



Oncor Application Guide for Commercial DG Interconnections

Oncor Distributed Generation Resource Integration

August 31st, 2026



Application Introduction

Thank you for your interest in interconnecting large commercial distributed generation (DG) to the Oncor grid. The purpose of this guide is to provide helpful reference information for commercial customers seeking to interconnect distributed energy resources (DERs). A utility system impact study is generally required for DERs that are 1.0 MW of generation capacity or greater and that parallel the distribution grid longer than 100 ms for which this guide is applicable.

Oncor is solely an electric delivery company and does not buy or sell energy due to the structure of the Texas ERCOT energy markets. Energy produced by an ERCOT registered generator will be settled through a Qualified Scheduling Entity (QSE). Also, Oncor cannot provide competitive energy services or be contracted to design or construct customer facilities so it is necessary to work with a consultant to complete the Oncor application for generation interconnection.

For large commercial DG interconnections, an Oncor DG project manager will be assigned as the point of contact until the project is issued permission to operate (PTO). The DG project managers are available to meet and discuss the interconnection process and Oncor's requirements. Please contact dg@oncor.com with any questions or to request a meeting.

The interconnection process is managed through the [eTRACK+ interconnection portal](#) from start to finish. Customers will need to request access to the Large System when registering with the portal. To start a new application for interconnection, create a new project and then complete the required fields and upload the required documents. An application document will be generated from the entered information. Once the application has been signed, the project can be submitted for Oncor review. Help guides are available to assist with navigating eTRACK+. While communication between Oncor and the applicant can occur as needed outside of eTRACK+, it is preferred that documentation and project comments are submitted in the portal for tracking purposes. Please contact assist@anbetrack.com for issues with the portal.

Types of DG Projects

The interconnection process and requirements may vary depending on various factors including the type of DER operation, the electric service configuration, and the intended ERCOT registration. Generation that does not at any time parallel the Oncor grid is not required to submit an application for interconnection or to sign an interconnection agreement. DER interconnections that are 10 MW or greater may require additional studies and may be subject to ERCOT's large generation interconnection process. Oncor has two distribution networks located in downtown Dallas and Fort Worth. Due to the protection required for the networks, generation export is generally not available.

Parallel Less than 100 ms and Parallel Greater than 100 ms

For generation that operates as a closed transition with parallel time 100 ms or less, a study fee payment is not required and an interconnection agreement can be signed once the application is completed. Grid protection is not required for this type of operation, however, a breaker failure scheme is required. Before permission to operate is issued, a third-party test report is required for Oncor review that shows the

transition clears in 100 ms and the breaker failure scheme clears in 325 ms. A test report from the manufacturer is sufficient for packaged transfer switches. A description of the sequence of operation and the breaker failure scheme must be included with the application.

For generation that parallels longer than 100 ms, a utility system impact study is required. To protect the Oncor grid from customer generation during fault events, primary and backup relay protection is required. For a soft transition operation, a parallel time generally in seconds can be requested as well as a number of breaker pairs. For continuous parallel operation, the application can include a requested export capacity if desired.

Equipment Pre-certification

A certified system is one that meets the requirements of UL-1741 and the applicable portions of IEEE 1547. A list of pre-certified equipment from the California Energy Commission is available on eTRACK+ which can be specified on an application. If the desired equipment is not available, please contact the assigned DG project manager. Generation other than inverter systems can be manually entered on the equipment tab.

Electric Service Configuration

For customers with existing electrical service, please include the ESI ID number on the application so that the facility can be identified. For customers requesting new service for a “greenfield” generation project (not co-located with load), please include the GPS coordinate for the requested point of interconnection (POI) on the application. The route for extending utility equipment to the customers site must be determined before an impact study can be completed, so a customer may need to propose a route especially if third party easements are required.

If the customer is also requesting new load in addition to the application for generation, please submit the request through Oncor’s [New Construction](#) portal (except for requested charge capacity for energy storage projects). For new service requests and new load additions, it is recommended that an application for generation interconnection be submitted as early as possible to allow Oncor to coordinate installing equipment required due to the generation interconnection with the new service construction.

ERCOT Registration

Generators that export over a 1.0 MW to the distribution grid are required to register with ERCOT. Additional requirements may be required for interconnecting a DER depending on the ERCOT registration type. Please see ERCOT’s [Distributed Generation](#) website for more information.

Transfer Trip Communications

Transfer trip communications is a protection scheme that can send a trip signal (either fiber or radio) from the Oncor substation to the customer’s protective device. There are two levels of transfer trip with separate functions and conditions for when they are required for a DG interconnection.

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- **Distribution Level Transfer Trip:**
 - Typically required when customer generation export capacity exceeds 1/3 of the minimum circuit load OR transmission level transfer trip is required OR as determined to be necessary by Oncor.
 - The purpose is to prevent the generation from supplying customer load through utility equipment and creating an unsafe island when the feeder should be de-energized during an outage.
 - Can be avoided with an export limitation if transmission level transfer trip is not required.
 - **Transmission Level Transfer Trip:**
 - Typically required when generation nameplate capacity is 2.0 MW or greater.
 - The purpose is to prevent an overvoltage in the substation.
 - Can be avoided by downsizing the generation system under 2.0 MW.

If transfer trip is required, the customer will need to install the necessary communications equipment including a compatible relay and either a compatible antenna or a fiber connection. The signal will be commissioned with a test procedure once communications are established. Planned maintenance in the substation that requires a trip signal to be sent is coordinated with the DG customer.

Oncor's standard for transfer trip communications dictate that one signal will be sent from the Oncor substation to the customer site. If the customer site has multiple points of interconnection, Oncor expects the customer to intake this single signal and trip all applicable POIs that participate in the site interconnection.

Interconnection Process Overview

Generally, there are four major phases in the Oncor commercial DG interconnection process:

Application > Study > Construction > Commissioning

The following is a breakdown of the typical process including an optional, but highly recommended, prescreen:

Prescreen

A prescreen request may be submitted to help the customer determine if they would like to proceed with submitting an application for a utility system impact study at a given site. The prescreen results provide a preliminary evaluation of the work required to serve the requested capacity and ERCOT registration type (SODG or DGR/DESR).

It is recommended that the prescreen request include the minimum economically viable charge (if applicable) and discharge capacities in order to determine what is the least work required. For DGR/DESR prescreens, ERCOT requires the interconnection to be exempt from load shed and so this is an additional consideration when determining the work required.

Prescreens can be requested through the eTRACK+ portal. An invoice will be provided for the prescreen fee once the request has been submitted. Prescreen requests with more than 10 sites per customer may experience longer completion times.

Application

A full and complete application is required to begin a study. The following is a checklist of items required for a complete application:

Application Submittal Checklist	
☐	Completed customer, mandatory, and general information
☐	A single line/relay functional diagram on a single page
☐	A layout diagram on a single page
☐	Equipment spec sheets
☐	A tariff application signed and submitted through eTRACK+

A study invoice for customer review and payment will follow submission of a complete application. For the study fee schedule, please see the [Oncor Tariff for Retail Delivery Service](#) section 6.1.3.4 Distributed Generation Charges.

Study

An impact study is required to identify the potential impacts of a customer's proposed generation to the Oncor grid. This impact study will yield the following results:

- Distribution system impacts and required utility upgrades
- Transmission (substation) system impacts and upgrades, including transfer trip communication if applicable
- Operating limitations for customer generation
- Total cost for all the identified upgrades in the study

Once a study is finalized and presented to the customer, the customer will have 60 days to proceed with signing an interconnection agreement and paying an invoice for any utility system upgrades. A project may be subject to a restudy if the study expires before a decision is made to proceed within the 60-day period or if there are any changes to the proposed equipment.

Construction

Once the interconnection agreement is executed and payment for the identified upgrades have been collected, Oncor will kick off design and construction. Construction time frames are dependent on factors such as scope of work, material ordering, easement and legal document execution, crew availability, and weather. Regular meetings may be scheduled to coordinate utility construction with customer construction.

Commissioning

Third party relay test reports of the customer relays are required for Oncor review before permission to operate is issued. If an objection is found after review, the customer relays must be tested again with updated settings. It is highly recommended that the relay settings are provided for Oncor review before the relays are tested. Review of relay settings and relay test reports generally takes two weeks per request.

An onsite witness test for interoperability testing may be required for certain projects. Once all commissioning steps have been completed, Oncor will issue a Permission to Operate letter. The Oncor DG project manager will also coordinate any required utility documentation to satisfy registration of the generator with ERCOT as required.

DGR and DESR Projects

The interconnection process for DGR and DESR projects are similar to the typical interconnection process previously described. However, there are additional documents required to process this type of application, as well as differing technical specifications for the operation of DGR and DESR projects. The DESR Submittal Checklist below highlights additional information needed for DESR projects:

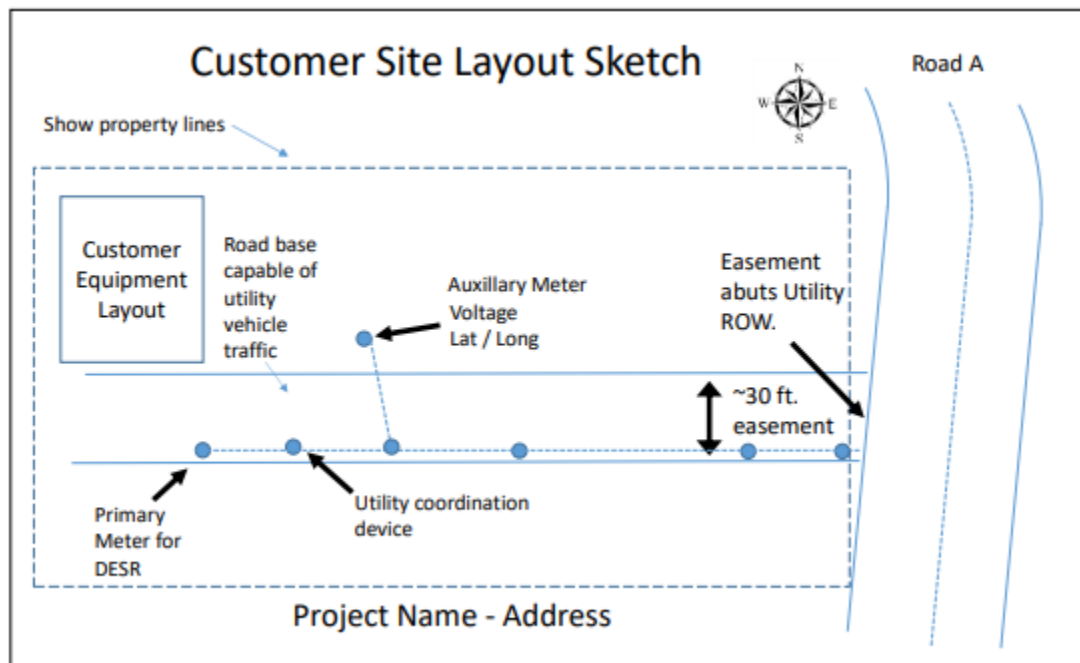
DESR Submittal Checklist	
☐	PSCAD model for the BESS and Inverter
☐	PSS/E Equivalent Model
☐	Battery Data Sheet
☐	Inverter Data Sheet
☐	Relay Functional One Line
☐	Load Form for Auxiliary Load
☐	Site Layout (Right-of-Way and Easements)
☐	Ramp rate curves (battery ramp characteristics)
☐	Inverter Harmonic Current Spectra

For DESR and DGR registered projects, a Discretionary Service Agreement is required to be executed for the required integration studies which includes a separate fee in addition to the tariff study fee. The standard metering for DGR and DESR projects is ERCOT Polled Settlement (EPS) metering.

For BESS projects, the battery power and site auxiliary power must be metered separately to meet ERCOT requirements for wholesale storage treatment. Typically, Oncor installs secondary service to serve aux power. BESS charge demand is subject to Oncor service charges. For Oncor wholesale distribution rates, please see the [Oncor Tariff for Transmission Service](#).

DGR and DESR Layout Diagram

The DESR and DGR layout diagram should provide as much detail as possible to allow utility designers to prepare estimates for construction. In many cases the customer and Oncor may need to work together to determine the path from the Oncor substation to the requested POI. A proposed 30 ft wide easement on the customers property is required. 15 ft of the easement is to be used for the utility equipment right-of-way and the other 15 ft is for a road base to allow Oncor trucks and equipment to access utility equipment. The proposed easement should demonstrate that the easement allows Oncor ingress and egress at all times. The following figure is an example layout diagram.



DER Protection Requirements

To ensure the safe and reliable operation of the utility grid, Oncor requires large commercial DER projects that parallel longer than 100 ms to have redundant primary and backup protection with an appropriate voltage reference. Applications must be submitted with a one-line diagram that shows the details of the customer primary and backup protection for Oncor review. Please see the Oncor Example DER Relay Functional Diagrams[†].

In order to meet Oncor's functionality requirements, the DER protection must at a minimum consist of two separate sets of undervoltage, overvoltage, under frequency, over frequency, reverse power, and phase/ground fault protection. Overcurrent protection must be coordinated in both directions (if applicable) with the upline Oncor protective device. Each set of protection must not share sensing, relay control, or disconnect devices to be considered redundant. More than two sets of protection may be used to meet the primary and backup protection requirement. Many different protection configurations may meet this requirement.

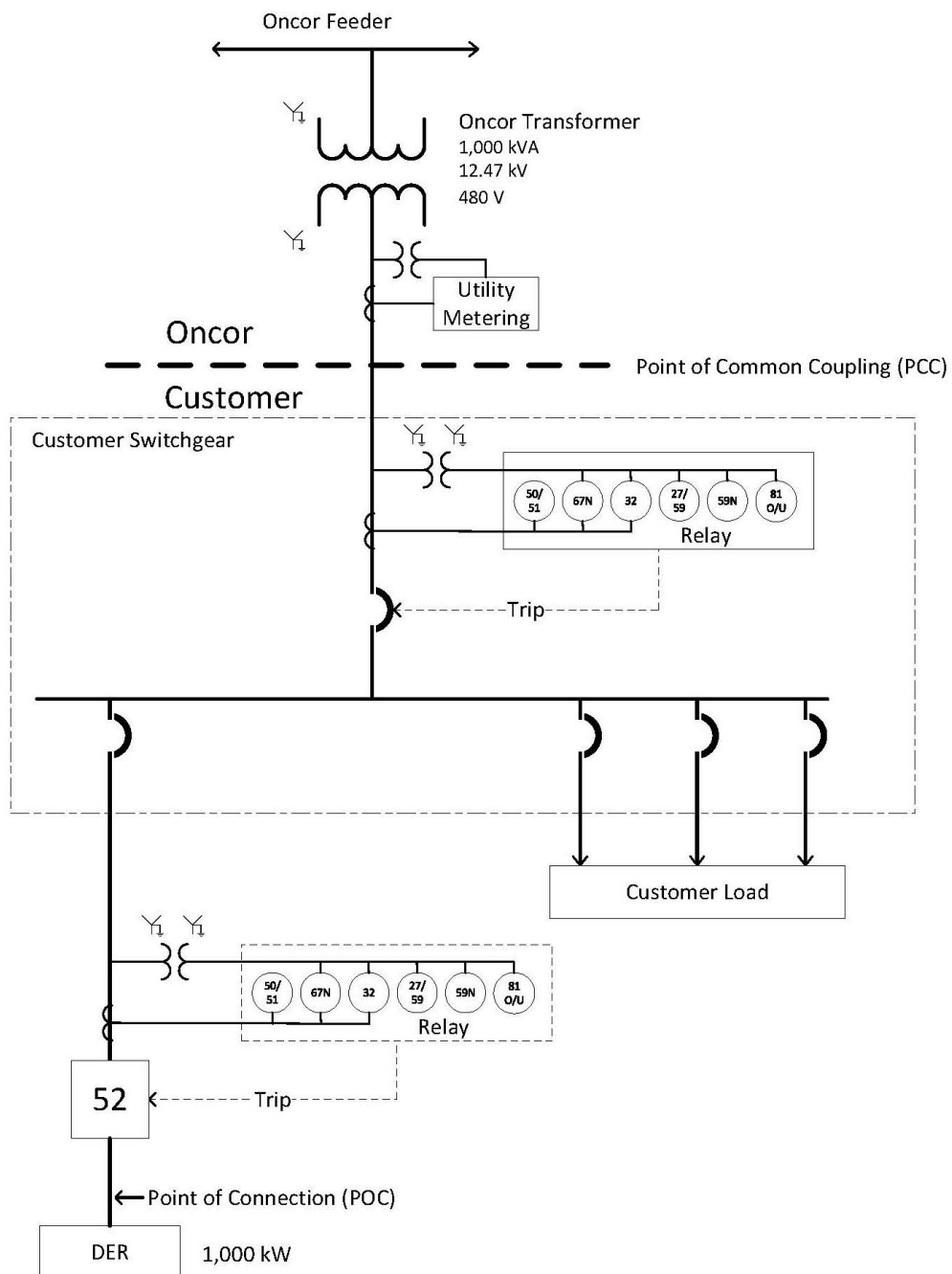
Sensing for voltage protection must also have an appropriate voltage reference to be considered one of the two forms of required protection, i.e., zero-sequence continuity must be maintained from the PCC to the location of voltage measurement. For DER projects that interconnect at secondary voltage, replacement of the Oncor service transformer may be required. For DER projects that interconnect at primary voltage, Oncor may object to voltage and ground fault protection with sensing on the customer's secondary depending on the configuration of the three-phase transformer and the type of DER being installed. See IEEE 1547-2018 Section 4.2 Reference Point of Applicability for more information.

A relay test report is required for review before DER parallel operation with the utility grid is allowed. Both the primary and backup protective devices must follow the appropriate default IEEE 1547-2018 ride through requirements. Per phase test results for undervoltage and overvoltage are required. Reverse power test results must show 1/3 of the agreed three phase kW amount per phase and must have a clearing time of two seconds or less. Ground fault protection must clear within 30 cycles for faults at the PCC. All DERs are expected to operate at unity power factor unless otherwise agreed upon.

Relay Functional Checklist					
☐	Overvoltage	☐	Incoming utility feeder(s)	☐	Utility Metering
☐	Undervoltage	☐	Point of Common Coupling (PCC)	☐	VT configuration symbols
☐	Over Frequency	☐	Delivery voltage at the PCC	☐	Interlocking (if applicable)
☐	Under Frequency	☐	Protective devices at the PCC	☐	Breaker labels
☐	Overcurrent	☐	Sensing equipment ratios and quantity	☐	N/O or N/C positions
☐	N/G Overvoltage	☐	Relay manufacturer and model number	☐	Aux Service (if applicable)
☐	N/G Overcurrent	☐	Neutral resistor/reactor (Ω , if applicable)	☐	DTT comms (if applicable)
☐	Reverse Power	☐	Transformer high and low side voltages, three phase windings, impedance (%), kVA	☐	DER manufacturer, model number, kW, voltage
☐	Synchronism Check				

[†] These examples are for reference only and are not intended to be considered as best or appropriate protection design for every application. Oncor reserves the right to find certain design criteria objectionable. However, finding no objections does not constitute a guarantee by Oncor that any customer owned equipment will operate reliably or as intended.

Example DER Relay Functional Diagram: Secondary Service[†]



Example DER Relay Functional Diagram: Primary Service[†]

