National Grid Distributed Generation MA Webinar

Complex Interconnection Process Review

April 11th, 2024

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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

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Note: As used in the following slides, reference to "National Grid" or the "Company" means Massachusetts Electric Company and Nantucket Electric Company, as applicable, when the context is the distribution system and/or distribution interconnection requirements, and shall mean New England Power Company when the context is the transmission system and/or transmission system requirements.

01

Safety Message

Will Kern

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Eye Strain

What is Eye Strain? Eye strain is a common condition caused by intense use of your eyes, such as by reading, using digital devices or driving long distances. Other names for eye strain are eye fatigue and asthenopia. In recent years, the main common cause of eye strain is the extended use of computers or other digital devices, such as cell phones or tablets. The term for this type of eye strain is digital eye strain.

Symptoms: Dry eyes, headaches, blurred vision, neck and shoulder pain, sore, tired burning, or itchy eyes, sensitivity to bright lights

How can Digital Eye Strain be Prevented?

*

20-20-20 Rule

For those working at computers, it's important to look away every 20 minutes. When doing so, look at an object 20 feet away for at least 20 seconds.

Figure-eight

This exercise should be done while seated. Pick a point on the floor about 10 feet in front of you to focus on. Trace an imaginary figure eight with your eyes. Trace for 30 seconds, then switch directions.

Focus Change

While seated, challenge your focus with the following steps:

- Hold your pointer finger a few inches away from your eye and focus on your finger.
- Slowly move your finger away from your face, holding your focus.
- Look away into the distance.
- Focus on your outstretched finger and slowly bring it back toward your eye.
- Look away and focus on a distant object.
- Repeat three times.

02

General Communications & FY24 Successes

Will Kern

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General Communications

- **Simplified Interconnection Process Webinar is scheduled to take place July 18, 2024**
- **Former Webinars are posted to our *'Stakeholder Meetings Updates Page'***
- **Group Study Monthly Update now posted!**
  - **Link: *Monthly Group Study Status Report***
- **Transfer of Ownership**
  - Outages
  - Reconciliation/Cost Sharing Payouts
  - Record Keeping
  - ***Interconnections Documents Website***
- **Schedule Z / Community Solar**
  - opportunity to make changes increased to 6x per year
- **Apr'23 – Mar'24: Interconnected 16,410 applications totaling to 208.8 MWs**
  - Complex - 945 apps for 99.7 MWs
    - Solar – 92.9MW
    - Other - 6.8MW
  - Simplified - 15,465 apps for 109.1 MWs
    - Solar – 109MW
    - Other – .075MW

03

Screening Review Process

Jorge Jorge (JJ)

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Pre - Applications

•Required for all cases 250 kW or greater, optional for cases less than 250 kW (Tariff Section 3.2)

Project Size	Pre-Application Report Fee
< 250 kW	$100
250 kW – 500 kW	$250
> 500 kW	$750

•Pre-application requirements include: Proposed site location, system size, generation type (Solar, Wind, Hydro, CHP, Diesel, Energy Storage, etc.) and an uploaded screenshot using any web mapping platform (Google Maps, Bing Maps, Assessors Maps)

•Pre-application reports are completed within 10 business days (BD)

•Pre-application report includes feeder/circuit information, substation name, phase(s), if the area is in a network or non-network area, potential system constraints, application checklist, the connected & pending aggregate distributed generation (DG) on the feeder(s) and if a project will fall in an area that has an ongoing Affected System Operator (ASO) or Group Study

Pre – Application Report

Report is a sample and for illustrative purposes only

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Massachussetts Pre-Application Report	Applicant:	123456 National Grid			
	Pre-Application Request Date:	7/15/2021	Preparation Date:	7/7/202	
	Prepared by:	Jorge Jorge	Revision # (if any):	0	

I. Executive Summary:

A. Interconnection Application: The Applicant (noted above), has submitted a request for a Pre-Application Report (Report) for the interconnection of a generation system (located at the proposed location(s) noted below) to the National Grid (Company) Electric Power Sy

B. Pre-Application Process: The proposed location was reviewed (as per the Standards for Interconnecting Distributed Generation referenced below) to: (1) determine the characteristics of the existing Company EPS near the proposed location(s), (2) identify the aggregate amount o other proposed and existing generation capacity connected to the nearby Company EPS, and (3) identify other potential system constraints critical items that may impact the proposed generation system(s).

C. Further Inquiries: All additional questions and comments related to this report should be directed to National Grid's Distributed Generati Services email account: Distributed.Generation@nationalgrid.com.

II. Proposed Location Information:

The proposed location information provided in the table below is based on the information provided by the Applicant (i.e. Interconnecting Customer) in the **Exhibit B** - Pre-Application Report Form, which has been attached to this Report.

Table of Proposed Location Information		Proposed kW(AC):	2,500 kW	Phase	
Proposed Energy Source:	Solar	Existing Account (if applicable):		N/A	
Street Address:	939 Southbridge Street	X- Street:		N/A	
City:	Worcester	State:	MA	Zip Code:	01610
Likely Process:	Standard	GPS (North):	N/A	GPS (West):	N/A

III. The Company's Electric Power System (EPS):

A. As required by the Standards for Interconnecting Distributed Generation (referenced below), the Company must identify feeders within ¼ of the proposed interconnection site. Since many locations may not have any adequate feeders within ¼ mile, the Company may elect to provide information for the nearest adequate feeder(s) to the proposed location.

Table of Information for Nearest Feeder					
Feeder Number:	01-HT17		Radial or Network?:		Radial
Hosting Capacity:	Available		Feeder Rating:		264 A
Substation:	Cambridge St.		Voltage at Substation:		23 kV
Substation 3V0:	Not In Service		Substation Transformer Rating:		- MVA
Voltage (near location):	23 kV		Phase (near location):		3 Φ
Distance to three-phase (if not within 1/4 mile of proposed location):					0 ft
Distance to Substation:	4,260 ft		Feeder Peak Load:		- MVA
DG on Feeder:	0 kW	Pending DG:	0 kW	Existing DG:	0 kW
Included in total above:		*Pending PV:*	0 kW	*Existing PV:*	0 kW
		Pending non-PV:	0 kW		
		Non-PV Type:	N/A		

Table of Information for Second Nearest Feeder (if available)					
Feeder Number:	01-8W2		Radial or Network?:		Radial
Hosting Capacity:	Available		Feeder Rating:		527 A
Substation:	Vernon Hill		Voltage at Substation:		13.8 kV
Substation 3V0:	In Service-Cost Sharing Required		Substation Transformer Rating:		40 MVA
Voltage (near location):	13.8 kV		Phase (near location):		3 Φ
Distance to three-phase (if not within 1/4 mile of proposed location):					150 ft
Distance to Substation:	10,230 ft		Feeder Peak Load:		7.9 MVA
DG on Feeder:	2,748 kW	Pending DG:	21 kW	Existing DG:	2,727 kW
Included in total above:		*Pending PV:*	21 kW	*Existing PV:*	2,698 kW
		Pending non-PV:	0 kW		
		Non-PV Type:	N/A		

B. Other Known System Constraints:

1. Recent changes in the Massachusetts net metering rules may have further restrictions regarding the size of a distributed generation system that can be offered Net Metering Services on any one single parcel of land. Refer to the Massachussetts Depart. of Energy & Environmental Affairs / Dept. of Public Utilities (D.P.U.) homepage:
http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/dpu/
Massachussetts Dept. of Energy & Enviromental Affairs / Dept. of Public Utilities (D.P.U.) - Net Metering Homepage:
http://www.mass.gov/eea/energy-utilities-clean-tech/electric-power/net-metering/net-metering.html
Massachussetts Dept. of Public Utilities (D.P.U.) - Net Metering Frequently Asked Questions and Answers:
NOTE: See section VI. Design and Development of Net Metering Facilities / Question #46.:
"What is the maximum capacity of a net metering facility?"
http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/dpu/net-metering-faqs.html

2. A conceptual grade cost estimate of the required system modifications will be determined during the System Impact Study (SIS). The cost for line extensions / re-conductoring of radial feeders can approach or exceed $500,000/mile depending on the level of complexity. State and Federal taxes apply to payments for system modifications, including feeder line extensions. The Point of Interconnection, circuit characteristics, and/or other projects may affect feasibility of installing the proposed generation capacity on this circuit at the proposed location. Also, the available distributed generation capacity is open to other project proponents unless and until a complete application is received.

3. Additional system constraints particular to the proposed location (if applicable):

Thank you for your interest in interconnecting to National Grid's Electric Power System. We look forward to working with you to progress your application through the interconnection process. Please review the following conditions as they may impact your overall processing time and associated costs.

Due to the high volume of existing and proposed DG interconnections, this project's location falls within an area that is currently undergoing study by an Affected System Operator (ASO), which analyzes the potential impacts of a DG project to non-distribution assets. As such, in accordance with MDPU 1320, should this application proceed to impact study, it will immediately be placed on hold pending the results of the ASO study. In addition, because system modifications are anticipated to be in excess of $1 Million; study timeframes will be by mutual agreement in accordance with MDPU 1320.

Ongoing ASO Notes

Prior study of the Barre feeder, which is near the proposed Facility, has shown significant interconnection challenges. Be advised that interconnection in this area may require substantial system modifications, impacting the Customer's desired project schedule and budget. Further National Grid engineering review will be required to determine the most viable method of interconnection.

Challening Interconnection Notes

Barre is 13.8Kv Grd'd Wye/ effectively grounded.

As the proposed Facility is equal to or greater than 5MW please be advised that significant distribution and transmission system upgrades may be required that may result in a longer project schedule and higher costs than a smaller project. In addition to the Distribution System Impact Study (DSIS) being required, a Transmission System Impact Study (TSIS) will be required. This will require that the DSIS be placed on hold at the point that the Distribution System interconnection solution is identified. Once that point is reached in the DSIS; a high level non-binding cost estimate and timeline will be provided to the Interconnecting Customer and they may determine if they wish to proceed or not at that point. Link to the ISO Tariff for Section 1.3.9 https://www.iso-ne.com/participate/rules-procedures/tariff

DSIS/TSIS Notes

Based on the information provided in the Applicant's Exhibit B - Pre-Application Report Form and the other information identified in this report, the Company expects that if an application is submitted at the proposed location, the application will ultimately need to be processed in the Standard process track. If the applicant submits a complete application and elects to proceed directly to the Standard process, the application will proceed directly to the Impact or Group Study process once an initial review is completed. The applicant may still submit an Expedited application, and in which case upon receipt of a completed application the Company will perform a Screening Review (and if necessary Supplemental Review) to determine if an Impact or Group Study is required.

Process Track Notes

Group Study Hold:
Prior to completion of Screening for your Application/Case, the company began the process of performing necessary engineering studies to determine the scope of required modifications to the electric distribution system in this area in order to provide the requested interconnection. In performing such studies, it has been determined that the interconnection will also impact the electric transmission system and will require substantial review and study by the Affected System Operators (including, but not limited to, New England Power Company and ISO-NE) to determine a safe and reliable interconnection solution. Your Case/Application had not completed Screening prior to determination of the scope of this study, and as such, your Application/Case with Massachusetts Electric Company will remain On Hold until the conclusion of the review of the Affected System Operators.

Please review the information on this link to determine the potential impact of a group study on this project
https://ngus.force.com/servlet/servlet.FileDownload?file=0156T00000FLq3i

Group Study Notes

Standard Interconnection Application

Interconnection Application

- Required for all projects
- Requires all items on application review checklist to be filled out and submitted
- Application reviews are completed within 10BD

Application Requirements

- All submissions require a completed application form, application fee, Billing account number, system size, equipment assets, account location, site plan, line diagram, site control documentation tech sheet(s) and legal information document

- Larger projects could require additional forms such as: De-Rating Letters, Anti Islanding Forms, UL 1741SB Certificate, Load Rejection Overvoltage Letter. Projects with storage also require the Energy Storage Narrative and Energy Storage Checklist

- All required documents are detailed in the app review checklist

Commonly Missed Items Leading To Application Review Holds

- Document Discrepancies
- Billing Account Number
- Construction Work Request Number
- UL 1741SB Certificate
- Anti-Islanding Forms
- De-Rating Letter

Line Diagram Omissions:

- Inverter & interrupting device nameplate rating, relay settings, make, model, voltage and current rating
- Internal DG protective settings with redundant relay settings for inverters (Table 7.6.11.1-1, ESB 756)
- Missing Electrical Engineering PE Stamp
- Aggregate AC KW/KVA Ratings of entire proposed system

Site Plan Omissions:

- Point of Common Coupling (PCC)
- Company pole number nearest to the proposed PCC
- Access road notes that include road material, and dimensions of at least 20’ wide for necessary clearance requirements
- All equipment will be required to be grouped and will need to be approved by National Grid metering department before installation.

Application Review Guidelines

•Electric Service Bulletin (ESB) 756D

•National Grid will not provide transformers larger than 300kVA or when primary metering is least cost to serve option

•All commercial meters and disconnects need to be grouped together

•Existing metering located on a pad mounted transformer will be required to be relocated when applying for new stand-alone DG systems

•New MA SMART meter installations require disconnecting means on both the line and load side of the meter

•MA SMART systems over 500KW must be co-located with an energy storage system (ESS) that meets the requirements for an energy storage adder pursuant to 225CMR 20.06(1)(e). AC coupled projects require individual meters for the solar, ESS & a utility meter ahead of the entire system

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

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

• Final disconnect and meter locations should not be installed until National Grid has approved the location on site with the electrician

Screening

- Screening is **required** for Expedited and Standard projects
- Expedited projects require a screening review to be completed within 25 BD
- Standard projects require an initial review to be completed within 20 BD

Screening Checkpoints:

- Is the proposed PCC on a radial/Network System?
- Is the facility using UL1741 SB Listed equipment?
- Is the service configuration screen met?
- Substation back-feed screen met?
- If any of the screening checkpoints fail, National Grid may require further study before providing an Interconnection Service Agreement (ISA)
- Most proposed projects larger than 25KW on a 4KV Feeder and any projects on a network or non-effectively grounded system will require further study

Potential System Constraints That Lead To Further Study

- Ongoing Area Studies or Group Studies
- Challenging Feeders
- Hosting Capacity
- Feeder Reconfiguration
- Ungrounded Feeders, Non-Effectively Grounded Feeders and HT Lines
- Planned Substation Work
- Feeder Saturation

Screening Memo

Report is a sample and for illustrative purposes only

Screening Memo
Prepared by: Jorge Jorge

Revision Number: 0.0
Preparation Date: 10/17/2022

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Interconnecting Customer:	National Grid	Application(s):	Const. WR(s):
1000.00	kW(AC) Proposed Inverter Based Interconnection Project	Case:XXXXXX	XXXXXXXX
250.00	kW(AC) Proposed Battery Based Interconnection Project		
0.00	kW(DC) Proposed Battery Based Interconnection Project		
0.00	kW(AC) Existing Inverter Based Interconnection Project		
1250.00	Aggregate kW(AC) of Proposed and Existing Inverter Based Interconnection Projects		
Project Address:	939 Southbridge Street, Worcester MA, 01610		

Project & Site Information

I. Executive Summary:

A. The Interconnecting Customer has submitted an application for the interconnection of the generating system described herein to the National Grid (Company) Electric Power System (EPS). Reviewed as outlined in:

M.D.P.U. 1468 & National Grid's Electric Service Bulletin (ESB) 756 Appendix C

The application **requires** further study based on the results of this review.

Due to the complexity of your application, a study fee estimate will be established by our engineering team. This cost must be paid in full before National Grid initiates the impact study. The study agreement must be signed and returned within 15 business days of its issuance to the Interconnecting Customer. The impact study will be completed in 55 business days. An additional 5 business day maybe required if substantial modifications are required. The Company will inform the Interconnecting Customer about incremental study time after the Company commences the impact study.

Study Required Or Not Required

DSIS Cost Estimate If Progressing To Impact Study

II. The Company's Electric Power System (EPS):

A. Table of Information for Nearest Feeder

Feeder Number:	01-8W2	Radial or Network?	Radial
Feeder Rating (A):	527	Feeder Voltage at Substation (kV):	13.8 kV
Substation Name:	Vernon Hill	Distance to Substation (Circuit Feet):	~10,230'
Substation Transformer Number:	T2	Peak Feeder Load (estimated for past 12 months):	7.9
Substation Transformer Rating (MVA)	40		
Feeder Phase & Voltage at/near Site of Proposed DG:			
Voltage (kV):	13.8 kV	Feeder extension or upgrade required to serve the site?	No
Phase:	3Φ		

B. Is the existing service equipment compatible with the proposed generating system? Yes

Metering Type: Primary

C. Interconneted and In-Process DG

The following describes the interconnected and in-process DG on the subject feeder, as of the time of this report. Note that the following values are provided for informational purposes, based on the current status of the feeder and available information at the time of writing of this report, and are not binding.

Total Interconnected DG on the Subject Feeder:	7114	kVA
Total In-Process DG on the Subject Feeder:	369	kVA
Total Interconnected and In-Process DG on the Subject Substation Transformer:	13013	kVA

Total DG Exceeds Substation Transformer Rating: No

The combined interconnected and in-process DG, including this application, does not exceed the rating of the substation transformer. As a result, it is not expected at this time that a substation transformer replacement will be required.

Proposed Feeder & Substation Information

Screening Memo

Report is a sample and for illustrative purposes only

Screening Memo
Prepared by: Jorge Jorge

Revision Number: 0.0
Preparation Date: 10/17/2022

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D. Additional Interconnection Details

The Interconnecting Customer (IC) has proposed to install a 3Φ generating Facility.
Customer has proposed to interconnect onto customer owned pad mounted transformer with (See below)kVA rating.
-Actual point of interconnection to be determined.
*Please, refer to NGRID EPS diagram for the location of the nearest three-phase feeder.
*Final interconnection determination to be made during the Study.
- System modifications may be required.

Project Configuration Notes:
New MA SMART Stand Alone PV System that is proposing 3PH 13.8KV Primary Interconnection.

Site configuration includes interconnection behind new proposed utility loadbreak, recloser and primary meter. System equipment proposal includes: New system disconnect loadbreak, pad mounted recloser, one 1500 KVA 13.8KV To 600V Transformer and Four Yaskawa PV Inverters.

Utility & Site Equipment Layout Notes

*** Interconnecting customer must ensure that all service equipment will be suitable for the existing service characteristics and confirm equipment locations are approved before any installations.**
***All PV Meters and disconnects are required to be grouped with any existing metering. NGrid Metering department will approve of any taps or tap boxes and final location of all equipment.**

General Site Requirement Notes

*** Please note if your project intends to be over 1 MW, a PSCAD model and PSCAD Model Review payment will be required. Additionally, if you project intends to be 5 MW or above, a PSSE model and PSSE Model Review payment will be required ***
For further detail; Please refer to the 'Updated Model Requirements & ASO Initiation Timeline' document provided here: https://gridforce.my.salesforce.com/servlet/servlet.FileDownload?file=0156T00000GJcFN.

Additional Information For Possible Requirements Moving Forward

Screening Notes:
This application will be diverted to the Group Study process as project is proposing interconnection in an area with an open group study window. Group Study will encompass multiple applications and study the surrounding infrastructure and will determine:
- System Grounding Requirements (if required)
- System Relaying Requirements (if required)
- System Modifications (if required)

- Feeder 01-8W2 has hosting capacity
- Vernon Hill Substation 3V0 Is In Service
- This interconnection application has failed the risk of islanding screen
- This interconnection application has passed the substation feedback screen
- Any required construction costs will be developed during the conclusion of the Study Review

*This application is proposing to interconnect in the Worcester Study Area where there is an ongoing group study. This project will be placed on hold until the conclusion of the Group Study, where it could possibly be included in a new pending group study that will commence once the current group study concludes.

Screening Review Notes

Screening Memo

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Screening Memo
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III. The Description of Interconnecting Customer's Facility:

The proposed design of the generating Facility described herein is subject to change based on the requirements identified by National Grid prior to the execution of the Interconnection Service Agreement.

A. Description of Generating Facility

The proposed 1250kW system consists of:

			UL1741 certified equipment		
Quantity	Manufacturer	Model	Generator Type	kWAC Nameplate	Phase/VAC
4	Yaskawa	Solectria XGI 1500-250-600	PV Inverter	250 KW/KVA	3PH/600V

Proposed Generating Equipment

Refer to the attached line diagram for system configuration and protection equipment details.

NOTE: UL 1741 SA certified equipment is required for interconnection/ during Commissioning - listing TBD.
*IC must ensure that the max. output power of the proposed system is limited to 1250kW AC PV - as proposed (1000kW AC PV + 0kWh DC coupled + 250kW AC coupled Battery Storage System)
*The system design capacity of the proposed system MUST not exceed nameplate rating as proposed.
*Note: "The Company reserves the right to disconnect the Facility if the output exceeds the nameplate rating".

B. Point of Common Coupling (PCC)

The point of common coupling (PCC) for this interconnection application will be the

Point where the customer-owned primary conductors connect to the company-owned conductors on the 'load' side of the primary metering. This interconnection project will be capable of exporting power beyond the PCC onto the Company's Electric Power System (EPS)

C. Corrections to Proposed Design

The proposed design documentation does not require corrections before the next step in the process.
Refer to the attached Customer Documentation Checklist for comments on the proposed design documentation.
Further design changes may be identified during the study (if applicable).

IV. Requirements:

A. General Requirements

1. In addition to any specific requirements identified herein, the Interconnecting Customer is required to comply with all applicable requirements described in the Interconnection Tariff & National Grid's Electric Service Bulletin 750 Series.
2. The Customer shall provide documentation from the inverter manufacturer for the islanding detection method to be used by the inverter(s). The documentation shall be sufficient to determine whether the islanding detection method is active (perturbing the utility system and looking for a response), or passive (monitoring grid parameters without perturbing the system), and describe how the islanding detection method functions, including what parameters (i.e. phase, frequency, VARs,) are perturbed and monitored.
3. The Company recommends installing surge arrestors on the Customer side of the Point of Common Coupling for the protection of Customer-owned equipment during possible overvoltage conditions.
4. The information provided herein is a non-binding report of existing National Grid electrical facilities in the area of your proposed project. This report shall not be used to infer the ability to interconnect any project to any of the existing National Grid facilities. That determination can only be made following National Grid completing the applicable review process as outlined in the Tariff.

Screening Memo

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Revision Number: 0.0
Preparation Date: 10/17/2022

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B. Specific Requirements

Other Requirements

The Interconnection Customer is responsible for all financial obligations related to the system modifications associated with the customer-applied new service/ upgrade under the Work Request Number: XXXXXXXX

V. References:

National Grid's Massachusetts Distributed Generation Website:
https://ngus.force.com/s/
National Grid's Electrical Specifications & Standards Website:
https://www.nationalgridus.com/ProNet/Technical-Resources/Electric-Specifications
National Grid's Stakeholder Information Website:
https://ngus.force.com/s/article/MA-DG-Stakeholder-Meeting-Information

Additional guidance documents and information can be found on the National Grid Distributed Generation Website.

Reference Links

VI. Attachments:

A. Interconnecting Customer's proposed design diagram(s) at the time of the review
B. Customer Documentation Checklist (if corrections have been identified)

--- End of main document - Refer to any attachments on the following pages ---

04

Standard/Complex

Jacques Asselin

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Interconnection Process Steps

- Pre-Application
- Application
  - Standard
- Engineering Review
  - Distribution System Impact Study/Detailed Study/Group Study
    - ASO Study by Affected System Operator (If Applicable)
- Interconnection Service Agreement (includes interconnection terms and conditions, including System Modifications and associated costs)
- Design
- Pre-Construction Requirements
- National Grid Construction
- Witness Test and Completion Documents/Photos
- Meter Installation
- Register Assets
- Authorization to Interconnect

https://ngus.force.com/s/article/MA-Complex-Standard-Application-Process

Standard Review Path for Independent Application

(non Group Study)

	Standard
Eligible Facilities	Any DG
Acknowledge Receipt of Application	3 business days
Review Application for Completeness	10 business days
Complete Standard Process Initial Review	20 business days
Send Impact Study Agreement	5 business days
Complete Impact Study	55 – 60 business days, or by mutual agreement depending on complexity
Complete Detailed Study (if needed)	30 – 60 business days, or by mutual agreement depending on complexity
Send Executable Agreement (ISA)	15 business days
Total Maximum Days	135 business days, 160 business days (if began as Expedited), 200 business days or more (if Standard Complex)
Construction Schedule	Varied
Witness Test	10 business days from the National Grid's approval of test procedures or by mutual agreement

ESS Timelines

- The Screening Memo will indicate that a distribution system Impact Study (DSIS) is required. In the Screening Memo customers will be asked if they want to be studied in scheduled AND unscheduled operating modes under a mutually agreed upon timeframe of 95BD. If the study is to be performed based on a single mode of operation then the study will follow the typical 55BD tariff path
- For projects reviewed under the 95BD timeframe, a preliminary assessment will be provided around the 35BD
  - The preliminary assessment will provide information regarding available system capacity and estimated distribution System Modifications that are required under multiple operating scenarios for ESS projects
- Following the delivery of the preliminary assessment the project will be placed on a 10BD hold awaiting a response on how the customer wishes to proceed
  - Any design updates submitted by the customer beyond those necessary to reflect alignment with the decided path forward will be subject to the National Grid's policy on significant and moderate changes
  - Any design updates submitted beyond the 10BD time frame will be subject to National Grid's policy on significant and moderate changes
  - If no response is received, the project will progress as unscheduled at full nameplate
  - If document revisions are required, they will be requested at this point in the process as well
- DSIS proceeds in accordance with normal planning processes and engineering analyses, based on confirmed or updated operating methodology provided by the customer in the above step

Common Errors at Study/ISA Stage	
1	Legal Information Document needs to be completely filled out with all required information
2	The One Line diagram is required to have an electrical engineer PE Stamp
3	If a project includes ESS, ensure application reflects this equipment
4	Make sure storage charging/discharging capability is noted on the One Line
5	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

1	**Commissioning Test should consist of at least the following:** • Two (2) second shutdown when disconnect open test. • Five (5) minutes before restart when disconnect is closed test. • Confirm system matches As-built (include most recent revision date of as built provided). • List the inverter relay frequency
2	**Pictures:** • Meter picture should show permanent plaque (visible at eye level) that includes a warning about generator installed. • 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.
3	**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)
4	**As Built:** • Must be PE stamped (Electrical) and signed/ dated by person that performed the commissioning test.
5	**Evidence of Insurance:** • This is required for Expedited and Standard projects except for eligible Class I Net Metering facilities (see Tariff 11.1 (a) (iv) and (b)). Refer to the ISA and Tariff for insurance requirements

Standard Review Path Reminders

- DSIS, Detailed Study (if required), and Group Study (if required) will determine the electrical impact on the National Grid's distribution electric power system (EPS) with the required system modifications and associated cost.
- All projects greater than 1 MW will require ISO-NE I.3.9 Submission for ISO-NE approval regardless of whether an ASO Study is required. This submission will take place within the DSIS. Once submitted, the DSIS will be placed on an ASO hold until the ISO-NE provides approval and/or the ASO study (if required) is complete.
- If substation modifications are required, National Grid has 60BD for study. If estimated construction cost are greater than $1M, study timeline could be by mutual agreement. Notified at 20BD review.
- ISA will have the estimated construction timeline and is provided after study is complete. If Detailed Study is required, the customer may request an Early ISA, which will not have a construction timeline.
- Under the Tariff, 1st ISA payment (sometimes referred to as CIAC) is due within 60BD and CIACs do not have a cure period. Failure to make timely payments will result in application withdrawal.
- Design begins after 1st CIAC payment.
- Easements, permitting, Right of Way (R.O.W.), etc. begin after design and are required to move into construction.

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
- Projects greater than 60 kW in MA require interval metering (wireless or phone line)
- Make sure test meter is removed from generation meter socket
- A 4G wireless signal test on a Verizon network is required 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.
- These 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.
- Wireless test form: https://ngus.force.com/s/article/MA-Interconnection-Documents

Witness Test & Completion Document Reminders

- Most recent checklists on nCAP: https://ngus.force.com/s/article/MA-Interconnection-Documents
- Documents can be approved in advance, but all must be provided before review can begin.
- For any specific questions, please reach out to your account manager.
- Witness Test Checklist
  - Include pictures of nameplates.
  - All checklist requirements must be approved and both National Grid and customer construction (including municipal approval) must be completed prior to scheduling a Witness Test.
- Compliance Document Checklist
  - Asset registration is required as part of compliance documents.
  - National Grid applies for asset registration on behalf of the customer; typically takes 5-10 BD.
  - All incentive projects (e.g., Qualifying Facility / Net Metering) >60kW require asset registration with ISO before ATI is granted because we cannot backdate payments.
  - Behind-the-meter Class II/III Net Metering and Demand Response systems are exempt from being registered as a Settlement Only Generator with ISO.
  - If AC ESS Standalone system is generating power to the EPS, it needs to be registered separately with ISO.

Document Revision & Restudy Reminders

- Whenever new one lines or site plans are submitted, all changes (including text changes) should be clouded, and the revision block (including the rev # and dates) should be updated
- One lines and site plans need to have the PE stamp, as per ESB 756.
- If making changes after study has been finalized, the customer needs to inform National Grid of changes via Change Request button on the portal & provide revised documents to determine if restudy would be necessary. Restudy will have associated study costs and timelines.
- Restudies can cause impacts to project costs & timelines, even if the scope of work doesn't change. Please refer to the moderate/significant change guidance prior to submitting your change. https://ngus.force.com/servlet/servlet.FileDownload?file=0156T00000FLhJr
- If an ISA has already been executed, National Grid's design/construction process may be put on hold (as determined by the Company) for the duration of the restudy and until an ISA amendment has been fully executed. Re-evaluation of the construction schedule may be necessary and will be determined during the restudy.

Important Target Dates for Interconnecting Customer Requesting EOY Interconnection

By October 1st	**Submit the following documentation:** • Proposed Witness Procedure and Energization Plan • Any additional Witness Test documents available – see updated attached Witness Test requirements • Wireless Meter Test form or Met
By November 15th	**1. Complete distributed generation facility construction** **2. Submit all outstanding documentation** ▪ Note that Witness Test requirements were updated as of May 2020. ▪ All Completion Documentation must be submitted prior to review ▪ Images must be proper

Meeting these target dates does not guarantee EOY interconnection for your facility, however it does give National Grid a better opportunity to meet your request. These target dates have been established based on the Company's experience with delays to EOY processing including:

- Necessary engineering review of initial plans and documentation as well as multiple subsequent reviews and communications with Interconnecting Customer as necessary to achieve the Interconnecting Customer's compliance with the requirements
- Queueing and resource allocation for both witness testing scheduling and meter installations
- Fewer processing days due to state holidays and weather conditions (when they result in force majeure)
- Required registration with the ISO-NE for projects over 1MW that must be processed prior to ATI and Interconnecting Customer delay in starting the registration process in a timely manner.

The Interconnecting Customer's planning and cooperation is essential to this process. Please keep in mind that Authorization to Interconnect will not be issued until the Interconnecting Customer has satisfied all interconnection requirements (including, without limitation, the wiring inspection, all Compliance Documentation, the Witness Test, and ISO-NE Registration) and the required meter is installed.

Additional information and resources to assist you in this process can be found at https://ngus.force.com/s/article/Submitting-Witness-Test-Documents. If you have any questions, please contact the CEI job owner for your project.

05

Group Study

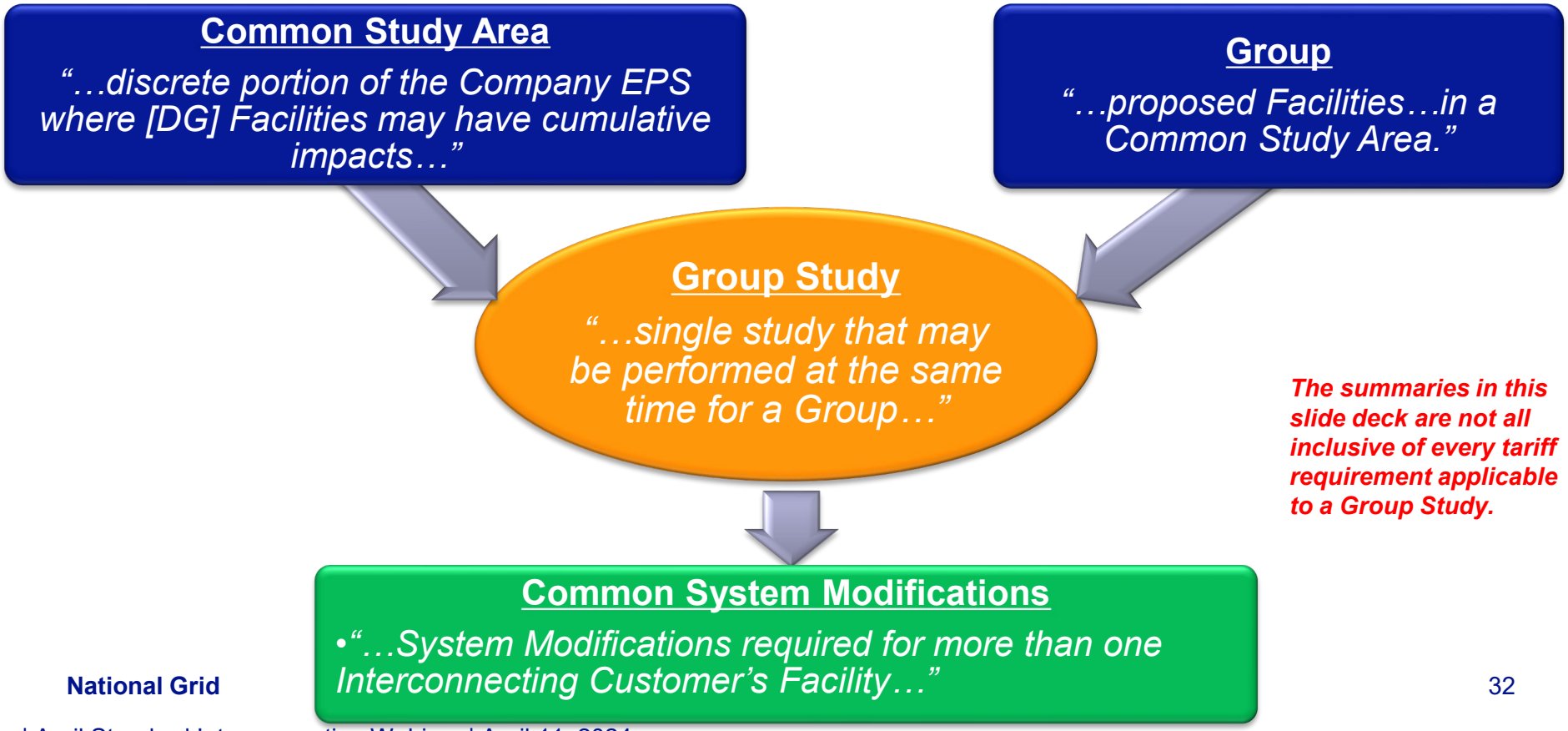
Jacques Asselin

nationalgrid

Group Study Summary

Group Study Language: Link to DPU File Room

- Each Group member is encouraged to review the Group Study provisions (Tariff Section 3.4.1.) to understand the full scope of the process and requirements for the Group Study process.
- National Grid will provide visibility and communication in accordance with the Tariff
- Group members are responsible to understand individual responsibilities and process tasks that require Group consensus



The summaries in this slide deck are not all inclusive of every tariff requirement applicable to a Group Study.

Group Study Timeline

Timing*	Step Description
up to 40BD	Group Window
20BD	Scoping Meeting
10BD	Group members notify the Company as to whether they wish to proceed; non-response=withdrawal
2BD	Company provides notice to remaining Group members for opt-in to Extended Group Study
5BD	Group to provide Extended Group Study Consent Form with unanimous consent; non-response=no Extended Group Study
15BD	Company issues Group Study Agreements
15BD	Group members to each execute Group Study agreement and submit payment of fees. Group Study will not commence until full payment received from all members
100BD	**100BD:** Group study timeframe if the area contains equal to or less than 3 applications with an aggregate Nameplate Capacity of equal to or less than 10 MW and estimated aggregate System Modifications less than $1.5M. Study timeframe may be longer if the Group elects the Extended Group Study.
OR *125BD* *OR* *160BD*	**125BD:** Group study timeframe if the area contains equal to or less than 5 applications with an aggregate Nameplate Capacity of equal to or less than 25 MW and estimated aggregate System Modifications less than $1.5M. Study timeframe may be longer if the Group elects the Extended Group Study.
	160BD: Group Study timeframe if the area contains over 5 applications, over 25 MW of cumulative Nameplate Capacity, or any Group Study with estimated aggregate System Modifications $1.5M or more. Study timeframe may be longer if the Group elects the Extended Group Study.

**Denotes time after previous step completed, and is exclusive of any holds or ASO study requirements*

Timeline Cont..

Timing	Step Description
*~ 40-60BD***	Preliminary Assessment: high level Impact and associated thresholds
***	Group study potential hold pending developer decision and/or change submission
*ASO Study Assessment – **Study Hold** – ISO-NE Determines if ASO Study Required*	
Balance Distribution Analysis – DSIS reports delivered inclusive of document revisions required to proceed to ISA	
15BD	Customers to identify intent to proceed to ISA and address document deficiencies
*15BD – 35BD****	ISA draft/delivery
20BD	Customers to sign and return ISA
Timelines follow those in the Interconnection Tariff M.D.P.U. 1468	

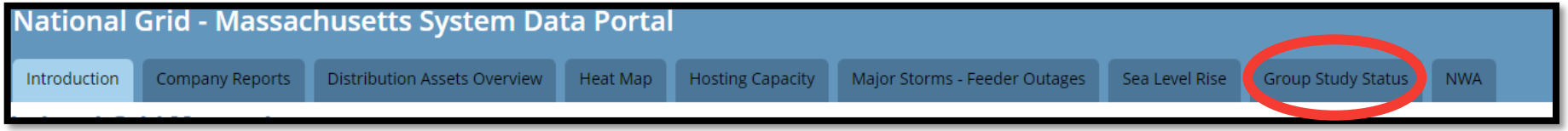
*** Not a tariff requirement.* This is approximate timing of when Company expects to identify high level impacts and associated thresholds. This milestone could vary based on study duration.

**** Please refer to change process in the Group study provisions, without limitation Tariff Section 3.4.1.j).*

***** In accordance with Group Study timeframes in Tariff Section 3.4.1.i)*

Group Study
References

- New monthly Group Study Status Report can be found on our MA Distribution Group Studies website
  - The purpose of this report is to provide status updates for each on-going Group Study, inclusive of ASO Study statuses and more visibility of expected timelines for certain milestones.
  - You can also find Group Study Forms, past meetings, resources, links, and CIP schedules within the Group Study Website
- A Group Study Status Map can be found here: https://ngrid.apps.nationalgrid.com/NGSysDataPortal/MA/index.html
  - The map has recently been updated to include more detailed status descriptions that are also provided within the Monthly Report



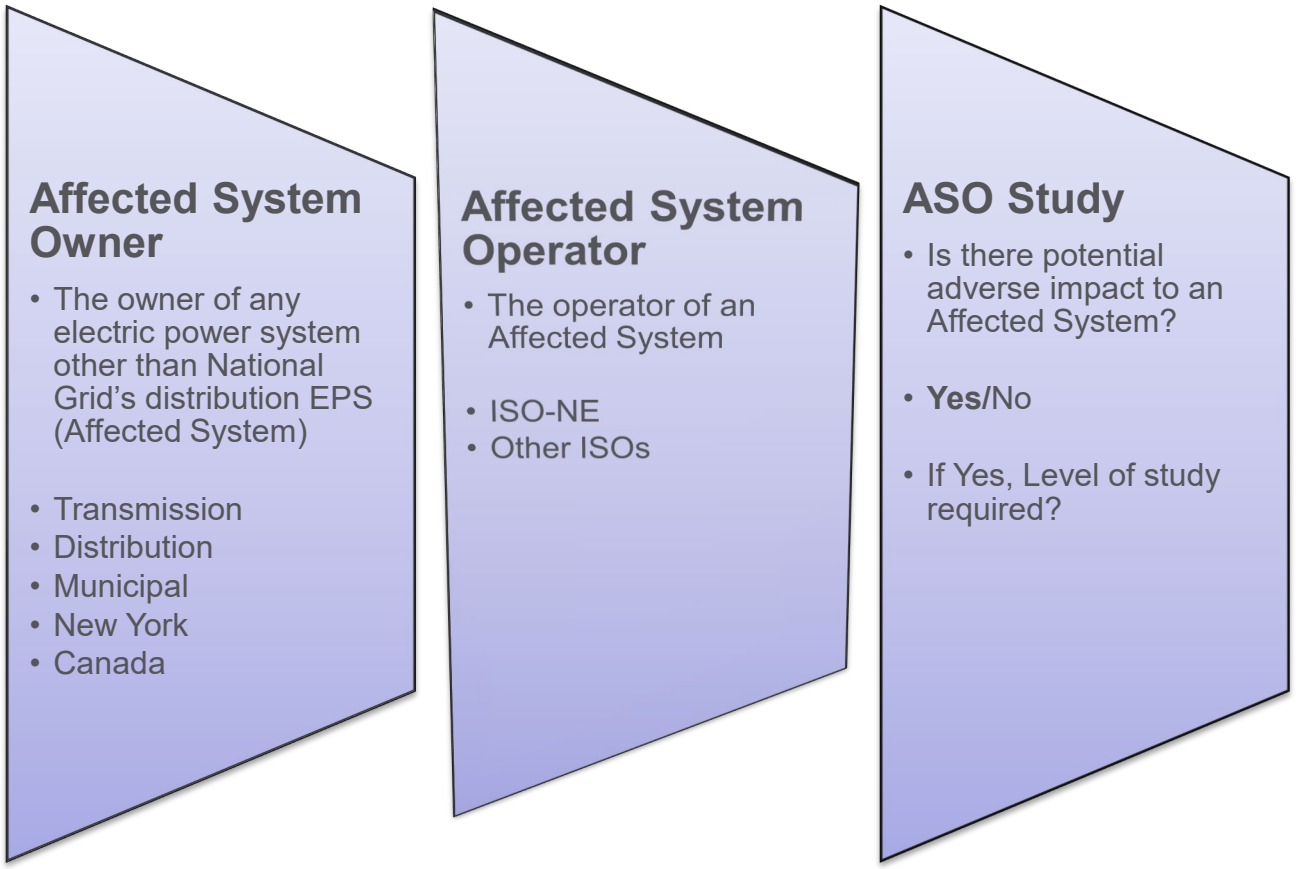
06

Affected System Operator (ASO) Study

Jacques Asselin

nationalgrid

What is an ASO Study?



Affected Parties: Roles and Governance

Electric Distribution Company (EDC)

Standards for Interconnection of Distributed Generation (MDPU No.1468); DG Guidelines for Interconnection (DPU 19-55)

- Conduct DSIS
- Adherence to process timeframes

Transmission Owners (TOs)

Transmission Operating Agreement

- Collect/approve PSCAD models (generator > 1 MW) and PSSE models (generator ≥ 5MW)
- Consult with ISO-NE to determine ASO applicability
- Coordinate/conduct transmission (ASO) system impact study

ISO-NE

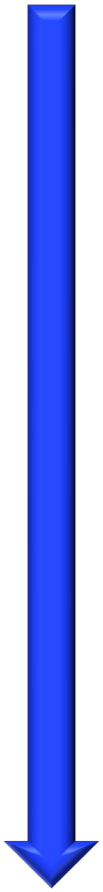
Transmission, Markets, and Services Tariff; FERC

- ISO-NE Tariff: Section I.3.9 Review of Market Participant's Proposed Plans
- Generators ≥ 1 MW
- Technical review; establish ASO study scope requirements, study review/approval

NEPOOL Reliability Committee (RC)

Second Restated NEPOOL Agreement

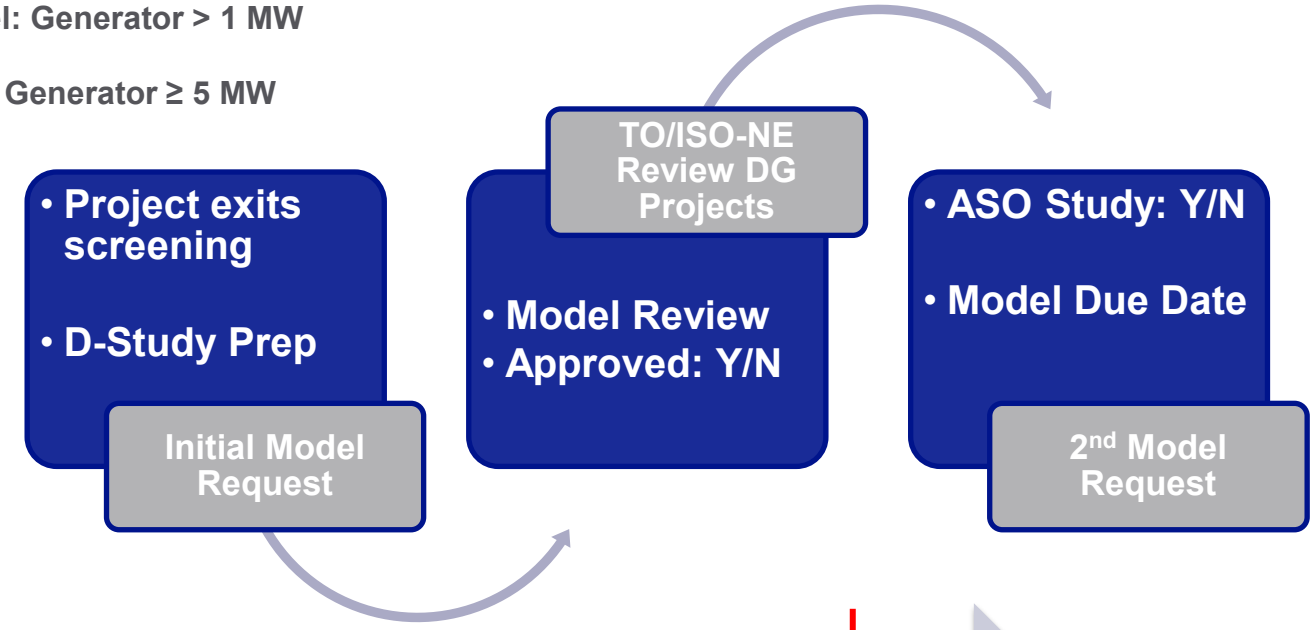
- Advises ISO-NE on the "…design and oversight of reliability standards for the New England power system."
- Reviews proposed plans/generator notifications (Generators > 1 MW) to confirm no adverse impact to EPS



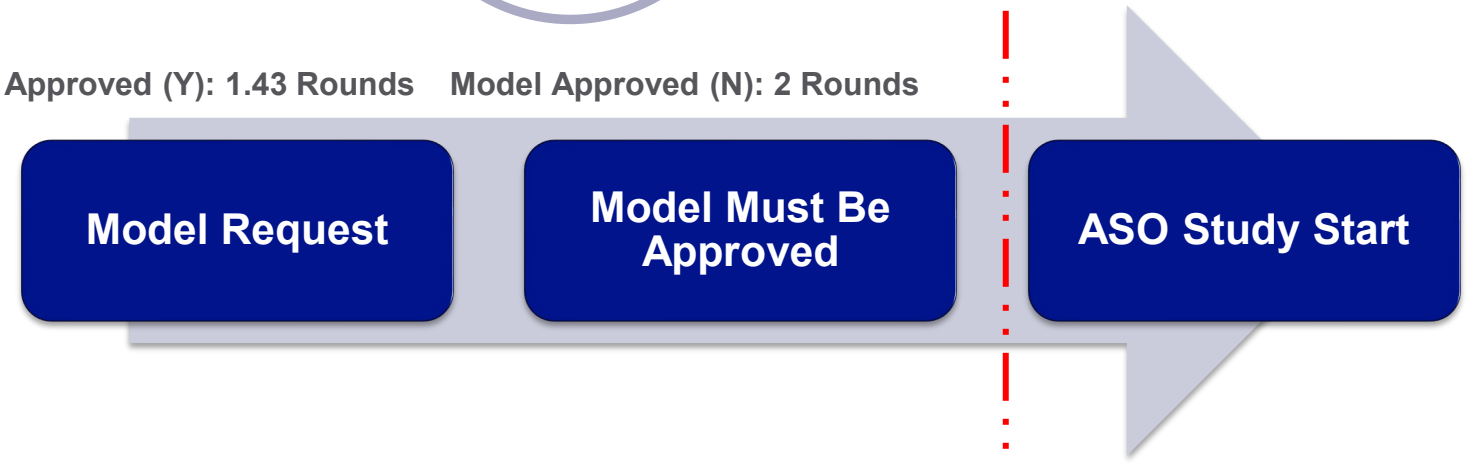
ASO Critical Path/Element: PSCAD, PSSE Model

PSCAD Model: Generator > 1 MW

PSSE Model: Generator ≥ 5 MW



Model Approved (Y): 1.43 Rounds **Model Approved (N): 2 Rounds**



ASO Critical Path/Element: PSCAD, PSSE Model

Model Approved (Y): 1.43 Rounds

Model Approved (N): 2 Rounds (and counting)

Time Factor1: ASO Study1 In Progress

Time Factor2: Initial Model Request

Time Factor3: Initial Customer Response

Time Factor4: ASO Study1 Completion

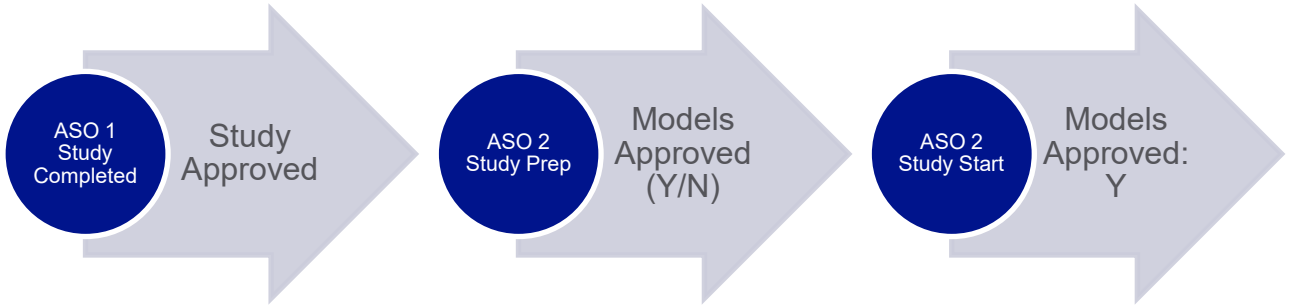
Time Factor5: ASO Study2 Prep

Time Factor6: Second Model Request: Due Date

Time Factor7: Customer Response

Time Factor8: Model Review/Correction Effort

PSCAD Model Requirements Checklist for Inverter-Based DER > 1 MW



Guideline for PSSE Stability Modeling of Inverter-Based DER ≥ 5 MW to Meet National Grid SRD

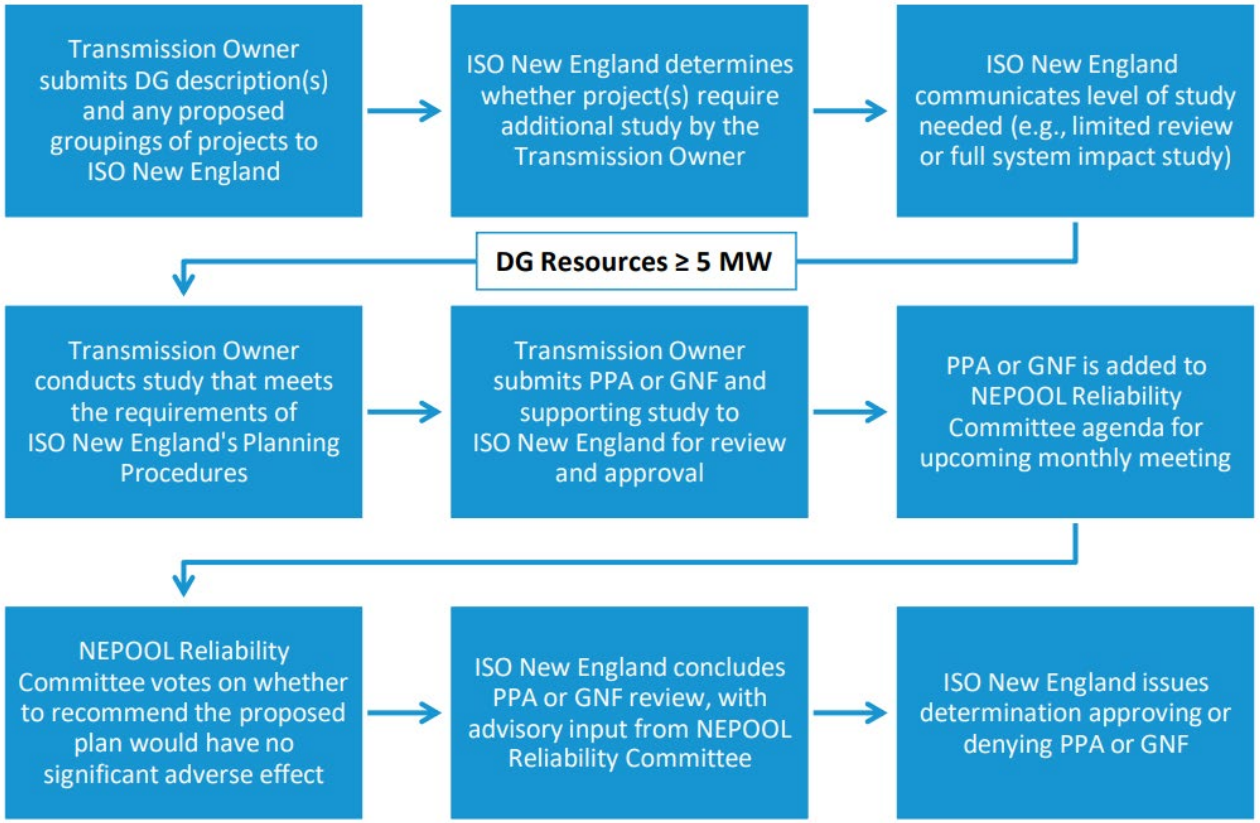
ASO Critical Path/Element: PSCAD, PSSE Model

NOTE: National Grid will not modify any model parameters to make the model comply with the requirements outlined in the checklist. It is developers' responsibility to make sure all settings within the models and physical inverters are consistent and meet all applicable requirements.

ASO Study Steps with ISO-NE

This step occurs when the distribution review knows how many MW will be at each POI

T- Study Inputs: Customer payment, D-study outputs, PSCAD models and MWs per POI



Note: ASO study hold is often indicated at a point when transmission cannot start the study because of an absence of study inputs (above), or ASO studies are already in progress. An ASO study hold could last for 12-18 months, yet the study could have been completed in 5-6 months.

Flowchart Reference Above : iso_new_england_interconnection_review_process_information_resource_october_2019_final.pdf (iso-ne.com)

ASOs in FERC Order 2023 Landscape

In collaboration with the IIRG, National Grid with the other transmission owners, have written up a number of reasonable scenarios that may materialize within the cluster, to enable us to assess and discuss the most optimal way of managing. Below are the scenarios outlined.

1. ASO & Load Studies
2. Upgrades in Later FERC Study Stages
3. Parallel Utility Studies
4. Redundant Upgrade Resolution
5. Study Changes between Utilities
6. Model Management:
    a) Sharing models from ISO-NE
    b) Sharing models between transmission owners
    c) PSCAD Cases

Next meeting is planned for April 24, where the transmission owners hope to get better guidance on all of these areas of interest.

ASO References, Reports, Resources

- **MA Interconnection Documents**
- **ASO Technical Requirements and Resources**
- **ASO Updates Web Page (MA ASO Updates)**
- **Model Review Requirements & ASO Initiation Timeline**
- **Guidelines: PSCAD and PSSE Models**
- **ASO Impact Screen**

- **MA ASO Updates**
- **I.E.4 Stakeholder Bi-Monthly Report**
- **I.E.6/E.7 Notices of Potential ASO Study and Bi-Weekly Update**
- **I.E.9 Stakeholder Monthly ASO Update**

07

Post Connection Support

Mario Mina

nationalgrid

Connected Customer Requests

Who can submit Connected Customer request?

Any party that is a stakeholder (such as billing customer or system owner) can submit a connected customer request. Please note that information or changes to the system will not be honored without proper authorization from the billing customer and/or system owner.

What type of requests should be submitted?

DG Billing Inquiries

- Why haven't I received my bill
- Why am I getting multiple bills
- I don’t see my incentive credits

Credit Allocation Inquiries

- How do I change my allocations?
- I don't know my meter number?
- Why haven't the transfers gone out?
- Can I get a transfer history?

Transfer of Ownership

- Follow the steps outlined in the knowledge page

Power Quality / High Voltage

- We are seeing constant spikes in our data
- Our generation is not matching your generation
- Our project is tripping off-line several times a week

Credit Allocation Change Requests

Other Post Interconnection Inquiry

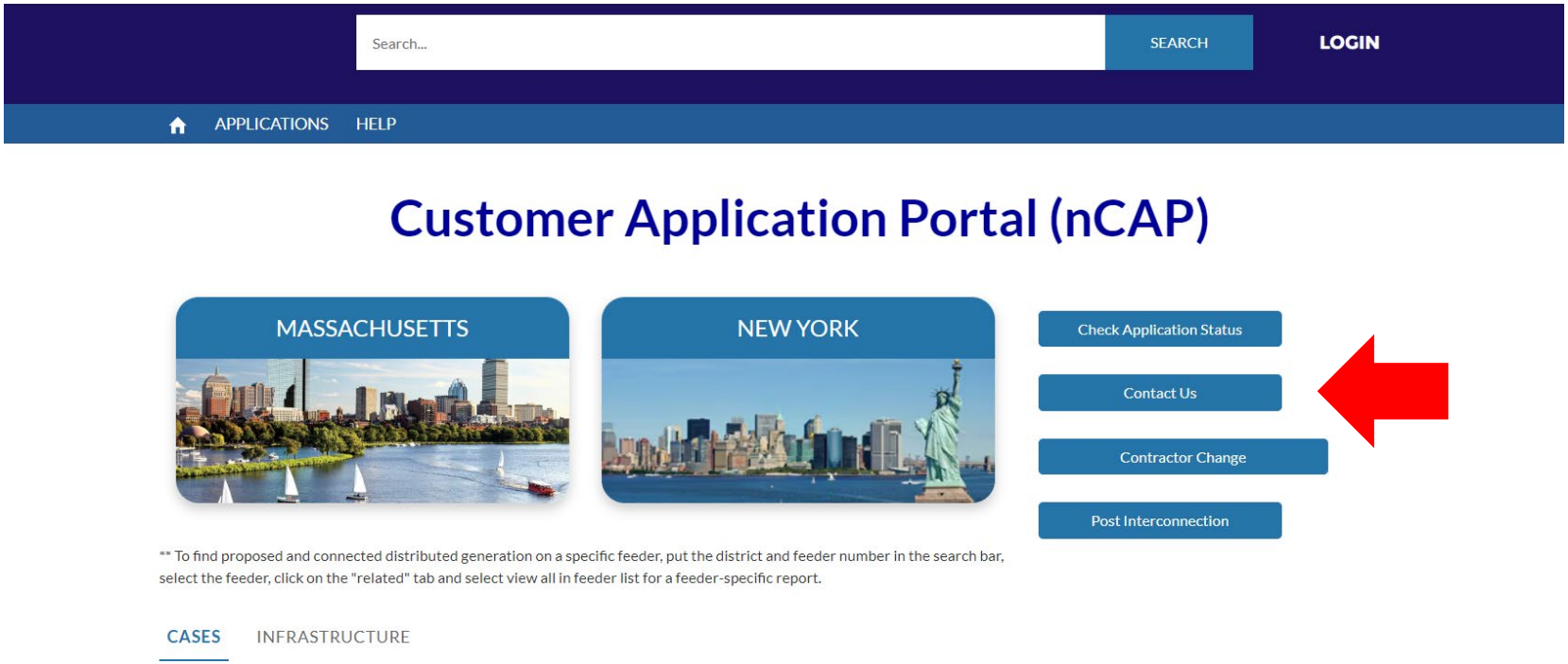
- I need to update my mailing address
- I would like to add this to my billing portal
- I would like to expand my system what are the steps?

System Terminated / Decommissioned

How to submit a DG Inquiry

Contact Us

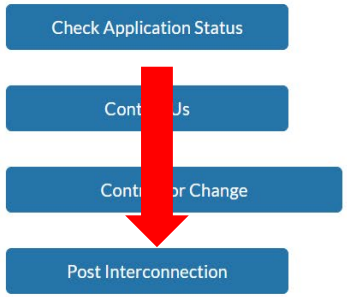
Go to: https://ngus.force.com/s/



Where to find allocation change forms

1.) Go to: https://ngus.force.com/s/

Customer Application Portal (nCAP)

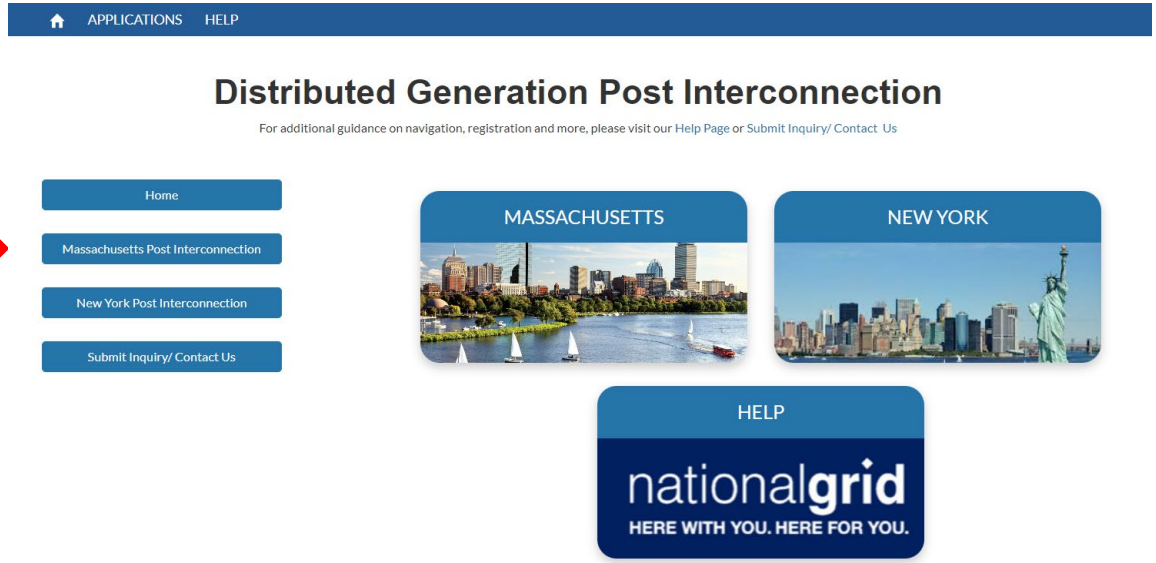


2.) click Post Interconnection

Where to find allocation change forms

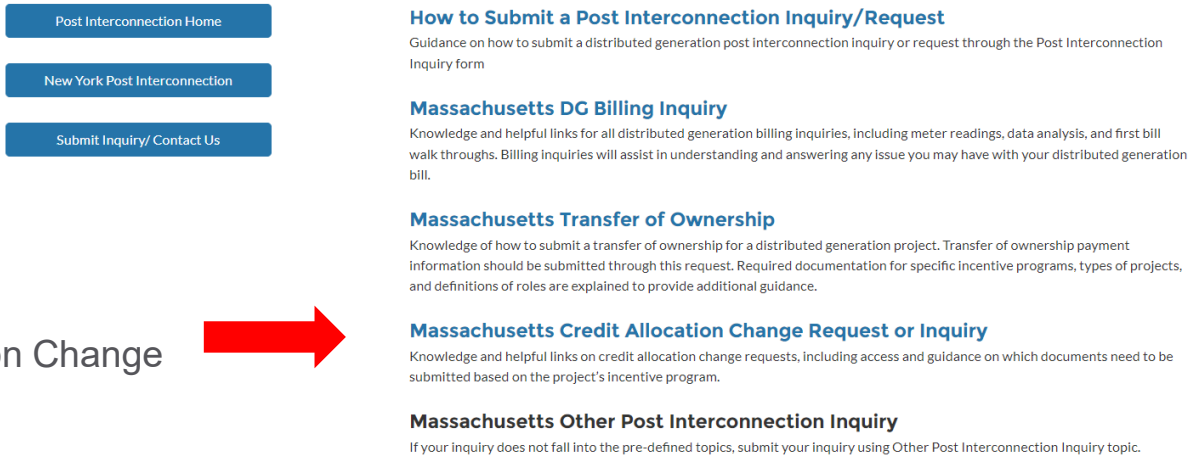
3.) click on

Massachusetts Post Interconnection



4.) click on

Massachusetts Credit Allocation Change Request or Inquiry



Credit Allocation Change Requests

- National Grid allows up to 6 credit allocation change requests per year, in addition to accepting "removal" and "swap" forms (where a single account number is removed or replaced, with no further changes to other allocation accounts or percentages on the form) as needed.
- Under the SMART and net metering tariffs, National Grid will carry forward any remaining credit balance on a customer account, with the exception of Stand-alone Alternative On-Bill Credit accounts within the SMART program. Carrying forward of credit balances applies to both host customers and recipients.
- If a recipient account closes before bill credits generated during a billing period are allocated to it, then the allocated percentage will remain on the host customer's account.

Net Metering – Complex / MA SMART Net-Metering

Please submit the Schedule Z form and the Schedule Z Excel

Please fill in only blanks on Excel document, do not alter the excel sheet in any way.

For satellite account removals or swaps (no changes to % of credit allocations), you may use one of these forms:

Please submit the Account Removal form

Please submit the Swap form

If you are closing your account and would like National Grid to apply your balance of bill credits to another account, you may use a One-Time Transfer form. Request must be from the customer (host or recipient) closing account.

- **To transfer to a single account please use the One Time Transfer Form**
- **To transfer to multiple accounts please use the One Time Transfer Form for Multiple Accounts**

** *Credits can only be transferred within the originating accounts load zone.*

***Accumulated credits on a satellite account are only allowed to be transferred when the satellite account is in a final status.*

MA SMART – ALTERNATIVE ON-BILL CREDIT

Please submit the AOBC (Alternative On-bill Credit) form

Important Reminders for Interconnected customers

Outage notifications for DG facilities require updated emergency contact information. Please be sure to notify National Grid **if** or **as** your emergency contact information changes!

My Business Account is available for commercial customer billing. Access My Business Account here!

A commercial customer can access all their accounts using a single log-in!

Our Solar hub is now live! Read about everything solar and view sample bills per project type.

Physical Changes to Connected Projects

- **Customers seeking to make changes to Connected Projects should submit a DG Inquiry Case via the Contact Us button in the Portal.**
- **The Case will be reviewed and routed to an Account Manager who will guide you through what is needed based on the changes or upgrades you are requesting.**
- **Management of the ask will take place in the Portal either on the original Case or a new one that will be created by the Account Manager.**
- **Only non-Significant Changes can be handled this way. Significant changes will require a new Application.**
  - Example of a non-Significant Change: inverter updates/replacements at the end of their warranty period or natural life cycle
  - Example of a Significant Change: Adding batteries to a connected solar project
  - If unsure if the change is Significant, submit the DG Inquiry Case and NG will advise
- **Age of projects and nature of the ask will drive cost and timeline**
  - A study or review from engineering may be required
  - A Witness Test may need to be performed

Do not make changes to Connected Projects without informing National Grid. Alterations that invalidate the ISA may force a project to be disconnected until corrections are made.

08

Portal Moment

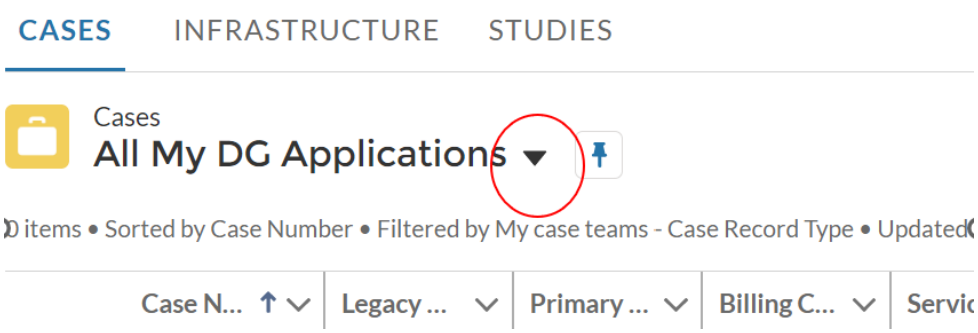
Anmol Singh

nationalgrid

Portal Moment

How to find all your company's DG cases

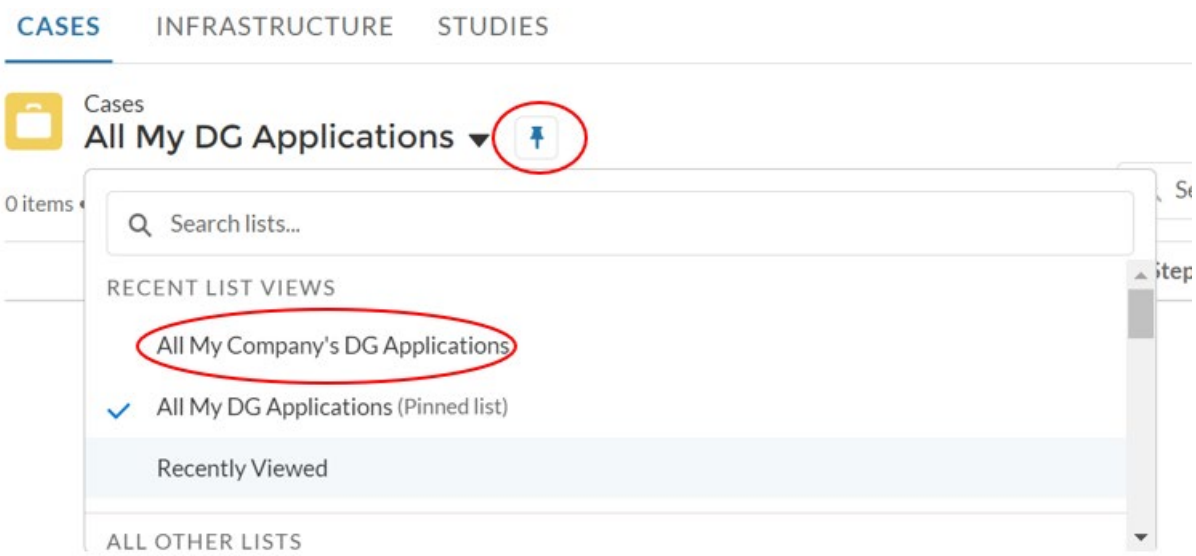
1. From the Cases Tab, click on the drop-down arrow



Portal Moment

Pinning the best view for you

1. Scroll down and/or up until you find “All My Company’s DG Applications” and select.
2. Make sure to pin this view so you always see this view when you log in.



09

Flexible Connections Programs

Michael Porcaro

nationalgrid

ARI (Active Resource Integration) Flexible Interconnections Pilot

Steps toward network optimization & increased enablement for interconnection capacity

ARI is a new service being explored by National Grid designed to enable our solar developers, ESS developers, and all customers to connect to our network **faster** and **operate safely within the EPS**. ARI is the first step toward our ambitious goals to enable DERMS capability to potentially manage flexible load and generation capacity across the Massachusetts service territory.

Why?

Difficult to operate the EPS with highly volatile DER; limited monitoring and control of DER

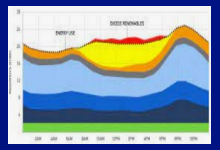
High saturation of clean energy interconnection requests have resulted in changes in load and generation system impacts that challenge EPS operating constraints

At times, high interconnection cost and/or lead times for system upgrades have been a hurdle for customers to interconnect

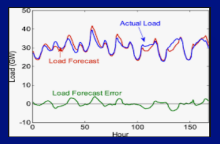
Link to ARI Pilot Program Homepage

Including program details and submission process

Key Concept Features



DER curtailment: Automated curtailment of DER based on ***real-time system conditions***



Load forecast: Use AI / ML to forecast curtailment needs in advance

Integrations: Connect with distribution systems for real-time system awareness, automated DER dispatch and control center operator visibility, minimizing necessary system mods

Value

- **Expedite time to connection**
- **Increase connection volume on existing assets through proactive management**
- **Increase energy realization toward the Commonwealth's clean energy goals**
- **Increase overall EPS visibility and control**
- **Improve customer experience for developers**

Local Power Control (LPC)

LPC is looking to solve the issue of providing "off the shelf" solutions for projects with net zero thermal impact – adding both additional load and generation with 0 thermal load and hence no impact to the EPS.

- Monitoring but no control
    - LOCAL control ≠ grid control
- **Customer adds load and generation. Utilizing a Power Control System (PCS).**
- Customer responsible of assuring **operations.**
- **National Grid will monitor compliance. National Grid will utilize reclosers for large facilities to resolve none compliance.**

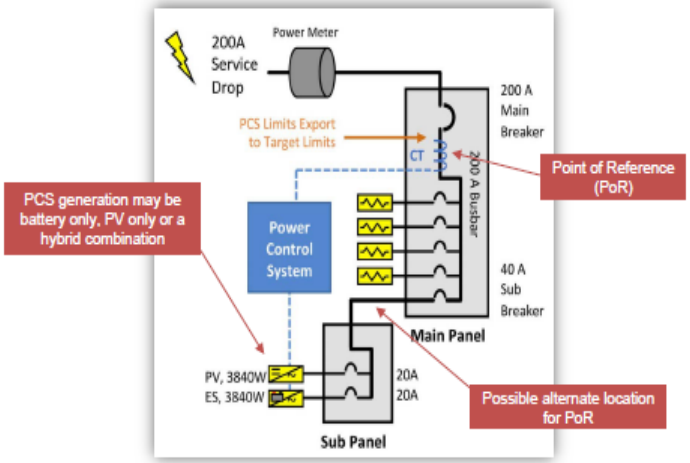


Figure 1-1
Example System Installation of a Power Control System

Source: EPRI-Power Control System (PCS) Test Procedures and Evaluation Results

National Grid Flexible Program Offerings

- Website with full information:
  - https://gridforce.my.site.com/s/article/ACTIVE-RESOURCE-INTEGRATION-ARI-FLEXIBLE-INTERCONNECTIONS-PILOT

- Seeking interest from solar cases and storage cases, for both ARI and Local Power Controllers

ARI

- Energy Storage ARI Criteria & Eligibility
- Solar ARI Criteria & Eligibility

Local Power Control

- Local Power Control Participation Guidance

- To submit a request for pilot consideration a customer must:
  1. Review pilot eligibility requirements to self-assess whether the application is a possible candidate
  2. Prior to ***9/1/2024*** send an email to NationalGridARI@nationalgrid.com to submit a request for consideration. Example requests language and content listed on the website.
  3. Once received, the application will be added to the possible candidate pool for consideration by National Grid. Requests received on or after ***9/1/2024*** will not be considered.
  4. National Grid will provide responses to all requests in as timely a manner as possible, indicating denial or acceptance into the pilot.

10 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. Q&A's will also be formally documented and uploaded to our website.

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Appendix: Summary of Resources, Documents & Links

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

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

MA Dist. Group Studies: https://gridforce.my.site.com/s/article/MA-Distribution-Group-Studies

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://systemdataportal.nationalgrid.com/MA/

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

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