

NSTAR Electric Company
d/b/a Eversource Energy
Department of Public Utilities
D.P.U. 22-47

Information Request: DPU 1-3

June 07, 2022

Person Responsible: Digaunto Chatterjee, Lavelle A. Freeman,
Juan F. Martinez, and Gerhard Walker
H.O.: Katie Zilgme
Page 1 of 3

Information Request:

Refer to the prefiled revised testimony of Digaunto Chatterjee, Lavelle A. Freeman, Juan F. Martinez, and Gerhard Walker at 25. Provide further descriptions of the following:

- (a) “other internal guides”,
- (b) “standards for system design and equipment application”, and
- (c) “industry standards”.

Response:

The documentation cited in the prefiled revised testimony at pages 25-26 includes the following industry standards and Eversource internal standards and planning guides. These guides and standards, taken in the aggregate, comprise the current Eversource policies that pertain to the study, interconnection, and operation of Distributed Energy Resources (DER) to the Company’s EPS (Electric Power System).

- IEEE Standard 1547-2018 (and formerly IEEE 1547-2003):
Institute of Electrical and Electronics Engineers (IEEE) is the approved standard for criteria and requirements for the interconnection of distributed generation resources into the electric power grid. It is recognized as the governing standard in Massachusetts in the Eversource “Standards for Interconnection of Distributed Generation) tariff MDPU No. 55A.
- Eversource Distribution System Planning Guide (DSPG):
This Eversource guide sets forth standards for distribution system design and system studies including loading criteria, equipment ratings, system voltages, power quality, reliability, standard substation designs, secondary network criteria, evaluation of DER, system modeling criteria, load forecasting, system study methodologies, and modeling assumptions.
- Eversource SYS PLAN 010 Bulk Distribution Substation Assessment Procedure:
This Eversource standard pertains to the performance of annual assessments for bulk distribution substations (115kV transmission down to distribution voltage), including modeling assumptions, software tools, load forecasting, and relevant contingency events to be tested.

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Page 2 of 3

- Eversource Information and Technical Requirements for the Interconnection of Distributed Energy Resources:

This is a resource under the Customer Care section of the Eversource website to provide customers and DER developers with the minimum standards and policies of Eversource relevant to the interconnection of DER / DG resources to the Eversource EPS (Electric Power System).

https://www.eversource.com/content/docs/default-source/builders-contractors/der-information-technical-requirements-2020.pdf?sfvrsn=714fd562_0

- Eversource Distributed Generation Policies:

The Eversource Distributed Generation Policies, which are part of the Eversource Distributed System Engineering Manual (DSEM), form the basis for all interconnection and study requirements for DER interconnection to the Eversource EPS. These policies include sections on:

- Interconnection Transformer Winding and Grounding
- Power Quality Requirements (flicker)
- Transformer Reverse Power Capability
- VAR Power Factor
- VAR Operation Frequency
- Transient Overvoltage
- Utility Accessible Interconnection Switch
- General Standards – Large Scale DER
- Substation Modifications
- Express Feeders
- Use of Rights-of-Way
- Power Factor Correction
- Compliance with ISO-NE Operating Procedures #14 and #18
- Compliance with ISO-NE Operating Procedure #17 Compliance Survey
- Analyzing Non-Export Batteries, CHP's, and Base Load Generation
- DER Ride Through Settings
- Maximum Allowable DG Fault Current Contribution
- Impact of DER's on Substation High Speed Bus Transfer Schemes
- Underfrequency Load Shedding
- Closed Transition Generators
- Open Transition Generating Facilities

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D.P.U. 22-47
Information Request: DPU 1-3
June 07, 2022

Person Responsible: Digaunto Chatterjee, Lavelle A. Freeman,
Juan F. Martinez, and Gerhard Walker
H.O.: Katie Zilgme
Page 3 of 3

- Generator Step-up Transformer Configurations
- Anti-Islanding Studies
- Secondary Network Connections (Spot and Area Networks)
- Screening and Planning Studies
- Commissioning Test Requirements
- DER/DSCADA Visibility and Control Requirements
- Battery Storage Equipment
- FERC vs. State Jurisdiction

NSTAR Electric Company
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D.P.U. 22-47
Information Request: DOER-ES 1-1
July 07, 2022
Person Responsible: Digaunto Chatterjee,
Lavelle A. Freeman, Juan F. Martinez,
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H.O.: Katie Zilgme
Page 1 of 3

Information Request:

Please refer to the Company's response to DPU 1-3.

- a) For each document or standard identified in this response, please identify if, and if so when, the Company revised each document in response to feedback from the Department or from participants within a Department proceeding.
- b) For each document or standard identified in this response, please confirm that the Company applies these standards uniformly across its service territory.
- c) For each document or standard identified in this response, please describe if, and if so how, the Company coordinates with National Grid and Unitil to ensure consistency in planning protocols across the Commonwealth.

Response:

- a) For each document or standard identified in the Company's response to Information Request DPU-1-3, the occasions or opportunities for review by the Department or their representatives are described below:

- IEEE Standard 1547-0218 (and formerly IEEE 1547-2003).

This is a *national* standard for DER interconnections that has been negotiated under the auspices of the Institute of Electrical and Electronic Engineers (IEEE) by various stakeholders, including utilities, DER developers, inverter manufacturers, solar equipment manufacturers, and others, and is cited as the de facto technical standard for DER interconnections in Massachusetts per the Eversource Distributed Generation Interconnection Tariff, Standards for Interconnection of Distributed Generation, MDPU #55A. The relevance of this standard has been recognized by the Department as far back as D.T.E. 02-38 and D.P.U. 07-6.

- Eversource Distribution System Planning Guide (DSPG).

This is a revised guideline that sets for standards for distribution system design, operating criteria, and modeling assumptions and has been filed with and reviewed by the Department as part of the Eversource Annual Reliability Report (ARR) filed under D.P.U. 22-ARR-02 as well as prior filings in D.P.U. 20-75.

NSTAR Electric Company
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D.P.U. 22-47
Information Request: DOER-ES 1-1
July 07, 2022
Person Responsible: Digaunto Chatterjee,
Lavelle A. Freeman, Juan F. Martinez,
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H.O.: Katie Zilgme
Page 2 of 3

- Eversource SYS PLAN 010 Bulk Distribution Substation Assessment Procedure.

This standard pertaining to the annual assessment for bulk distribution substations has been submitted to and reviewed by the Department under several dockets.¹

- Eversource Information and Technical Requirements for the Interconnection of Distributed Energy Resources (DER).

This document summarized the standards and requirements for the safety, performance, reliability, operation, design, protection, testing and maintenance of DER resources interconnecting to and operating in parallel with the Eversource EPS (Electric Power System). This document was developed at the request of and reviewed by the Massachusetts TSRG (Technical Standards Review Group),² which is a group of utility, regulatory, and DER stakeholders that was formed in D.P.U. 11-75. The TSRG has ex-officio members from the Department (the DPU ombudsman and a Lead Engineer). So, this document would have been reviewed the Department as part of that forum.

- Eversource Distributed Generation Policies

These are individual policies for various aspects of DER interconnections and are part of the Eversource DSEM (Distributed System Engineering Manual). These are internal policies, none of which on an individual basis would have been reviewed by the Department as part of an adjudicatory proceeding.

- Common Technical Guidelines

This is a reference guide that identifies areas of common and different practice among MA Utilities and refer to each of their technical Standards and requirement for the interconnection of DERs.

- b) Yes, the Company applies these standards uniformly across its service territory in Massachusetts.

¹ MPDU 13-64, Hyannis Junction Substation 40A Petition; MDPU 14-03 Mashpee Substation 40A Petition

² [Massachusetts Technical Standards Review Group | Mass.gov](https://www.mass.gov/info-details/massachusetts-technical-standards-review-group)

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Information Request: DOER-ES 1-1
July 07, 2022
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Lavelle A. Freeman, Juan F. Martinez,
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Page 3 of 3

- c) There have been active discussions among EDCs on Battery Energy Storage Systems (BESS) integration requirements, and such technical requirements are captured in the Common Technical Standards document which is posted on MA DPU website. While the Company understands the need to coordinate and collaborate with other EDCs in the Commonwealth and routinely engages in discussions on planning philosophy and in joint planning exercises were warranted, the Company maintains that it is critical for each EDC to develop planning criteria and standards that are targeted for its service area, operational requirements, and customer expectations.

NSTAR Electric Company
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D.P.U. 22-47
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July 08, 2022
Person Responsible: Digaunto Chatterjee,
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Page 1 of 1

Information Request:

Reference Ex. ES - Engineering Panel-1 at 26, line 1. Provide each of the “other internal guides” that were relied upon.

Response:

Please refer to the Company’s response to Information Request DOER ES 1-1.