ISO New England Operating Procedure No.16
Transmission System Data

Effective Date: May 4, 2012

References:

ISO New England Operating Procedure No. 19 - Transmission Operations (OP-19)

ISO New England Planning Procedure No. 7 – Procedures for Determining and Implementing Transmission Facility Ratings in New England (PP7)

NERC Reliability Standard FAC-008 Facility Ratings

NERC Reliability Standard FAC-009 Establish and Communicate Facility Ratings

Local Control Center Instructions:

CONVEX	NONE
MAINE	NONE
NEW HAMPSHIRE	NONE
NSTAR	NONE
REMVEC II	NONE
VELCO	NONE

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I. OVERVIEW AND PURPOSE

Data, which defines and represents the physical characteristics, ratings, and operational data of all New England Transmission System equipment, is required by ISO New England (ISO), the Local Control Centers (LCCs), and Market Participants dispatch centers. This data is used to determine limits within which the bulk power system is operated and to develop accurate system models. The timely submission of accurate and complete data is critical to the creation of the models used in real-time reliability operations, market operations, operations planning and to the applications that operate on those models.

It is the responsibility of the Market Participants (owner or Lead) to determine and submit the required data for new, reconductored, and reconfigured facilities for all its transmission equipment in accordance with the submission schedules in Sections II and III of this Procedure.

NOTE

The requirement for distribution transformers with a high side winding which connects at 69kV or above is new. Those that are not currently on file with ISO will be added in collaboration between ISO and the Market Participants. ISO is also responsible for acquiring the data for that portion of any transmission facility that is beyond the ISO border.

ISO will maintain an application housing NX-9 data for all existing transmission equipment, as provided by the Market Participants on the appropriate NX-9 form (see section IV).

Market Participants shall collaborate with ISO in developing or revising rating procedures, establishing ratings for new transmission facilities and modifying ratings of existing transmission facilities consistent with Planning Procedure No. 7 (PP7). A facility rating shall equal the rating of the most limiting individual equipment that comprises the facility.

ISO will implement new or revised data internally at the next scheduled update when that data is submitted by the Market Participant as listed in the ISO Customer and Asset Management System (CAMS) and after such data has been reviewed and approved in accordance with this Procedure. Publication of approved NX-9 data to the ISO LCC web page, available to LCC personnel only, and notification to internal ISO staff will take place at the time of data implementation.

Questions regarding use of the NX-9 application should be directed to the ISO Market Support Services Department.

II. EQUIPMENT DATA SUBMISSION SCHEDULE

Market Participants shall submit equipment data for New Facilities, Planned Modifications, Planned Re-evaluation of Existing Facilities, Correction of Detected Data Error, Unplanned Equipment Change, Temporary Ratings and Impedance Changes, and Re-submission of Rejected NX-9's, consistent with the schedules defined in this section. In-Service Date shall mean the date upon which the Market Participant reasonably expects the equipment will be ready to be energized or carry power.

New Facilities: Market Participants shall submit data on New Facilities (new lines, transformers, substations, transformer replacements and equipment additions to existing substations) to ISO at least one hundred twenty (120) calendar days in advance of the expected In-Service Date of the New Facilities. The advanced notice data can be based on preliminary, planned or Market Participant specification data.

Market Participants shall update this advanced notice NX-9 data at least fifteen (15) business days prior to the In-Service Date. The transformer data must be derived from the transformer test report. Data for all other equipment must either be based on as built or derived from the specification for construction.

Submission of NX-9 data for a project with an accelerated In-Service Date shall be coordinated with the ISO NX-9 Administrator.

As built data must be confirmed or submitted within 3 months of equipment In-Service Date. If as built data is not available within this timeframe, the Market Participant must notify the ISO NX-9 Administrator.

Planned Modifications to Existing Facilities: Data associated with substation equipment modifications and changes to existing lines must be submitted at least fifteen (15) business days prior to the expected In-Service Date and must either be based on as built or derived from the specification for construction.

As built data must be confirmed or submitted within 3 months of equipment In-Service Date. If as built data is not available within this timeframe, the Market Participant must notify the ISO NX-9 Administrator.

Planned Re-evaluation of Existing Facilities: A planned re-evaluation, such as due to a methodology change or a change to impedance or rating calculation formula, shall be coordinated with the ISO NX-9 Administrator.

Correction of Detected Data Error: Corrected NX-9 data shall be submitted within ten (10) business days of establishing corrected data for a detected error. Corrected data shall be provided to the LCC.

Unplanned Equipment Change: NX-9 data pertaining to an unplanned equipment repair or replacement that result in a change to equipment rating or impedance shall be submitted within ten (10) business days of the repair. Updated data shall be provided to the LCC.

Temporary Ratings and Characteristics Changes: Unplanned temporary adjustments to ratings and characteristics such as impedance data, including those due to localized emergency situations shall be provided to the ISO-NE control center without delay. Planned temporary adjustments shall be reported during the outage application process.

Temporary changes which are expected to be in place less than forty-five (45) days do not require an NX-9 submission. Temporary rating changes associated with NERC's Alert dated 10/07/2010 regarding "Consideration of Actual Field Conditions in Determination of Facility Ratings" for transmission facilities, including those expected to be in place longer than 45 days, also do not require an NX-9 submission. These NERC Alert related changes shall be reported via the outage application process. All other temporary changes expected to last forty-five (45) days or longer require an NX-9 submission be made by the Market Participant in accordance with normal submission schedules.

Re-submission of Rejected NX-9s: NX-9 forms submitted by Market Participants that are rejected by the ISO NX-9 Administrator will be returned to the Market Participant for correction. For equipment with a scheduled In-Service Date within fifteen (15) business days, corrections must be submitted within five (5) business days of ISO notification to the participant. For equipment with a scheduled In-Service Date later than fifteen (15) business days, corrections must be submitted within ten (10) business days of ISO notification to the participant.

Widespread outage and major system restoration: ISO recognizes that during times of widespread outage and major system restoration, it may not be possible to adhere to the above timelines in all situations. However, all affected NX-9 data must be updated within six months of system restoration.

The table below is a quick reference guide to the above submission schedule:

Change Type:	NX-9 Submission Required:
New Facilities, preliminary data	At least one hundred twenty (120) calendar days in advance of the expected In-Service Date
New Facilities, as tested, as built or based upon specification	At least fifteen (15) business days prior to the In-Service Date
New Facilities, as built	Within 3 months of equipment In-Service Date
Planned Modifications to Existing Facilities, as built or based upon specification	At least fifteen (15) business days prior to the expected In-Service Date
Planned Modifications to Existing Facilities, as built	Within 3 months of equipment In-Service Date
Planned Re-evaluation of Existing Facilities	Coordinated with the ISO NX-9 Administrator
Correction of Detected Data Error	Within ten (10) business days of establishing corrected data
Unplanned Equipment Change	Within ten (10) business days of the repair
Temporary Ratings and Characteristics Changes, less than forty-five (45) days	NX-9 submission not required
Temporary Ratings Changes, NERC Alert related	NX-9 submission not required - reported via the outage application process
Temporary Ratings and Characteristics Changes, forty-five (45) days or longer (other than NERC Alert related)	In accordance with normal submission schedules
Re-submission of Rejected NX-9s, In-Service Date within fifteen (15) business days	Within five (5) business days of notification
Re-submission of Rejected NX-9s, In-Service Date later than fifteen (15) business days	Within ten (10) business days of notification

III. SUBMISSION OF DATA DEFINING TRANSMISSION SYSTEM FACILITIES (STATION ONE-LINE DIAGRAMS)

The Market Participant shall submit individual station one-line schematic diagrams of all substations with equipment operating at 69 kV or above. These diagrams are required to be on file for use by ISO and the LCCs. ISO will use these diagrams to define the substation model.

New or revised station one-line diagrams shall be submitted in triplicate to: Manager, Power System Model Management and the appropriate LCC. Revised one-line diagrams must be accompanied by specific documentation of the items changed. Documentation of items changed may be accomplished by notation in a revision box on the diagram or by cover memo.

Market Participants shall submit one-line schematic diagrams for new lines, new substations and equipment changes or additions to ISO at least one hundred eighty (180) calendar days in advance of the expected In-Service Date of the equipment. The advanced notice diagram(s) can be based on preliminary, planned or Market Participant specification data but must include device nomenclature.

Market Participants shall provide any update issued for construction one-line schematic diagrams prior to the In-Service Date of the facility. Diagrams must either be based on as built or derived from the specification for construction. If derived from the specification for construction, the as built diagrams must be submitted within 30 calendar days of the In-Service Date.

IV. DETERMINATION AND SUBMISSION OF DATA REPRESENTING THE PHYSICAL CHARACTERISTICS, RATINGS, AND OPERATIONAL DATA OF TRANSMISSION SYSTEM EQUIPMENT (NX-9 FORMS)

Revised or new transmission facility data is to be submitted electronically to the ISO NX-9 Administrator (nx9admin@iso-ne.com) in the NX-9 application. The data required and the appropriate NX-9 forms are identified in the following Appendices, which also provide explanations of terms and instructions for data preparation:

- OP-16 Appendix A - Explanation of Terms and Instructions for Data Preparation of NX-9A - ISO New England Transmission Equipment Rating, Characteristic, and Operational Data - Transmission Line (OP-16 App A)

- OP-16 Appendix B - Explanation of Terms and Instructions for Data Preparation of NX-9B - ISO New England Transmission Equipment Rating, Characteristic, and Operational Data - Transformer - FIXED/GSU/TCUL (OP-16 App B)

- OP-16 Appendix C - Explanation of Terms and Instructions for Data Preparation of NX-9C - ISO New England Transmission Equipment Rating, Characteristic, and Operational Data - Transformer - Phase Shifting (OP-16 App C)

- OP-16 Appendix D - Explanation of Terms and Instructions for Data Preparation of NX-9D - ISO New England Transmission Equipment Rating, Characteristic, and Operational Data - Capacitor/Reactor (OP-16 App D)

- OP-16 Appendix G - Explanation of Terms and Instructions for Data Preparation of NX-9 - ISO New England Transmission Equipment Rating, Characteristic, and Operational Data - Other Equipment (OP-16 App G)

ISO will review all submitted data to verify that it is complete, reasonable and consistent with the related data and with the reason for the revision and to ensure that it conforms to the explanation of terms. ISO will notify the Market Participant of any discrepancies found. The Market Participant will provide corrections on a revised NX-9 form consistent with the schedule identified in Section II, Re-submission of Rejected NX-9s.

Ratings data may be subjected to a more rigorous review as the need is determined by ISO. During the period of such a review, the new rating data will be granted provisional approval and data resolution and implementation will proceed as described in Section 3 of PP7. ISO will notify the M/LCC Heads that a provisional rating has been implemented.

If any other submitted data remains in dispute, the ISO Compliance Department will send a formal written notification to the Market Participant seeking resolution. Upon resolution, the data submittal will be approved by ISO and implementation will proceed.

V. ANNUAL DATA CERTIFICATION

In January of each year, unless otherwise communicated to the Market Participant NX9 Contacts, ISO will initiate an NX-9 certification process. Market Participants must respond as outlined in OP-16 Appendix E - Annual Data Certification of ISO New England Transmission Equipment Rating Characteristic, and Operational Data (OP-16 App E) by the date specified by ISO which will be at least 30 calendar days from the certification initiation. This process requires that the Market Participant certify that all transmission facilities identified in this Procedure are accurately represented in the ISO NX-9 application.

Market Participants should not include Planned Re-evaluation of Existing Facilities, or unreported changes due to widespread outage and major system restoration that are within the six month time allowance, when responding to the annual certification.

VI. OP 16 REVISION HISTORY

Document History (This Document History documents action taken on the equivalent NEPOOL Procedure prior to the RTO Operations Date as well as revisions made to the ISO New England Procedure subsequent to the RTO Operations Date.)

Rev. No.	Date	Reason
Rev 0	8/20/98	
Rev 1	12/01/00	
Rev 2	09/06/02	
Rev 3	02/01/05	Updated to conform to RTO
Rev 4	05/06/05	Update for initiation of VELCO Local Control Center
Rev 5	08/05/05	Clarify timeliness requirements, Included ratings collaboration requirements, Added OP 16 contact list (Appendix F), Removed existing Appendix E, Properly described ISO's role in reviewing and implementing NX-9 data, added Annual Data Certification and clarified terminology used throughout document
Rev 6	03/02/07	Added direct statement that a facility rating is determined by the rating of the most limiting element to conform with NERC Standard FAC-008
Rev 7	05/04/12	Biennial Review by Procedure Owner; Changed document to Arial, replace page pagination with Page X of Y format; Added Uncontrolled disclaimer to 1st page footer and added "Hard Copy is Uncontrolled" to all footers; Reference Section corrected document titles; Added NSTAR to Local Control Center Instructions listing; Deleted reference to retired App F ,replaced with CAMS reference; Globally defined acronyms of ISO for ISO New England, LCC for Local Control Center; changed "must" to "shall"; changed "transmission equipment" to "transmission facilities"; language clarifications and changes to improve readability and user comprehension of requirements; Table of contents: formatting cleanup, correct Section and Appendix titles and add reference to new appendix G; Section I. add note re: distribution xfmr NX-9 requirement in paragraph 2; last paragraph corrected OP-16 title; Section II. New section defining submission schedule; Section III. Changed Supervisor to Manager; added submission schedule for diagrams; Section IV. Changed attachments to Appendices, & corrected the Appendices titles in this Section bullets; added reference to new appendix G; added reference to submission schedule for corrected submissions; added notification to M/LCC Heads for provisional rating implementation; Section V. Corrected OP-16 App E title; excluded planned re-evaluations of existing equipment data and unreported changes due to widespread outage and major system restoration that are within the six month time allowance from certification submissions; Section II. Changes requested by RC: clarify LIDAR changes not requiring a NX9 submission be a) temporary in nature and b) may be in place longer than 45 days.

VII. APPENDICES

Appendix A – Explanation of Terms and Instructions for Data Preparation of NX-9A - ISO New England Transmission Equipment Rating, Characteristic, and Operational Data - Transmission Line (OP-16 App A)

Appendix B – Explanation of Terms and Instructions for Data Preparation of NX-9B - ISO New England Transmission Equipment Rating, Characteristic, and Operational Data - Transformer - FIXED/GSU/TCUL (OP-16 App B)

Appendix C – Explanation of Terms and Instructions for Data Preparation of NX-9C - ISO New England Transmission Equipment Rating, Characteristic, and Operational Data - Transformer - Phase Shifting (OP-16 App C)

Appendix D – Explanation of Terms and Instructions for Data Preparation of NX-9D - ISO New England Transmission Equipment Rating, Characteristic, and Operational Data - Capacitor/Reactor (OP-16 App D)

Appendix E – Annual Data Certification of ISO New England Transmission Equipment Rating Characteristic, and Operational Data (OP-16 App E)

Appendix F – Retired 05/04/2012

Appendix G – Explanation of Terms and Instructions for Data Preparation of NX-9 - ISO New England Transmission Equipment Rating, Characteristic, and Operational Data - Other Equipment (OP-16 App G)