Oncor Application for Interconnection of Distributed Generation

Certified Systems ***(10/05/2022)***

What is a certified system?

A certified system is one that meets the requirements of UL-1741 Utility Interactive and the applicable portions of IEEE 1547. For inverter systems that are not certified, please contact Oncor for further instructions.

What is the intended use of this printable version of the Interconnection Application and what is eTRACK?

The intended use of this printable version of the application is for applicant's that submit interconnection requests infrequently. Oncor has developed a *web based application* tool (eTRACK) *which allows for streamlining the interconnection process. It allows for auto-document generation, electronic signatures, automatic email status step notifications and many more job tracking capabilities. To utilize this new job tracking and application submittal tool (eTRACK),* please send a registration request to dg@oncor.com Training and/or other questions can also be addressed by utilizing the contact information below.

General Information

Once the Interconnection Application is received *(by eTRACK or non-eTRACK methods),* Oncor will screen for acceptance (or notify of objections), perform system impact review (if appropriate), prepare and secure the Interconnection Agreement, process an order to have the Oncor meter reprogrammed with an out-flow channel that will measure the excess generation sent to the grid (*please allow up to 30 days for completion*) and complete the process which includes market profile changes or system upgrades. Requests utilizing the eTRACK tool will enable Oncor to process your application using electronic signatures, transparent tracking status, reduce processing times, and provide you feedback as your project progresses through the interconnection process.

Approval for Final Operation of Your System and Energy Credits Sent To the Grid

For certified systems, Oncor will update the customer's Load Profile ID to an appropriate profile upon ERCOT system operator approval. Any excess generation will start being reported to the customer's Retail Electric Provider (REP) after the first full billing cycle following the latter of the Oncor meter being reprogrammed or the fully executed date of the Interconnection Agreement. It is the customer's responsibility to negotiate an agreement with their REP to obtain any credits for energy sent to the grid (www.powertochoose.com). Permission to Operate will be granted upon a fully executed Interconnection Agreement.

(*for additional information please visit: www.oncor.com/dg and click on the Frequently Asked Questions*

Distributed Generation Study Fee

A *Distributed Generation Pre-Interconnection Study Fee* schedule follows on page 4 of this document. In most cases, a certified renewable system ≤ 500 kW does not require a study fee. Oncor will notify the customer of exceptions. Generally, renewable systems > 500 kW do require study fees, so please utilize this schedule and submit the appropriate payment with your application if required.

Email Application Submissions to: dg@oncor.com

(Email submittals larger than 8MB will not be delivered through Oncor servers)

Application for Interconnection and Parallel Operation of Distributed Generation

Return Completed Application to:

Oncor Electric Delivery Company LLC
Attention: Distributed Resource Specialist
1616 Woodall Rodgers Fwy
Dallas, TX 75202-1234

Customer's Name:_____

Address: _____

Contact Person:_____

Email Address: _____

Telephone Number: _____

Service Point Address:_____

Information Prepared and Submitted By:_____

(Name and Address)_____

Signature _____

The following information shall be supplied by the Customer or Customer's designated representative. All applicable items must be accurately completed in order that the Customer's generating facilities may be effectively evaluated by Oncor (Company) for interconnection with the utility system.

GENERATOR

Number of Units:_____

Manufacturer:_____

Type (Synchronous, Induction, or Inverter):_____

Fuel Source Type (Solar, Natural Gas, Wind, etc.):_____

Kilowatt Rating (95 F at location)_____

Kilovolt-Ampere Rating (95 F at location):_____

Power Factor:_____

Voltage Rating:_____

Number of Phases:_____

Frequency:_____

Do you plan to export power:_____Yes_____No

If Yes, maximum amount expected:_____

Do you wish Oncor to report excess generation to your REP?_____Yes_____No

Pre-Certification Label or Type Number (e.g., UL-1741 Utility Interactive or IEEE 1547.1):

_____

Expected Energization and Start-up Date: _____

Normal Operation of Interconnection: (examples: provide power to meet base load, demand management, standby, back-up, other (please describe)) _____

One-line diagram attached:_____Yes

For systems not using pre-certified inverters (e.g., inverters certified to UL-1741 or IEEE 1547.1), does Oncor have the dynamic modeling values from the generator manufacturer?_____Yes_____No

If not, please explain: _____
(Note: For pre-certified equipment, the answer is Yes. Otherwise, applicant must provide the dynamic modeling values if they are available.)

Layout sketch showing lockable, "visible" disconnect device is attached:_____Yes

Authorized Release of Information List

By signing this Application in the space provided below, Customer authorizes Oncor to release Customer's proprietary information to the extent necessary to process this Application to the following persons:

	Name	Phone Number	E-Mail Address
Project Manager			
Electrical Contractor			
Consultant			
Other			

[COMPANY NAME]

BY: _____

PRINTED NAME: _____

TITLE: _____

DATE: _____

[CUSTOMER NAME]

BY: _____

PRINTED NAME: _____

TITLE: _____

DATE: _____

6.1.4.4 Distributed Generation

DD36	**Distributed Generation Pre-Interconnection Study Fee** Applicable to requests for studies that may be required and conducted by Company for the interconnection of distributed generation on the Company's delivery system.	
	NON-EXPORTING	
	A. 0 to 10 kW	
	1. Pre-certified, not on network	$ 0.00
	2. Not pre-certified, not on network	$ 269.70
	3. Pre-certified, on network	$ 269.70 *
	4. Not pre-certified on network	$ 269.70
	B. 10+ to 500 kW	
	1. Pre-certified, not on network	$ 269.70**
	2. Not pre-certified, not on network	$ 269.70
	3. Pre-certified, on network	$ 269.70*
	4. Not pre-certified on network	$ 269.70
	C. 500+ to 2000 kW	
	1. Pre-certified, not on network	$ 3,938.05
	2. Not pre-certified, not on network	$ 3,938.05
	3. Pre-certified, on network	$ 7,054.75
	4. Not pre-certified on network	$ 7,054.75
	D. 2000+ kW	
	1. Pre-certified, not on network	$ 3,938.05
	2. Not pre-certified, not on network	$ 3,938.05
	3. Pre-certified, on network	$ 7,054.75
	4. Not pre-certified on network	$ 7,054.75
	EXPORTING	
	A. 0 to 10 kW	
	1. Pre-certified, not on network	$ 0.00
	2. Not pre-certified, not on network	$ 337.15
	3. Pre-certified, on network	$ 337.15 *
	4. Not pre-certified on network	$ 337.15
	B. 10+ to 500 kW	
	1. Pre-certified, not on network	$ 337.15 **
	2. Not pre-certified, not on network	$ 337.15
	3. Pre-certified, on network	$ 337.15 *
	4. Not pre-certified on network	$ 337.15
	C. 500+ to 2000 kW	
	1. Pre-certified, not on network	$ 4,275.35
	2. Not pre-certified, not on network	$ 4,275.35
	3. Pre-certified, on network	$ 7,932.05
	4. Not pre-certified on network	$ 7,932.05
	D. 2000+ kW	
	1. Pre-certified, not on network	$ 4,275.35
	2. Not pre-certified, not on network	$ 4,275.35
	3. Pre-certified, on network	$ 7,932.05
	4. Not pre-certified on network	$ 7,932.05
	* No cost for inverter systems less than 20 kW. ** No cost if generator supplies less than 15% of feeder load and less than 25% of feeder fault current.	
DD37	**Distributed Renewable Generation Metering** Applicable to installation, upon request pursuant to Substantive Rule § 25.213(b), by Retail Customer or Retail Customer's Competitive Retailer, of metering equipment that separately measures both the Customer's consumption from the distribution network and the out-flow that is delivered from the Customer's side of the Meter to the distribution network. Equipment shall be installed within 30 days of receipt of request.	As calculated

Additional Information

Application for Interconnection of Distributed Generation

Operating Mode: Parallel Operation – Longer than 100 milliseconds

1. Owner of Generation Resource – Name for Interconnection Agreement

Please indicate for use in the Interconnection Agreement the name and type of entity who is the owner of the distributed resource:

Legal Name of the Distributed Resource	
Legal Name	
Type of Entity	
DBA (doing business as – if applicable)	

The following are examples of names and types of entities:

XYZ Business Inc.	*a Texas corporation*
XYZ Company LLC	*a Delaware limited liability company*
City of XYZ	*a Texas governmental agency*
XYZ Business LP	*a Texas limited partnership*
XYZ Business LTD	*a Texas limited partnership*
XYZ Organization	*a Texas non-profit organization*
XYZ financial institution N.A.	*member FDIC*

Ownership & Possession		
Is the owner of the distributed resource also the owner of the property where the distributed resource is located?	**Yes**	**No**
If NO, then please list the name of the entity that owns the property:		
Legal Name		
Type of Entity		
DBA (if applicable)		
Is the Legal Name of the Owner of the system (listed above) the same name as listed on the electric bill for this account? (Usually the name shown on your electric bill is the entity Oncor would prefer to use on the Interconnection Agreement)	**Yes**	**No**
If NO, then what is the relationship between the Customer Name (on the electric bill) and the owner of the generating system?		

2. Account ID & Address Information

Electric Service			
Is this application for a new service account?		**Yes**	**No**
If <u>YES</u>, please provide the proposed service address:			
Service Address: City, State, Zip			
If <u>NO</u>, please provide existing account information:			
Existing Service Accounts			
Please provide the 17 digit Electric Service Identifier (ESI ID) (This can be found on your electric bill)	**Oncor Company Code (First 10 digits)**	**Premise ID# (Last 7 digits)**	
Oncor	1044372000		
(formerly SESCO)	1017699000		
Oncor Meter Number (optional if ESI ID is not provided)			
Is this ESI ID for a temporary service?		**Yes**	**No**
Service Address: City, State, Zip			
Correspondence: (If different) City, State, Zip			

3. Oncor Delivery Voltage Information

Please indicate the Oncor distribution delivery voltage at the PCC:					
	240/120 V – 1 phase, 3 wire		**480/277 V – 3 phase, 4 wire**		**13,200/7,620 V – 3 phase, 4 wire**
	240/120 V – 3 phase, 4 wire		**4,160/2,400 V – 3 phase, 4 wire**		**24,900/14,400 V – 3 phase, 4 wire**
	208/120 V – 3 phase, 4 wire		**12,470/7,200 V – 3 phase, 4 wire**		**Other:**

4. Oncor Point of Delivery Information

Oncor / Customer Interconnection Point of Common Coupling (PCC)	
Customer meter base *(Oncor conductors on line side and customer conductors on load side)*	
Customer pole *(Served from Oncor overhead transformer with service drop to customer pole)*	
Customer weather-head *(Served from Oncor overhead transformation with service drop to customer weather-head on a customer structure)*	
Top of an Oncor pole *(Customer conduit goes up an Oncor pole and connections are made at the top of the pole)*	
Inside an Oncor pad mounted transformer *(Connections are made in the low voltage or secondary compartment of the transformer)*	
Oncor distribution enclosure *(This is typically a locked Oncor enclosure, in some cases multiple Oncor meters serving customers can be fed from the secondary compartment)*	
Other *(please describe)*	

5. Type of Resource / New or Existing / Multiple resources connected to inverter

Type of Resource	Yes	No
Solar application only?		
Wind application only?		
Other (please specify)		
Are multiple resource measures connected to inverter?		
Adding equipment to an existing system?		

6. Solar Equipment

Inverter Information

	Qty	Manufacturer	Model Number	Power Rating (W)	Voltage	Single or Three Phase	UL-1741 Certified *(Yes or No)*
1							
2							
3							

Panel Information

	Qty	Panel Manufacturer	Panel Model Number	Watts
1				
2				
3				

Existing Solar Equipment

If adding to an existing system, list inverter and panel equipment.

Inverter(s) *(quantity, manufacturer and size)*	
Panel(s) *(quantity, manufacturer and size)*	
Comments	

7. Energy Storage Equipment *(If applicable)*

Intended Use and Operation		
Please provide a sequence of operations explaining how the system will operate under normal and off-grid conditions *(explain how the battery will disconnect and reconnect to the grid).* Please provide the type of switching and indicate if it is self contained or utilizes separate components, reference specific equipment on the one-line diagram. If your system rated kW out flow to the grid is restricted by control logic (outflow kW is less than inverter total capacity), then indicate the worst case out-flow capacity.		
(add separate sheet if necessary)		
What is the maximum charging demand when utilizing power from the Oncor grid?	**kW**	
	Yes	**No**
Does the battery storage system have dedicated inverter(s) where the DC source for the inverter(s) is *only* batteries?		
If No:	**Please describe the other equipment providing DC power to the inverter:** *(example – PV panels and batteries; then go to Shared Inverter Information table)*	
If Yes:	***Please proceed to Dedicated Inverter and Battery Table Information Section***	
	Yes	**No**
Is the intended use of the battery storage and inverter system for off-grid use only?		
Will the energy storage system NOT be charged from the electric grid?		
If Yes:	**Your system is totally off grid for charging and discharging.** ***Oncor does not require any additional information.***	

Dedicated Inverter Information *(Inverters with only batteries for DC source)*

	Qty	Manufacturer	Model Number	Power Rating (W)	Voltage	Single or Three Phase	UL-1741 Certified *(Yes or No)*
1							
2							
3							

Shared Inverter Information *(DC coupled inverters with multiple sources)*							
	Qty	**Manufacturer**	**Model Number**	**Power Rating (W)**	**Voltage**	**Single or Three Phase**	**UL-1741 Certified** *(Yes or No)*
1							
2							
3							

Battery Information						
	Qty	**Manufacturer**	**Model Number**	**Capacity (Ah)**	**Total Capacity (Ah)**	**Certification** *(UL-1741, etc.)*
Battery Bank(s)						
Voltage						**V**
Maximum Continuous Power Rating						**kW**
Battery Technology *(Li+, NiCaD, NiMH, etc.)*						
Additional Information						

8. Wind Equipment *(If applicable)*

Inverter Information							
	Qty	**Manufacturer**	**Model Number**	**Power Rating (W)**	**Voltage**	**Single or Three Phase**	**UL-1741 Certified** *(Yes or No)*
1							
2							
3							

Turbine Information				
	Qty	**Manufacturer**	**Model Number**	**Capacity (W)**
1				
2				
3				

Existing Wind Equipment	
If adding to an existing system, list inverter and panel equipment.	
Inverter(s) *(quantity, manufacturer and size)*	
Turbine(s) *(quantity, manufacturer and size)*	
Comments	

9. Visible, Lockable, Labeled Disconnect * Layout & One-Line * Placards

Oncor requires a visible, lockable, labeled AC disconnect ("VLLD") for interconnection. The AC disconnect ***must*** have a visual break (with external handle) that is appropriate to the voltage level, be accessible to utility personnel, and is capable of being locked in the open position. Oncor personnel or company authorized agents will operate the VLLD as needed to ensure the DG system is removed for operation and cannot back feed or inadvertently energize company facilities during emergency switching or other conditions. Oncor requires the VLLD be located on an exterior wall and within ten feet of the Oncor meter; only under approved exception should it be located elsewhere. If the VLLD is more than ten feet from the Oncor meter, then Oncor requires a site directory placard (indicating the location of the VLLD) be placed on the customer's equipment beside the Oncor meter or (*if only an Oncor meter*) on the Oncor meter base showing the location of the VLLD. For more information, follow the *Oncor Placard Guideline*.

[www.oncor.com/dg then navigate to *Interconnection Applications* then navigate to *Placard Guideline*]

Oncor requires a sketch depicting the physical layout (layout sketch) and one-line diagram be submitted with the interconnection application. The one-line diagram shows the sequence of the Oncor meter, the VLLD and the generation equipment. The layout sketch is an overhead view of the physical layout between the Oncor meter, the VLLD and the distance between the two. Generic examples of these sketches are provided at the end of this application.

Goal of Layout Sketch	Yes	No
Did you identify the address on the layout sketch?		
Did you identify the location of the Oncor meter, the Visible, Lockable, Labeled, Disconnect *(VLLD)* and the distance between the two?		
Does the layout sketch have the words "Visible, Lockable, Labeled, Disconnect" *written on the sketch*?		
Is the VLLD located within ten feet of the Oncor meter?		
If No, then did you provide placard proofs that will be used at or near the Oncor meter base showing the location of the VLLD?		

Goal of One-Line Diagram	Yes	No
Did you identify the address on the one-line diagram?		
Did you identify the location of the Oncor meter, the *VLLD* and the generation equipment?		
Does the one-line diagram have the words *written on the sketch* that show the location of the Oncor meter, the VLLD and the generation equipment?		

10. Caution or Warning Placard Language

Part A – Labeling for Placard on Visible Disconnect

Please indicate the placard warning language that will be utilized on the VLLD: *(or attach separately)*

Examples:

CAUTION
Solar Generation
Utility AC
Disconnect

CAUTION
POWER TO THIS SERVICE
IS ALSO SUPPLIED FROM
ON-SITE GENERATION
AC SYSTEM DISCONNECT

WARNING
Wind Generation
Utility AC
Disconnect

Part B – Directory Warning Providing Visible Disconnect Location Language

Please indicate the placard warning language that will be utilized at the Oncor meter IF the VLLD is not located within ten feet of the Oncor meter: *(or attach separately)*

Examples:

CAUTION
POWER TO THIS SERVICE
IS ALSO SUPPLIED FROM
ON-SITE GENERATION
AC DISCONNECT IS
LOCATED ON SOUTH WALL OF
DETACHED GARAGE

WARNING
POWER TO THIS SERVICE
IS ALSO SUPPLIED FROM
ON-SITE GENERATION
AC DISCONNECT IS
LOCATED ON WEST WALL OF THIS
STRUCTURE

EXAMPLE LAYOUT SKETCH

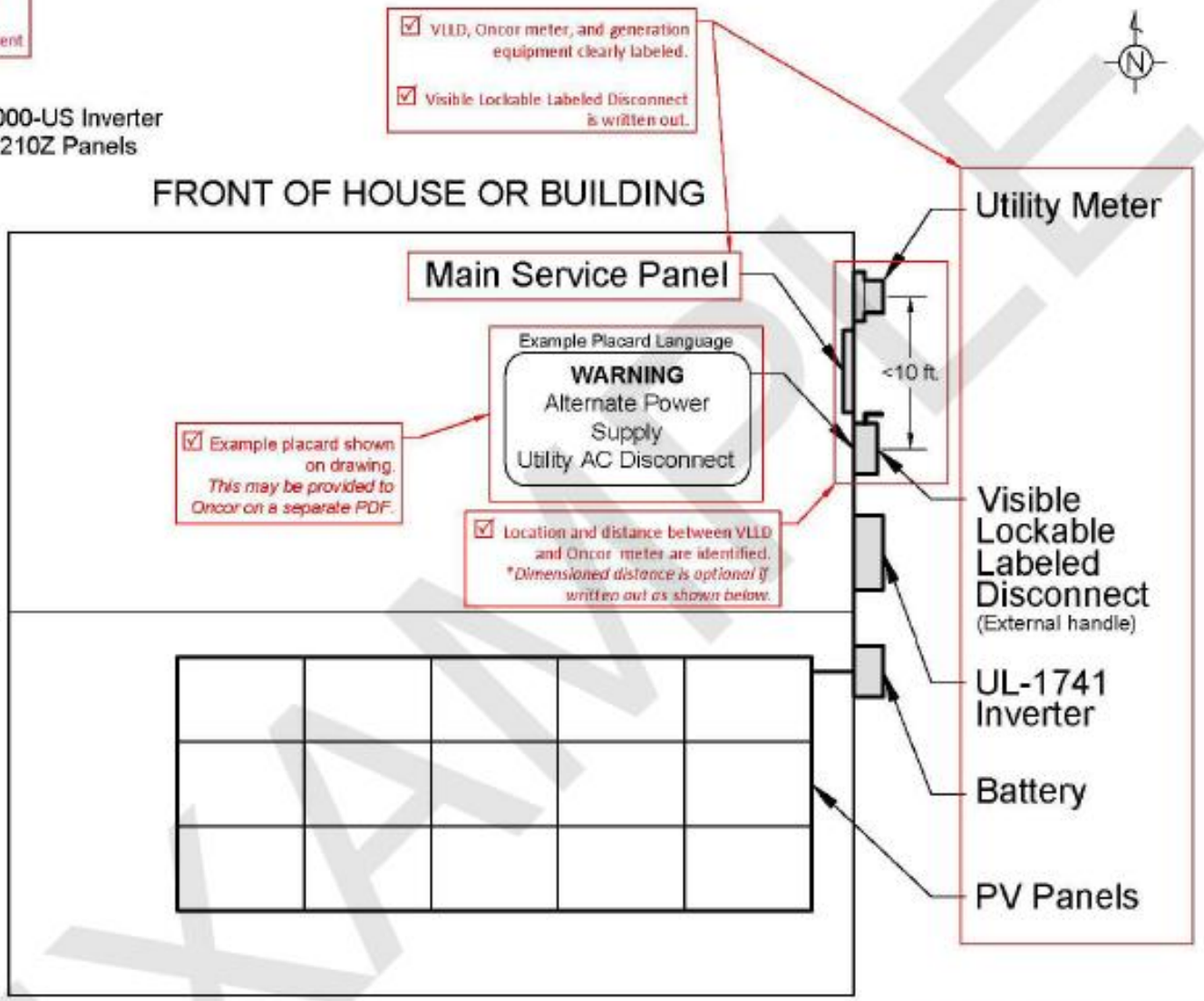
The purpose of the Layout Sketch is to show the location of the equipment for the customer's distributed generation system.

☑ Quantity, Manufacturer, and Model listed for generation Equipment

1 Acme AZ5000-US Inverter
25 Acme SP210Z Panels

☑ VLLD, Oncor meter, and generation equipment clearly labeled.

☑ Visible Lockable Labeled Disconnect is written out.



☑ Note specifying distance between meter and AC disconnect.
* This note is optional if distance is dimensioned as shown above.

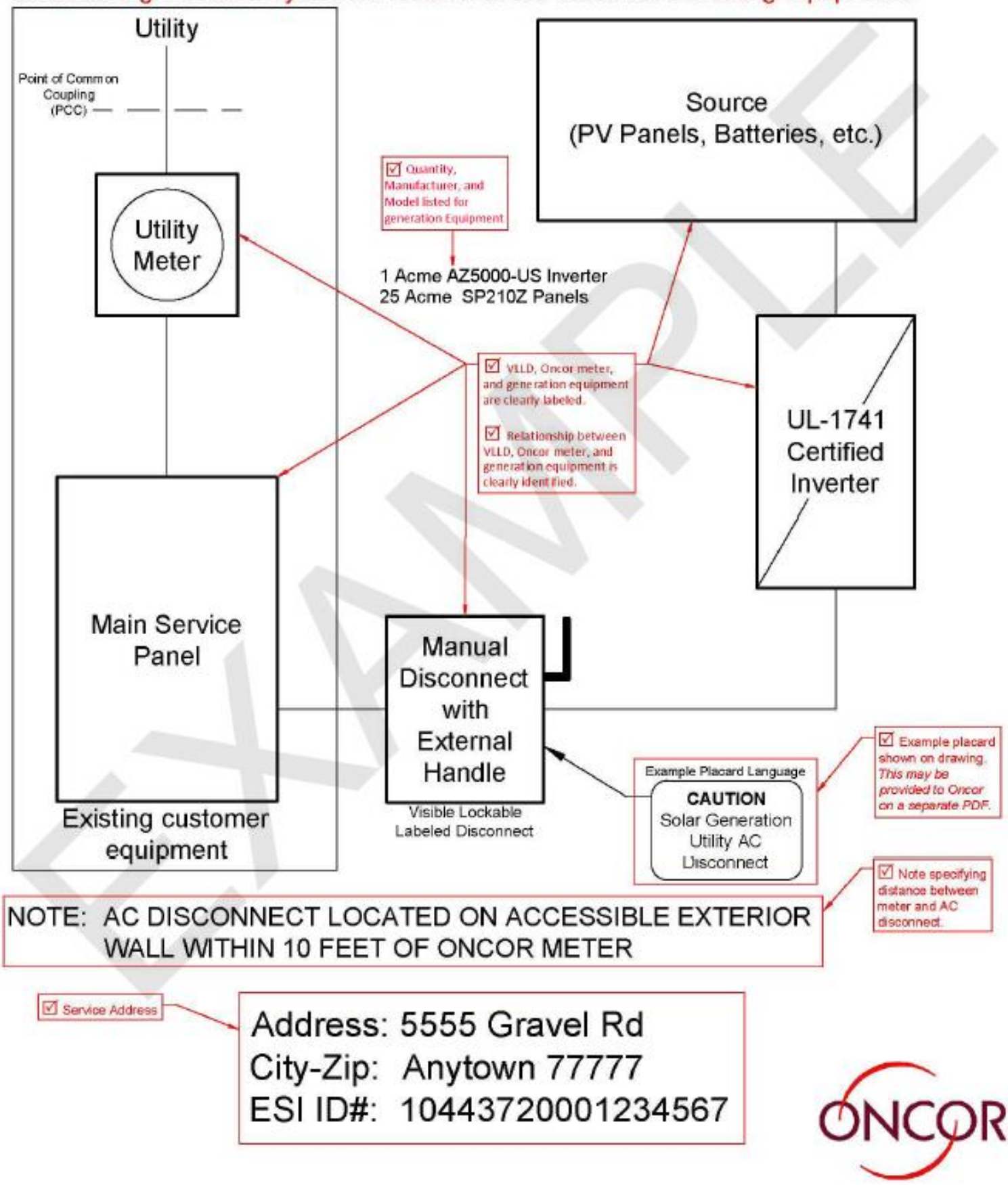
NOTE: AC DISCONNECT LOCATED ON ACCESSIBLE EXTERIOR WALL WITHIN 10 FEET OF ONCOR METER

☑ Service Address

Address: 5555 Gravel Rd
City-Zip: Anytown 77777
ESI ID#: 1044372000123456 7

EXAMPLE ONE LINE DIAGRAM

The purpose of the One Line Diagram is to indicate the path and components of the distributed generation system in relation to the customer's existing equipment.



REQUIRED ADDITIONAL INFORMATION

This additional information is required for Certified Systems with single inverters with a capacity of ≥ 500 kW or multiple inverters with a combined capacity of ≥ 1,000 kW. While these inverter-based systems are still certified, the increase in capacity of the inverters requires commissioning and testing of settings to ensure interoperability with the Oncor system.

Step 1: Complete *Panel and Inverter Data Sheet*

Step 2: At commissioning, completion of Oncor Certified Inverter Commissioning - Testing worksheet will be required for final approval of system.

Panel and Inverter Data Sheet

Provide a data sheet that has the following information or insert the data in the Tables below.
(STC – Standard Test Condition)

Solar Panel Data Information	
Current at Maximum Power Point – I_{mpp}	Amps
Voltage at Maximum Power Point – V_{mpp}	Volts
Short-Circuit Current in STC – I_{sc}	Amps
Open-Circuit Current in STC – V_{oc}	Volts
Short-Circuit Current Temperature Coefficient – α_{sc}	Amp/^{o}C
Open-Circuit Current Temperature Coefficient – $ß_{sc}$	Volts/^{o}C
Normal Operating Cell Temperature – NOCT	^{o}C
Reference Ambient Temperature	^{o}C
STC Temperature – T_{stc}	^{o}C
STC Insulation – G_{stc}	W/m^2

Solar Inverter Data Information	
Number of Series-Connected PV Cells – (Ns)	
Number of Parallel Strings – (Np)	
PV Panel Rated Power (Prate)	kW
Generator Base	kW
Power Factor	%
Ambient Temperature	^{0}C
Fault Contribution - Percent	%

From the product manufacturer, provide the available ramp rate for each inverter and the proposed ramp rate to be installed on the units.

Inverter Ramp Rate Data Information	
Available Ramp Rate	kW/sec or %/sec
Ramp Rate Settings	kW/sec or %/sec

Oncor Certified Inverter Commissioning - Testing

This document is required for applications with single inverters with a capacity of ≥ 500 kW or multiple inverters with a combined capacity of ≥ 1,000 kW.

General Process steps are;

- Oncor receives completed application and secures Impact Study fee.
- Oncor prepares Service Study or Impact Study.
- Oncor secures funding for any required system impacts.
- Oncor prepares, submits and secures an Interconnection Agreement with customer.
- Oncor schedules and completes any required system changes.
- Oncor review and provides confirmation of non-objection to this Commissioning document.

Commissioning Agent Check List		**Yes**	**No**
Agent verified the placards have been installed in accordance with placarding guidelines *(and found non-objectionable by Oncor)*			
Agent has taken pictures of placards and submitted to dg@oncor.com			
Agent performed a shut-down test, which verified ≥ 300 second restart delay.			
Have factory UL-1741 settings been enabled during *final in-service commissioning?*			
If No:	*Please explain any adjustments:*		
		Yes	**No**
Did the Oncor Impact or Service Study require a minimum ramp rate or other system adjustments?			
If Yes:	*Please explain any adjustments and the results of on-site verification or testing:*		
Additional Comments			

Commissioning Agent – Name, Title, & Qualifications:
(*Example*: *George Solartown – Master Electrician*)

Signature:_____ **Date:** _____

Name: _____

Title: _____

Additional Information: _____

_____