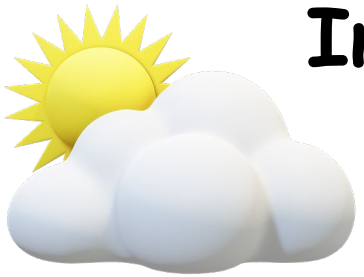
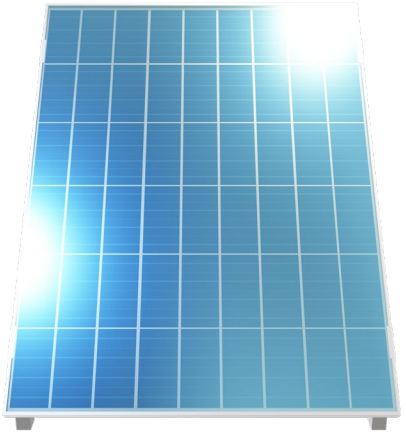
Distributed Energy Resources Interconnection Seminar

Simplified Process





Thank you for joining us.
The presentation will begin at 9:00am.
Please mute your phones to avoid any feedback.

Thank you.

Distributed Energy Resources Interconnection Seminar

Eversource Energy
June 12, 2024

Co-Hosts

EVERSOURCE

nationalgrid

DOER
Massachusetts Department of Energy Resources

MassACA

MASSACHUSETTS CLEAN ENERGY CENTER

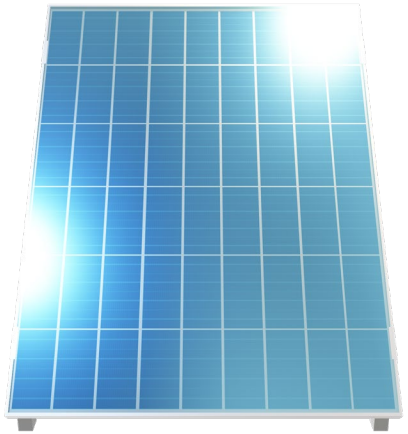
Unitil

Safety

Is the most important thing to consider in designing, connecting and operating a successful DG project.

Live Wires	Regard ALL wires as live. Overhead power lines are not insulated and carry enough energy to cause serious injury or even death.
Keep Away	Keep yourself, your co-workers, tools, ladders and vehicles at least 10 feet away from electric lines and equipment.
Safe Area	Make sure the area is clear of wires before working near trees or shrubs.
Never Tie or Attach	Never attach or tie anything off to power lines or electrical equipment.
Call	If you need to dig, first call Dig Safe at 1-888-dig-safe (1-888-344-7233) to get underground utilities marked. (www.digsafe.com)

Simplified Interconnection Process



Simplified Process

- **Current Eversource Interconnection tariff is** *MDPU No. 55A effective September 15, 2021.*
  https://www.eversource.com/content/residential/account-billing/manage-bill/about-your-bill/rates-tariffs/electric-tariffs-rules
- **Simplified (Non-Area Network)**
  - A single-phase UL-Listed inverter-based system that is 15 kW AC or less on a single-phase service fed from a radial circuit
  - A three-phase UL-Listed inverter-based system that is 25 kW AC or less on a three-phase service fed from a radial circuit
- **Simplified (Area Network)**
  - A UL-Listed inverter-based system less than 1/15th of the customer's minimum load and fed from a spot network
  - A UL-Listed inverter-based system that is 15 kW AC or less and less than 1/15th of the customer's minimum load and fed from an area network
- **Simplified Application Fee (Area Network Only)**
  - Less than / equal to 3kW = $100
  - Greater than 3kW = $300
    - Design size is based on aggregate ***maximum*** AC kW output of inverters, including storage.
    - The listed inverter **must** be **UL 1741 *SB*** compliant as of 10/1/2023.
    - Single phase inverters on a three-phase service Do Not Qualify for Simplified Process interconnection.

Simplified Requirements

Electrical Sketch:

- Does not need to be PE stamped.
- Can be hand drawn but must be legible.
- Must show the existing/proposed service, including the revenue metering, and how/where the proposed generation will interconnect to it.
- Include the following:
  - ✓ **Customer Name** and **Address of Facility**
  - ✓ **Size of Main Breaker** (100 Amp, 200 Amp, 400 Amp, etc.)
  - ✓ **Voltage of Service** (120/240 V, 120/208 V, etc.)
  - ✓ **Service Configuration** (single phase 1PH 3W, three phase 3PH 4W),
  - ✓ **External Disconnect Switch** (when required or installed)
  - ✓ **kW rating**
  - ✓ **Inverter(s) with Inverter Settings**
  - ✓ **Existing and Back Up Generation** (if applicable).
  - ✓ Must show actual proposed equipment
    Ex: Do NOT include “MIN 60A” for a disconnect size.
  - ✓ SHOULD NOT specify equipment TBD or Subject to Change.
  - ✓ Any transfer switches must be clearly labeled “open transition” or “closed transition.

Simplified Requirements Cont…..

Site Plan:

- Does not need to be PE Stamped.
- Can be hand drawn but must be legible.
- Include Customer name and address of facility.
- Must show parcel boundaries (property/lot lines and other generation.
- Must show revenue meter location and location of inverter(s) and all existing generation.
- AC Disconnect switch must be shown and located within 10 feet and in visible sight of the revenue meter and located on same wall of building.

Simplified Process flow

Log Into Simplified **PowerClerk =>** https://www.eversource.com/content/residential/about/doing-business-with-us/interconnections/massachusetts/massachusetts-application-to-interconnect

- All correspondence between Eversource and the Customer / Installer happens through PowerClerk
- Download required (prefilled) documents from PowerClerk (COC, Schedule Z, Exhibit H, Exhibit I

Initiation Phase

Application Is Submitted Using PowerClerk

- An existing service with active billing account number is required to start the interconnection process
- "*Acknowledgement"* is sent upon submission with Project ID number
- Review of: Application, Inverter Cut Sheet, One-Line, Site Plan, UL Certificate, Energy Storage Questionnaire & Battery Cut Sheet
- If any discrepancies are identified, additional information is requested
- Technical Review is completed (if applicable)
- Work Order is created
- *"Approval to Install"* is sent to customer and installer along with *the "Time Frame Verification"*

Construction Phase

Installer Constructs System

- If applicable, Eversource performs system modifications.
- Installer constructs system.
- The Portal indicates the final documentation that needs to be submitted such as:
- Certificate of Completion
- Electronic Town Inspector sign-off
- SMART SPA Key
- Schedule Z & excel spreadsheet
- Power Purchase Schedule (if applicable)
- Executed Exhibit H (3rd Party if applicable)
- Executed Exhibit I (Landowner if applicable)
- Photos (Inverter, AC Disconnect, Close-Up Revenue Meter showing meter number and applicable labeling, Zoom Out Photo of Revenue Meter, Production Meter and AC Disconnect)
- MASS ACA Registration Proof (if applicable)

Close Out Phase

Close-Out Review & Meter Sets

- Submitted close-out documentation is reviewed
- If any discrepancies are identified, additional information is requested
- Upon approval of close-out documents a request is sent to Meter Department to exchange revenue meter (& install production meter if applicable)
- Communication *"Meter Set Scheduled"* is sent to customer & installer
- Meter Department works meters.
- If meters cannot be set, additional information is requested
- *"Approval to Operate"* is sent to customer & installer
- Notification is sent to billing

Eversource Meter Relocation Policy

When to request a review for relocation or variance

- Meter grouping – All the Revenue Meters, Disconnects and Production Meters are grouped together on either the exterior front or side of the building. This equipment must be located within 10 feet and in visible sight of the revenue meter and located on same wall of building.
- Meter grouping is preferred method; however, if you are installing a new PV system behind an existing main/service panel with the existing revenue meter located inside, the revenue meter may remain in the current location provided the site is **deemed safe.** (Eversource has the discretion to review and ensure the installation is safe and technicians have reasonable unhindered access).
- When a PV system is located on another structure on the same property (barns, garages, etc.) a waiver may be granted provided the distance is reasonable. For example, if the revenue meter is located on a pedestal containing a load side disconnect, the production meter and disconnect could be located on the house with proper placarding.

How to request a variance in Power Clerk

- All exceptions/variations to Information and Requirements for Electric Service shall be approved by the Company under a separate request and in writing and approved by Eversource Manager or higher **before** construction commences.
- For clarity purposes variances/exceptions are not accepted as part of non-compliant one-lines or site plans that don't meet the requirements and need to be specifically requested and approved.
- Please reach out to your project **Account Executive via the "Ask a Question"** tool for assistance on requesting a variance.

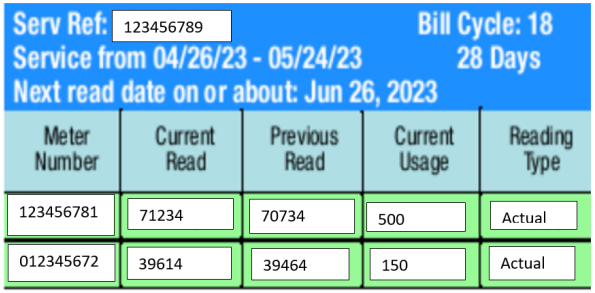
Common Situations that Require a Separate Work Order

These situations require a Work Order to be initiated by the Electrical Contractor or Installer prior to submitting completion documents.

- Meter Relocation, Service Upgrade, installing a new Meter Socket
- Multiple Meters - Meter Consolidation – A location that has a main meter and an additive meter (water heater meter) must request a work order to wire the water heater meter to the interconnecting meter.

Work Order are initiated by contacting New Service –via email WMASSNewService@eversource.com or by calling 1-800-880-2433 between 7am- 4:30pm.

The Customer Billing Statement will identify Multiple Meter Accounts



Serv Ref: 123456789 Bill Cycle: 18
Service from 04/26/23 - 05/24/23 28 Days
Next read date on or about: Jun 26, 2023

Meter Number	Current Read	Previous Read	Current Usage	Reading Type
123456781	71234	70734	500	Actual
012345672	39614	39464	150	Actual

- **Work Order Process**:
  - ✓ Work Order initiated by the Electrical Contractor via New Service Department
  - ✓ New Service assigns a Field Tech - Field Tech evaluates the project parameter, and discusses scope of work with EC
  - ✓ EC completes the work and initiates Town Inspection
  - ✓ EC notifies New Service job is complete so the work order can move forward, and meter exchange order created
  - ✓ The work order moves to the meter department to install a new non-net meter (this is for billing & reporting purposes)

Net Metering

- Simplified Projects are all Class I (Any generator up to 60 kW)
- Customer is compensated for energy produced ***after*** receiving approval to operate ***and*** all other requirements have been met.
  - If you have questions regarding billing, compensation for exported energy, and/or credit allocation please contact:
    - Western MA = Customer Care Department at 888-783-6610
    - Eastern MA = Customer Service at 800-592-2000
- After Permission to Operate has been issued, all new Schedule Z forms must be submitted to the Billing Department for review and implementation.
  - For projects that were processed through the Portal, the new Schedule Z can be uploaded into the Portal using the Portal ID ESMASI-xxxxx
  - For projects that were **NOT** processed through the Portal, the new Schedule Z can be emailed directly to: netmetering@eversource.com
  - Or through our new Renewable Credits Portal available at: https://eversource-ext.gridx.com/
- ***Please Note:***
    - Net metering credits might not be applied to the Host Customer's account until the next billing cycle.
    - Allocation recipient Customers may be on different billing cycles which may take up to two billing cycles.

EXAMPLE- Portal Generated Schedule Z for Net Metering

Host Customer Name: Joe Customer

Telephone: (999)9999999

Address of Facility: 123 Main St, Anywhere, MA 01000

Billing Account Number: XXXXXXXXXX

Meter Number: XXXXXXXX

Application ID Number: ESMASI-XXXXX

Is the Host Customer a: ___Municipality ___Other Governmental Entity? If so, attach a copy of DPU issued Public Entity certification form.

A) Is the Host Customer applying for net metering service an electric company, generation company, aggregator, supplier, energy marketer, or energy broker, as those terms are used in M.G.L. c. 164, §§ 1 and 1F and 220 C.M.R. §11.00?

___ No

___ Yes (you are not eligible for net metering service)

E) For any Billing Period in which the Host Customer earns Net Metering Credits, please indicate how the Distribution Company will apply them:

___ ***Apply all*** of the Net Metering Credits to the account of the Host Customer (***Skip Items F and G***)

** ___ ***Allocate all*** the Net Metering Credits to the accounts of eligible Customers (Class I and II Net Metering Facilities ***skip Item F***)

** ___ ***Both apply*** a portion of the Net Metering Credits to the Host Customer's account and allocate a portion to the accounts of eligible Customers (Class I and II Net Metering Facilities ***skip Item F***)

G) Please state the total percentage of Net Metering Credits to be allocated.

** ___ % Amount of the Net Metering Credit being allocated. The total amount of Net Metering Credits being allocated shall not exceed 100 %. Any remaining percentage will be applied to the Host Customer's account.

Host Customer (Signature): _____

Host Customer (Print): Joe Customer

Date: xx/xx/xxxx

***If allocating credits, you must complete the Schedule Z Allocation Spreadsheet*

Example – Schedule Z Allocation Spreadsheet

	A	B	C	D	E	F	G
1			**Schedule Z - Net Metering Allocation**				
2							
3	**Host Acct#**	**Amount of Net Metering Credit Allocated (Part G)**	**Sum Of Target Allocation (must match Part G)**	**Host Name**	**Host Address**	**Application ID (GID#)**	**DPU ID #**
4	Host Billing Account Number	Automatically adds up the percentage in Column B	Total amount being allocated. Equals Cell B4	Primary Account Holder	Address of Facility	Application ID# from Eversource	Complete if applicable
5							
6	**Account #**	**Allocation %**	**Allocatee Name**	**Allocatee Street Address**	**Allocatee Town**		**DPU ID #**
7	Billing account number as listed on electric bill	Amount being allocated to this account	Customer name as listed on electric bill	Service street address as listed on electric bill. This is not the mailing address.	Town as listed on electric bill. This is not the mailing address.		Complete if applicable
8							
9							
10							

Net Metering and SMART Program Changes

DPU issued recent decisions making changes to net metering regulations (DPU 21-100-A) and SMART Program (DPU 20-145-D). Most significant changes include:

Net Metering

- Certain Solar facilities greater than 60 kW that serve onsite load behind the meter receive 100% retail credit for excess kWh and do not require cap allocation
- Many net metering facilities eligible to transfer credits between load zones (including EMA/WMA) beginning July 1
- Credit transfer between EDCs to be allowed in 2025
- Net metering recovery surcharge excluded from credit for excess generation

SMART Program

- Minimum AOBC allocation dropped to 90%
- Full cash out of accrued AOBC balances on host account permitted with 100% allocation
- Pollinator adder approved for inclusion in tariff

** Refer to tariffs and regulations for specific rules and criteria*

Interconnection Contacts

Eversource Energy – Western MA DG

❖**Simplified Projects**
- Matthew Secovich, Renata Gamache, Christina King
- Email: wmdg@eversource.com

❖**Expedited Projects**
- Matthew Secovich: matthew.secovich@eversource.com
- Anne Morrison: anne.morrison@eversource.com

SMART

- Email: SMART@eversource.com
- Toll Free Number: 844-726-7573

Meter Configuration & Technical Meter Questions

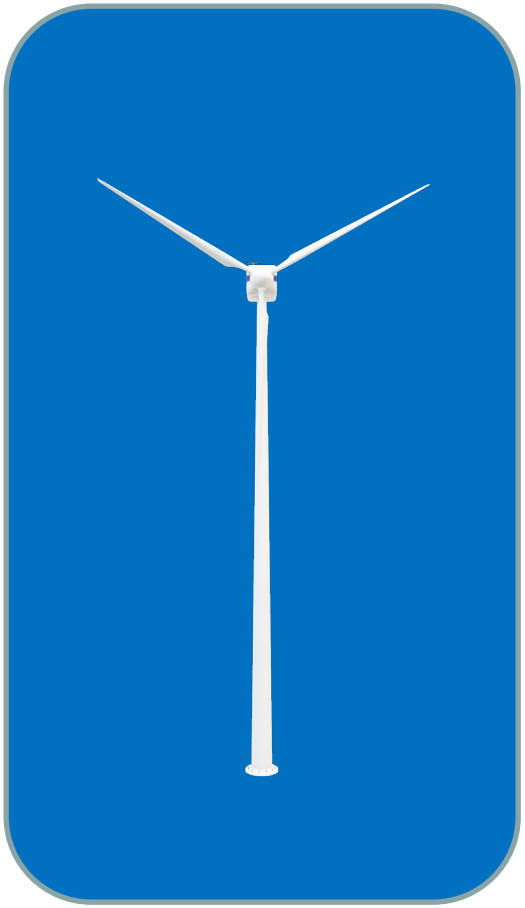
- Patrick Fam: patrick.fam@eversource.com

Massachusetts Resources

Helpful Links

- **Interconnection Resources on Eversource.com**
  https://www.eversource.com/content/residential/about/doing-business-with-us/interconnections/massachusetts/massachusetts-application-to-interconnect/interconnection-resources
- **Supply Chain Information on Eversource.com**
  https://www.eversource.com/content/docs/default-source/builders-contractors/handout_supply_chain.pdf?sfvrsn=e2828a62_2
- **Log-In to PowerClerk on Eversource.com**
  https://www.eversource.com/content/residential/about/doing-business-with-us/interconnections/massachusetts/massachusetts-application-to-interconnect
- **Interconnection Information on Mass.gov**
  https://www.mass.gov/info-details/utility-interconnection-in-massachusetts#utility-interconnection-reports-
- **Net Metering Information on Mass.gov**
  https://www.mass.gov/net-metering
- **MassACA Information on Mass.gov**
  https://www.mass.gov/how-to/apply-for-a-cap-allocation-with-massaca

Questions?



Renewable Credit Portal

New **Renewable Credit Portal** Available

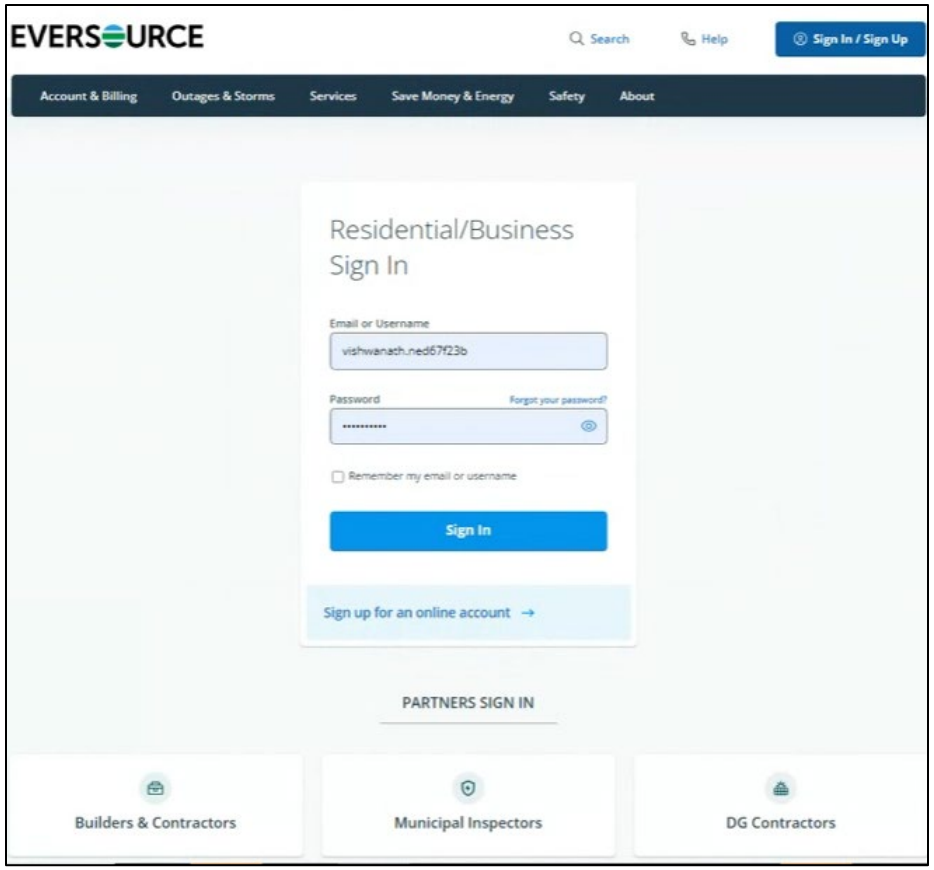
What you need to know

- **Upload** your Schedule Z and Alternative On-Bill Credit forms
- Make **unlimited**, real-time net metering credit changes
- **Real-time data validation** occurs when a Schedule Z or Alternate On-Bill Credit (AOBC) form is uploaded so any errors can be immediately corrected
- **View** SMART solar incentive **payments history**.

New **Renewable Credit Portal** Available

How to log in

- Portal is available at eversource-ext.gridx.com/
- Log in using your eversource.com log in information. First time users must sign up for an online account.
- Access the User Guide on eversource.com for step-by-step instructions
- For help, contact smart@eversource.com

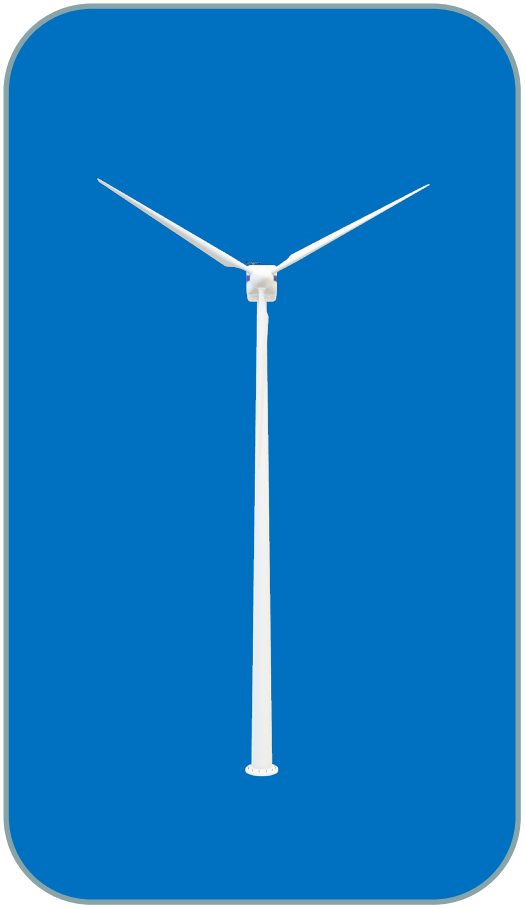


- Renewable Credit Portal user guide: https://eversource.com/content/docs/default-source/save-money-energy/renewable-credits-portal-user-guide.pdf

Ask Questions and Get Clarification:

- CLEAResult (SMART Program Administrator (PowerClerk)): **MA.SMART@CLEAResult.com**, 888-989-7752
- Eversource SMART Team: **SMART@eversource.com**, 844-726-7573

Questions?



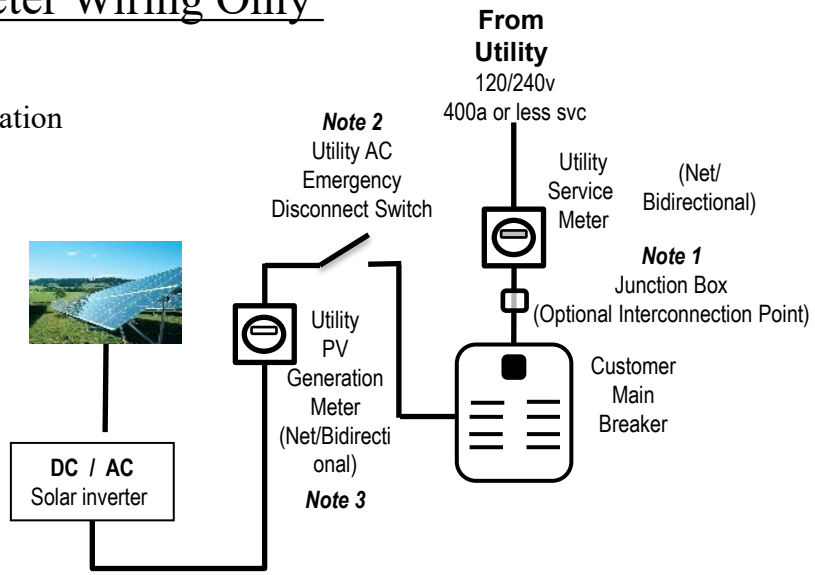
Metering Review
Solar Program

Topics:

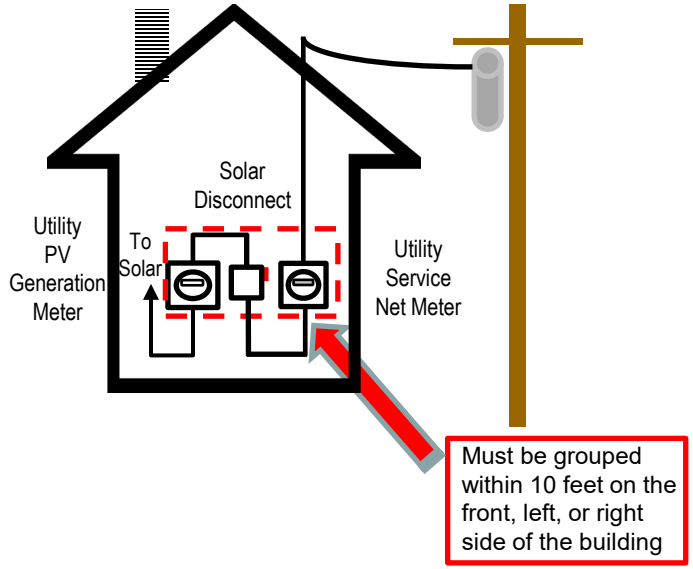
- Meter Socket Wiring
- Emergency Disconnect Position
- Information About Meter Socket Use
- IT (Instrumented Transformer) Rated Services
- What The Contractor Provides
- What Eversource Provides
- Labeling

Solar and Production Socket Meter Wiring Only

Scenario – Behind the Meter (BTM) Solar
Description: typical solar meter wiring configuration for residential and small commercial customers.



Solar Prod Meter
(Utility PV Generation Meter)
< 60KW = Scalar meter
(Monthly consumption)
> 60KW = Interval Recording meter



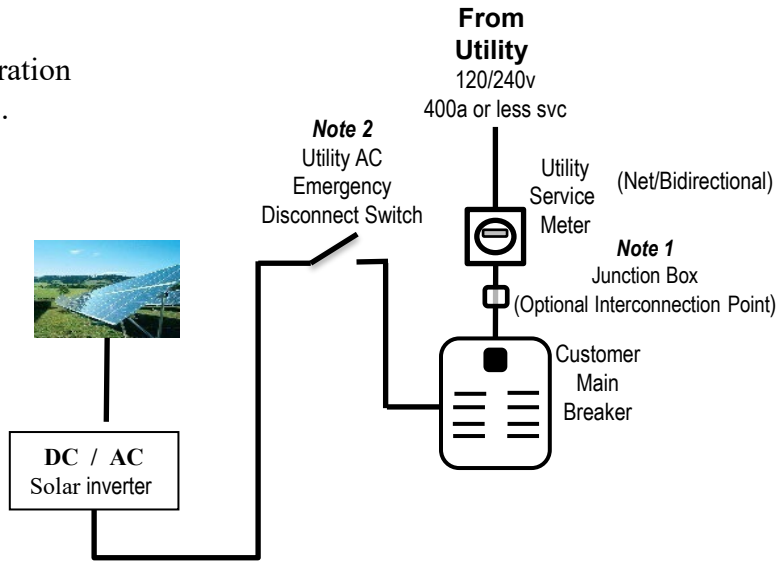
Note 1: Optional acceptable interconnection point ahead of the main breaker, but behind the revenue meter.
No connections, splices or measuring equipment are to be installed within the revenue meter socket.

Note 2: Customer provided Emergency Disconnect Switch and Production Meter must be located next to the Eversource Revenue Meter and plainly marked.

Note 3: Utility PV Generation and the Utility Storage meters must be wired with Utility feed to the top of the Meter socket; Solar panels to the bottom of the meter socket

Solar Meter Wiring Only

Scenario – Behind the Meter (BTM) Solar
Description: typical solar meter wiring configuration for residential and small commercial customers.



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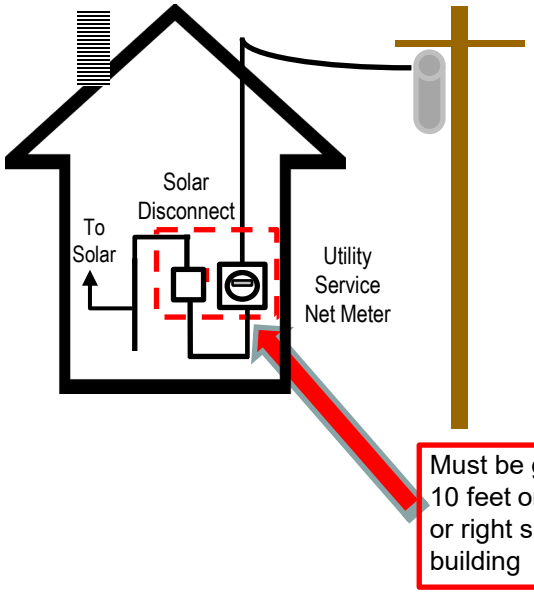
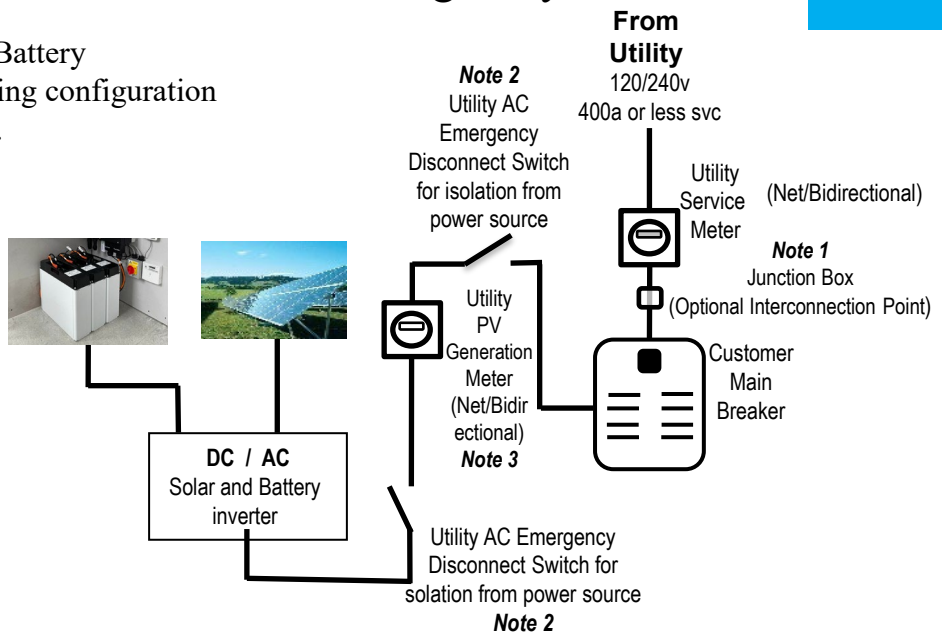


Note 1: Optional acceptable interconnection point ahead of the main breaker, but behind the revenue meter.
No connections, splices or measuring equipment are to be installed within the revenue meter socket.

Note 2: Customer provided Emergency Disconnect Switch must be located next to the Eversource Revenue Meter and plainly marked.

Solar with Battery and Production Socket Meter Wiring Only

Scenario – Behind the Meter (BTM) Solar and Battery
Description: typical solar and battery meter wiring configuration for residential and small commercial customers.



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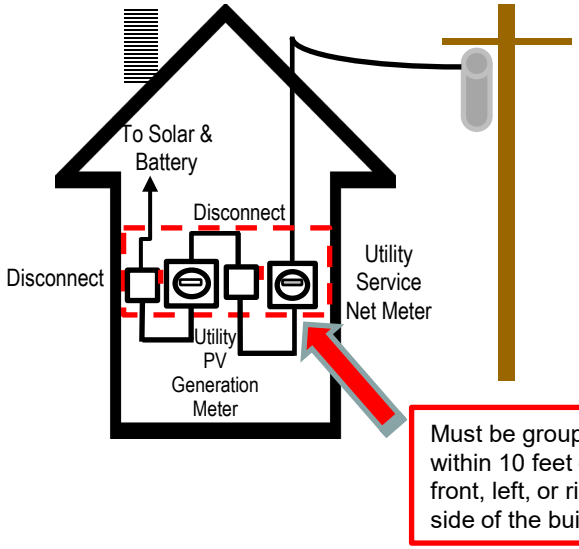

Note 1: Optional acceptable interconnection point ahead of the main breaker, but behind the revenue meter.
No connections, splices or measuring equipment are to be installed within the revenue meter socket.

Note 2: Customer provided Emergency Disconnect Switches and Production Meter must be located next to the Eversource Revenue Meter and plainly marked.

Note 3: Utility PV Generation and the Utility Storage meters must be wired with Utility feed to the top of the Meter socket; Solar panels to the bottom of the meter socket

Solar Production Socket and Battery Meter Wiring Only

Scenario – Behind the Meter (BTM) Solar and Battery
Description: typical solar meter wiring configuration for residential and small commercial customers.

Solar Prod Meter
(Utility PV Generation Meter)
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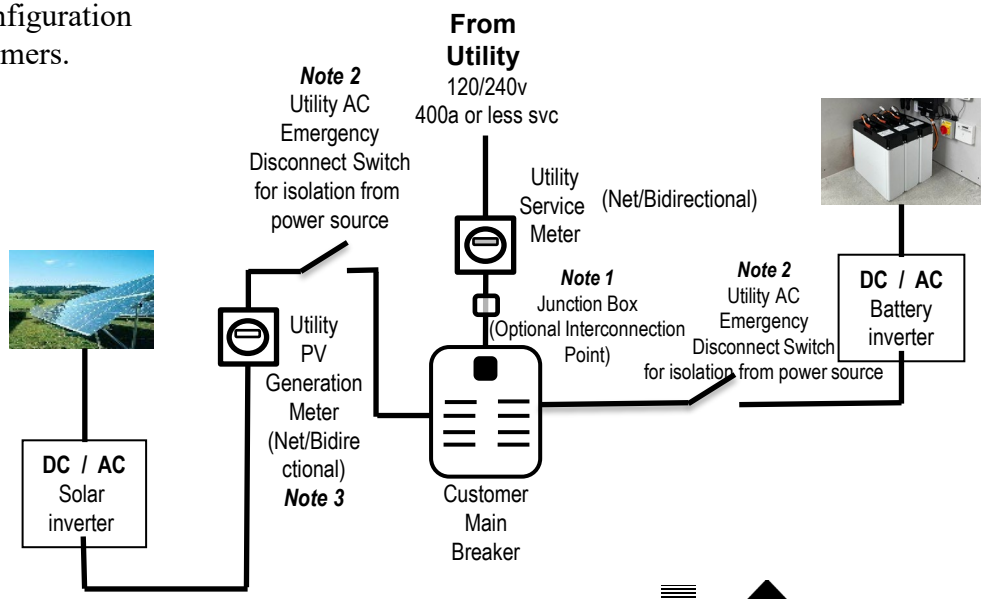
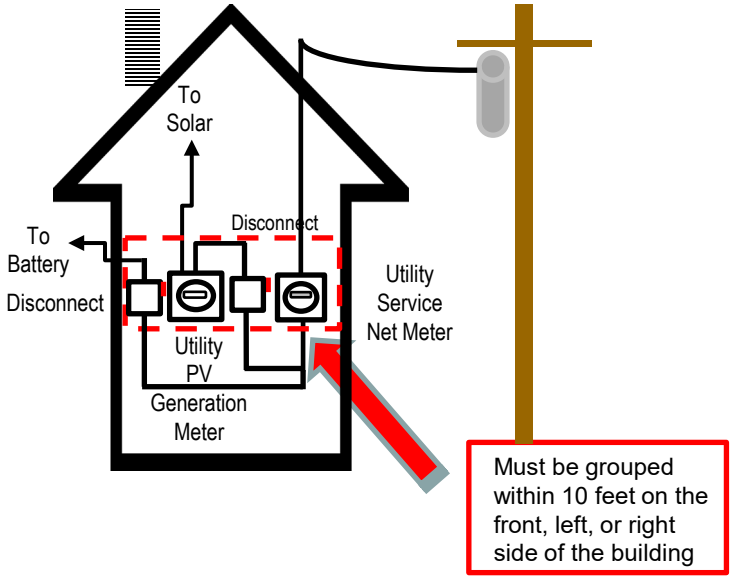




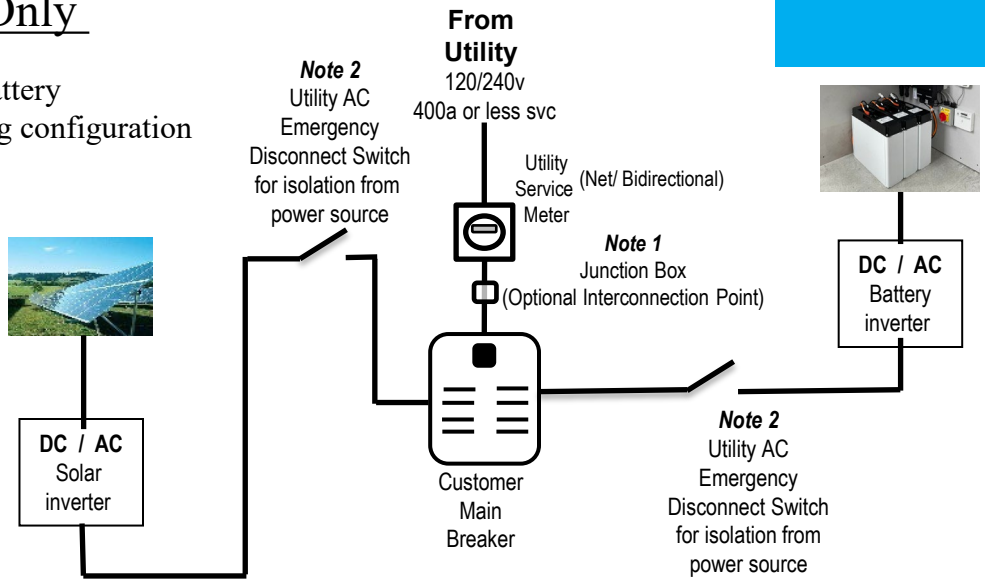
Note 1: Optional acceptable interconnection point ahead of the main breaker, but behind the revenue meter.
No connections, splices or measuring equipment are to be installed within the revenue meter socket.

Note 2: Customer provided Emergency Disconnect Switches and Production Meter must be located next to the Eversource Revenue Meter and plainly marked.

Note 3: Utility PV Generation and the Utility Storage meters must be wired with Utility feed to the top of the Meter socket; Solar panels to the bottom of the meter socket

Solar and Battery Meter Wiring Only

Scenario – Behind the Meter (BTM) Solar and Battery
Description: typical solar and battery meter wiring configuration for residential and small commercial customers.



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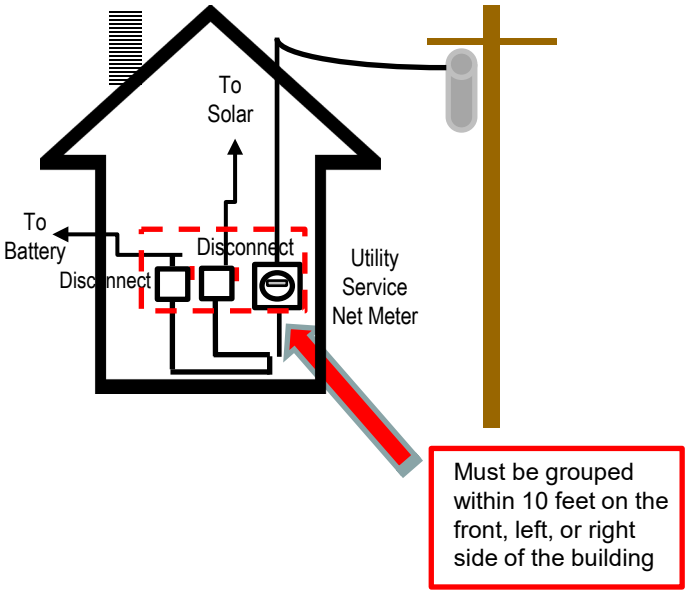
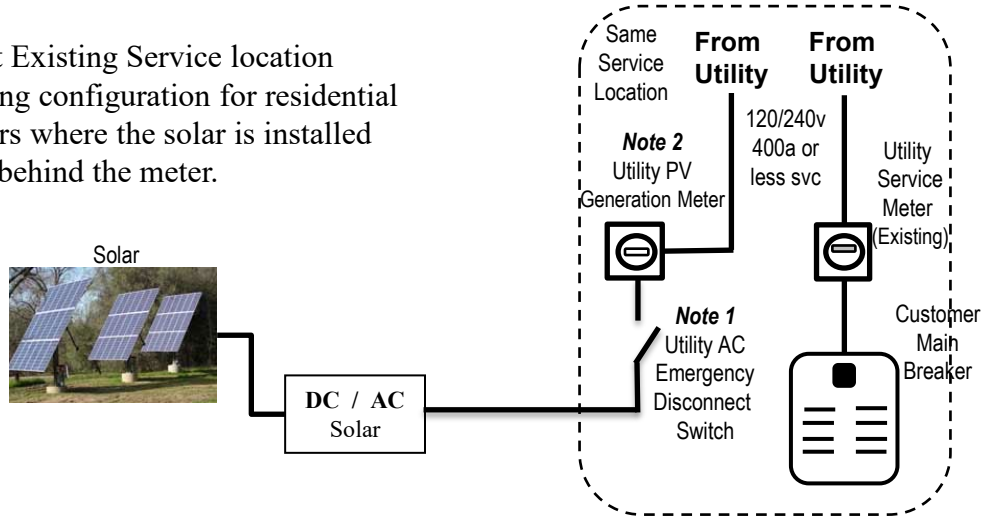


Note 1: Optional acceptable interconnection point ahead of the main breaker, but behind the revenue meter.
No connections, splices or measuring equipment are to be installed within the revenue meter socket.

Note 2: Customer provided Emergency Disconnect Switches and Production Meter must be located next to the Eversource Revenue Meter and plainly marked.

Meter Wiring

Scenario – Standalone Meter at Existing Service location
Description: typical meter wiring configuration for residential and small commercial customers where the solar is installed at an existing location, but not behind the meter.



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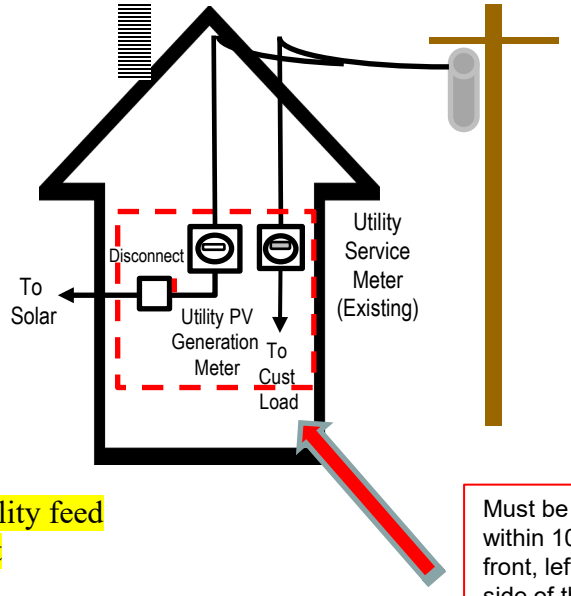


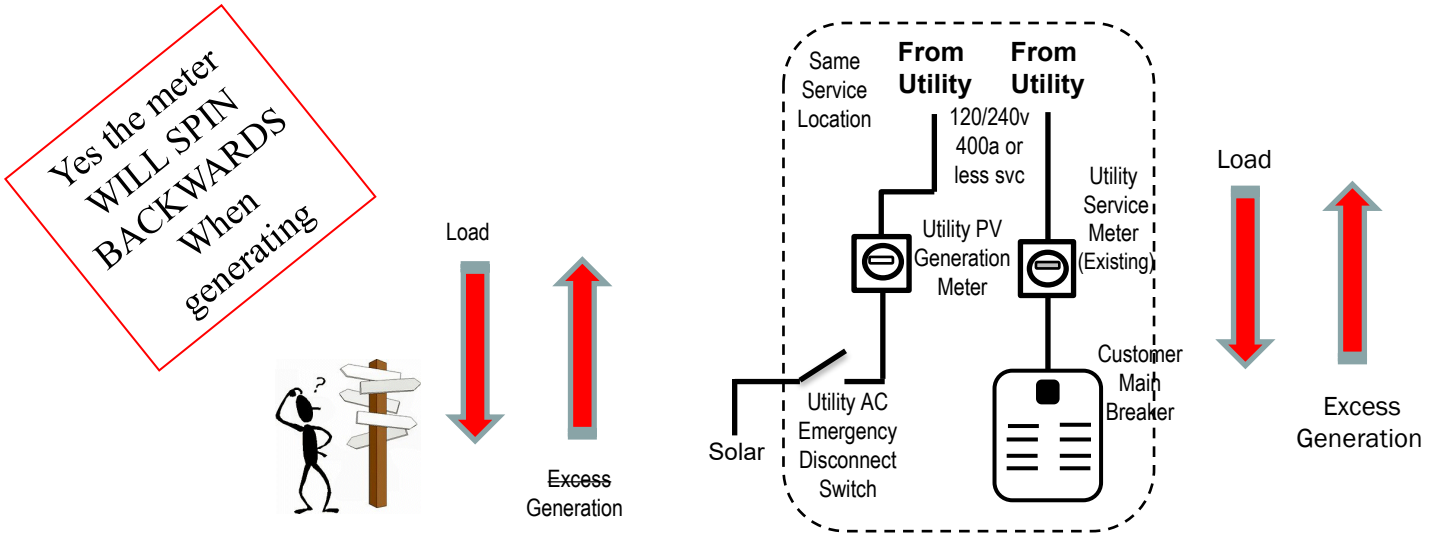
Note 1: Customer provided Emergency Disconnect Switch must be Located next to the Eversource Revenue meter and plainly marked.

Note 2: Utility PV Generation and the Utility Storage meters must be wired with Utility feed to the top of the Meter socket; Solar panels to the bottom of the meter socket

Meter Wiring

Scenario – Standalone Meter at Existing Service location
Description: typical meter wiring configuration for residential and small commercial customers where the solar is installed at an existing location, but not behind the meter.

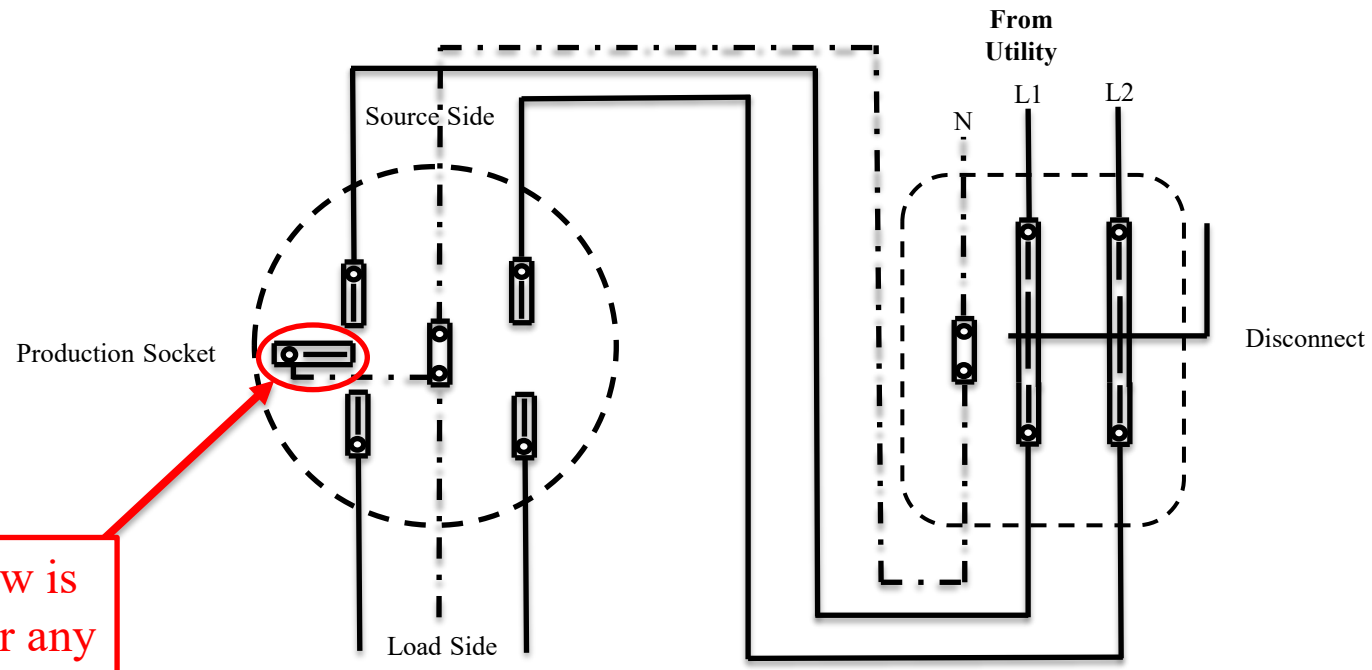
WHY ??



Trying to maintain consistency in the direction of load and generation for both the Revenue and Production Meters

Production Socket Wiring

Utility PV Generation and the Utility Storage meters must be wired with Utility feed to the top of the Meter socket; Solar panels and Battery storage to the bottom of the meter socket

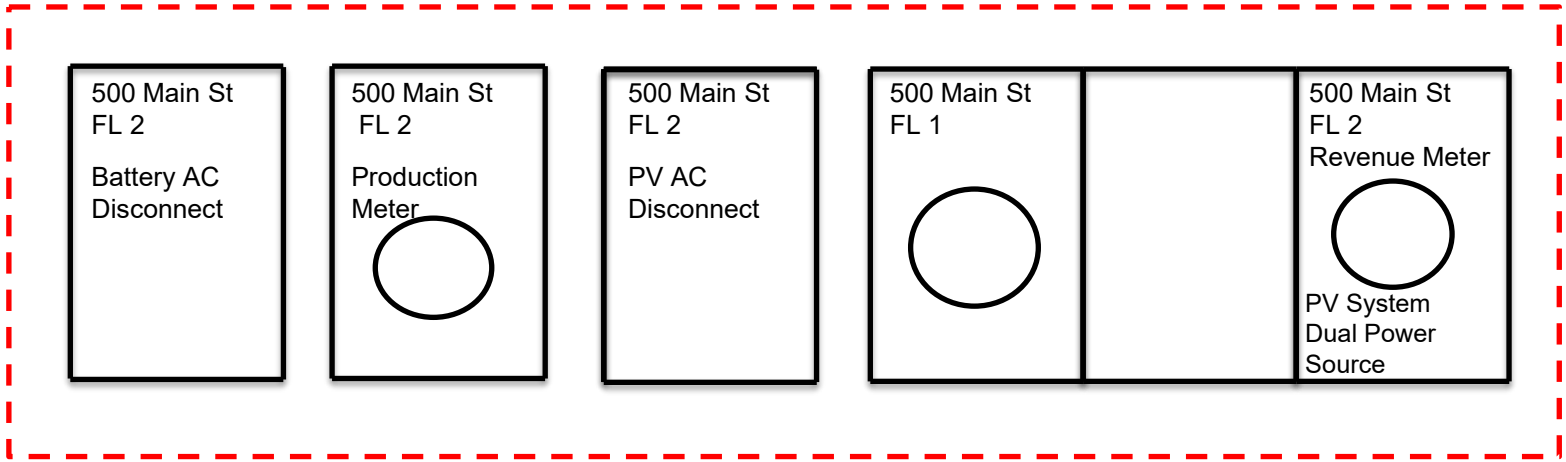


This 5th jaw is required for any single-phase service that is 120/208

Note: If you are installing battery storage behind a production socket you will need a second disconnect on the load side of the production socket

Meter Socket and Disconnect Labeling

The Revenue Meter Socket needs to be labeled with the address and unit.
Also needs to be labeled Revenue Meter
The Production Meter Socket needs to be labeled with the address and unit number that has the solar system.
Also needs to be labeled Production Meter
The Disconnect on the Source Side of the Production Socket needs to be labeled with the address and unit number.
Also needs to be labeled PV Disconnect
The Disconnect on the Load Side of the Production Socket if needed must be labeled with the address and unit number.
Also needs to be labeled Battery Disconnect
If the battery system is not on the load side of the Production Socket, a Disconnect is still required and that will have to be labeled with the address and unit number. Also, to be labeled Battery Disconnect.



Note: All the Revenue Meters, Disconnects and Production Meters are grouped together on the exterior either on the front, or sides of the buildings.

Information about metering socket use?

- Consult the WMA I&R book for approved meter sockets.
- Link to WMA I&R book: https://www.eversource.com/content/docs/default-source/wma---pdfs/info-requirements-wma.pdf
- Using a meter socket listed in the I&R book will AVOID DELAYS
- All Stand-alone scenarios are considered as new services and MUST follow all I&R requirements.
- A new service request must be submitted for any revenue meter upgrades that are needed to proceed with solar installation. The new service request needs to be completed first before the DG request can moved forward.
- No meter socket can be used as raceway or a splice box. The only wires allowed in a meter socket are the line side, load side and a bonding wire. No grounding wire is allowed. (Grounding wire is a wire the goes out of the meter socket directly to a ground rod)

Instrument Transformer (IT) Rated Services:

What does the Installation Contractor Provide?

- ✓ Diagrams – 1-line and 3-line diagrams
- ✓ Approved IT cabinet
- ✓ Approved Meter Socket w/Test Switch
- ✓ Emergency disconnect

Provide all diagrams and equipment spec sheets to Eversource for review.

What does the Eversource Provide?

- ✓ Necessary Current Transformers
- ✓ Any necessary Voltage Transformers
- ✓ Meter

Eversource will install all CTs and VTs and wire the secondary side to the test switch.

All service voltages at or above 277/480v will require voltage transformers.

Secondary CTs will be either 600:5 bar types or 2000:5 window types.

Any services above 3000 A will be primary metered.

IT Rated Services:

What type of equipment do I use?

- Consult the WMA I&R book for approved meter sockets AND IT rated transformer enclosures.
- All IT metering must be Cold Sequenced.
- Label Label Label.
  Clearly mark the Emergency Breaker, all IT cabinets and Meter sockets. The more we know when we go out to wiring the equipment, the fewer delays you will encounter.

Questions?