National Grid Distributed Energy Resources MA Webinar

Simplified Interconnection Process Review

August 07, 2024

nationalgrid

Disclaimer:

This presentation has been prepared solely as an aid to discussions between National Grid and interested stakeholders and should not be used for any other purposes. This presentation contains high-level, general information (not project specific) which may not be applicable in all circumstances. National Grid makes no guarantees of completeness, accuracy, or usefulness of this information, or warranties of any kind whatsoever, express or implied. National Grid assumes no responsibility or liability for any errors or omissions in the content. Nothing contained in this presentation shall constitute legal or business advice or counsel.

No party is authorized to modify this presentation.

The presentation is being recorded.

The information in this presentation could be affected by future revisions to the Standards for Interconnection of Distributed Generation, M.P.D.U. No. ***1468 (****Tariff), or by open docket D.P.U. 19-55.*

Agenda

01	Welcome & Opening Remarks – Jorge Sousa Safety Message – Bridgette Maschal
02	General Communications – Jorge Sousa
03	System Installation & Metering Requirements (NEC, ESB 750 & ESB 756) - JJ
	Interconnection Process Review
04	Simplified – Yesenia (Jessy) Rosa
05	Expedited - Michael Armell
06	Preliminary Screening – Ashwin Sridhar Iyer
07	Screening/Supplemental Review - Brian Fitzgerald
08	Group Study/Derating/Curtailment - JJ / Anish Ganta
09	Portal Support – Marisa Sereti
10	Post Interconnection – Pamela Hill NEM Billing and Credit Allocations
11	Q&A – Jorge Sousa

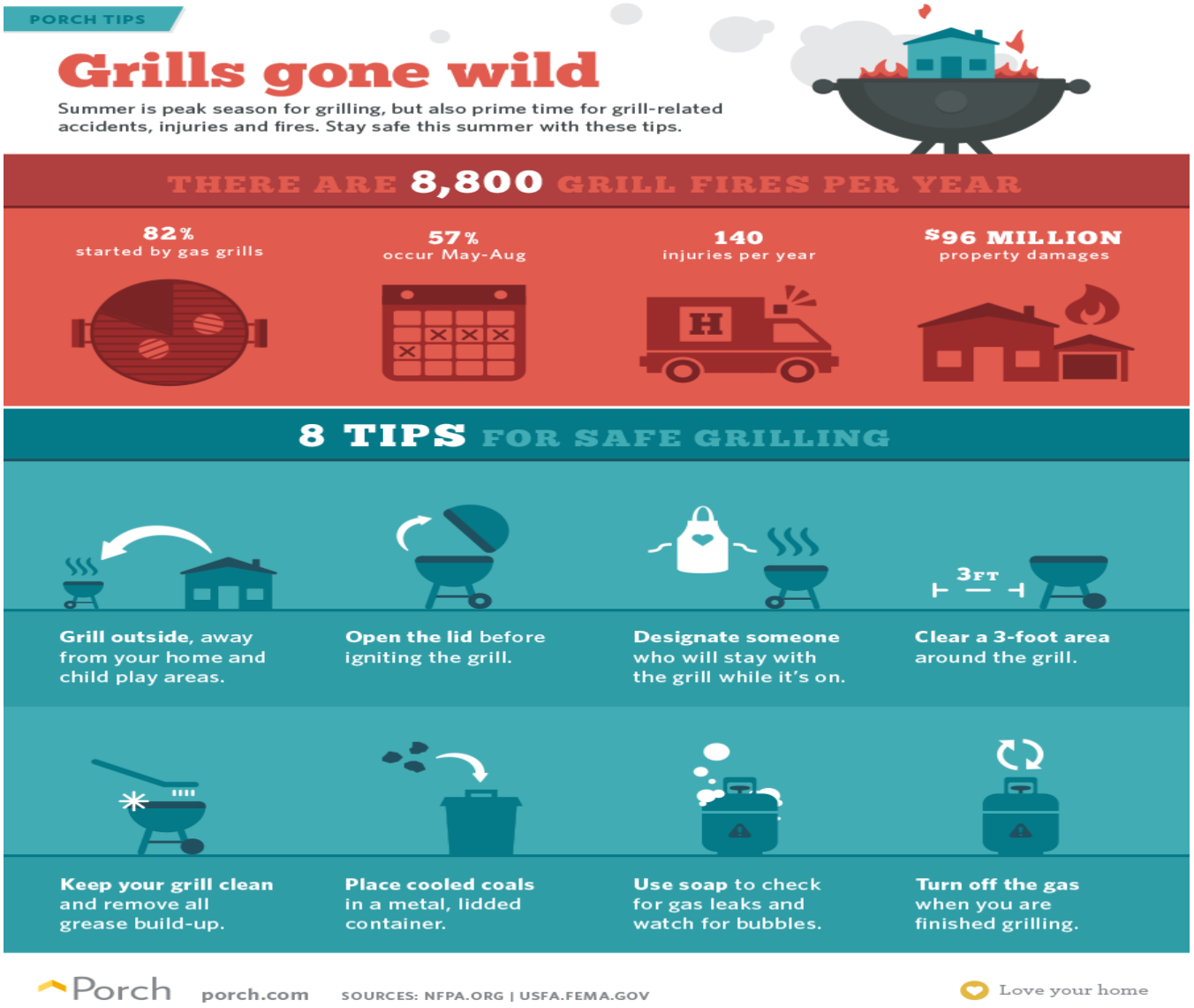
01

Safety Message

Bridgette Maschel

nationalgrid

Grilling Safety Tips



02

General Communications

Jorge Sousa

nationalgrid

General Communications

25 kW Cap Net Metering Exemption:

- Company has not implemented any changes yet, awaiting Department of Public Utilities (Department or DPU) approval
- Interconnection requirements remain the same, this change does affect threshold sizes for simplified process
- The Department has opened a docket (D.P.U. 23-140) to discuss this topic

Site As-Built Variances:

- The Company has been seeing a rise in As-Builts submitted that reflect system sizes larger than conditional approval size.

Make sure you don't construct your system until you have received conditional approval

End of Year Reminder:

- For Simplified applications, get applications/completion documents in by December 1.

Former Webinars are posted to our *'Stakeholder Meetings Updates Page'*

03

System Installation & Metering Requirements

Jorge Jorge (JJ)

nationalgrid

System Installation Reminders

Quick Reminders

- Ensure installation meets and abides by all National Electrical Code (NEC) & Electric System Bulletin (ESB) rules and regulations.
- If there are any service upgrades, the service must come up to the most recent NEC & ESB standards.

- Any new systems must relocate any meters located inside to the outside where they will be 24/7 accessible by the utility. This includes any required disconnecting means.

- Meter sockets and disconnects must meet necessary clearances per the ESB, for the National Grid Metering Department to safely remove, test and install meters.

- Ensure the system being installed is the system that was applied for and aligns with submitted documentation.

- Ensure proper labeling is applied to all parts of the Distributed Energy Resource (DER) system as required per NEC & ESB Standards.

- Installations that do not abide by the ESB 750 & 756 will be placed on hold by the metering department, until corrections/upgrades are completed.

- New metering will not be installed if proper close out documents are not provided.

Residential DER System Installations & Upgrades

Common Terms/Definitions - Specifically for Residential DER Systems

- **POI – Point of Interconnection**
  Where the interconnecting DER system connects to the electrical system of a house or building. For stand-alone systems, this would be the same as the PCC.

- **PCC – Point of Common Coupling**
  Also known as Demarcation Point, is typically where Company & Customer equipment meet. For overhead services this is usually the weather-head, for underground systems this can be the secondary spades of the utility pad mounted transformer or hand-hole.

- **ESS** – **Energy Storage System**
  AC or DC coupled batteries of a DER system.

- **Behind The Meter System (BTM)**
  A renewable energy system located behind an existing electrical service, that requires a bi - directional meter. These systems are the most common simplified type systems and are used on site to power loads. The excess generation can then be exported to the company's electrical power system.

- **Stand Alone System**
  A renewable energy system that is dedicated to capturing, producing or storing electrical energy that generates directly on to the company's EPS.

Residential DER System Installations & Upgrades

Authority Having Jurisdiction (AHJ)

The NEC defines an Authority Having Jurisdiction (AHJ) as an individual, office, or organization that is responsible for enforcing code or standard requirements or for approving equipment, materials, installations, or procedures

- For all Residential DER systems there are two AHJ's that need to sign off on any new installation and parallel interconnection.
- The first AHJ is the City/Town electrical/wiring inspector that ensures that all electrical installations for the property have been installed in a safe, neat and workmanlike matter to ensure the safety of the building occupants per the NEC.
- The second AHJ is the utility company (i.e, National Grid) that provides electrical service to the property and is approving the interconnection of the new DER system. The utility company ensures that the proposed project is safe to interconnect in parallel to the distribution system.

National Grid Core Values

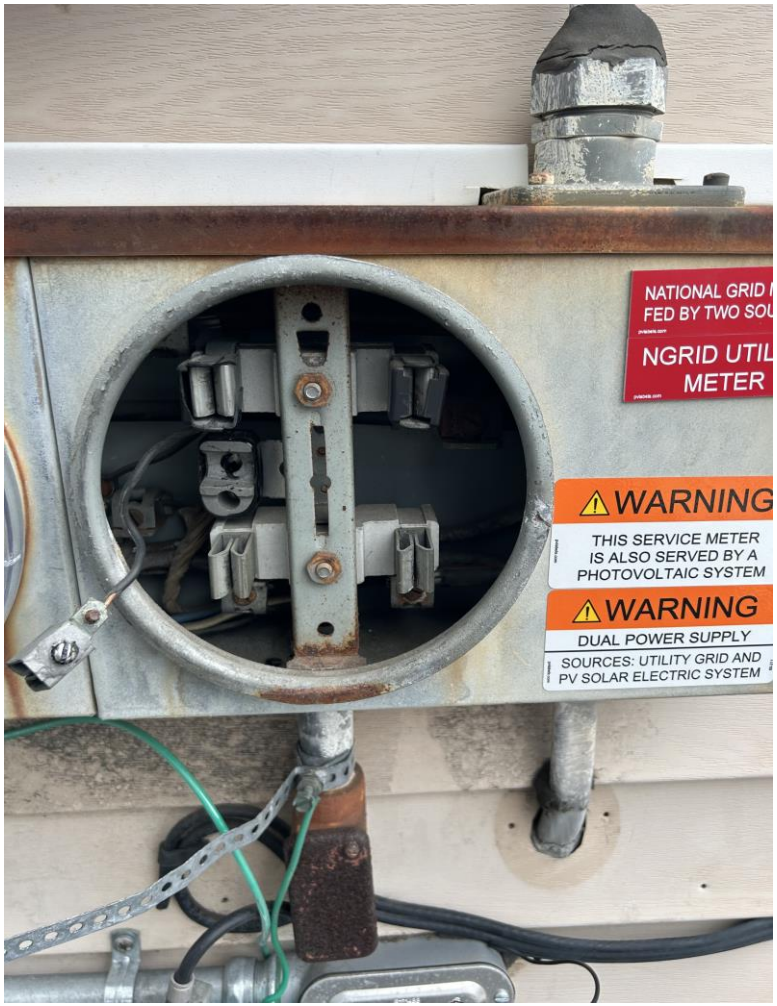
- National Grid prioritizes the delivery of safe and reliable electrical energy as well as the safety to all of our stakeholders. To maintain the integrity of National Grid's electrical infrastructure (i.e., distribution system) National Grid's personnel need to ensure they can go to work and perform their required task as safely as possible. National Grid believes in zero injuries on the job and every day for all employees, contractors and communities. In order to be able to maintain system safety, anytime a system is being installed or a service is being upgraded it should be in accordance with National Grid ESB Standards. Older services that could pose harm if worked upon should be reviewed and upgraded as National Grid employees will not work on anything could potentially fail and harm them in the field.

Existing Services That Will Require Upgrade For Interconnection

Rusted & Corroded Meter Sockets

Existing Services That Will Require Upgrade For Interconnection

Antiquated or Ringed Meter Sockets

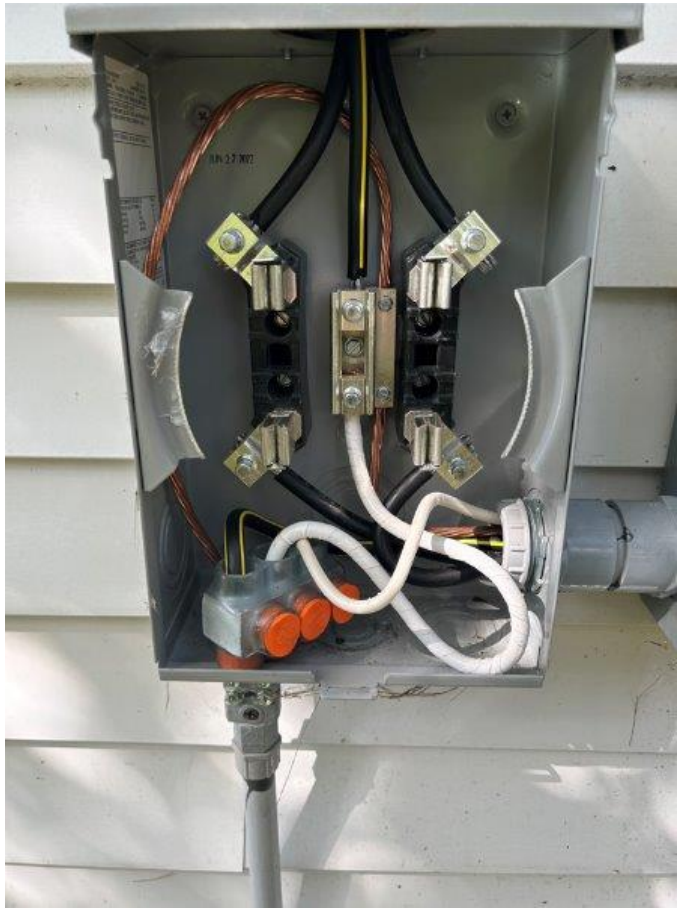


Metering Installations That Will Not Be Approved

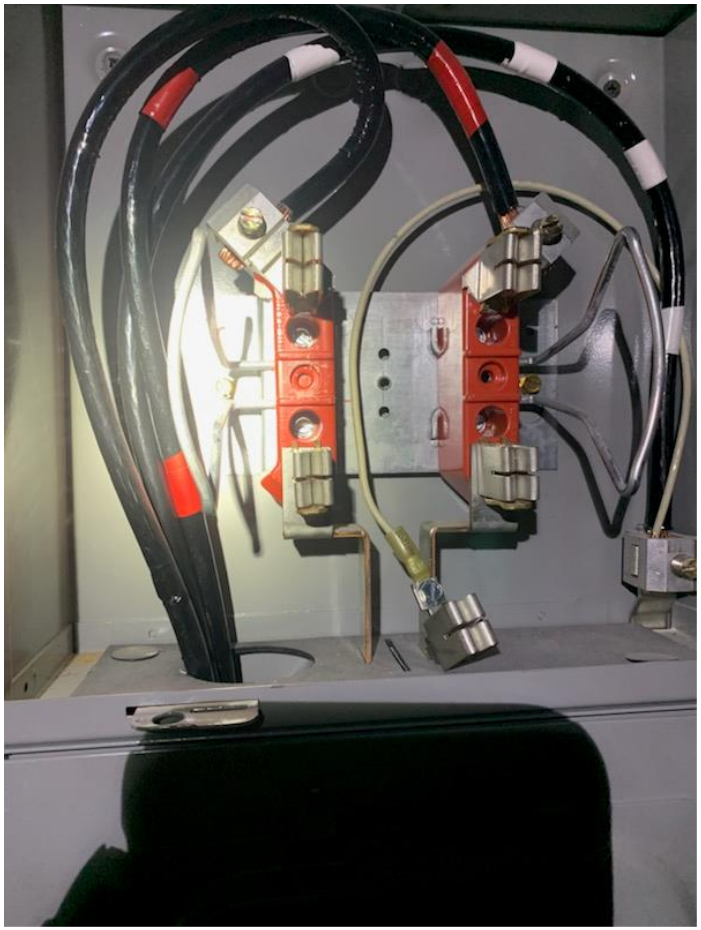
No Meter Adapters or Additional Equipment Inside Meter Sockets

Metering Installations That Will Not Be Approved

No Taps or Splices Made In Any Meter Socket



Can Not Have Missing/Disconnected 5th Terminal For 1PH 208V Services



Correct Metering Installation

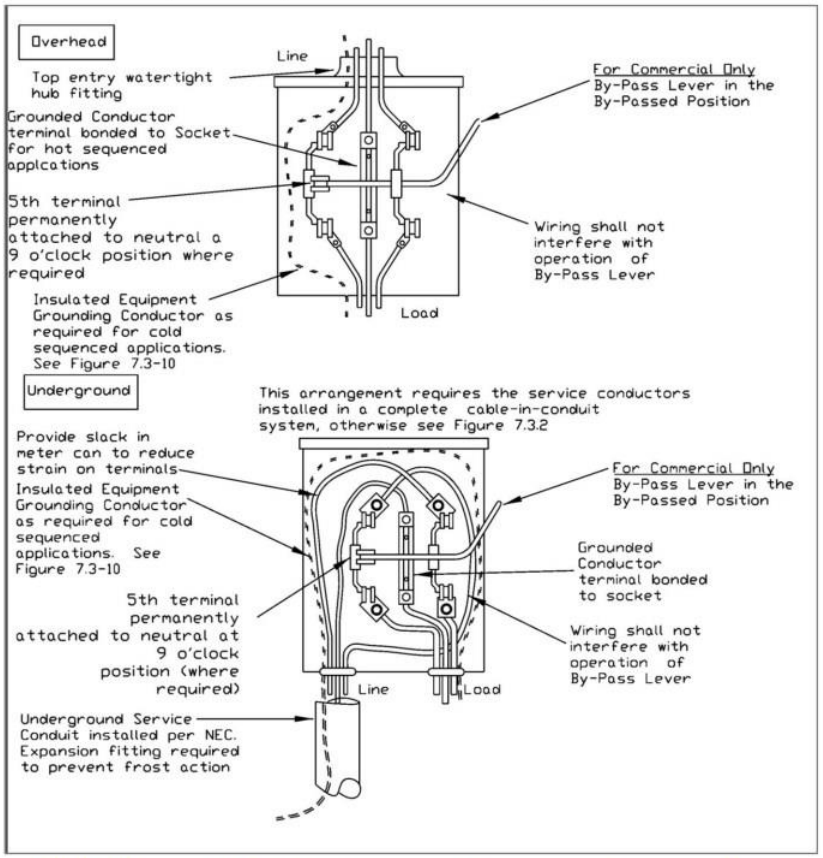
Correctly Installed & Labeled Meter Socket & Disconnect

Proper 5th Terminal Metering Setup

Correctly Installed 5th Terminal

National Grid / **Specifications for Electrical Installations** / 2022

Figure 7.3-1: Residential or Commercial Single-Phase Service 120/240V, 120/208V and 277/480V, 3-Wire, 100 or 200 A; 4 and 5 Terminal Meter Socket; Meter Form – 12S and 2S



See Tables 7.2-1 through 7.2-5 for further details on application, requirements, and responsibilities.

ESB 750 & 756 Service & Metering Requirements

The Following Sections Are Additional References for Service & Metering Requirements:

ESB 750 - Electrical System Bulletin - Specifications for Electrical Installations

4.0 Electrical Service Requirements
5.0 Service Equipment
7.0 Metering
7.2-1 Self-Contained & Transformer-Rated Meter Applications
11.3 Parallel Electric Power Production

ESB 756 - Electrical System Bulletin - Interconnecting Generation Facilities In Parallel

4.2 Access & Contacts
4.3 Design Requirements
4.4.3 Inverter Systems
4.4.4 Energy Storage Systems (ESS)
6.0 Service Installation
6.1 Service Equipment
6.2 Grounding
6.3 Metering
6.3.1 Metering Requirements In MA
6.3.3 General Parallel Generation Requirements for Company Metering
(A) Details of the installation requirements are covered in ESB 750 and its appropriate Supplement. For generator facilities connected to distribution systems, see also ESB 756 Appendices B, and C.
8.1 Manual Disconnect Switch
8.2 Disconnection by the Company (Isolation)

04

Simplified Review Process

Yesenia Rosa (Jessy)

nationalgrid

Simplified Criteria

- UL Listed (1741 SB), inverter-based systems with power ratings of **15kW** or less on a single-phase service on a radial feed
- UL Listed (1741 SB), inverter-based systems with power ratings of **25kW** or less on a three-phase service on a radial feed.
  - The Simplified process does not apply for:
    - Non-listed inverters or other generators (induction / synchronous / asynchronous)
    - Aggregate generation capacity of listed inverters that exceed the above-mentioned limits
    - Projects that do not pass the Simplified process screens

Interconnection Process Steps

- **Case is Submitted – Reviewed within 10 Business Days (currently leading at 3)**

https://gridforce.my.site.com/s/article/nCAP-Simple-Application-Process-Help & https://gridforce.my.site.com/s/ma-process

- **Conditional Approval is Granted**
  - If system changes size, account, customer information enter change review at this point
  - Do Not install an inverter that has not been approved by National Grid for installation, due to increase in saturation.

- **Completion Documents Submitted (DO NOT enter change review after submitting Completions Docs)**

  Reviewed within 10 business days

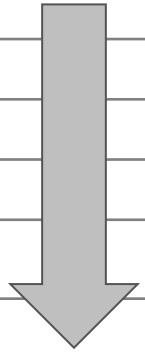
- **Meter Ordered**

  Installed within 10 days

- **Authority To Interconnect sent**

Simplified Review Path

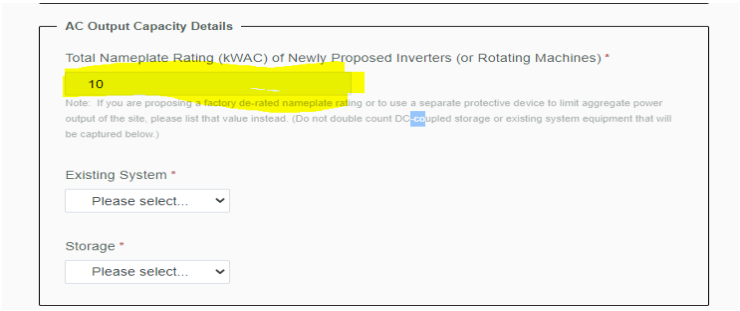
	Simplified Process
Eligible Facilities	Listed Small Inverter
Acknowledge Receipt of Application	3 Days
Review Application for Completeness	10 days
Complete Review of All Screens	15-30days
Install Meter	10 days
Complete Standard Process Initial Review	N/A
Send Follow-on Studies Cost/Agreement	N/A
Complete Impact Study (if needed)	N/A
Complete Detailed Study (if needed)	N/A
Send Executable Agreement (Note 4)	Done. The agreement is part of the application.
Total Maximum Days	25 days (30 in the case of failure of Screen #5)
Construction Schedule	Varied
Witness Test	Within 10 days from receipt of the Certificate of Completion or by mutual agreement



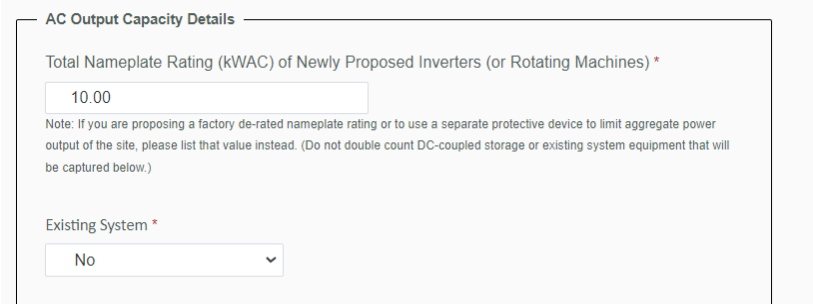
** If you choose E-sign the case stays in draft until the application is signed by the customer

Common Holds or Concerns

- Application
  - Enter KWAC size at triage correctly to ensure the case runs on the correct path – Simplified VS Expedited. Size entered here should include inverter and any AC Coupled storage to be installed
  - Example 1: 7.6 Inverter and 5.0 Tesla Storage = 12.6KW AC = Simplified Process
  - Example 2: 11.4 Inverter and 5.0 Tesla Storage = 16.4KW AC = Expedited Process
  - Example 3: 10.0 Inverter with 11.5 LG CHem Storage = 10.0KW AC = Simplified Path



  - If you receive an error the account number is invalid, this means the account number is not an active account number. Please reach out to the customer for an updated account number
  - If there is an existing system, please ensure at triage this information is entered



Common Holds or Concerns Cont'd

- There can only be 1 net metering system per parcel unless granted approval by the Department. If there is more than 1 and the total of both systems equal 10KW AC or less, they can both be net metered. If the total of both system equals over the 10KW AC threshold, one can be net meter and the other would-be Qualifying Facility.
- The application and case must match the customer's bill account: name, address, account number and meter number as it is on the bill
- Customer billing account should be up to date and all obligations met and/or cleared
- All AC coupled storage should be noted on the application in the same section as inverter
- Multiple Application Roles - Do not Enter multiple of the same application roles or Do Not edit the Developer and Application Owner roles- App roles consist of the following
- **1 Developer, 1 Application owner**, 1 Billing Customer, 1 system owner, and for MA Smart 1 Electrician
- Ensure hold reasons are being addressed before resubmitting your case.

After Conditional Approvall

- **If MA Smart Case** Complete the Service Upgrade Form so the work request can be created and provided to the wire inspector at/or before the inspection
- If system changes are proposed after the original approval, for example a change in account, meter, size or design a change review must be entered. No need to withdraw. Case and enter new one.

Common Holds or Concerns Cont'd

- After Conditional Approval
  - The initial application should be for the desired system size. Requests to increase system size after conditional approval will require a new transformer check and may result in withdrawal of your simplified case with a new application required under the Expedited process to determine system modifications.
- Completion Package
  - Have work order Inspection called in before submitting Completion Documents
  - Please ensure the MA Smart socket is wired correctly – Line on top to Utility meter and Load on Bottom to Inverter/Panels
  - Meter sockets are not allowed to be used as junction boxes
  - Equipment Adapters in meter sockets Not allowed - At no time should there be equipment adapters installed in a meter socket in which a National Grid meter will be set. This is allowed on a separate customer owned meter, however, the socket should be clearly labelled as such
  - If the case started as MA Smart, and then removed from MA Smart program, please enter a change review to update the documents and forms before submitting the completion package.
  - Expansions of interconnected MA Smart projects are not allowed per the MA Smart tariff.
- Meter Holds
  - UTC meter Hold - Wiring to different meter and account than one listed on case/approval, can cause a delay in ATI and meter setting
  - UTC Meter Hold – missing 5th terminal. All 3phase services must have 5th terminal meter sockets for both utility and MA Smart meters.
  - Ensure paths are clear to meter socket and any trees or bushes are cut around the meter

Change Reviews

Reasons for Change Review include

- System size/design changes
- Name changes
- Account becomes finalized
- Different meter to be tied to solar
- Adding MA Smart program
- Removing MA Smart program

Process For Change Review

- Developer Selects the change review/application button
- Developer Enter A Chatter advising Change Review is Enabled
- National Grid Opens Forms required for the change review
- Developer submits revised forms and update the assets and application roles if needed

Concerns after case is Interconnected

MA Smart Application is withdrawn or denied from CLEAResult or Removing MA Smart

National Grid, Installer and customer receive an email from CLEAResult advising MA Smart application was withdrawn or denied. When this is received National Grid takes the following actions:

1. ***We notify installer and customer of the letter received with options on next steps.***
2. ***Once parties respond we coordinate the removal of the MA Smart meter.***
3. ***Once meter is removed installer is responsible to ensure the socket is removed, converted to a customer owned socket with a customer owned meter supplied by installer/customer or jumped with a cover and lock. This will ensure the customers solar system continues to generate solar power.***

Solar Installed to Incorrect Meter/Unit/Apt or Moving Solar to another Unit/Apt

We are seeing an increase in solar systems being tied to a different meter/account than the one that was approved. Or installing to one meter but the customer wants the solar to another meter.

Process - Before Authority To Interconnect (ATI)

- Enter a change review

Process Moving to Another Account/Meter - After ATI

If moving solar to another account with different account holder, after interconnection is granted, a new case must be entered for the new account the solar will be moved to.

If the meter is on the same account as the current case, or the account holder is the same, we can update the current case to reflect the new account information.

Concerns after case is interconnected

- **Mixed Meters**
  - In some instances, we are finding the mixed meter.
  - If there is a situation where there is a mixed meter, please advise us as soon as possible.
  - Once issue is corrected, we fix the billing for the customer based on the generation report.

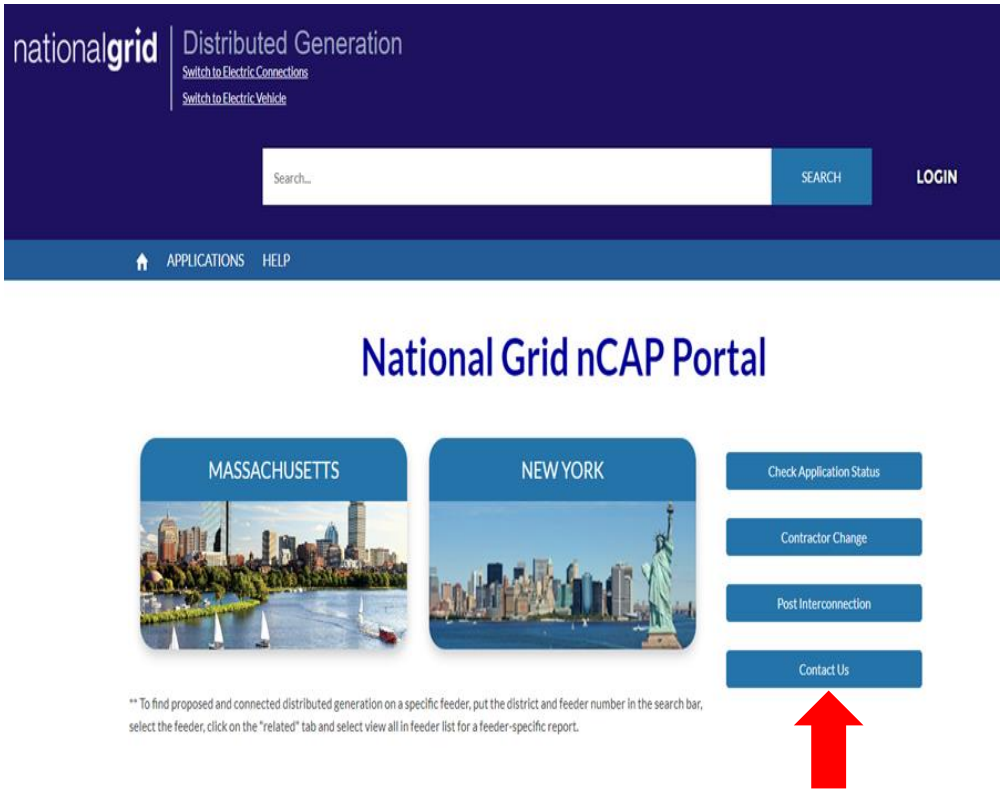
1. Check the Post Interconnection pages for information about your question/request

2. Click <Contact Us> to open a DG Inquiry form

3. Provide all available information (including attachments) & click "Submit"

4. Receive an email confirming submission

5. National Grid will process your request and/or answer your questions

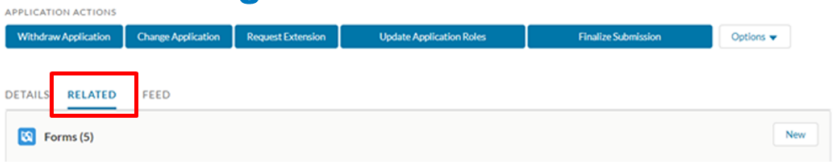


Work Order and Municipal Inspection

- ***In some instances, you will have 2 work orders***
- ***Please be sure both are cleared by the inspector.***
- ***All work order inspections are tied to the customers acct. When reviewing the Completion package, we verify this inspection is cleared for National Grid to be able to enter a meter order for the solar meter.***
- **Please ask inspector to call 1-800-375-7405 option 2 and speak to a live rep or email work.request@nationalgrid.com to clear work order 30641666 on bill account**
- ***If work order is not needed or upgrade was not completed, please call 1-800-375-7406 and ask the representative to void the work order and all its obligations for you to be able to have a net meter order issued.***

The service upgrade work request and municipal wire inspection status are now available in the portal

When viewing a case- Select the Related tab



Scroll down to Work orders

Common Questions and Concerns for Residential Storage

- **Both the solar and AC coupled storage are included in the system size when determining if a system will be simplified or expedited.**
  - Storage is not included in the size for net metering eligibility
  - For example, a 10kW single phase solar system with 7kW of AC storage would have to follow the Expedited process because it is over 15kW (17kW total for solar + AC storage), but would still be cap exempt for net metering (10kW solar)
- **In MA, storage with net metered solar that charges from the grid cannot export to the grid**
  - A note on the one line is required indicating if the system is charging from the grid and if the system is exporting to the grid.
- **If the system is participating in MA SMART, all generation must be captured by the SMART meter**
- **System should be installed so it does not back feed when the grid is down**
- **For Net metering install with DC Coupled Storage, Inverter cannot be De-rated**

Simplified Moved to Expedited

If during the infrastructure review it is determined the proposed system will exceed the recommended electrical capacity of the service transformer, there are two options:

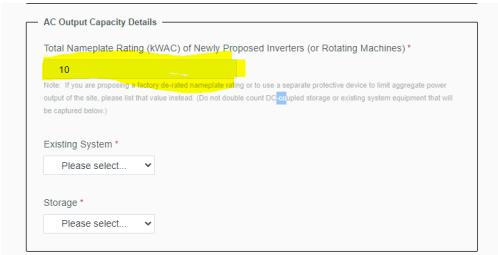
- **Reduce the system to the be within the capacity remaining on the transformer (if there is capacity remaining)**
- **Submit a new expedited application (with associated fee) under the expedited process**

The expedited process includes a more comprehensive technical review. The technical review may identify National Grid system modifications that are required to interconnect your system.

- The cost of any system modifications are the responsibility of the interconnecting customer
- System Modifications cost cannot be determined until the case is reviewed via the Expedited path

Process Reminders

- **When entering size at the triage part of submittal, only enter the KW AC Generator and if Applicable AC Storage size.**



- **For Simplified Cases we have created a list of contacts depending on the part of the process you are at and what the question pertains to**
  - How to Post Chatter Knowledge Page
  - Chatter Contact List
- **Enter change review if there has been a change to the case/application/applicant**
  i. **i.e., account number, Equipment changed, the meter number**
- **If enrolled in MA Smart - Do not forget process continues thru CLEAResult for the incentives**
- **All inspections on account must be cleared by the wiring inspector**
- **Billing Issues, Credit allocations, Connected Customer Aftercare – please enter a post interconnection inquiry**
- **Do Not Chatter MA representatives on RI cases and vice versa. These are separate entities and cannot assist in another jurisdiction.**
- **Please withdraw all cases that will not be moving forward as soon as possible**

Contacts

Simplified Process Lead Supervisor (residential/small commercial):

Yesenia Rosa (Jessy)

yesenia.rosa@nationalgrid.com

508-571-4098

To set up recurring meetings to go over questions and/or concerns with the application portal or specific cases please do not hesitate to reach out. I will be more than happy to set those up with each individual company.

For chatters on cases, please refer to the chatter guidance document found here - Chatter Guidance Document.

For faster response time please chatter a representative based on the case status and the representative within that part of the process.

05

Expedited Review Process

Mike Armell

nationalgrid

Expedited Criteria

- Single phase customers with listed single-phase inverter based systems with power ratings of **>15 kW** on a radial feed
- Three phase customers with listed three-phase inverter based systems with power ratings of **>25kW** on a radial feed
- Any project that did not pass the Simplified process Screens
- Non-Simplified projects that do not require an Impact Study
- Maximum size supplemental review is based on review of Screens
- Must be using M.D.P.U.1468 forms when submitting application and close out packages
- *****Reminder: The simplified section of this presentation can be reviewed for concerns and questions that would have the same impact on residential systems that fall in the Expedited Process**

Interconnection Process Steps

- Pre-Application (if 250 kW or greater)
- Application Review
  - Expedited
- Engineering Review
  - Supplemental Review
- Interconnection Service Agreement (to construct DG system)
- Company Construction
- Witness Test (where applicable)
- Completion Document Review and Meter Set
- Authorization to Interconnect

https://ngus.force.com/s/ma-process

Expedited Review Path

	Expedited
Eligible Facilities	Listed Inverter DG
Acknowledge Receipt of Application	(3 days)
Review Application for Completeness	10 days
Complete Review of All Screens	25 days
Complete Supplemental Review (if needed)	20 days or Standard Process
Send Executable Agreement	10 days
Total Maximum Days	45/65 days (if supplemental review required)
Construction Schedule	Varied
Notice/ Witness Test	Within 10 days of receiving Certificate of Completion or by mutual agreement

Common Errors in Application Packages

- Legal Information Document needs to be filled out completely with all required information. Please make sure you are using newest document - Version 2.2
- The One Line diagram is required to have a MA Professional Engineer (PE) Stamp
- Construction Notes required pertaining to the ESB
- If a battery is included in the project, ensure application reflects this equipment in both assets and on the stamped one-line
- Make sure storage charging/discharging capability is noted on the One Line
- One line should reflect any curtailment or limited export. A curtailment letter should also be provided in the application package.
- When case status is "Conditional Approval - Delivered - Pending Customer Decision", don't hit the "finalize submission" button unless you have uploaded the signed ISA.

Common Errors in Completion Documents

- For Expedited applications (60 kW and less), a "Commissioning Memo" on a company letterhead is provided in lieu of Witness Test.
- Commissioning test should consist of at least the following:
    1. Two (2) second shutdown when disconnect open test.
    2. Five (5) minutes before restart when disconnect is closed test.
    3. Confirm system matches As-built (include date of final approved as-built diagram)
    4. List the inverter relay frequency (Hz) and trip time settings.

Common Errors in Completion Documents

- As Built: Must be PE stamped (Electrical) and signed/ dated by person that performed the commissioning test. (Signature date should match date of test.)
- Pictures: Meter picture should show permanent plaque (visible at eye level) that includes a warning about generator installed.
- Pictures: Visibility to meter number.
- Pictures: If the AC utility disconnect switch is not grouped with and adjacent to the utility revenue meter, then a permanent plaque (visible at eye level) that clearly identifies the location of the AC utility disconnect is required.
- Inspection: please have electrician call in to clear all Work Request inspections.

Common Errors in Completion Documents

- Evidence of insurance is required for all projects > 60kW in MA (facilities that are between 10 kW - 100 kW but NOT Class I NM eligible do require insurance. See Tariff 11.1 (a) (iv) and (b)). Refer to the ISA and Interconnection Tariff for insurance requirements.
- Qualifying Facility documents.
  - Schedule A (P-Rate) required for all QF projects.
  - W9 (Only for projects >60kW)
  - ACH (Only for projects >60kW)
  - Supplier Enrollment Form (Only for projects >60kW)
  - Asset Registration (Only for projects >60kW)

Metering Reminder

- No equipment (adapters) between the meter and the socket or in a meter socket
- Meter sockets are not allowed to be used as junction boxes
- Make sure test meter is removed from Generation meter socket
- Projects greater than 60kW in MA require interval metering (Wireless or phone line).
- Company needs a 4G wireless signal test on a Verizon network in order to provide wireless metering.
- Phone lines must be dedicated and terminated at the meter location. Line must be 100% copper. Fiber lines will not communicate properly.
- Interval meters are long lead time items and prep time can be 10-12 weeks, so it is important to work through this with your job owner well in advance of when you intend to seek Authority to Interconnect.
- There must be a clear path to your meter location. In the winter the path needs to be shoveled.

06

Preliminary Screening

Ashwin Iyer

nationalgrid

Preliminary Screening

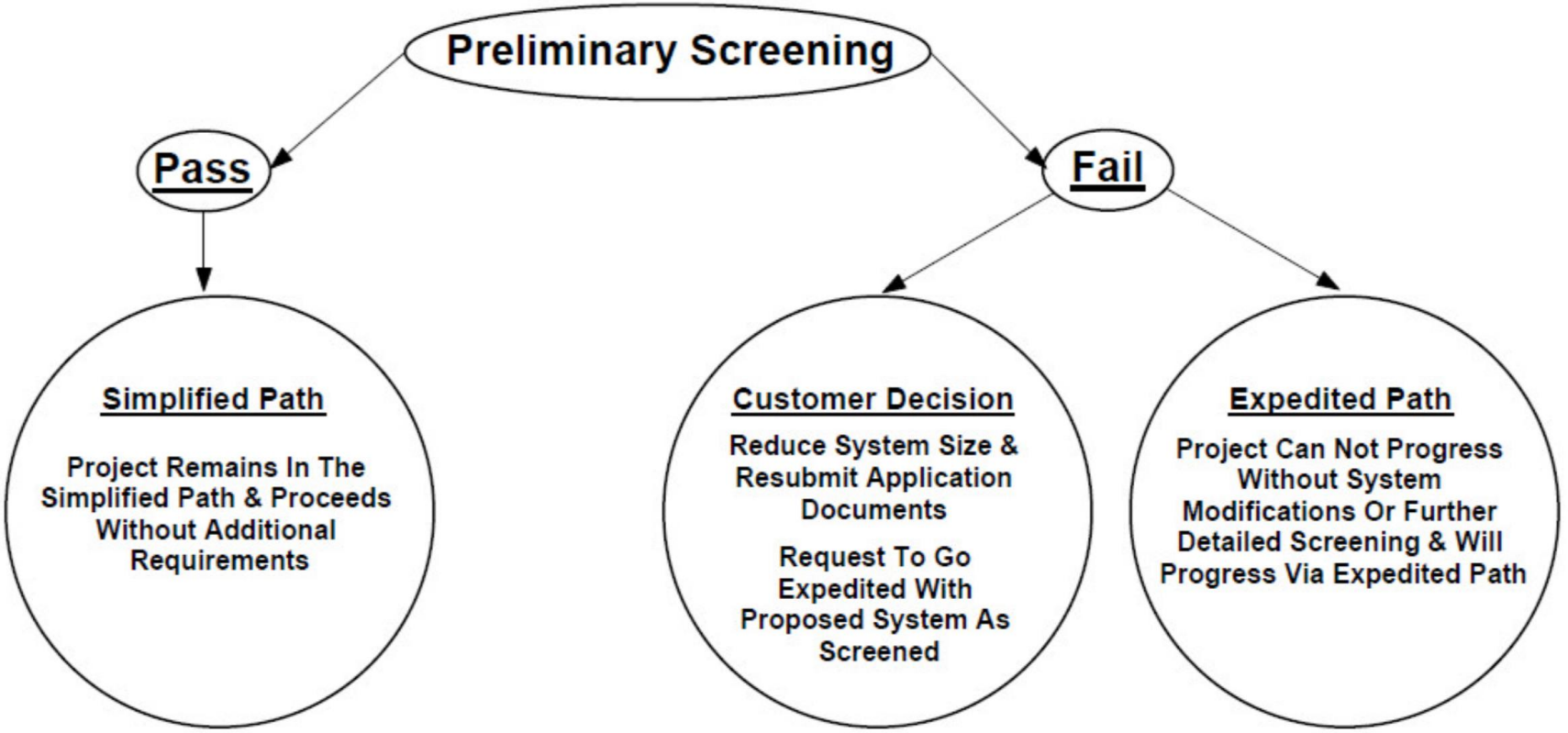
Once an application is submitted for all projects, several technical reviews need to be performed. These reviews (screenings) help maintain the safety and reliability of our distribution system for all our stakeholders, as well as abide by all DPU mandated tariff requirements.

- Transformer Check (T-Check) – Check the existing loading on the transformer that feeds the service for the proposed project address
- Secondary Crib Check (PV Check) – Ensure that any proposed interconnections will not exceed 25 kVA on any shared secondary and will not create over voltage or nuisance tripping.

This screen includes a review of the type of electrical service provided to the Interconnecting Customer, including line configuration and the transformer connection to limit the potential for creating over voltages on the Company EPS due to a loss of ground during the operating time of any anti-islanding function. M.D.P.U. No. 1468. Section 3.10, Figure 1, Note 6.

Preliminary Screening

Once these preliminary screenings are completed, the proposed projects can remain in the Simplified path or will be required to progress through the Expedited path.



Preliminary Screening

- Expedited projects will undergo a detailed Screening review where the need for potential System Modifications or Supplemental Review will be identified.

- Once your project's path has been determined, any submitted documents that were submitted will be reviewed by the assigned Simplified or Expedited Case Owner

- Application Review checklist is depicted on the next couple of slides for any required documents for the simplified and expedited application review processes:

Simplified & Expedited Application Checklist

Document Requirements	MDPU 1468 ESB 750 & ESB 756	Simplified ≤ 15 kWAC 1PH ≤ 25 kWAC 3PH	Expedited ≤ 50 kWAC 1PH ≤ 250 kWAC 3PH
Online Portal Application Submission			
Application Fee	MPDU 1468 (Sheet 63 of 170) Table 6 - Fee Schedules	Required	Required
Total AC Rating and value for the Assets match		Required	Required
Technical Details Section (Location,Capacity,Configuration)			
If the project includes AC or DC coupled storage has the Total Energy Storage Energy AC (kWh) been populated with the correct value?		Required	Required
Application Form			
Signature & Date		Required	Required
Total Aggregate System Size in kWAC		Required	Required
Account Number associated with proposed project			
Address of Facility must match what is depicted on the one-line diagram and the site plan		Required	Required
Generating & Storage unit type information must be clearly shown, showing all relevant AC ratings that match information shown on specification sheets, one line and site plan. For Rotating Machines or CHP's (Combined Heat & Power Systems) The Fuel Type must be included		Required	Required
Service Work Request Number needs to be obtained for potential system modifications and filled out on the application form		N/A	Required
One-Line Diagrams			
Electrical P.E. Stamp and stamp date	MPDU 1468 Exhibit C ESB750 1.7.2.1 & ESB 756 5.2.2-2	N/A	Required
Address must match the portal, site plan and the application		Required	Required
Aggregate AC kW/kVA Nameplate Rating of Generators must be shown	MA DPU 1468 3.1 ESB 756 C - 5.1.7	Required	Required
Generator Type, Manufacturer, Model Number(s) must be shown including any AC or DC coupled ESS system. Any de-rating or curtailment notes as well as ESS charging and discharging notes must be clearly labeled on the one line diagram.	MA DPU 1468 3.1 ESB 756 C - 5.1.7	Required	Required
Make Sure Service Entrance Equipment Is Rated & Shown	MA DPU 1468 3.1 ESB 756 C - 5.1.7	Required	Required
The Point of Common Coupling (PCC) line of demarcation (Customer vs. Utility ownership of equipment)	MA DPU 1468 3.1 ESB 756 C - 5.1.7	Required	Required
Interrupting Device (recloser, breaker, fuse, etc.) shall be shown, including make, model, voltage and current rating	ESB 756 C - 5.1.7	Required	Required
Main Service Breaker or Fused Disconnect (if behind customer load) should be shown	ESB 756 C - 5.1.7	Required	Required
Customer-owned Manual Generator Disconnecting Means is required to be shown and must include the Voltage/Current/Make/Model. The Following Note Must Be On All One Lines: *Any Metering and Disconnects will need to be grouped, located outside and 24/7 lockable and accessible, in accordance with ESB 7.1.1. * *All equipment locations will need to be approved by National Grid prior to installation *	ESB 756 C - 7.4 ESB 756 C - 5.1.7 ESB 750 - 7.1.1	Required	Required
Utility Revenue Meter should be shown	ESB 756 C - 7.2 ESB 756 C - 5.1.7	Required	Required
Utility Disconnecting Means should be shown	ESB 756 C - 5.1.7	Required	Required
Any Curtailed or De-Rated systems will need to be depicted with the proposed method. Total System Size & Curtailed/De-rated Sized need to be shown and noted on line diagram.		Required	Required
Internal DG Protective Device Settings (Inverter ride through settings - IEEE 1547 - UL 1741 SB)	ESB 756 - 7.6.11.1-2	Required	Required
Rotating Machines: Nameplate rating of the generator (as opposed to the nameplate rating of generator-set) should be shown including generator reactance, impedance, poles & RPM's.	ESB 756 C - 5.1.3 ESB 756 C - 7.0	Required	Required
Site Plans			
Does the site address match the portal and the application? Is it in NG footprint?	ESB 756 C 5.1.4	Required	Required
Are the property lines shown? Any easement issues-ROW, Rail track, waterway, pvt land etc.	ESB 756 C 5.1.4	Required	Required
Cardinal direction 'north' shown	ESB 756 C 5.1.4	Required	Required
Site plan to scale with scale bar	ESB 756 C 5.1.4	Required	Required
Are all streets near the project site shown and labeled?	ESB 756 C 5.1.4	Required	Required
All meters (utility- and customer-owned) shown	ESB 756 C 5.1.4	Required	Required
Interfacing Transformer(s)	ESB 756 C 5.1.4	Required	Required
Interrupting Device(s)	ESB 756 C 5.1.4	Required	Required
Isolation device(s) (e.g. generator disconnect) (24/7 accessible, lockable)	ESB 756 C 5.1.4	Required	Required
Point of Common Coupling (PCC)	ESB 756 C 5.1.4	Required	Required
Company pole number nearest to the proposed PCC	ESB 756 C 5.1.4	Required	Required
Restricted access, fences, gates, and access controls	ESB 756 C 5.1.4	Required	Required
Generator location	ESB 756 C 5.1.4	Required	Required
Existing services	ESB 756 C 5.1.4	Required	Required
Any Metering and Disconnects will need to be grouped, located outside and 24/7 lockable and accessible, in accordance with ESB 7.1.1. All equipment locations will need to be approved by National Grid prior to installation. * Note should be shown on Site Plan and One Line *	ESB 750 - 7.1.1	Required	Required
Existing and proposed access road(s) including, at a minimum, road material, and dimensions at least 20' to confirm Company personnel and equipment access requirements are met (The access road must be adjacent to company equipment, equipment for new service must be located on private property (e.g. cannot have recloser/load break/meter along a street))	ESB 756 C 5.1.4	Required	Required
Battery Energy Storage System (BESS)			
Has the customer included any ESS assests in the portal that match all submitted documents ?		Required	Required
Does the AC/DC Coupling match the proposed system configruration ?		Required	Required
Does the AC Coupled Storage match the aggregate total system size in the portal and on all of the submitted documents ?		Required	Required

Simplified & Expedited Application Checklist

Utility Disconnecting Means should be shown	ESB 756 C - 5.1.7	Required	Required
Any Curtailed or De-Rated systems will need to be depicted with the proposed method. Total System Size & Curtailed/De-rated Sized need to be shown and noted on line diagram.		Required	Required
Internal DG Protective Device Settings (Inverter ride through settings - IEEE 1547 - UL 1741 SB)	ESB 756 - 7.6.11.1-2	Required	Required
Rotating Machines: Nameplate rating of the generator (as opposed to the nameplate rating of generator-set) should be shown including generator reactance, impedance, poles & RPM's.	ESB 756 C - 5.1.3 ESB 756 C - 7.0	Required	Required
Site Plans			
Does the site address match the portal and the application? Is it in NG footprint?	ESB 756 C 5.1.4	Required	Required
Are the property lines shown? Any easement issues-ROW, Rail track, waterway, pvt land etc.	ESB 756 C 5.1.4	Required	Required
Cardinal direction 'north' shown	ESB 756 C 5.1.4	Required	Required
Site plan to scale with scale bar	ESB 756 C 5.1.4	Required	Required
Are all streets near the project site shown and labeled?	ESB 756 C 5.1.4	Required	Required
All meters (utility- and customer-owned) shown	ESB 756 C 5.1.4	Required	Required
Interfacing Transformer(s)	ESB 756 C 5.1.4	Required	Required
Interrupting Device(s)	ESB 756 C 5.1.4	Required	Required
Isolation device(s) (e.g. generator disconnect) (24/7 accessible, lockable)	ESB 756 C 5.1.4	Required	Required
Point of Common Coupling (PCC)	ESB 756 C 5.1.4	Required	Required
Company pole number nearest to the proposed PCC	ESB 756 C 5.1.4	Required	Required
Restricted access, fences, gates, and access controls	ESB 756 C 5.1.4	Required	Required
Generator location	ESB 756 C 5.1.4	Required	Required
Existing services	ESB 756 C 5.1.4	Required	Required
Any Metering and Disconnects will need to be grouped, located outside and 24/7 lockable and accessible, in accordance with ESB 7.1.1. All equipment locations will need to be approved by National Grid prior to installation. * Note should be shown on Site Plan and One Line *	ESB 750 - 7.1.1	Required	Required
Existing and proposed access road(s) including, at a minimum, road material, and dimensions at least 20' to confirm Company personnel and equipment access requirements are met (The access road must be adjacent to company equipment, equipment for new service must be located on private property (e.g. cannot have recloser/load break/meter along a street))	ESB 756 C 5.1.4	Required	Required
Battery Energy Storage System (BESS)			
Has the customer included any ESS assests in the portal that match all submitted documents ?		Required	Required
Does the AC/DC Coupling match the proposed system confirguration ?		Required	Required
Does the AC Coupled Storage match the aggregate total system size in the portal and on all of the submitted documents ?		Required	Required
Provide all specifications and cut sheet documents for any proposed energy storage.		Required	Required
Documentation			
Technical Specification for all Inverters, Generating & Storage Equipment	ESB 756 C 5.1.1.2	Required	Required
Relevant Certificate of Compliance, mostly for inverters, to ensure equipment is UL 1741 SB certified. Required when utillizing Power Control System as a De-rating or Curtailment Method.		Required	Required
Legal Information Document Rev 2.2 (12/05/2022)		N/A	Required
Curtailment or De-Rating Letter if applicable needs to be provided and is required to be on Manufacturer letterhead. Required for any system that where the Inverter, Generator or Storage Equipment is sized larger than the designed output or the system size is larger then the proposed export size.	ESB 756 C 7.0	Required	Required

07

Expedited Screening & Supplemental Review

Brian Fitzgerald

nationalgrid

Expedited Screenings

Once an application is deemed to require any type of system modifications, supplemental review or exceeds the simplified tariff thresholds (15kWAC 1PH or 25kW 3PH – M.D.P.U. No. 1468, Section 3.0), the proposed project will progress via the Expedited Path.

During the Expedited review path, we perform additional screenings and document reviews to determine the most feasible and least cost to serve options. Expedited Reviews Include:

- Additional document review for newly required documents
- Proposed system configuration review
- Distribution system review
- Proposed system modification review
- System modification estimation

Potential System Modifications

When determining system modifications, screening looks at the least cost to serve option. This option implements whatever the minimum system modifications could be while safely and reliably allowing interconnections to our distribution system

Potential system modifications could be:

- Secondary Service Drop Replacement
- Secondary Conductor Reconfiguration or Replacement (Overhead or Underground)
- Transformer Replacement (Overhead or Pad Mounted)
- Transformer Installation (Overhead or Pad Mounted)
- Pole & Anchor Replacements/Installations
- Primary Line Extensions (Typically Require Supplemental Review)

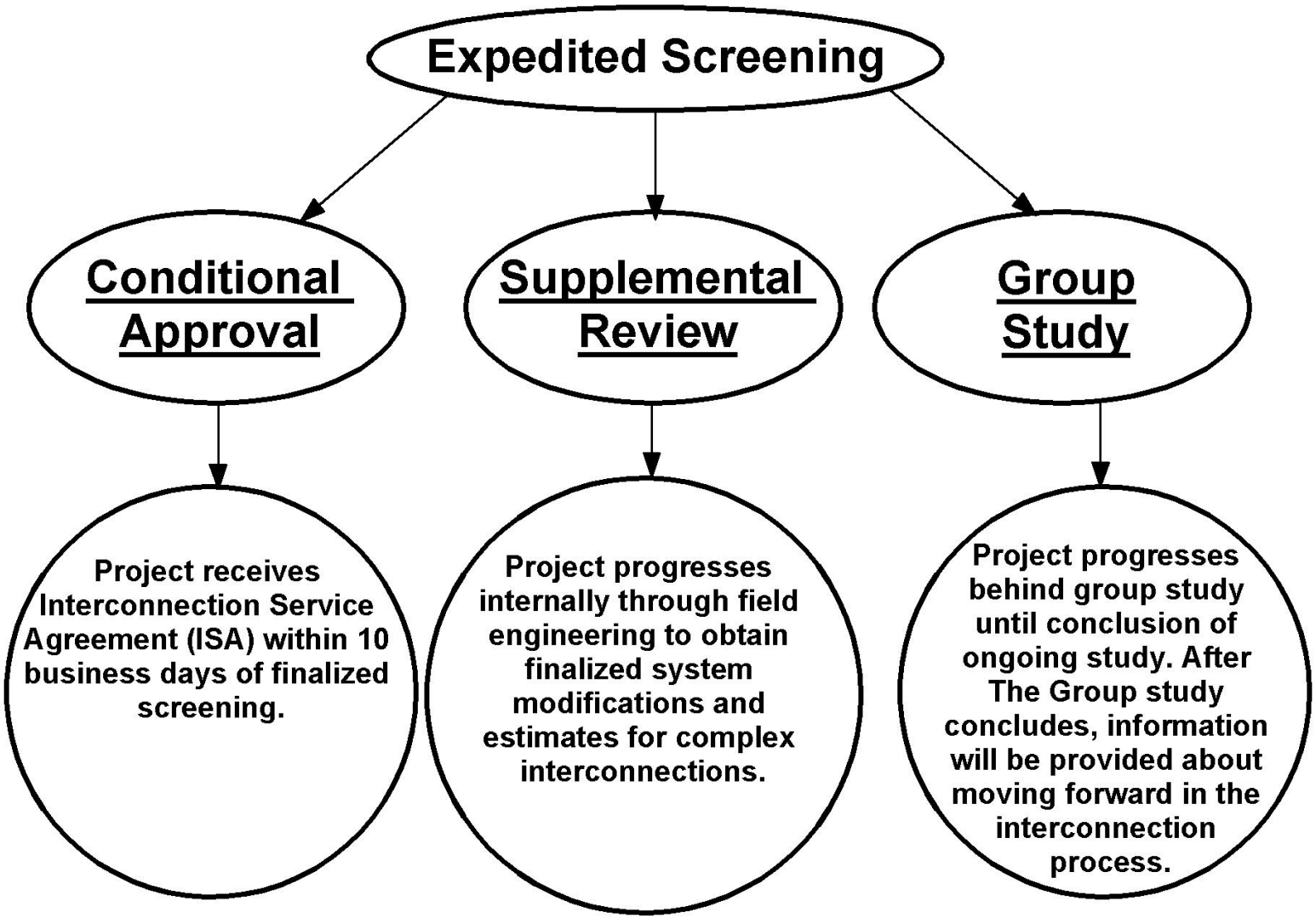
Supplemental Review

- If system modifications or upgrade estimates cannot be determined during the screening process, this is when the project requires to be sent to Supplemental Review.
- Supplemental Review per M.D.P.U. No. 1468, Section 1.2 (Definitions) is defined as follows: “additional engineering study to evaluate the potential impact of the Facility on the Company EPS so as to determine any requirements for processing the application through the Expedited Process.”
- We finalize the screening with all necessary project notes and distribution system notes for our field engineering team to confirm and determine required system modifications and estimates.
- Supplemental reviews are progressed internally with the service work request number that is associated with the DG Case Number.
- Several situations for supplemental review progression could be the additional review of a challenging/complex area, review of any underground areas or areas that require an onsite visit by our field engineering team or projects that require complex system modifications with costly estimates.

Expedited Screenings

- Once the Expedited Screening is finalized, the proposed projects are issued conditional approval or progressed to supplemental review.
- If Conditionally approved, your case owner will send out an ISA within 10 business days of the completed screening. The ISA will have any potential system modifications and estimated costs to proceed with interconnection.
- If the project progresses via Supplemental Review the case owner will reach out and inform the customer/developer that the project will need additional engineering review. Once the customer is notified and pays the required fee, the project will be progressed to commence the Supplemental Review.
- If the proposed project is in a Group Study area and exceeds 50 kWAC, the project will need to be placed on hold behind the ongoing Group Study.

Expedited Screenings



Commonly Missed Items Leading To Application & Screening Review Holds

- Document Discrepancies
- Incorrect Billing Account Number
- Missing Service Work Request Number

Line Diagram Omissions:

- Inverter & interrupting device nameplate rating, relay settings, make, model, voltage and current rating
- Missing Electrical Engineering PE Stamp that is signed, dated & not obscuring stamp
- Aggregate AC KW/KVA Ratings of entire proposed system
- De-Rating/Curtailment Method & Associated Notes

- UL Certificates 1741 SB
- Letter On Manufacturer's Letterhead For De-Rating or Curtailing

•Site Plan Omissions:

- Point of Common Coupling (PCC)
- Company pole number nearest to the proposed PCC

System Review Guidelines

ESB 756 & ESB 750

•If proposing a new Stand-Alone System that is interconnecting to an existing pad mounted transformer, Please Note: Customer acknowledges that they have checked to verify there's enough spacing on the secondary of the company transformer(s) for the DG interconnection. The customer understands and accepts that they are liable for any issue arising from including but not limited to insufficient space. This includes but is not limited to increased costs, need to restudy, need to perform a detailed study and/or potential risk to viability of the project.

•All MA SMART Systems require generation and in some instances storage charge and discharge to be captured ahead of any loads.

•All Expedited cases that need further study will need all the documentation required for Standard Projects.

•All Final metering locations will be determined by the metering department and will be based upon existing service configuration.

•Work should not begin until the metering department has approved final disconnect and meter locations on site with the electrician.

08

De-Rating & Curtailment

Anish Ganta

nationalgrid

De-Rating

De-Rating: The act of reducing or limiting the nameplate rating of a piece of equipment to operate at a level below its intended rating.

The term De-Rating is used commonly with Curtailing. While they are very similar, this presentation is about noting how National Grid interprets the differences and how the Company utilizes them when discussing the Company's systems. De-Rating is done by the manufacturer on the Inverter(s) or Generators of a system which changes how much that piece of equipment can produce. Unlike curtailing, this changes the output of that piece of equipment.

Inverters or Generators Can Be De-Rated. Systems are typically Curtailed.

Note: DPU/Cadmus no longer allows de-rating to be eligible for net metering.

ESB 756 – 7.0. The Company reserves the right to review and approve the ratings and parameters of major electrical equipment supplied by the Generator-Owner or Interconnecting Customer (IC), such as, but not limited to: GSU transformers, interrupting devices, relays, and the generator facility with its associated systems. For the purposes of this ESB Appendix A, any reference to generator ratings herein refers to the nameplate rating of the generator facility.

• For inverter-based generation, this shall refer to the nameplate rating of the inverter(s). De-rating of inverter-based generators shall only be considered if the equipment is provided by the Generator-Owner's or IC's manufacturer with a permanent means of reducing the rated output, and so marked with an equipment nameplate stating the derated output.

Equipment nameplates shall meet American National Standards Institute (ANSI) standards. De-rating of generator facility equipment shall be evaluated on a case-by case basis, with consideration given to specific project conditions, and may be accepted at the sole discretion of the Company.

Curtailment

Curtailment: The act of reducing or restricting something

We utilize the term curtailment, specifically when we discuss limiting system export. This does not affect the system size, unlike De-Rating. Curtailing a system is done through software and controls in a piece of equipment that has a UL 1741SB Certification. Our current practice is to allow projects with a total system size of 25kWAC or less to utilize curtailment to avoid system modifications and avoid ongoing Group Studies for R1 & R2 Residential Rate customers only.

ESB 756 - 7.6.13 Import/Export Control

The customer's facility may be designed to limit export and/or import at the PCC or the PoC. Facilities that qualify for the Simplified Application process may utilize a UL 1741-Power Control System (PCS) Certificate Requirement Decision (CRD) certified Power Control System, with an Open Loop Response Time of 2.0 seconds or less. A UL 1741-PCS certification letter, complying with the latest edition of the CRD, must be supplied with the application.

Required Documentation

When De-Rating or Curtailing a system National Grid requires several items:

- A De-Rating Or Curtailment Letter is required on the manufacturer's letterhead with the make, model number, voltage, current, original equipment nameplate rating and de-rated/curtailed rating of the inverter/equipment. The letter needs to include the site address, case number and the method of de-rating/curtailment and match all site plan and one line information. All letters need to note that inverter or equipment output can only be adjusted by the manufacturer.
- The One-Line diagram needs to reflect all the above information near the proposed inverter/storage equipment and have clear and concise notes depicting original system or equipment size, the de-rated/curtailed system or equipment sizes and the method of de-rating/curtailment.
- All Assets entered in the portal to match what’s on the submitted documents including any smart hub or gateway that will be utilized containing the power control system.

Site Limiting Protective Function

National Grid requires all of the information to show up correctly and accurately that's reflected on all of the submitted documents. When utilizing a PCS National Grid needs to add the piece of equipment (Tesla Gateway, Generac PWRcell, EnPhase Gateway, Etc.) as a site limiting protection function in the assets in the portal.

In National Grid's NCAP Portal under the storage assistance page we have this step by step:

NCAP Assitance Page

This will show you how to create the protective function.

Below is an example of how this will look in the portal:

A system is proposing 15kWAC of PV & 10kWAC of Storage for a total of a 25kWAC. There is a Smart Hub or Gateway that will act as the PCS Device, that will limit the Export of the system to 15kWAC. You will have 3 – 5kW Inverters and 2 – 5kW Batteries in the assets. You will then add one more asset (Smart Hub/Gateway), which is the Site Limiting Protective Function with an export of 15kWAC. This will allow the portal to show a 25kWAC Generator Nameplate with a 15kWAC System Export.

How To Propose A Site Limiting Element Function

How to propose a Site Limiting Element Protective Function

Note: These instructions are intended solely for use by applicants that are proposing a "site limiting element" of their overall protection scheme, specifically intended to limit the Export Capacity[1] of your equipment at the PCC to a value that is less than the aggregate Nameplate Rating of all AC-Coupled storage and generation equipment. For more general information, please visit the Storage Assistance.

Before you review these instructions, please make sure you are familiar with the general instructions about How to Search our Catalog in the Equipment Selector and How to Submit Assets in the Equipment Selector.

1. Navigate to the Equipment Selector (see How to Search our Catalog in the Equipment Selector for details).
2. Add your AC-Coupled generation and storage equipment (see Storage Assistance page for more details).
3. Click the "Add Protective Function Product"

   a. On the "New Asset Details" pop-up window for your protective function equipment, you should notice that the Setpoint Function Status field is pre-populated as "Proposed" (this will be changed later after National Grid reviews your proposal) and by default the "Constant Operation Schedule" is pre-populated as "Yes" (this must remain "Yes" in order to propose a limited Export Capacity). Otherwise, the remainder of the form will be blank (see example on next page).

   b. The fields marked with a red bar on the left are required in order to save the asset record. However, all of the fields on the form should be populated with the information from your manufacturer's technical specifications (for fixed values) and/or the site-specific settings that you are proposing for National Grid's review.[2] Any fields that are left blank may result in delays later in the process.

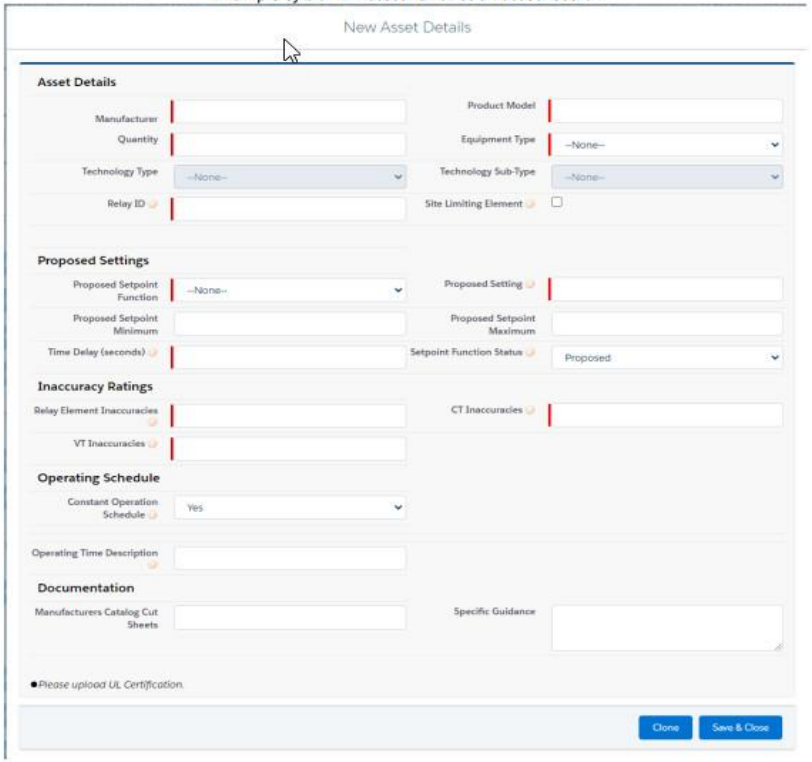
Example of required field:

[1] Customers are not required to propose a protection scheme that limits the overall power output of the site below the aggregate nameplate rating, but under certain circumstances, limiting your "Export Capacity" (also known as "Total Constrained Output") may allow National Grid to interconnect your application with fewer or less costly system modifications to the utility grid. However, customers with limited (or even zero) Export Capacity can still adversely impact the protection equipment on the utility grid, so a limited Export Capacity scheme does not eliminate the need for engineering review and/or study.

[2] The equipment information and proposed settings should match the information that is submitted on the line diagram. Customers should consult with their own engineering resources before submitting their application. Also, any non-required fields that are left blank will need to be reviewed by National Grid's engineers under "worst case scenario" methodology, so please provide any data that is relevant to your project on the Asset records.

How to propose a Site Limiting Element Protective Function

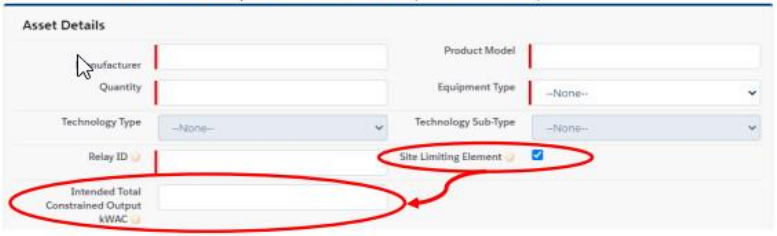
Example of blank Protective Function asset record



How To Propose A Site Limiting Element Function

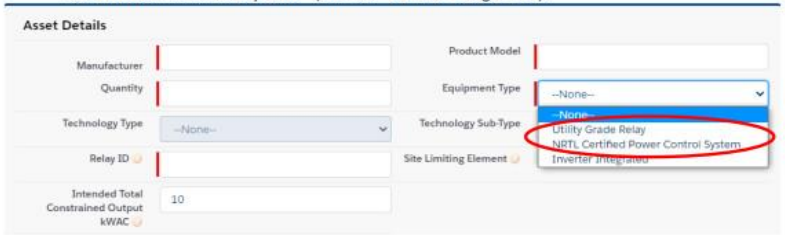
4. In addition to generally making sure that all required/proposed fields are populated, the following steps are required in order for your application case to be considered as a limited Export Capacity.[3]

   a. Check the box next to "Site Limiting Element", which should make the "Intended Total Constrained Output kWAC" field visible (as shown below).



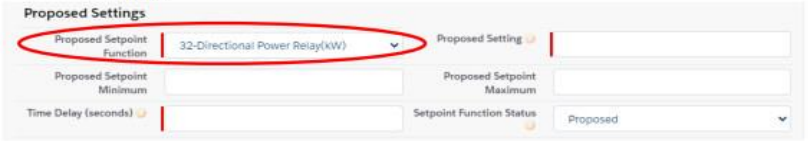
   b. Enter the maximum kWAC value that your proposed protection scheme will allow the generation and storage equipment to potentially export to the grid. (This should be less than the aggregate Nameplate Rating of your proposed generation and storage equipment.)

   c. Ensure that the "Equipment Type" is set to either "Utility Grade Relay" or "NRTL Certified Power Control System"[4] (and not "Inverter Integrated").

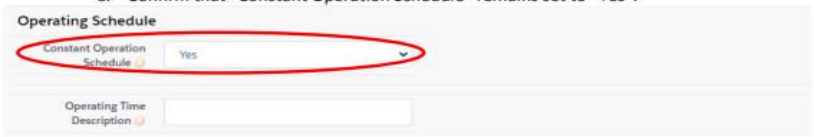


[3] Failure to follow these steps will prevent our automation from correctly calculating your "Total Constrained Output kWAC" for your application case. If filling out this form in the manner described will not accurately reflect the your proposed protective scheme, please contact your Case Owner before submitting your application.
[4] If you are proposing a NRTL Certified Power Control System, you are required to also upload a copy of the NRTL certification documentation (along with the other manufacturer's information).

   d. Select the value "32-Directional Power Relay(kW)" on the "Proposed Setpoint Function" field.



   e. Confirm that "Constant Operation Schedule" remains set to "Yes".[5]



5. Confirm that all of the information on the form is complete and accurate. Then, click the "Save & Close" button at the bottom of the pop-up window.

6. Make sure to "Submit" any newly added or modified asset records before closing the Equipment Selector (see and How to Submit Assets in the Equipment Selector for details).

Please visit the Storage Assistance page for additional information about submitting storage equipment.

[5] If you are proposing a variable Operating Schedule (in addition to proposing a Site Limiting Element for the purposes of limiting the Export Capacity at the PCC), then the site limiting element should identify the maximum kWAC power output across the PCC during all times. Information about the variable Operating Schedule should be added as separate Protective Function asset records that identify the variable Export Capacity values throughout the year (that are less than or equal to the site limiting element).

09

Portal Support

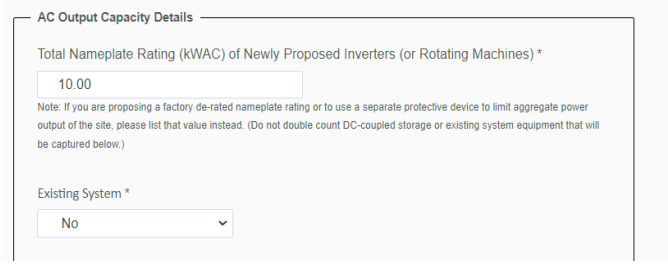
Marisa Sereti

How to Submit a Case

nationalgrid

Application Portal Do's and Don'ts

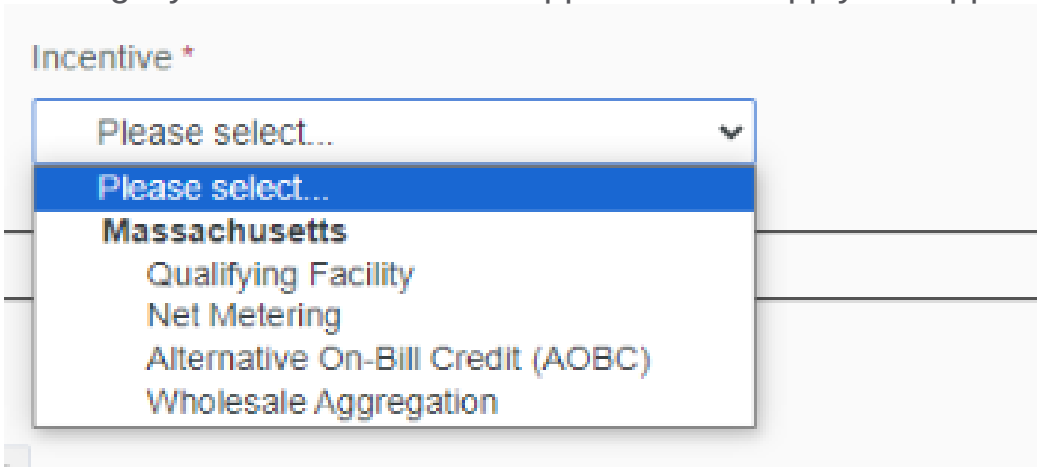
- **Do not** edit the Developer Role once it is pre-populated
- **Do not** edit the Applicaiton Owner Role once it is pre-populated
- **Always** enter an Inverter (AC Power Producing) asset
- **Always** indicate if there is an existing system at triage when it asks the question "Existing System, with drop down yes or no"



- **All** Line Diagrams should contain this note: **INSTALLATIONS CAN NOT INCLUDE ANY KIND OF TAPS, METER COLLARS OR ADAPTERS INSIDE NATIONAL GRID OWNED AND MAINTAINED EQUIPMENT, METER SOCKETS, METER CABINETS OR ANYWHERE THERE ARE UN-METERED CONDUCTORS. ANY NEW METERING AND DISCONNECT EQUIPMENT WILL NEED TO BE GROUPED, POTENTIALLY LOCATED OUTSIDE AND 24/7 LOCKABLE AND ACCESSIBLE, IN ACCORDANCE WITH ESB 7.1.1. ALL EQUIPMENT LOCATIONS WILL NEED TO BE APPROVED BY NATIONAL GRID METERING DEPARTMENT PRIOR TO INSTALLATION.**
- Please sign up for electronic payments so that all payments are made electronically, this allows the payment to process quicker than it would take for a check to be received via USPS. https://gridforce.my.site.com/s/article/PaymentUS-Payment-Portal-Help-Page

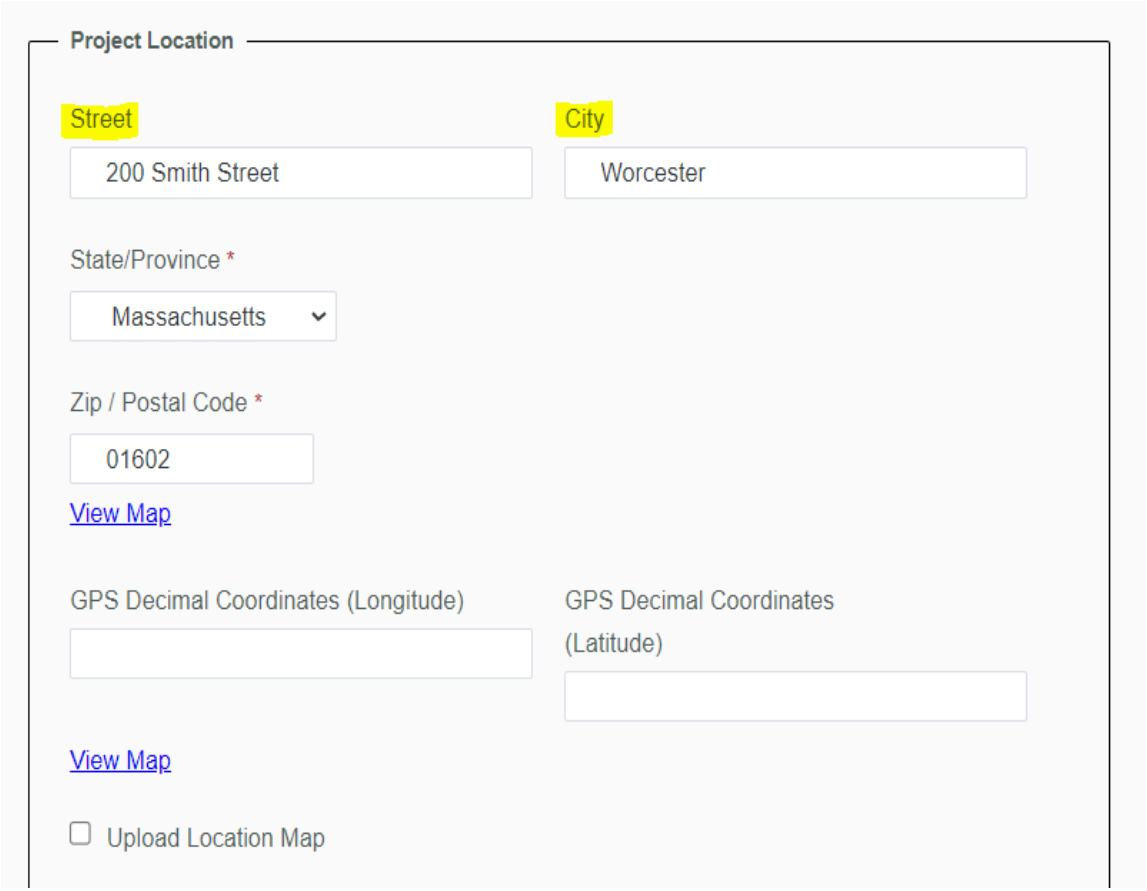
Application Portal Do's and Don'ts

- When it comes to entering your incentive, please ensure you are selecting the correct incentive. For all cases that are 10 kW single phase and below you are able to participate in **Net Metering**. For all cases that are over the 10 kW single phase threshold you will select **Qualifying Facility**. Once case is submitted the QF incentive can be changed to net metering if you receive Cadmus Approval and supply the approval document on the case



  - For **Net Metering** Projects you will be required to fill out a **Schedule Z** form. For **Qualifying Facility** Projects these will require a **Schedule A** form.

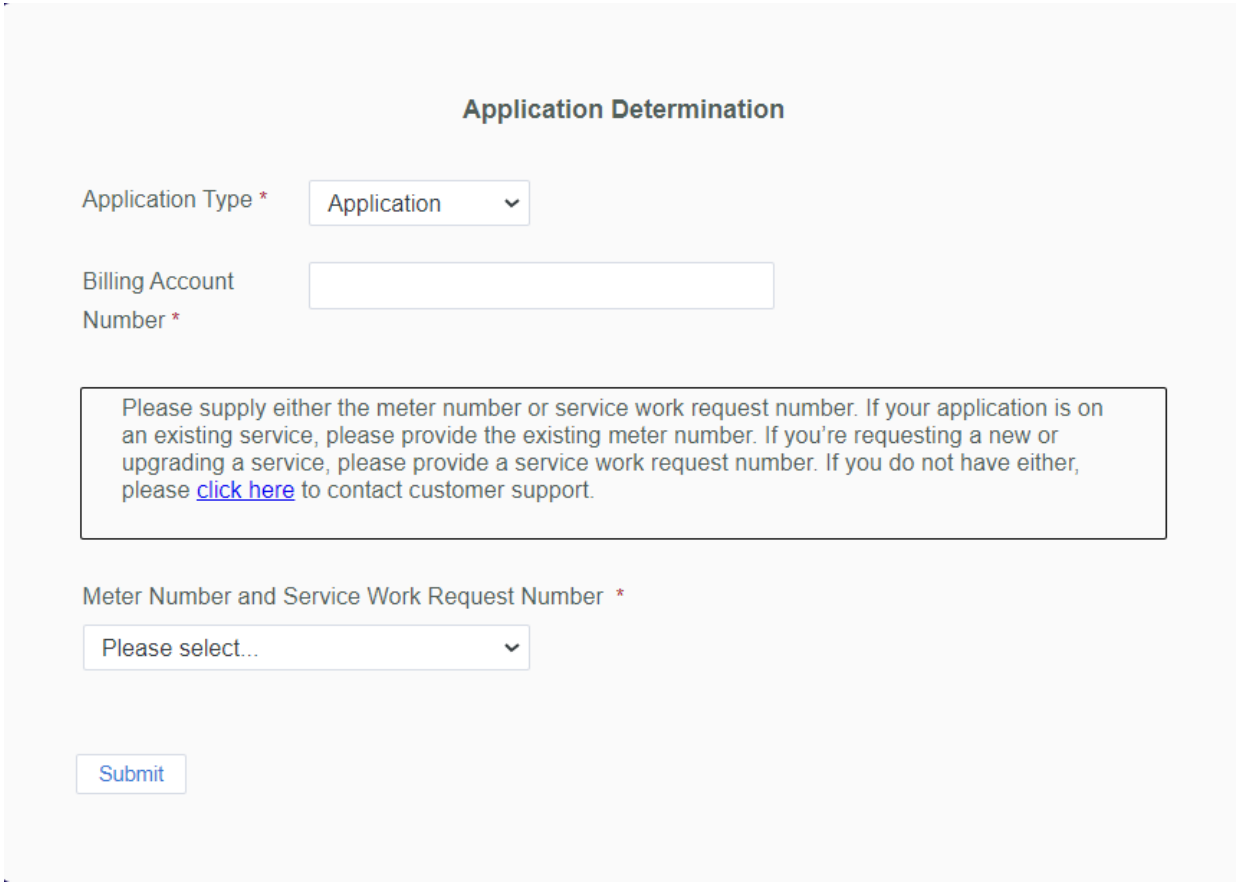
Friendly Reminders: Submitting an Application



- When filling out the project location fields on the initial triage questions, please ensure the address you are providing matches what is listed on the **National Grid bill**. This includes any apartment or unit numbers. If this address does not match what is on the bill it can cause a delay in your project being progressed.

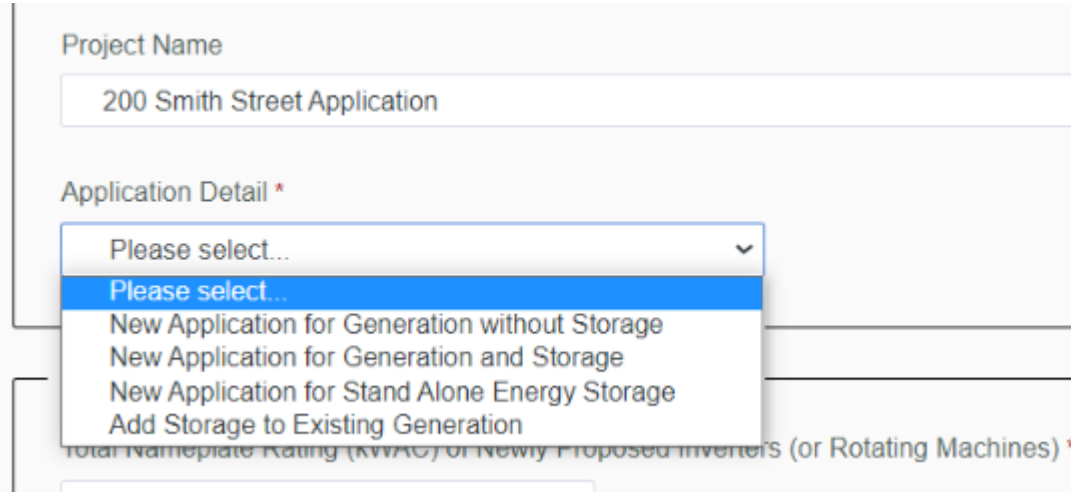
Friendly Reminders: Submitting an Application

- When submitting an Application, please have your 10-digit billing account number handy, this is one of the first fields that need to be filled out:



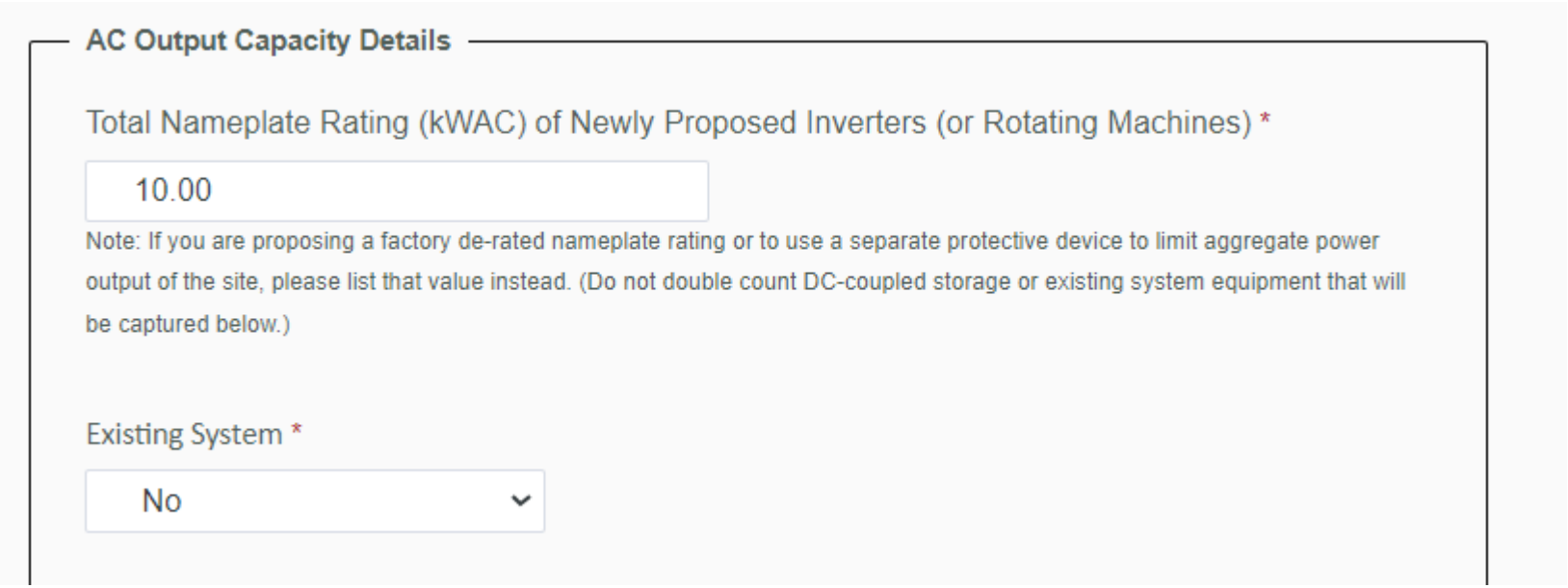
- The billing account number and meter number can be located on the customers utility bill. If the customer has issues locating these numbers, they can contact our MA Contact Center (1-800-322-3223)

Friendly Reminders: Submitting an Application



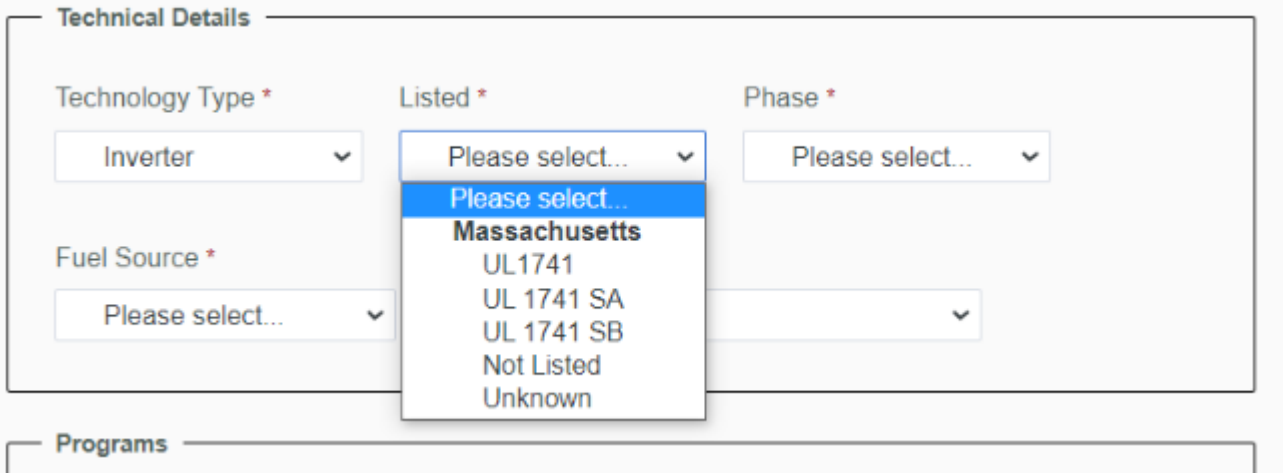
- For the required Application Detail section of the Application, please ensure you are selecting the correct type of Interconnection. If your case includes a battery (or any type of storage) select ‘New Application for Generation and Storage’. If you do not select this the appropriate forms will not populate, and this will cause a delay in your project.
- **Please only select ‘Add Storage to Existing Generation’ if you already have an existing net meter installed.**

Friendly Reminders: Submitting an Application



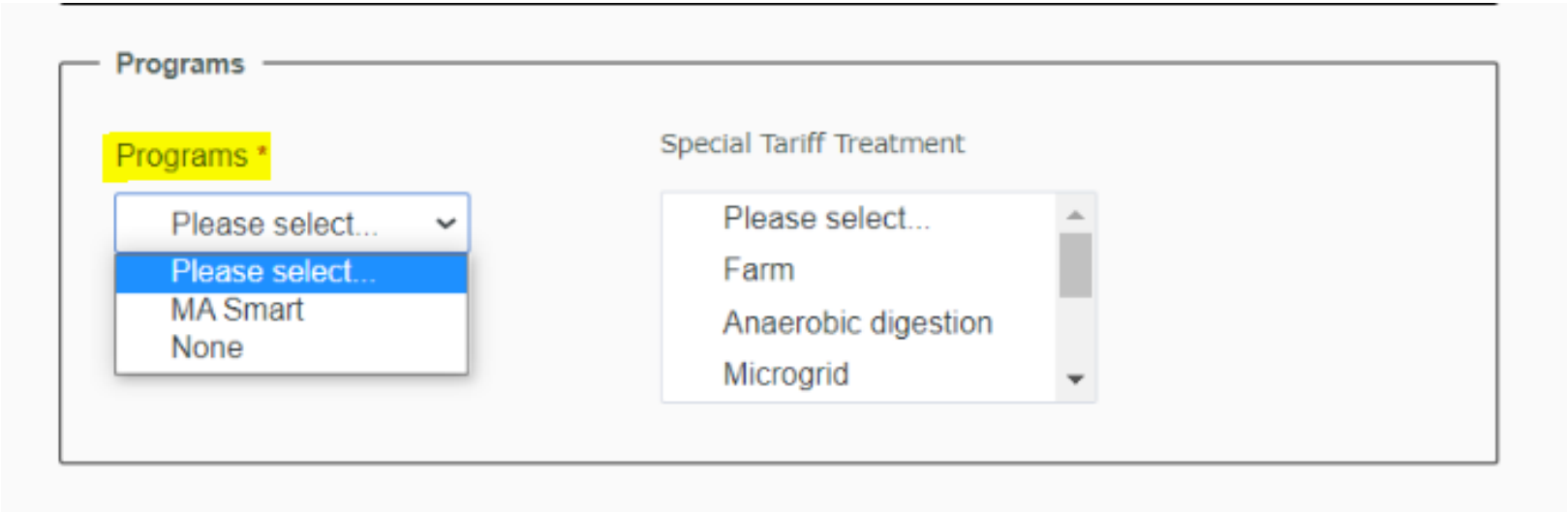
- For the Total Nameplate Rating (kWAC) field make sure you are entering the correct system size based on the technical specification sheets of your inverters/batteries. If you enter the incorrect system size this may push your project into the incorrect tariff track and/or populate forms that are unnecessary to your case. This will cause a delay in your case if the system size is entered erroneously.

Friendly Reminders: Submitting an Application

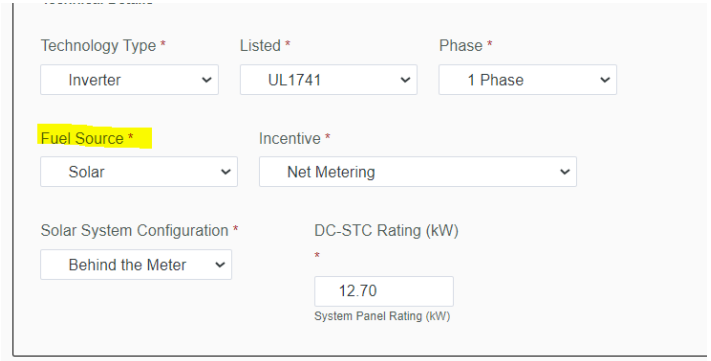


- For the required Listed Section on the initial triage questions, please make sure you are selecting UL1741 as listed on your technical specification sheets of your inverter/battery.
- **Note: Effective September 1st, 2023, all inverters being used will need to be UL1741 SB certified. A formal communication will be sent out regarding this change.**

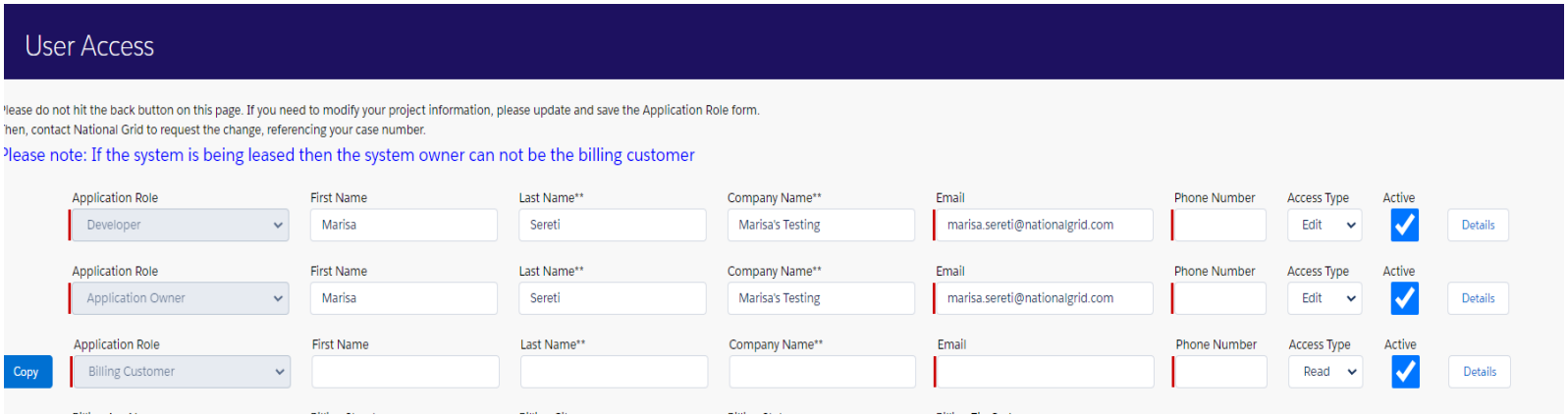
Friendly Reminders: Submitting an Application



- If you are applying for the MA SMART program this is the section where it will populate, as long as your fuel source is solar, as shown below:



Friendly Reminders: Updating Application Roles

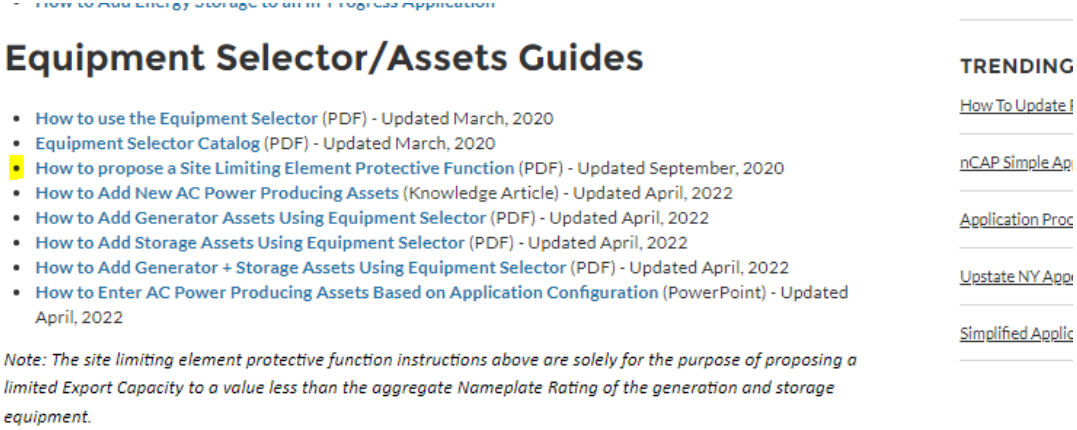


- When you are finished filling out all of the required fields on the initial application page, it will bring you to the Application Roles screen. This section is very important as any emails that are entered on this screen will be receiving automated emails as the case progresses through our review process.
- Please ensure the email addresses, phone numbers and names are listed accurately as it will cause delays in the progression of your project if they are not.
- Visit this link for more information on Application Roles: https://gridforce.my.site.com/s/article/Application-Roles

Friendly Reminders: Curtailment/Limited Export

There are a number of scenarios where it may be necessary to curtail or limit the export on a given inverter. In order for National Grid to provide Authority to Interconnect we require the following information:

- A Curtailment/Limited Export Letter on a company letterhead (uploaded at either Application-Draft or Screening-In Progress-Screening Review status of the case)
- A Protective Function Asset must be listed in the portal. Please review the following knowledge page and review the tutorial labelled: **How to propose a Site Limiting Element Protective Function**



Equipment Selector/Assets Guides

- How to use the Equipment Selector (PDF) - Updated March, 2020
- Equipment Selector Catalog (PDF) - Updated March, 2020
- How to propose a Site Limiting Element Protective Function (PDF) - Updated September, 2020
- How to Add New AC Power Producing Assets (Knowledge Article) - Updated April, 2022
- How to Add Generator Assets Using Equipment Selector (PDF) - Updated April, 2022
- How to Add Storage Assets Using Equipment Selector (PDF) - Updated April, 2022
- How to Add Generator + Storage Assets Using Equipment Selector (PDF) - Updated April, 2022
- How to Enter AC Power Producing Assets Based on Application Configuration (PowerPoint) - Updated April, 2022

Note: The site limiting element protective function instructions above are solely for the purpose of proposing a limited Export Capacity to a value less than the aggregate Nameplate Rating of the generation and storage equipment.

TRENDING

How To Update

nCAP Simple Ap

Application Proc

Upstate NY App

Simplified Applic

- National Grid is actively working on updating the Company's product catalog to reflect more Protective Function Assets

Application Assistance: Helpful Guides & Links

- During the lifeline of your project, there are multiple steps and processes that occur before National Grid can order your meter. There are helpful links included below that can assist with any questions or concerns you may have within a certain part of the process.
- Storage Assistance - https://gridforce.my.site.com/s/article/Equipment-Selector-Guide - this will guide you on how to enter your assets (inverters, batteries, protective function assets, etc.)
- Online Payment Guide - https://gridforce.my.site.com/s/article/PaymentUS-Payment-Portal-Help-Page - this tutorial will guide you on how to make an online payment using our JPMC Payment Platform
- Portal Help - https://gridforce.my.site.com/s/article/MA-Portal-Assistance - this guide will help you better navigate and understand the Customer Application Portal
- Project Guidance and Information - https://gridforce.my.site.com/s/ma-additional-information - helpful links and information on other parts of the Distributed Generation process.

10

Post Interconnection

Pamela Hill

nationalgrid

Net Metering Billing Requirements

- Renewable energy generating systems 10 kW or less on a single phase or 25 kW or less on three phase are eligible for net metering without a Net Metering Cap allocation (except for Class I government/municipal facilities on or after March 1, 2024).

- All other systems require a Net Metering Cap allocation from the MassACA. (www.massaca.org) Without a Net Metering Cap allocation, the account will default to a Qualifying Facility.

- New exemption from the cap allocation requirements for Class I Net Metering Facilities up to 25 kW and certain behind the meter Class I facilities:
  - These exceptions will be available once the regulatory process has been completed and the Company's Net Metering tariff has been revised and approved by the DPU. Please refer to docket D.P.U. 23-140.

Difference Between Net Metering (NM) and Qualifying Facility (QF)

Net Metering

- Net Metering Credits are calculated using the following components:
  distribution, transmission, transition, and fixed basic service rates, with limited exceptions such as non-renewable Class I facilities and Class III facilities (not including “new” solar).
- Credits can be transferred to other accounts in the same load zone using a Schedule Z.
- New rules allowing certain facilities to transfer credits across load zones and/or service territories will be implemented once the regulatory process has been completed and the Company’s tariffs are revised and approved by the DPU. Please refer to dockets D.P.U. 21-100, 23-108, and 23-113.

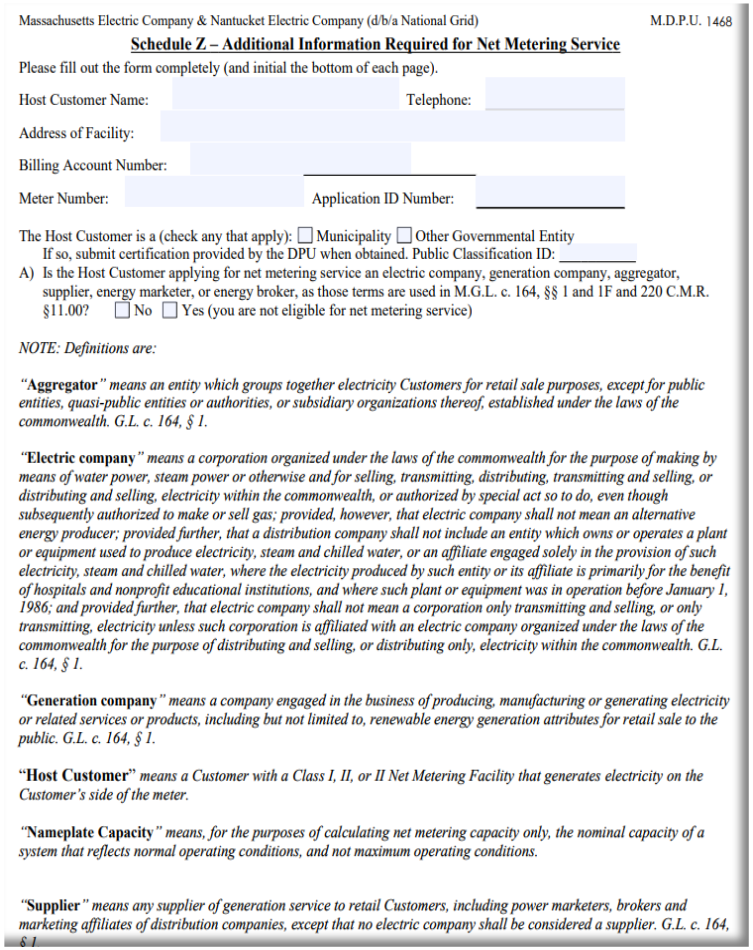
Qualifying Facility (QF)

- Credits are based off ISO-NE Clearing prices
- Prices fluctuate month to month
- National Grid must wait for the updated pricing for the month to credit QF customers accordingly which can cause a delay in billing
- Credits are not transferrable

For an example of first bill credits and charges please see:
FirstBillWalkThrough(site.com)

Schedule Z Allocation Form

- A Schedule Z is required when initially interconnecting the Net Metering system
- Customers can elect to transfer, all, some or none of their credits to other accounts.
- A Schedule Z form can be updated up to 6 times per calendar year
- Today, Net Metering credits can only be transferred within a customer's load zone.
- To update a Schedule Z form a case must be submitted through our portal by the billing account holder at Contact Us
- The different Schedule Z forms can be located here along with a guide on how to fill out a Schedule Z form. Schedule Z forms



Massachusetts Electric Company & Nantucket Electric Company (d/b/a National Grid) M.D.P.U. 1468

Schedule Z – Additional Information Required for Net Metering Service

Please fill out the form completely (and initial the bottom of each page).

Host Customer Name: Telephone:

Address of Facility:

Billing Account Number:

Meter Number: Application ID Number:

The Host Customer is a (check any that apply): ☐ Municipality ☐ Other Governmental Entity
If so, submit certification provided by the DPU when obtained. Public Classification ID:

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)

NOTE: Definitions are:

*"**Aggregator**" means an entity which groups together electricity Customers for retail sale purposes, except for public entities, quasi-public entities or authorities, or subsidiary organizations thereof, established under the laws of the commonwealth. G.L. c. 164, § 1.*

*"**Electric company**" means a corporation organized under the laws of the commonwealth for the purpose of making by means of water power, steam power or otherwise and for selling, transmitting, distributing, transmitting and selling, or distributing and selling, electricity within the commonwealth, or authorized by special act so to do, even though subsequently authorized to make or sell gas; provided, however, that electric company shall not mean an alternative energy producer; provided further, that a distribution company shall not include an entity which owns or operates a plant or equipment used to produce electricity, steam and chilled water, or an affiliate engaged solely in the provision of such electricity, steam and chilled water, where the electricity produced by such entity or its affiliate is primarily for the benefit of hospitals and nonprofit educational institutions, and where such plant or equipment was in operation before January 1, 1986; and provided further, that electric company shall not mean a corporation only transmitting and selling, or only transmitting, electricity unless such corporation is affiliated with an electric company organized under the laws of the commonwealth for the purpose of distributing and selling, or distributing only, electricity within the commonwealth. G.L. c. 164, § 1.*

*"**Generation company**" means a company engaged in the business of producing, manufacturing or generating electricity or related services or products, including but not limited to, renewable energy generation attributes for retail sale to the public. G.L. c. 164, § 1.*

*"**Host Customer**" means a Customer with a Class I, II, or II Net Metering Facility that generates electricity on the Customer's side of the meter.*

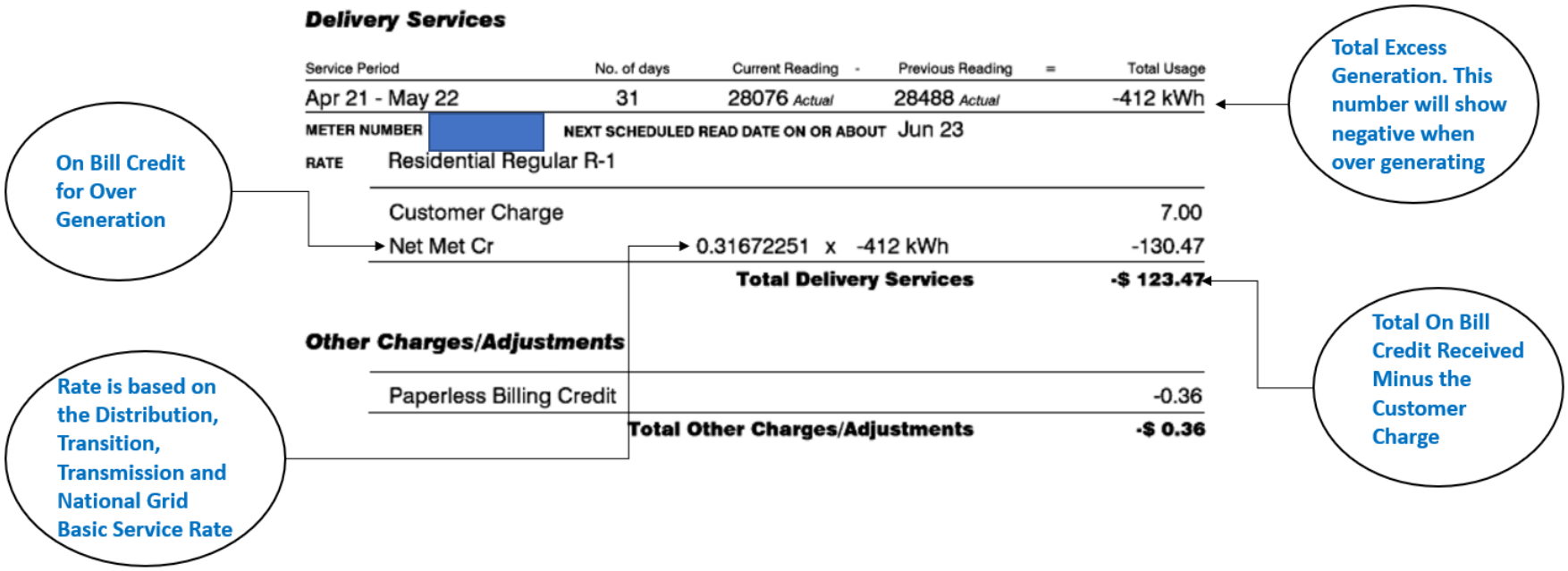
*"**Nameplate Capacity**" means, for the purposes of calculating net metering capacity only, the nominal capacity of a system that reflects normal operating conditions, and not maximum operating conditions.*

*"**Supplier**" means any supplier of generation service to retail Customers, including power marketers, brokers and marketing affiliates of distribution companies, except that no electric company shall be considered a supplier. G.L. c. 164, § 1*

First Bill Set Up

- Once you receive the Authority to Interconnect (ATI) email, the account will be set up to begin receiving its incentive.
- Setting up the account may take 1 to 3 billing cycles after the ATI date and is retroactive to the ATI date.
- If the account is participating in the SMART program, there will be a delay between receiving your first Net Metering/QF bill and your SMART incentive
- You receive approval for the SMART program after your project has been interconnected and this can take several months depending on how quickly all documentation is being submitted to CLEAResult (third party administrator for SMART)
  - blocks 1-8, your SMART incentive is retroactive to the ATI date
  - blocks 9-16, you are only eligible for the SMART incentive the next billing cycle after approval.
  - Once Approved for SMART, it may take 3 billing cycles for an account to be set up

Net Metering Bill Example (Over-Generating)



Samples of bills can be found on our Solar Hub

Net Metering Bill (Under-Generating)

DETAIL OF CURRENT CHARGES

Delivery Services

Service Period	No. of days	Current Reading -	Previous Reading =	Total Usage
Sep 9 - Oct 7	28	20341 *Actual*	19967 *Actual*	374 kWh

METER NUMBER [redacted] NEXT SCHEDULED READ DATE ON OR ABOUT Nov 8

RATE Residential Regular R-1

Customer Charge		7.00
Dist Chg	0.0793425 x 374 kWh	29.69
Transition Charge	-0.00104 x 374 kWh	-0.39
Transmission Charge	0.03858 x 374 kWh	14.43
Energy Efficiency Chg	0.01729 x 374 kWh	6.47
Renewable Energy Chg	0.0005 x 374 kWh	0.19
Distributed Solar Charge	0.00315 x 374 kWh	1.17
Electric Vehicle Charge	0.00054 x 374 kWh	0.20
	Total Delivery Services	**$ 58.76**

Supply Services

SUPPLIER National Grid

Basic Service Fixed	0.09707 x 374 kWh	36.30
	Total Supply Services	**$ 36.30**

Other Charges/Adjustments

Paperless Billing Credit		-0.36
	Total Other Charges/Adjustments	**-$ 0.36**

Total Net Usage. The customer used more than they generated

The customer's bill is reduced by the solar generation, but no credit will display

The customer's bill is reduced by the solar generation, but no credit will display

Single Parcel Rule Rooftop Blanket Exception

On August 24, 2012 DPU issued an order in 11-11-C on Definition of Unit and Facility creating the so-called "single parcel rule" which prohibits customers from locating more than one net metering facility on a single parcel of land without DPU approval. On July 1, 2013 the DPU offered additional clarification regarding the definition of a Facility. Please refer to the Massachusetts DPU Net Metering FAQ website for more information.

In a subsequent order, D.P.U. 17-22-A (2018), the DPU established the rooftop cap exempt blanket exception to the single parcel rule. "Rooftop" is defined by the DPU as "an off-ground structure capable of supporting a net metering facility, including buildings, garages, carports, and canopies."

To qualify for the rooftop cap exempt blanket exception, **all** of the following conditions **must** be met:

1. The net metering facilities must be participating in the general net metering program, not the Small Hydro Program;
2. The net metering facilities must be located on rooftops and each net metering facility must be tied behind the electrical service of the structure on which it is located. Note that facilities may be located on either the same or different rooftops on the same parcel of land;
3. The aggregate nameplate capacity of all of the net metering facilities on the parcel of land **must be 10 kW AC or less on single-phase circuit or 25 kW AC or less on three-phase circuit**;
4. Each net metering facility must have a separate revenue meter; and
5. Each facility must have at least submitted an interconnection application with the electric distribution company and received a communication from the electric distribution company stating that the application is complete.

Single Parcel Rule Rooftop Blanket Exception

Host customers must apply to the DPU for this exception--see link here: https://massgov.formstack.com/forms/bxcform_rce and provide a copy of the approval to National Grid. There is no charge to apply for this exception.

Example:

123 Main St is fed by a single-phase circuit. There are 3 units on this parcel of land. Each unit interconnects a 3kW rooftop solar array behind separate meters. Because the aggregate of all 3 systems is 10kW or less, this location may qualify for the exception for all 3 arrays to be net metered. An application must be filled out and the approval should be provided to National Grid.

Example:

1 North St is fed by a three-phase circuit. This location has a single-family home, a detached garage, and a carport. All 3 "rooftops" have 10kW solar arrays installed behind separate meters. The first 2 installed systems can apply for the rooftop blanket exception to net meter. The 3rd installed array would not be eligible to net meter but may be eligible for other incentives such as a Qualifying Facility.

11 Questions?

Please submit questions using the Q&A link provided in the Microsoft Teams meeting chat.

We will do our best to address your question during this time. All Q&A's will also be formally documented and uploaded to our website.

nationalgrid

Appendix: Summary of Resources, Documents & Links

Distributed Generation Website: https://ngus.force.com/s/ma-home

Solar Hub: https://www.nationalgridus.com/solar-hub/

First Bill Walkthrough: First Bill Walkthrough

Interconnection Process Resources: https://ngus.force.com/s/ma-process

COVID & Force Majeure Updates: https://ngus.force.com/s/article/MA-Force-Majeure-Declarations

ISO – NE's Interconnection Process: https://www.iso-ne.com/participate/applications-status-changes/interconnection-process-guide/interconnection-process-steps

National Grid's list of active and pending FERC feeders: https://ngus.force.com/s/?tabset-651ee=2&Infrastructure__c-filterId=00B0W000006uAI3UAM

MA DG Stakeholder Meeting Information: https://ngus.force.com/s/article/MA-DG-Stakeholder-Meeting-Information

ASO Updates: https://ngus.force.com/s/article/MA-ASO-Updates

Hosting Capacity Maps: https://ngrid.apps.nationalgrid.com/NGSysDataPortal/MA/index.html

Storage Assistance - https://ngus.force.com/s/article/Storage-Assistance

DPU Interim Guidance for ESS -

https://ngus.force.com/s/article/How-to-Add-Energy-Storage-to-an-In-Progress-Application-in-Massachusetts

Sample One Line Diagrams SMART Program-

https://ngus.force.com/servlet/servlet.FileDownload?file=0150W00000ET8dj

Interconnection Documents- https://ngus.force.com/s/article/MA-Interconnection-Documents

Typical System Modifications and Estimated Costs for DG Interconnection- https://ngus.force.com/s/article/System-Modifications-for-DG-Interconnection

nationalgrid