ISO NEW ENGLAND PLANNING PROCEDURE NO. 7

PROCEDURES FOR DETERMINING AND IMPLEMENTING TRANSMISSION FACILITY RATINGS IN NEW ENGLAND

EFFECTIVE DATE: Month day, 2024

REFERENCES: ISO New England Operating Procedure No. 16, Transmission System Data

ISO New England Operating Procedure No. 19, Transmission Operations

NERC Standard FAC-008 – Facilities Rating Methodology

ISO New England Open Access Transmission Tariff

Transmission Operating Agreement

HVDC Transmission Operating Agreement

FERC Order 881

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# Introduction

In support of Attachment Q of the Open Access Transmission Tariff (Attachment Q) and ISO New England Operating Procedure No. 16 – Transmission System Data (OP-16), this ISO New England Planning Procedure No. 7 – ISO New England Procedure for Determining and Implementing Transmission Facility Ratings in New England (PP7 or Procedure) describes the provisions for the determination of transmission facility ratings by Market Participants and submittal and review of Equipment Owner-specific transmission facility ratings methodologies[[1]](#footnote-1).

This Procedure describes the required seasonal[[2]](#footnote-2) time periods and temperatures along with study case conditions for calculation of ratings for transmission facilities for which the Market Participant is required to provide data to ISO, as described in OP-16.

The Market Participants and the ISO are responsible for collaborating in the development of the transmission facility ratings methodologies described in this Procedure.

An Market Participant is an entity that is required to report transmission facility ratings to the ISO[[3]](#footnote-3).

Pursuant to Attachment Q, ISO and the Equipment Owners shall implement Ambient-Adjusted Ratings (AAR) on the transmission equipment that makes up a transmission line. These AAR ratings will not be used for transmission planning and will be utilized as described in the ISO Tariff.

# Transmission Facility Rating Procedures (or Methodology)

Market Participants shall, consistent with Attachment Q, utilize this Section 2.0 to determine new and revised transmission facility ratings of their transmission facilities for which ISO requires ratings as described in OP-16.

The Market Participant shall determine and submit the required rating for equipment using their own methodology. The Market Participant’s methodology shall be consistent with Attachment Q, OP-16, this Procedure, and applicable industry standards. Each Market Participant’s methodology shall be provided to and reviewed by ISO for consistency and whenever such methodology is modified. Following such review, ISO shall post the Market Participant’s methodology to the ISO’s public external website.

The rating of an overall transmission facility shall equal the rating of the most limiting individual piece of equipment, including but not limited to relay equipment and settings, comprising the facility.

## Transmission Equipment To Be Rated

This procedure establishes general assumptions for rating the following components, as applicable:

Conductors

Cables

Transformers

Series and Shunt Reactive Elements

Circuit Breakers

Switches

Current Transformers

Line Traps

Buses

Current Transformer Circuits

VAR Compensators

HVDC Systems

## Ratings and Limits To Be Assigned

### Seasonal and Study Case Ratings

Market Participants are responsible for developing and submitting monthly seasonal and study case ratings for transmission facilities. Seasonal Ratings include Normal, LTE, STE, and DAL ratings for a transmission facility for each of the defined seasons, as determined through the annual seasonal assumption calculation process. Study Case Ratings include Normal, LTE, STE, and DAL ratings for a transmission facility for each required Study Case set of assumptions as defined by the ISO.

The seasonal and study case ratings are determined using the input assumptions of Appendix A, General Rating Parameters For Seasonal and Study Case Ratings. These assumptions are recalculated at least annually using up-to-date historical weather data. The input assumptions shall be updated to reflect that weather data. Market Participant shall recalculate the seasonal ratings for a transmission facility at least annually, whenever the input assumptions are modified or the Market Participants methodologies are modified. Market Participants shall recalculate the study case ratings for a transmission facility whenever the input assumptions are modified or the Market Participants methodologies are modified.

### Ambient-Adjusted Ratings

Ambient-Adjusted Ratings shall, consistent with Attachment Q, be calculated at least hourly for a transmission facility that is not excepted from Ambient-Adjusted Ratings pursuant to Attachment Q. Ambient-Adjusted Ratings must be valid for at least, but not limited to, the range of historical temperatures plus or minus a margin of ten degrees Fahrenheit (e.g., if the historical actual temperatures range from -30F to 107F, then a valid Ambient-Adjusted Rating must be available for the temperature range from -40F to 117F).

### Determination of Normal Ratings and Emergency Ratings:

The calculation assumption are described in Appendix A, General Rating Parameters for Seasonal and Study Case Ratings. Equipment specific guidelines are described in subsequent Appendices. The conditions in which the Normal Ratings and Emergency Ratings are applied, actions to be taken to maintain equipment loadings within ratings and limits, and the associated allowable durations of time associated with operation at each rating are described in OP-19. These conditions and times must be consistent with those used to determine the corresponding ratings. Thus,

* The Normal Rating is the rating which will allow maximum equipment loading within the appropriate time period without incurring loss of life at design criteria. No time limit applies.
* Emergency Ratings are ratings that may be used at any time on an emergency, non-scheduled basis within appropriate time limits for conditions as defined in Appendix A. Emergency ratings shall be equal to or greater than Normal ratings and may involve loss of life or loss of tensile strength in excess of nominal design criteria. The emergency ratings shall be calculated using the time durations as specified in OP-19.

### Determination of Drastic Action Limits:

Drastic Action Limits (DAL), unlike Normal and Emergency Ratings, are limits that require immediate action be taken to prevent damage to equipment. For purposes of calculation, the Drastic Action Limit is defined as the current flow which would cause the circuit component to reach its Emergency temperature, , if allowed to flow for five minutes.,

## Responsibility of Market Participants and the ISO

The individual Equipment Owner is responsible for determining the applicable ratings methodologies. The Equipment Owner shall submit documentation to ISO describing ratings methodologies

The ISO is responsible for Posting a record of documentation describing any Market Participant’s methodologies.

## Temporary Ratings

As necessary, the Market Participant shall provide ISO with temporary transmission facility ratings, as described in Attachment Q.

# Document Revision History

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| Revision No. | Revision Date | Revision Description |
| Rev. 0 | 8/31/05 | Original document |
| Rev. 1 | 4/11/06 | Editorial changes to maintain consistency with Appendices |
| Rev. 2 | 2/14/07 | Sections 2.4 and 2.5 modified to conform with NERC Standard FAC-008-1 |
| Rev. 3 | 8/10/10 | Update on entire Planning Procedure to conform with new IEEE standards and NERC Standard FAC-008-2 |
| Rev. 4 | 11/7/2014 | Document body cleanup |
| Rev. 5 | XX/XX/202X | Update and reorganization of entire document and updated for FERC Order No. 881 |

1. ISO New England Operating Procedure No. 16, Transmission System Data (OP-16), requires Transmission Facility Owner Equipment Owners to determine equipment ratings and provide them to the ISO. [↑](#footnote-ref-1)
2. Seasonal shall have the meaning as defined in Appendix A [↑](#footnote-ref-2)
3. OP-16 applies to Transmission Owners (TOs) and Equipment Owners, i.e., Equipment Owners who own the equipment or Lead Equipment Owners for Generator Assets (collectively MPs) to determine and submit the required data for new, reconductored, and reconfigured facilities for all their transmission equipment [↑](#footnote-ref-3)