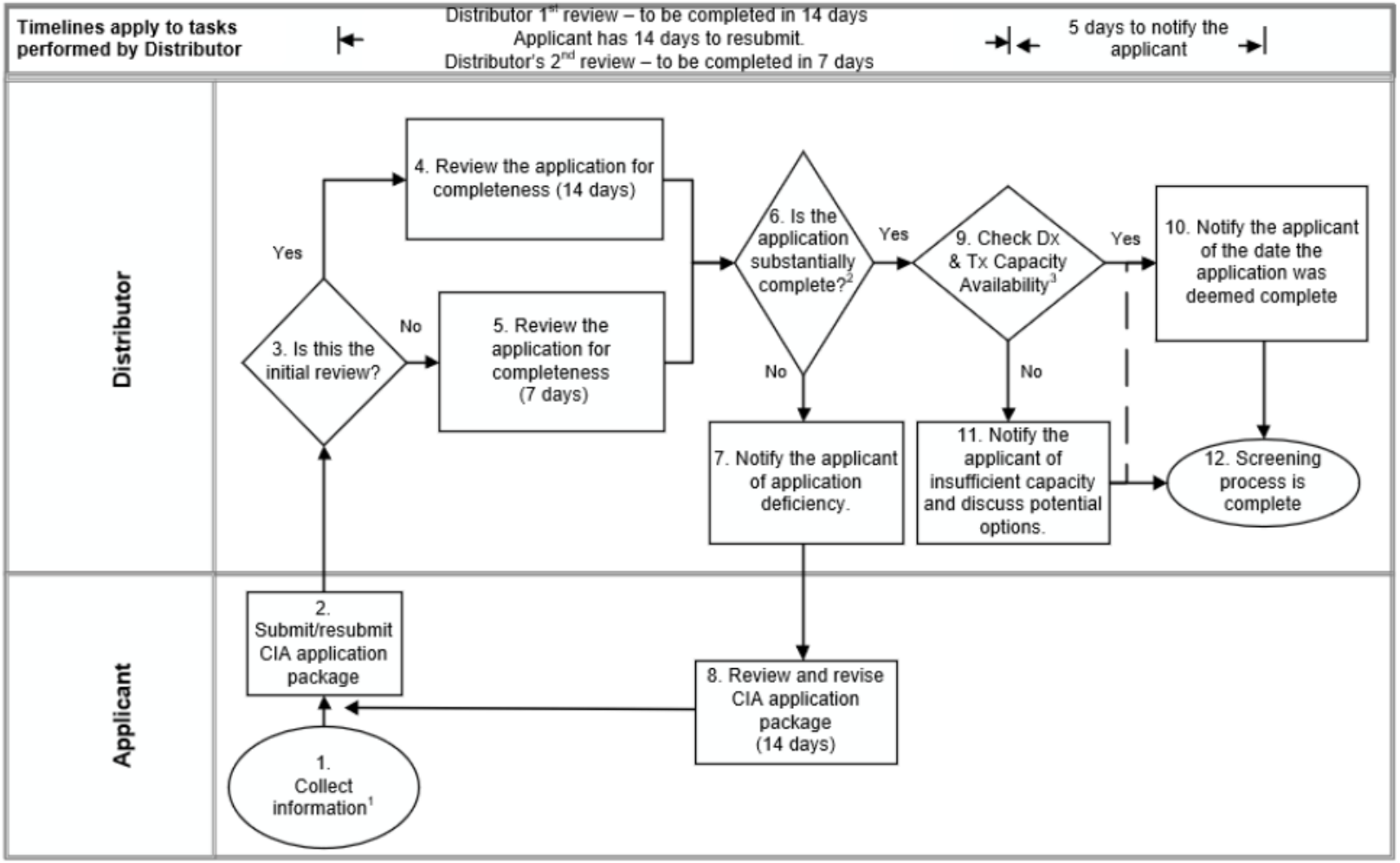
Connection Impact Assessment

For all projects >12kW a CIA is required to complete a technical review of the proposed installation.

A CIA application form needs to be completed by the customer and submitted to der@festivalhydro.com along with a cheque for the proper amount based on size of connection and number of studies required. The amount for the CIA will be indicated in Festival Hydro's Preliminary Consultation Report, and can be found on FHI's website.

Once the CIA application form has been received, Festival Hydro will screen for completeness using the process outlined below.

CIA Screening Process

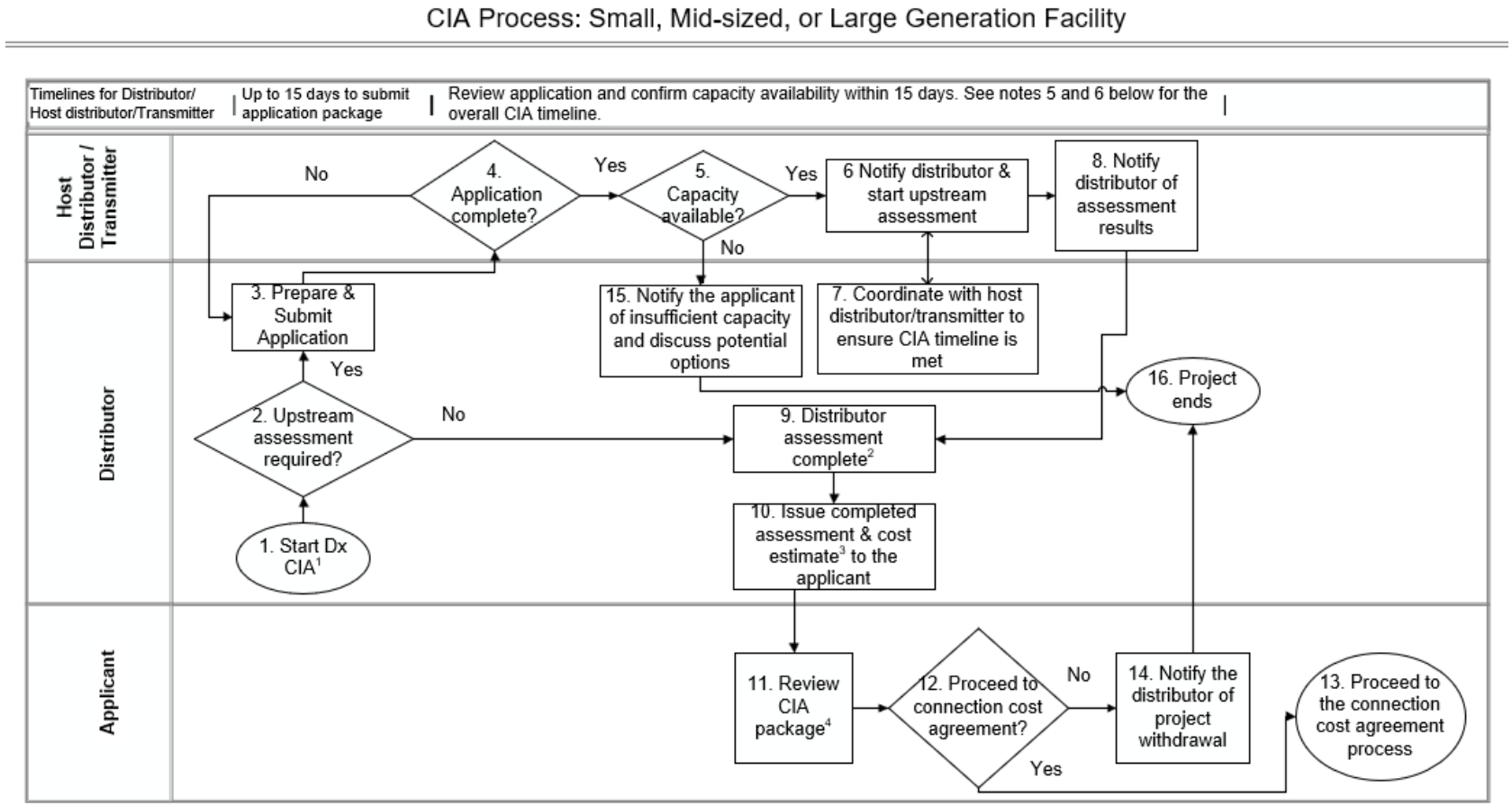


[1] Submiting a Preliminary Consultation Information Request (PCIR) prior to CIA application will help gather potential connection complexity information before investing in a CIA.
[2] A CIA application is complete If the information it contains is sufficient to allow a distributor to complete a CIA.
[3] A secondary check to address changes between the preliminary consultation and the CIA application.

Figure 1: Connection Impact Assessment Screening Process Flowchart (Distributed Energy Resources Connection Procedures Ver. 3, May 2026

Step 1	The applicant begins the process by collecting any needed information. The applicant can submit a PCIR prior to a CIA application to gather potential connection complexity information specific to the generation facility.
Step 2	The applicant submits the completed CIA application package, including completed application form, payment for required studies, attachments, application checklist, and the PCR (if available).
Step 3	The distributor determines if this is the initial application submission or a revised application submission. If it is the initial submission, proceed to step 4. If it is a revised submission, proceed to step 5.
Step 4	For initial application submission, the distributor reviews the application to determine whether it is missing any required information. A review must be completed within 14 days.
Step 5	For revised application submission, the distributor reviews the revised application to determine whether it is missing any required information. A review must be completed within 7 days.
Step 6	For the completeness check outlined in steps 4 and 5, the distributor reviews the application to determine if the information the applicant provided is sufficient to allow the distributor to complete a CIA. If the distributor deems the application incomplete, proceed to step 7. If the distributor deems the application complete, proceed to step 9.
Step 7	For submissions that are not substantially complete, the distributor will notify the applicant of the application deficiencies via email or letter (if the applicant's email is not provided). The deficiency notification shall identify any errors and omissions in the application that would prevent the distributor from proceeding with the CIA. The notification shall outline the available remedies required to have the application deemed substantially complete.
Step 8	On receipt of a deficiency notification, an applicant should review and revise the application to address the deficiencies and resubmit the application. The process allows 14 days for the applicant to resubmit a revised application. If the applicant does not return the revised application within 14 days, it may be treated as a new application once it is resubmitted.
Step 9	For submissions that are deemed substantially complete, the distributor will reconfirm distribution and transmission capacity availability. This is a secondary check to address changes between the pre-consultation phase and the CIA application. The distributor may carry out a capacity check before the application completeness review. If capacity is available, proceed to step 10. If capacity is not available, proceed to step 11.
Step 10	The distributor notifies the applicant of within 5 calendar days of when the application is deemed substantially complete. The date the application is deemed substantially complete starts the timed-day window for the distributor to send the completed CIA to the applicant.
Step 11	If capacity is not available, the distributor will notify the applicant that capacity is not available to support the connection and may offer a flexible hosting capacity arrangement if the distributor has this option available. If the distributor and the applicant agree to explore a flexible hosting capacity arrangement, proceed to step 10. If not, process to step 12.
Step 12	The screening process is complete.

The next step in the connection process is the completion of the CIA. The CIA flowchart, with detailed steps can be found below.



[1] Refer to CIA Screening flowchart for prior process steps; [2] Distributor consolidates finalized assessments
[3] For mid-sized and large generation facility applications, the applicant may elect to obtain a detailed cost estimate which is a separate process that may require a new agreement between the applicant and the distributor, as well as associated fees; [4] The applicant to see CIA expiration terms and conditions
[5] CIA timeline for a project does not require an upstream assessment: 60 days (Small DER – without system reinforcement/expansion)/ 90 days (Small DER – with system reinforcement/expansion)/ 60 days (Mid-sized DER) / 90 days (Large DER).
[6] CIA timeline for a project requires an upstream assessment: 75 days (Small DER – without system reinforcement/expansion)/ 90 days (Small DER – with system reinforcement/expansion)/ 75 days (Mid-sized DER) / 105 days (Large DER).

Figure 2: Connection Impact Assessment Process for Small to Large Size Facilities (Distributed Energy Resources Connection Procedures Ver. 1, March 2022, https://www.oeb.ca/consultations-and-projects/policy-initiatives-and-consultations/distributed-energy-resources-der)

Step 1 The distributor initiates the distribution CIA when the CIA application is deemed substantially complete and gathers required information.

Step 2 The distributor determines if an upstream assessment from a host distributor/transmitter is required. If so, proceed to step 3. If not, proceed to step 9.

Step 3 If an upstream assessment is required, the distributor submits the completed CIA application package to the host distributor/transmitter, including completed application form, payment for required studies, attachments, and application checklist. The distributor must submit a completed application as soon as possible and no later than 15 days after starting the downstream CIA to ensure there is adequate time for the host distributor/transmitter to carry out upstream assessment(s) and to consolidate upstream assessment results into the distributor's CIA. The distributor must include information on the expected timeline for the host distributor CIA in its application, in accordance with the project classification and the date the CIA application is deemed substantially complete in Step 1.

Step 4 The host distributor/transmitter reviews the application and determines if the application is complete. If additional information or changes to the application is/are needed, the host distributor/transmitter must inform the distributor as soon as possible, and no later than 15 days. This ensures there is sufficient time for the distributor to submit the revised application package and for the upstream assessment to be completed concurrently with the distributor's CIA.

Step 5 The host distributor/transmitter confirms there is capacity for the connection. This check can take place again during the CIA process. If there is capacity available, proceed to step 6. If not, notify the distributor there is insufficient capacity and discuss the feasibility of a flexible hosting capacity arrangement.

Step 6 If the application is complete and capacity is available, the host distributor/transmitter notifies distributor and begins the upstream assessment.

Step 7 Distributor coordinates with the host distributor/transmitter to ensure the host distributor/transmitter sends the upstream assessment in time for the distributor to complete the distribution CIA within the prescribed CIA timeline.
The overall CIA timeline for a project requires an upstream assessment based on the size of the proposed DER:
- Small DER:
  - 75 days (without system reinforcement/expansion)
  - 90 days (with system reinforcement/expansion)
- Mid-Sized DER: 75 days
- Large DER: 105 days

Step 8 The host distributor/transmitter notifies distributor of assessment results.

Step 9 Upon receiving upstream assessment results, the distributor completes its CIA.

Step 10 The distributor issues a completed CIA and cost estimate to the applicant. For mid-sized and large generation facility applications, the applicant may elect to obtain a detailed cost estimate which is a separate process that may require a new agreement between the applicant and the distributor, as well as associated fees.

Step 11 The applicant will review the CIA package and signs the connection cost agreement within a prescribed timeline, in accordance with the terms and conditions regarding the expiration of the capacity allocation.

Step 12 The applicant decides whether to proceed to the connection cost agreement to move forward with the connection process. If so, proceed to step 13. If not, proceed to step 15.

Step 13 The applicant proceeds to the connection cost agreement process.

Step 14 If the applicant decides not to proceed, notify the distributor in writing of project withdrawal.

Step 15 Upon receiving the notification from the host distributor/transmitter that there is insufficient capacity in Step 5, the distributor notifies the applicant. The distributor identifies the potential for entering into a flexible hosting capacity arrangement.

Step 16 Project ends due to insufficient capacity, or the applicant's decision not to proceed to the connection cost agreement process.

Detailed Cost Estimate

The CIA will include an estimate of the anticipated connection costs.
Upon receipt of the CIA, an applicant for a mid-sized or large generation facility (see Table 1) has the option to request a detailed cost estimate from the distributor prior to entering into a Connection Cost Agreement.
To obtain a detailed estimate, the applicant must make a written request for the estimate; the distributor and applicant may enter into a study agreement for the preparation of the cost estimate, if required; the applicant would pay the distributor's fee for preparation of the detailed cost estimate; and the distributor would proceed with preparing the detailed cost estimate. The detailed cost estimate would be provided to the applicant before the applicant signs the Connection Cost Agreement.

Simplified CIA Process

Festival Hydro has adopted the following nameplate capacity thresholds for the simplified CIA option.

- Single-phase DER: > 12 kW and ≤ 30 kW
- Three-phase DER:
    - Connecting to a supply feeder with a voltage less than 15 kV: > 12 kW and ≤ 50 kW
    - Connecting to a supply feeder with a voltage of 15 kV or greater: > 12 kW and ≤ 100 kW

As part of the initial application, Festival Hydro will provide the applicant with information as to whether their proposed DER qualifies for a simplified CIA process. Note that depending on various factors, not all applications that are within the above thresholds will qualify for the simplified CIA option.

The cost for a simplified CIA has been proportionately reduced to reflect the lower costs associated with the time and materials required for a simplified CIA, as compared to the costs for a full CIA, for small DER thresholds and can be found on Festival Hydro's website.

Construction and Energization

Micro Generation Facility

For a Micro Embedded Generation Facility (≤ 12 kW), no CIA is required and a completed Connection Form, along with a cheque for the appropriate amount is to be submitted.

The detailed connection process can be found below.

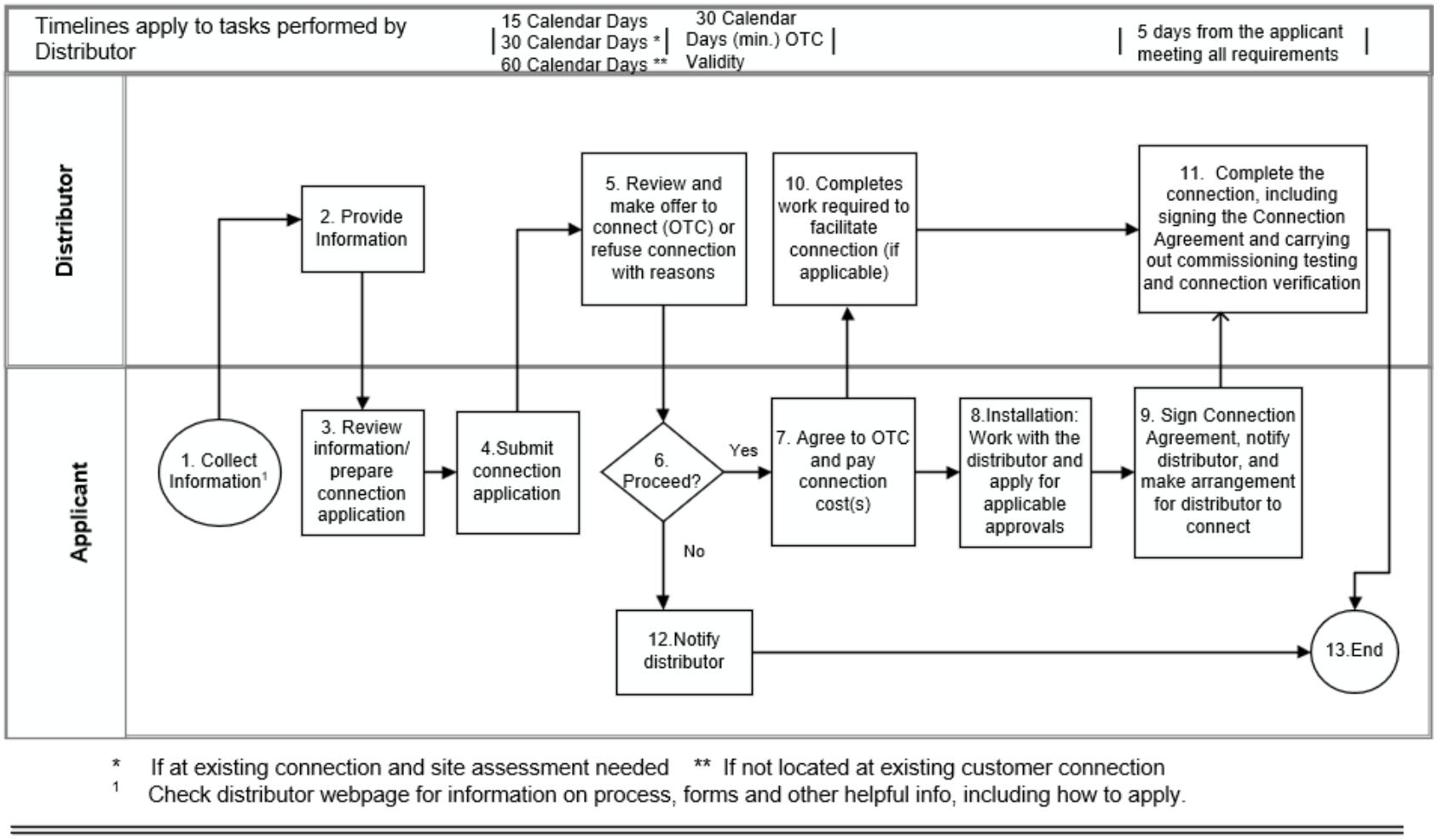


Figure 3: Timeline/Responsibilities for Micro Generation Facilities (Distributed Energy Resources Connection Procedures Ver. 3, May 2026)

Step 1 The applicant proposing to connect a micro-embedded generation facility checks the distributor's DER webpage for information on processes, forms and other helpful information, including how to apply. The applicant can also contact the distributor and the Electric Safety Authority (ESA) to obtain more information on connection process and requirements.

Step 2 The distributor makes the information on connection process available to the applicant in a timely manner. The information package includes the description of the connection process approvals needed by the distributor for connection, technical requirements including metering, contractual requirements (Micro-Embedded Generation Facility Connection Agreement), and application forms.

Step 3 The applicant reviews relevant information and prepares a connection application that includes:
- an installation plan, including the size, type of generation (e.g. net metering and non-exporting) facility; and
- a project plan.

Step 4 The applicant submits a connection application to the distributor for its review.

Step 5 Within the prescribed timeline, which varies based on the facility location, the distributor shall either provide the applicant with an offer to connect (OTC) or a refusal to connect, including reasons for the decision, as outlined in sections 5.3.2, 5.3.4, and 5.3.5 below.
The distributor's review of an application submitted for the connection of a micro-embedded generation facility will include:
- typical requirement for new meter;
- check for service upgrade requirement;
- check for significant amount of other generation on feeder;
- response to the applicant with an offer to connect or refusal; and

response to applicant with requirements specific to the connection (typically requirements for metering) and costs, timing to implement, etc.

Step 6 The applicant decides whether to proceed with the connection. If so, proceed to step 7. If not, proceed to step 12

Step 7 The applicant must indicate its intention to connect. Within the validity period of the OTC, which shall be at least 30 days, the applicant accepts the OTC and pays the required connection cost(s).

Step 8 During the installation phase, the applicant should work closely with the distributor, the ESA, and any other organizations from which work, inspections, approvals, or licences are required to prevent delays. The activities will be planned in coordination with project milestones, and it is up to the applicant to initiate actions at the required times.

Step 9 The applicant reviews and signs the connection agreement, notifies the distributor, and makes arrangement for the distributor to connect.

Step 10 The distributor completes any work required to facilitate the connection to the distribution system (if applicable).

Step 11 Subject to the provisions of section 6.2.7 of the DSC, the distributor works with the applicant to complete the connection, including signing the connection agreement and carrying out any commissioning testing and connection verification.

Step 12 If the applicant decides not to proceed with the connection (step 6), the applicant notifies the distributor of the applicant's decision not to proceed with the connection process and then proceeds to step 13.

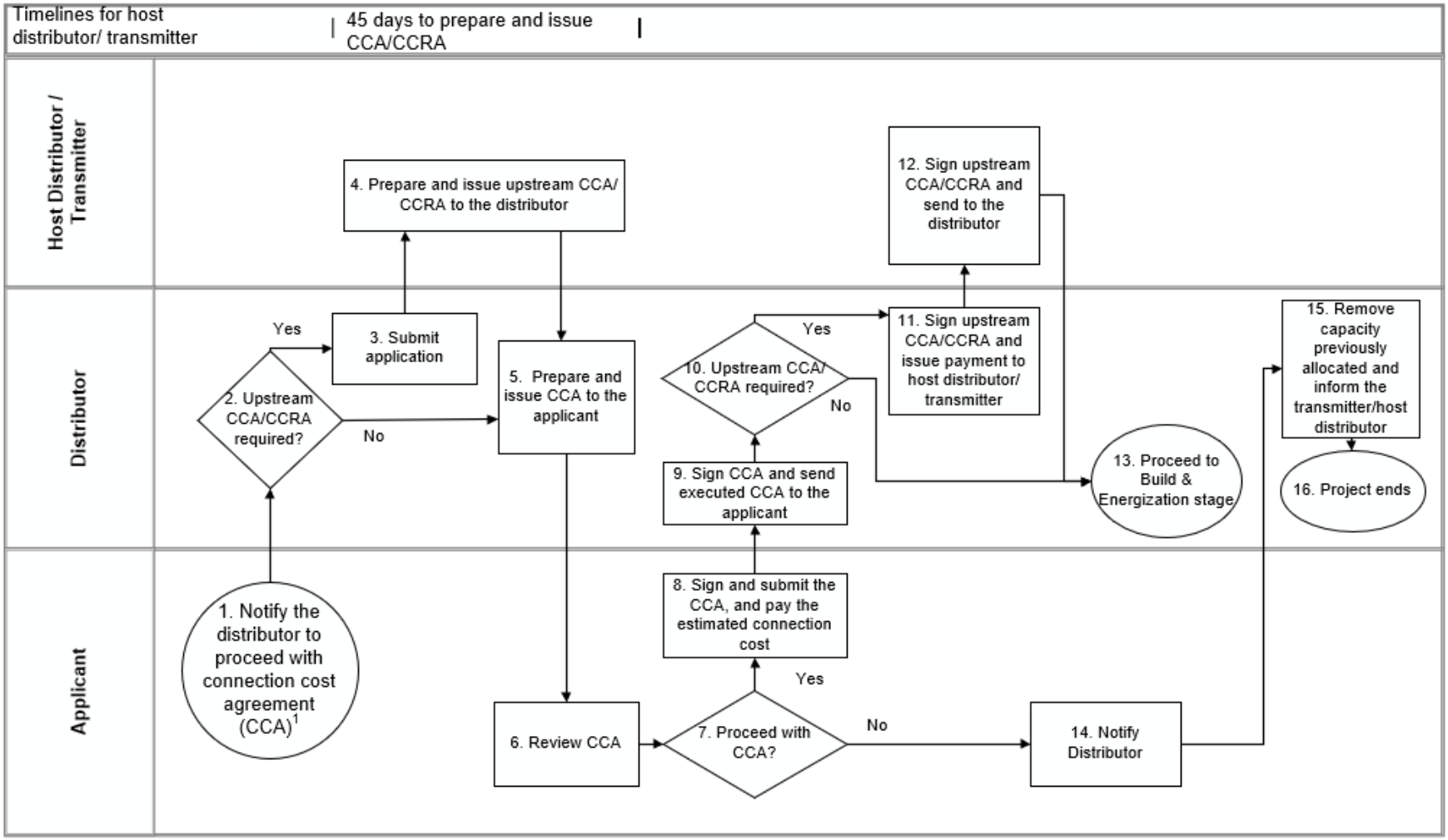
Step 13 The connection process ends.

Small/Mid-Size/Large Generation Facility

For facilities larger than 12kW a Connection Cost Agreement is completed to set out the scope of work and associated cost for the Distributor to connect the project to the distribution system.

Below outlines the process steps for this.

Connection Cost Agreement



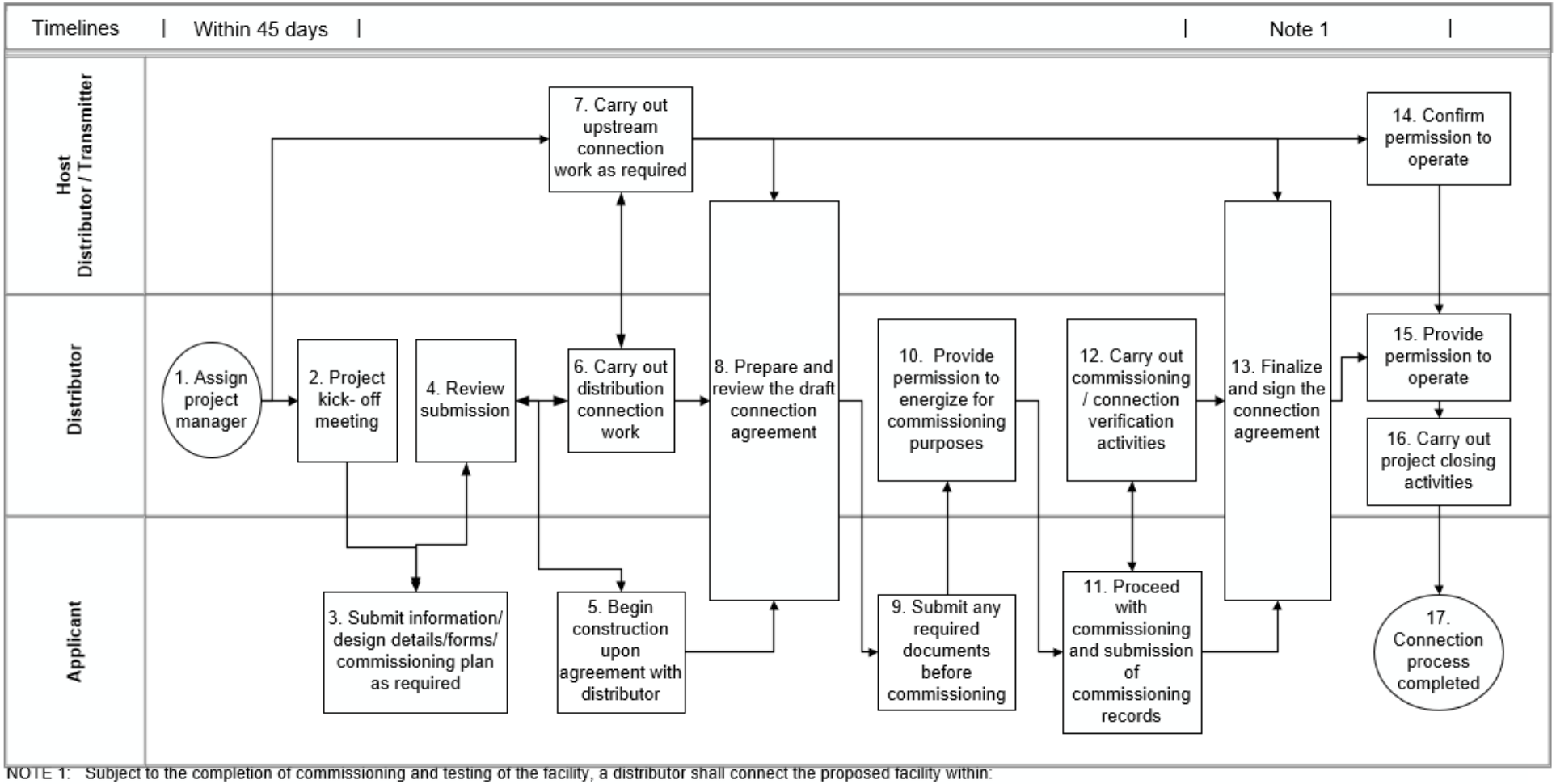
[1] If the CCA is not signed within 6 months for small and mid-sized generation facilities and 9 months or 17 months for large generation facilities, the capacity allocation will be removed and the CIA will become invalid. The applicant may need to complete a CCA application form.

Figure 4: Connection Cost Agreement Process (Distributed Energy Resources Connection Procedures Ver. 3, May 2026)

Step 1	The applicant notifies the distributor that it wishes to proceed with the CCA process. To ensure the capacity allocation is not lost and the CIA remains valid, the applicant should initiate the CCA process promptly. This allows sufficient time for all parties to prepare and sign the CCA before the prescribed deadlines. The CCA must be signed within: - 6 months for small and mid-sized generation facilities; - 9 months for large generation facilities if a transmission system impact assessment is required; or - 17 months for large generation facilities if transmission upgrades are required. from the date the applicant receives the technical requirements for the connection under the CIA process.
Step 2	The distributor determines whether an upstream CCA from a host distributor or a CCRA from a transmitter is needed. If upstream cost agreement is needed, proceed to step 3. If not, proceed to step 5.
Step 3	The distributor submits upstream CCA/CCRA application to host distributor/transmitter and coordinates the effort and timeline to ensure the CIA does not expire before the applicant has adequate time to review and sign the CCA.
Step 4	The host distributor/transmitter prepares and issues an upstream CCA/CCRA. Host distributor and transmitter (if applicable) have up to 45 days in total to complete this step.
Step 5	The distributor reviews the upstream CCA/CCRA, finalizes and issues a complete CCA to the applicant.
Step 6	The applicant reviews the complete CCA and seeks clarification from the distributor if required.
Step 7	The applicant decides whether to sign the CCA. If yes, proceed to step 8. If no, proceed to step 14.
Step 8	The applicant signs and submits the CCA and pays the estimated connection cost to the distributor.
Step 9	The distributor acknowledges receipt of the CCA and sends the executed CCA to the applicant.
Step 10	If an upstream CCA/CCRA is required, the distributor proceeds to step 11. If not, proceed to step 13.
Step 11	The distributor signs upstream CCA/CCRA and issues required payment to the host distributor/transmitter.
Step 12	The host distributor/transmitter signs the upstream CCA/CCRA and sends the executed upstream CCA/CCRA to the distributor.
Step 13	Proceed to the build and energization stage.
Step 14	The applicant notifies the distributor of the decision not to proceed with the CCA.
Step 15	Upon receiving confirmation that the applicant is no longer proceeding with the CCA, the distributor will release the capacity previously allocated to the project and notify the host distributor/transmitter.
Step 16	The project ends.

After the CCA is executed, the construction drawings are finalized, and the applicant can proceed to construction. A kick-off meeting is scheduled with an assigned project manager within 45 days of the CCA being signed. The Build and Energization process flowchart starts with the assignment of the distributor project manager at the end of the CCA phase. The full process flowchart is outlined in Figure 5. The corresponding process steps for the distributor, transmitter and Applicant follow thereafter.

Build and Energization Process



NOTE 1: Subject to the completion of commissioning and testing of the facility, a distributor shall connect the proposed facility within:
Small DER (a): 60 days when there is no distribution system reinforcement or expansion required to facilitate generator connection
Small DER (b): 180 days when a distribution system reinforcement or expansion is required to facilitate connection
Mid-sized and Large DER: Negotiated during plan commitment

Figure 5: Build Process for Generation Facilities (Distributed Energy Resources Connection Procedures Ver. 3, May 2026)

Step 1 The distributor assigns a project manager who will coordinate connection work with the applicant. If upstream connection work is required, the distributor's project manager will coordinate connection work with the host distributor/transmitter.

Step 2 The distributor's project manager will complete a project kick-off meeting with all parties involved to discuss facility design, single line diagram, protections and controls, cost estimates, commissioning requirements and the project schedule including target in-service date.

Step 3 The applicant shall, at the distributor's request, submit construction documents, including but not limited to the following:

(a) Project details including single line diagrams (SLDs), proposed project schedule, and targeted in-service date. The targeted in-service date must be no later than five (5) years for water power projects or three (3) years for all other types of projects from the initial date of connection application, or in accordance with the timelines in an executed IESO contract.

(b) Commissioning plan

(c) Summary of testing results, including any certificates of inspection or other applicable authorizations or approvals certifying that any of the applicant's new, modified or replacement facilities have passed the relevant tests and comply with all applicable instruments and standards.

Step 4 Once the applicant receives any applicable permits and upon agreement with the distributor, the applicant begins construction.

Step 5 Once the applicant receives any applicable permits and upon agreement with the distributor, the applicant begins construction.

Step 6 The distributor carries out any connection work required and coordinates with the host distributor/transmitter if upstream work is required. The distributor proceeds to step 18

Step 7 The host distributor/transmitter carries out any upstream connection work (if required).

Step 8 The distributor prepares and discusses the draft connection agreement with the applicant. The applicant reviews the terms and conditions in the draft connection agreement and discusses any necessary changes with the distributor. If required, the distributor will work with the host distributor/transmitter to prepare the upstream connection agreement between the distributor and the host distributor/transmitter.

Step 9 The applicant submits any required documents for facility energization/commissioning, including the commissioning plan, to the distributor.

Step 10 The distributor reviews the documents required for commissioning, and upon approval, provides the applicant permission to energize for commissioning purposes.

Step 11 The applicant proceeds with commissioning of the DER. Upon completion, the applicant submits the commissioning records to the distributor.

Step 12 The distributor carries out commissioning/connection verification activities.

Step 13 The distributor coordinates with the applicant and finalize any operating parameters and the connection agreement. Both the distributor and the applicant will then sign the agreement. If

required, the distributor will work with the host distributor/transmitter to finalize and sign the upstream connection agreement between the distributor and the host distributor/transmitter.

Step 14 If necessary, the distributor coordinates with the host distributor/transmitter to confirm the permission to operate required for step 15.

Step 15 Upon confirming that the applicant has received all applicable permits, the distributor provides the applicant permission to operate when all connection work items have been completed, and all connection requirements have been satisfied. The distributor proceeds to step 16.

If the applicant has not completed its portion of connection work items or executed all planned commissioning and verification activities, but the DER facility can operate without adversely affecting the reliability and safety of the distribution system, the distributor may grant a permission to operate. When doing so, the distributor shall provide the applicant with a list of the incomplete tasks. The distributor and the applicant must agree on the terms and conditions for completing these tasks, including a timeline. During this agreed period, the applicant is responsible for finalizing the remaining tasks.

Step 16 The distributor carries out project closing activities as described under section 7.4.

Step 17 Connection process completed.

Commissioning

Commissioning requirements will be clearly defined throughout the process, including anticipated costs, which are proportionate to the risks associated with the projects size and characteristics.

Connection Agreement

A Connection Agreement between a distributor and an applicant outlines specific terms and conditions governing the connection to the distributor's distribution system. Appendix E of the DSC provides forms of connection agreements for micro, small, and mid-size generation facilities.

Appendices

A. Sample Protection Philosophy

B. Technical Information

I. Technical Requirements to Connect

Appendix A – Sample Protection Philosophy

This document is a summary of a sample protection philosophy for non-exporting, inverter-based (NE/I) connections including storage, solar, and wind. The OEB intends it as a guide for applicants regarding the kinds of protections, and particularly the categories of protections, that distributors will require for connection.

This is one example of a protection philosophy that would meet the requirements for a complete protection philosophy for the purpose of a CIA application[9]. Other philosophies may also meet the standards. It provides guidance to a distributed energy resource (DER) proponent on good utility practice as it relates to protection requirements of non-exporting, inverter-based (NE/I) DERs. To form a protection scheme, all the elements for each category within any given protection philosophy are requirements.

This document is not an approval for connection. This information should help applicants file better and more complete applications for connection. An applicant will need to submit detailed protection settings after the utility has completed the impact assessment of the submitted connection application.
The standards and certification testing referenced in this document should be read as referring to the current versions of these standards at time of reading.

Sample Protection Philosophy for Non-exporting Inverter-based Sources

Project Name:
Project ID#:
Project Type:
Capacity:
Connection feeder (optional):
In compliance with the technical interconnection requirements of the local distribution company for which this project will interconnect ,the protection system of the connection will be designed to:

- Detect internal faults with the generator facility, downstream of the Point of Common Coupling (PCC), and automatically disconnect the NE/I source
- Detect external faults on the utility feeder and automatically disconnect the NE/I source
- Detect islanding conditions and disconnect the NE/I source
- Detect export of power from the NE/I source to the utility feeder and automatically disconnect the NE/I source

Internal Faults Within the Generator Facility

The following protections are in place to protect against internal faults resulting from the NE/I source:

- **Multi-Function Relay-**At the PCC, a multi-function relay will be installed to monitor internal faults resulting from the NE/I source. The 52 Trip Breaker will trip if it detects the following:
- 25 - Synchronization Check
- 27 - Undervoltage
- 59 - Overvoltage
- 81O/U - Under and Over Frequency
- ID -Active Anti-Islanding
- **Inverter Breakers** - Each inverter is equipped with an AC breaker at the output of the inverter providing additional overcurrent protection
- **Facility Overcurrent Protection** - All circuits within the facility are protected from both phase-to-phase and phase-to-ground faults by appropriate overcurrent protection devices. Fuses are sized to clear under fault conditions within the generator facility

External Phase and Ground Faults in the Distribution System

The following protections are in place to protect against external faults resulting from the utility feeder:

- **Multi-Function Relay** - At the main utility service, prior to the first facility load, a multi-function relay will be installed to monitor faults from the utility feeder. The 52 Trip Breaker at the NE/I source PCC will trip under the following faults: • 27 - Undervoltage
- 32R- Reverse Power
- 50/51- Overcurrent
- 59 - Overvoltage
- 81O/U - Under and Over Frequency
- 67 - Directional

- **Inverter Protection:** The inverters proposed for this project are certified to UL 1741, IEEE 1547, CSA C22.2 107.1-01 standards[10] and will behave accordingly.

Anti-Islanding

- The Energy Resource Facility will operate in a grid following mode and will not operate islanded.

• **Anti-Islanding Inverters** -The NE/I source inverters contain both passive and active antiislanding protection as required by IEEE 1547 and UL1741 SA. If the utility normal power supply is interrupted, the inverters detect the loss of power and disconnect.

Reverse Power

• **Reverse Power Protection** - In addition to the multi-function relay at the utility supply monitoring reverse power (32R), the load is continually monitored to ensure the NE/I source discharge is below the consumption of the facility. This additionally protects against power injection to the utility grid.

Directional Overcurrent

• **Directional overcurrent protection** - Directional overcurrent relays are normally used on incoming line circuit breakers on buses which have two or more sources. They are connected to trip an incoming line breaker for fault current flow back into the source, so that a fault on one source is not fed by the other sources.

Special Comment Regarding Inverter Based Generation

The inverters specified for this project have a limited fault current contribution.

• Because inverters are current-limited devices, unlike rotating generators, the fault current is very close to the maximum output current, limiting the fault current in the system to 120% -140% of FLA.

Breaker Failure Scheme (Facilities with an aggregate output > 500kW)

In the event that 52-A fails to open when intertie protection relay calls for a trip, 52-B will instantaneously trip and lock out.

Reconnection

Manual reconnection: There is no automatic reconnection scheme at this facility. A manual reconnection will only be executed when given permission by the respective controlling authority.

OR

Automatic reconnection scheme: Intertie protection relay will initiate automatic reconnection of DER only after a fault event has occurred on the utility feeder and not after a fault event within the DER facility. Stable voltage and frequency measurement within ranges and for time period stipulated in the technical interconnection requirements will be met prior to automatic reconnection. Internal faults will be distinguished from external faults by pickup of directional overcurrent 67/67N protection element looking into DER facility. This will ensure reconnection into facility fault is prohibited by blocking of automatic reconnection scheme for facility faults.

Open Phase Protection

This project consists of multiple 1-phase inverters connecting to a 3-phase service or multiple 3-phase inverters connecting to a 3-phase service; therefore, open phase protection will be provided by 46 and/or 47 element(s) in the intertie protection relay to ensure the BESS maintains a balanced 3-phase output and detects loss of voltage in one or more phases and will trip the entire generating facility upon detection of such.

OR

Attached is a signed letter from the inverter manufacturer stating that a facility comprising of multiple inverters is capable of maintaining a balanced 3-phase output and will detect loss of voltage in one or more phases and will trip the entire generating facility upon detection of such.

Communications and Transfer Trip/DGEO (if applicable)

Summarize communication systems and transfer trip/DGEO timing (if applicable).

Table 1: Protection Summary Matrix

Description	IEEE Device	Internal Faults	External Faults	Anti-Islanding	Reverse Power	Trips 52-A	Trips 52-B	Disables Inverters
Over-Voltage	59	X	X	X		X		X
Under-Voltage	27	X	X	X		X		X
Over-Frequency	81O	X	X	X		X		X
Under-Frequency	81U	X	X	X		X		X
Instantaneous Over-Current Phase	50	X	X			X		X
Timed Over-Current Phase	51	X	X			X		X
Reverse Power	32R			X	X	X		
Breaker Fail	50BF						X	
Active Anti-Islanding	IEEE 1547			X				X

Table 2: Protection Elements

Protection Element Function	Device#	Feeder Protection Relay/Shunt Trip	IEEE 1741 SA Inverter
Over-Voltage	59	X	Y
Under-Voltage	27	X	Y
Over-Frequency	81O	X	Y
Under-Frequency	81U	X	Y
Synchronization Check	25	X	Y
Reverse Power	32R	X	
Overcurrent	50/51	X	Y
Directional	67	X	
Active Anti-islanding	ID		X

X = Primary Y = Secondary

Appendix B – Technical Information

I. Technical Requirements to Connect

Festival Hydro's technical requirements to connect are consistent with Hydro One's Technical Interconnection Requirements. They can be found at:
https://www.hydroone.com/businessservices_/generators_/Documents/Distributed%20Generation%20Technical%20Interconnection%20Requirements.pdf