



Operating Procedures

ISO New England Operating Procedure No. 13

*Standards for Voltage Reduction and Load
Shedding Capability – Appendix B –
Underfrequency Load Shedding Program
Requirements*

Effective Date: June 22, 2010
Revision No. 0

Appendix B -

Underfrequency Load Shedding Program Requirements

Reference: The Northeast Power Coordinating Council Inc. (NPCC) Regional Reliability Reference Directory #12 - Underfrequency Load Shedding Program Requirements (Directory D12), Section 5.2.1 – “The program shall consist of five stages of **load shedding** to be provided by entities with 100 MW or more of end-use load connected to its facilities.”

Market Participants with control over transmission/distribution facilities with 100 MW or more of end-use load connected to its facilities shall implement a UFLS program with the following attributes:

UFLS Stage	Threshold Setting	Block Size ⁽¹⁾	Total Operating Time ⁽²⁾
Stage 1	59.5 Hz	7 percent	300 ms
Stage 2	59.3 Hz	7 percent	300 ms
Stage 3	59.1 Hz	7 percent	300 ms
Stage 4	58.9 Hz	7 percent	300 ms
Stage 5 (anti-stall)	59.5 Hz	2 percent	10 s

Notes:

- (1) Block Size is the net amount of load, as a percentage of the entity's peak load, that the UFLS relays must be armed to shed at each stage.
- (2) Underfrequency threshold relays shall be set to a nominal total operating time of 300 ms, from the time of circuit breaker contact opening (including any communication time delay), with a minimum relay operating time to be no less than 100 ms when the rate of frequency decay is 0.2 Hz per second.

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Reference: The Northeast Power Coordinating Council Inc. (NPCC) Regional Reliability Reference Directory #12 - Underfrequency Load Shedding Program Requirements (Directory D12), Section 5.2.2 – “The program shall consist of two stages of **load shedding** to be provided by entities with 50 MW or more and less than 100 MW of end-use load connected to its facilities.”

Market Participants with control over transmission/distribution facilities with 50 MW or more and less than 100 MW of end-use load connected to its facilities shall implement a UFLS program with the following attributes:

UFLS Stage	Threshold Setting	Block Size ⁽¹⁾	Total Operating Time ⁽²⁾
Stage 1	59.5 Hz	14 percent	300 ms
Stage 2	59.1 Hz	14 percent	300 ms

Notes:

- (1) Block Size is the net amount of load, as a percentage of the entity’s peak load, that the UFLS relays must be armed to shed at each stage.
- (2) Underfrequency threshold relays shall be set to a nominal total operating time of 300 ms, from the time of circuit breaker contact opening (including any communication time delay), with a minimum relay operating time to be no less than 100 ms when the rate of frequency decay is 0.2 Hz per second.

Reference: The Northeast Power Coordinating Council Inc. (NPCC) Regional Reliability Reference Directory #12 - Underfrequency Load Shedding Program Requirements (Directory D12), Section 5.2.2 – “The program shall consist of one stage of load shedding to be provided by entities with 25 MW or more and less than 50 MW of end-use load connected to its facilities.”

Market Participants with control over transmission/distribution facilities with 25 MW or more and less than 50 MW of end-use load connected to its facilities shall implement a UFLS program with the following attributes:

UFLS Stage	Threshold Setting	Block Size ⁽¹⁾	Total Operating Time ⁽²⁾
Stage 1	59.5 Hz	28 percent	300 ms

Notes:

- (1) Block Size is the net amount of load, as a percentage of the entity's peak load, that the UFLS relays must be armed to shed at each stage.
- (2) Underfrequency threshold relays shall be set to a nominal total operating time of 300 ms, from the time of circuit breaker contact opening (including any communication time delay), with a minimum relay operating time to be no less than 100 ms when the rate of frequency decay is 0.2 Hz per second.

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 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