OP-13, Appendix B -

Underfrequency Load Shedding Program Requirements

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Automatic Load Restoration

No Underfrequency Load Shedding (UFLS) entity within New England shall use automatic Load restoration that operates within one (1) minute of island formation and subsequent UFLS activation. “Load” under this requirement refers specifically to Load included in the entity’s UFLS plan. The owner of equipment designed and implemented to perform automatic load restoration shall notify ISO New England (ISO) of its operating time upon request from ISO during the annual UFLS survey.

Automatic Switching of Capacitor Banks, Lines and Reactors

At this time, the ISO UFLS program does **not** require Transmission Owners (TOs) to provide automatic switching of their existing capacitor banks, transmission lines, or reactors.

UFLS Aggregated Reporting

ISO has identified three (3) UFLS islands for applying the New England UFLS program:

1. Maine portion of the Maine-Maritimes
2. Connecticut
3. All of New England

ISO only permits aggregation of UFLS programs for actual load shedding for entities with service territories that are within the same identified UFLS island and that are electrically close. If further information on aggregating is required, contact ISO Participant Support.

ISO shall approve any aggregated reporting.

Compensatory Load Shedding

In accordance with ISO New England Operating Procedure No.14 – Technical Requirements for Generators, Demand Response Resources, Asset Related Demands and Alternative Technology Regulation Resources (OP-14), non-nuclear Generators that trip above the generator under-frequency curve included in the effective version of NERC Reliability Standard PRC-006-NPCC shall, as described in that NERC standard, either modify their protection settings to **no** longer trip above the curve or use compensatory load shedding of an amount equal to the Generator’s Summer Seasonal Claimed Capability (SCC) if the protection settings **cannot** be modified. Documentation regarding underfrequency trip setting constraints shall be provided to ISO as described in the effective version of PRC-006-NPCC and UFLS collection schedule in Table 1.

Generators using compensatory load shedding should provide SCC and expected station service load megawatt (MW) amounts to TOs or Market Participants.

Compensatory load shedding must be in the same under-frequency island as the generation and must be electrically close. ISO shall approve of compensatory load shedding applications. For further discussion of compensatory load shedding refer to PRC-006-NPCC.

As described in NERC Reliability Standard PRC-006-NPCC, nuclear generators that trip above the generator underfrequency curve are **not** required to provide compensatory load shedding.

UFLS Program Parameters, Tolerances and Exceedances/Deviations

The New England UFLS program uses the UFLS parameters and generator underfrequency trip settings listed in the effective version of NERC Reliability Standard PRC-006-NPCC.

Each Distribution Provider (DP) or TO that must arm its load to trip on underfrequency in order to meet its requirements, as specified, and that, by doing so, exceeds the tolerances and/or deviates from the number of stages and frequency set points of the UFLS program as specified in the tables included in the effective version of NERC Reliability Standard PRC-006-NPCC depending on its total peak net Load shall:

- Inform ISO of the need to exceed the stated tolerances or deviate from the number of stages, and frequency setpoints as shown in Attachment C, Table 1 included in the effective version of NERC Reliability Standard PRC-006-NPCC.
- Provide ISO with a technical study that demonstrates that the DPs or TOs specific deviations from the requirements of Attachment C, Table 1 included in the effective version of NERC Reliability Standard PRC-006-NPCC will **not** have a significant adverse impact on the BES.
- Inform ISO of the need to exceed the stated tolerances of the effective version of NERC Reliability Standard PRC-006-NPCC Attachment C, Table 2 or Table 3, and in the case of Attachment C, Table 2 only, the need to deviate from providing two stages of UFLS, if applicable.
- Provide ISO with an analysis demonstrating that **no** alternative load shedding solution is available that would allow the DP or TO to comply with the effective version of NERC Reliability Standard PRC-006-NPCC, Attachment C Table 2 or Table 3.

In regard to the requirements on UFLS program tolerances or stages, if an UFLS entity determines that exceedances or deviations exist, then that entity shall initiate the process of providing a corrective action plan for addressing the exceedances or deviations to the UFLS program tolerances or stages.

For entities whose system peak loads vary between the tables, or load is reduced to below the UFLS program amounts shown in the tables contained in the effective version of NERC Reliability Standard PRC-006-NPCC (e.g., 25 MW), then load shall vary accordingly for two consecutive years prior to changing to another table or discontinuing a UFLS program.

Inhibit Settings

ISO requires voltage inhibit settings to be at or below 0.7 per unit. Current and time inhibit settings are unique and generally used to coordinate distributed generation. If ISO coordination of settings is required, then this is done through individual discussions with entities using current and time inhibit settings.

	Table - 1 - UFLS Information Collection Schedule	
	UFLS Information	**ISO Initiates Annual Survey/ Format**
	Transmission or distribution UFLS relays, including those used for compensatory load shedding, the amount and location of load shed at peak, the corresponding frequency threshold and time delay settings, including the specific bus information.	July, format consistent with previous surveys. Provide overall settings and bus-by-bus UFLS information.
	All generator units that may be tripped for underfrequency conditions above the appropriate generator underfrequency trip protection settings threshold curve	Per ISO request, format consistent with previous surveys. Verify frequency trip setpoints
	Location and amount of additional elements to be switched for voltage control that are coordinated with UFLS program tripping. Includes list of all high voltage protection settings for capacitor banks.	Per ISO request, format consistent with previous surveys based on NX-9.
	List of all UFLS relay inhibit functions along with the corresponding settings and locations of these relays	July, format consistent with previous surveys.

Load Associated Directly with Electric Generator Power Producing Facilities

Station service load directly associated with plant auxiliaries for the production of electric power at electric generator power producing facilities shall **not** be equipped with UFLS relaying.

OP-13 Appendix B 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	06/22/10	Initial Version
Rev 1	08/03/12	Biennial review by procedure owner; 1st page footer, deleted 2nd paragraph of disclaimer, change pagination format; Added Table 1, Table 2 & Table 3 as Test Headings to allow automatic generation of a Table of Contents; Redefined footnote 2 describing Total Operating Time
Rev 1.1	05/06/14	Periodic review performed requiring no changes; Made administrative changes required to publish a Minor Revision.
Rev 2	06/26/15	Biennial review performed by procedure owner; Updated Tables 1, 2 and 3 to align with NERC Reliability Standard PRC-006-NPCC
Rev 3	01/27/16	Biennial review completed by procedure owner; Provide UFLS requirements moved in from Compliance Bulletin for PRC-006-1 and PRC-006-NPCC-1 Automatic Under-frequency Load Shedding
Rev 3.1	11/08/16	Minor Revision (to document completion of an annual review in accordance with NERC Reliability Standard PRC-006-NPCC) by the procedure owner designee requiring no changes to document content; Added required corporate document identity to all page footers;
Rev 3.2	07/24/18	Periodic review performed requiring no changes; Made administrative changes required to publish a Minor Revision.
Rev 4	08/02/19	Biennial review by procedure owner; "UFLS Aggregated Reporting" section, modified item 1; "Compensatory Load Shedding" section, modified 1st paragraph, added new 2nd paragraph; Added a new "UFLS Program Parameters, Tolerances Exceedances/Deviations" section title, modified 1st and 3rd bullets, modified 2nd and 4th paragraphs; Figure 1, last column, modified 2nd, 3rd, and 4th data rows, renamed to Table 1; Deleted Table 1, Table 2, and Table 3
Rev 4.1	05/28/21	Biennial review by procedure owner; with no intent changes required
Rev 4.2	05/22/23	Biennial review performed by procedure owner requiring no changes; Made administrative changes needed to publish a Minor Revision.
Rev 4.3	05/21/25	Biennial review performed by procedure owner requiring no changes; Made administrative changes required to publish a Minor Revision.