Comparison between **NYSRC Rule I.5 Disturbance Recording vs. NERC Standard PRC-002-NPCC-01 Disturbance Monitoring**

Please note that D.2 R1 is divided and analyzed in three separate sections.

NPCC Directory 2 Purpose	NERC EOP-011-1 Purpose	NYSRC Rule D.2	Comments / Conclusion
The purpose of this Directory is to present the basic factors to be considered in formulating plans and procedures to be followed in an emergency or during conditions which could lead to an emergency, in order to facilitate mutual assistance and coordination within NPCC and adjacent areas. The objectives in formulating plans related to emergency operating conditions are: 1. To avoid the interruption of service to firm **load** to the extent possible. 2. To minimize the occurrence of **system disturbances**. 3. To contain any **system disturbance** and limit its effects to the area initially affected. 4. To minimize the effects of any **system disturbances** on customers. 5. To avoid damages to system	To address the effects of operating Emergencies by ensuring each Transmission Operator and Balancing Authority has developed Operating Plan(s) to mitigate operating Emergencies, and that those plans are coordinated within a Reliability Coordinator Area.	Following a Major Emergency the NYISO shall have the capability to shed load rather than risk an uncontrolled system failure.	Both the NPCC and NERC Purpose statements express the same objective as the D.2 Rule statement.

elements. 6. To avoid hazard to the public.			
NPCC Dir 2 Criteria (Par 2&3) **NPCC Dir 12 Criteria (Par 1)**	**NERC EOP-011-1 Requirement**	**NYSRC D.2 Requirement**	**Comments / Conclusion**
5.0 NPCC Full Member, More Stringent Criteria These Criteria are in addition to, or more stringent or more specific than the NERC or any Regional Reliability standard requirements. 5.1 Under frequency Load Shedding Program – General Criteria The intent of the NPCC automatic Under frequency **Load Shedding** program is to ensure that declining frequency is arrested and recovered in accordance with established NPCC performance requirements stipulated in this document, as follows: 5.1.1 Frequency decline is arrested at no less than 58.0 Hz for the portions of NPCC in the Eastern Interconnection and	**R1.** Each Transmission Operator shall develop, maintain, and implement one or more Reliability Coordinator-reviewed Operating Plan(s) to mitigate operating Emergencies in its Transmission Operator Area. The Operating Plan(s) shall include the following, as applicable: **1.1.** Roles and responsibilities for activating the Operating Plan(s); **1.2.** Processes to prepare for and mitigate Emergencies including: **1.2.1.** Notification to its Reliability Coordinator, to include current and projected conditions, when experiencing an operating Emergency; **1.2.2.** Cancellation or recall of Transmission and generation outages;	**R1. Load Shedding Allocation** In the event that the frequency decline is so rapid as to prevent operator action, automatic facilities shall achieve *load shedding* without regard for transmission loadings. *Load shedding* allocation procedures shall be developed which meet the requirements of the NPCC Underfrequency Load Shedding Guides. The *NYCA* must be capable of shedding at least 50 percent of its *load* in ten (10) minutes or less. Insofar as practical, the first half of the *load* shed manually should not include that *load* which is part of any automatic	This paragraph specifies 2 requirements: 1. Follow NPCC UFLS Guidelines, and 2. Develop procedures to that effect. The NYISO is obligated to follow NPCC as part of its membership. NPCC Directory 12 Criteria address UFLS programs. NERC Requirements (EOP-011-1 R1 for example) obligate NYISO and other TOPs to include in their Operating Plans, among other mitigating actions, manual Load shedding that will not interfere with UFLS. Therefore, the highlighted section of D.2 R1 is obviated by NPCC and NERC programs and requirements.

56.0 Hz for the portion of NPCC in the Québec Interconnection. 5.1.2 Frequency does not remain below 58.5 Hz for greater than 10 seconds, and does not remain below 59.5 Hz for greater than 30 seconds, for a generation deficiency of up to 25% of the **load**.	**1.2.3.** Transmission system reconfiguration; **1.2.4.** Redispatch of generation request; **1.2.5.** Provisions for operator-controlled manual Load shedding that minimizes the overlap with automatic Load shedding and are capable of being implemented in a timeframe adequate for mitigating the Emergency; and **1.2.6.** Reliability impacts of extreme weather conditions.	*load shedding* plan. If frequency is still declining below 58.5 Hz, all transmission systems shall take such steps as are necessary, including separating units to preserve generation, minimize damage and service interruption.	
5.2 Manual **Load Shedding** Requirement Each Balancing Authority shall have the capability of manually shedding at least fifty percent of its area **load** in ten minutes or less. Manual **load shedding** plans shall not interrupt **bulk power system** elements. 5.2.1 Manual **load shedding** procedures shall be reviewed at least annually by the Balancing Authority and Transmission Operator, to ensure that the proper amount of **load** can be shed within the time limits prescribed.	**R1.** Each Transmission Operator shall develop, maintain, and implement one or more Reliability Coordinator-reviewed Operating Plan(s) to mitigate operating Emergencies in its Transmission Operator Area. The Operating Plan(s) shall include the following, as applicable: *[Violation Risk Factor: High] [Time Horizon: Real-Time Operations, Operations Planning, Long-term Planning]* **1.1.** Roles and responsibilities for activating the Operating Plan(s);	**R1. Load Shedding Allocation** In the event that the frequency decline is so rapid as to prevent operator action, automatic facilities shall achieve *load shedding* without regard for transmission loadings. *Load shedding* allocation procedures shall be developed which meet the requirements of the NPCC Underfrequency Load Shedding Guides. The *NYCA* must be capable of	NPCC Dir 2 Criteria 5.2 obligates the NYISO to shed at least 50% of load in 10 minutes or less. NERC Requirements R1.2.5 obligates NYISO and other TOPs to implement manual Load shedding that will not interfere with UFLS. Therefore, the highlighted section of D.2 R1 is obviated by NPCC and NERC programs and requirements.

4.3 Actions of a Balancing Authority to control Frequency and operate under a Capacity/Energy Emergency 4.3.2 Manual **Load Shedding** for Capacity Shortage and Frequency Control Each Balancing Authority should normally carry out the following unless an alternative plan is submitted for review by the NPCC Task Forces on Coordination of Operation and System Studies and approved by the NPCC Reliability Coordinating Committee: 4.3.2.1 The first half of the **load** shed manually should not include load which is part of any automatic load shedding plan unless following manual **load shedding**, the requirements of Section 5.2 of NPCC Directory#12 *Automatic UFLS Program Require*ments can still be met.	**1.2.** Processes to prepare for and mitigate Emergencies including: **1.2.1.** Notification to its Reliability Coordinator, to include current and projected conditions, when experiencing an operating Emergency; **1.2.2.** Cancellation or recall of Transmission and generation outages; **1.2.3.** Transmission system reconfiguration; **1.2.4.** Redispatch of generation request; **1.2.5.** Provisions for operator-controlled manual Load shedding that minimizes the overlap with automatic Load shedding and are capable of being implemented in a timeframe adequate for mitigating the Emergency; and **1.2.6.** Reliability impacts of extreme weather conditions.	shedding at least 50 percent of its *load* in ten (10) minutes or less. Insofar as practical, the first half of the *load* shed manually should not include that *load* which is part of any automatic *load shedding* plan. If frequency is still declining below 58.5 Hz, all transmission systems shall take such steps as are necessary, including separating units to preserve generation, minimize damage and service interruption.	
NPCC Directory 2, Appendix B	**R1.** Each Transmission Operator shall develop, maintain, and implement one or more Reliability Coordinator-reviewed	**R1. Load Shedding Allocation** In the event that the frequency decline is so rapid as to prevent	NPCC Appendix B stipulates actions to be taken. NERC Requirements (EOP-011-

	Operating Plan(s) to mitigate operating Emergencies in its Transmission Operator Area. The Operating Plan(s) shall include the following, as applicable: **1.1.** Roles and responsibilities for activating the Operating Plan(s); **1.2.** Processes to prepare for and mitigate Emergencies including: **1.2.1.** Notification to its Reliability Coordinator, to include current and projected conditions, when experiencing an operating Emergency; **1.2.2.** Cancellation or recall of Transmission and generation outages; **1.2.3.** Transmission system reconfiguration; **1.2.4.** Redispatch of generation request; **1.2.5.** Provisions for operator-controlled manual Load shedding that minimizes the overlap with automatic Load shedding and are capable of being implemented in a timeframe adequate for mitigating the Emergency; and	operator action, automatic facilities shall achieve *load shedding* without regard for transmission loadings. *Load shedding* allocation procedures shall be developed which meet the requirements of the NPCC Underfrequency Load Shedding Guides. The *NYCA* must be capable of shedding at least 50 percent of its *load* in ten (10) minutes or less. Insofar as practical, the first half of the *load* shed manually should not include that *load* which is part of any automatic *load shedding* plan. If frequency is still declining below 58.5 Hz, all transmission systems shall take such steps as are necessary, including separating units to preserve generation, minimize damage and service interruption.	1 R1 for example) obligate NYISO and other TOPs to include in their Operating Plans, among other mitigating actions, manual Load shedding that will not interfere with UFLS. Comment: The highlighted paragraph of D.2 R1 is a guideline, not a requirement per se. NERC EOP-011-1 R1 specifies those guidelines must be included in the TOPs Operating Plan. NYISO EOM section 3.3.1 expands on these guidelines. NPCC Directory 2 Criteria 5.2.1 obligates the NYISO to review Manual load shedding procedures to ensure they are effective. NPCC Directory 2, Appendix B specifies certain actions to take in the event of an emergency. NYISO load shedding procedures anticipate the possibility of needing to preserve generation. NERC EOP-011-1 requires the NYISO and other TOPs to include in their Operating Plans various mitigating actions in the event of an emergency. The NYISO EOM section 3.3

	1.2.6. Reliability impacts of extreme weather conditions.		contains several additional options. Further, the 58.5 Hz threshold is apparently a legacy limit of undetermined origin, and is close to the lower thresholds of current UFLS programs. If the frequency were to drop to this level, many measures would implemented to preserve generation, and it might or might not involve further load shedding. Therefore, the highlighted section of D.2 R1 is obviated by NPCC and NERC requirements.
NPCC Directory 2 Purpose	**NERC EOP-011-1 Purpose**	**NYSRC Rule D.2**	**Comments / Conclusion**
5.2.1 Manual **load shedding** procedures shall be reviewed at least annually by the Balancing Authority and Transmission Operator, to ensure that the proper amount of **load** can be shed within the time limits prescribed.	**R1.** Each Transmission Operator shall develop, maintain, and implement one or more Reliability Coordinator-reviewed Operating Plan(s) to mitigate operating Emergencies in its Transmission Operator Area. The Operating Plan(s) shall include the following, as applicable: *[Violation Risk Factor: High] [Time Horizon: Real-Time Operations, Operations Planning, Long-term Planning]* **1.1.** Roles and responsibilities for	**R2**. The *NYISO* shall maintain procedures and systems that ensure that sufficient *load shedding* capability exists for both manual and automatic response. The *NYISO* must notify the *NYSRC* of any changes to these procedures and systems.	NPCC Directory 2, section 5.2.1 obligates the NYISO to have manual load shedding procedures. NERC EOP-011 requires the NYISO and other TOPs to develop and maintain an Operating Plan that addresses load shedding. Therefore, D.2 R2 is obviated by NPCC and NERC requirements.

	activating the Operating Plan(s); **1.2.** Processes to prepare for and mitigate Emergencies including: **1.2.1.** Notification to its Reliability Coordinator, to include current and projected conditions, when experiencing an operating Emergency; **1.2.2.** Cancellation or recall of Transmission and generation outages; **1.2.3.** Transmission system reconfiguration; **1.2.4.** Redispatch of generation request; **1.2.5.** Provisions for operator-controlled manual Load shedding that minimizes the overlap with automatic Load shedding and are capable of being implemented in a timeframe adequate for mitigating the Emergency; and **1.2.6.** Reliability impacts of extreme weather conditions.		
NPCC Directory 2 Purpose	**NERC EOP-011-1 Purpose**	**NYSRC Rule D.2**	**Comments / Conclusion**
		R3. Each *Transmission Owner* shall report to the *NYISO* the amount of *load* that is expected to be	NPCC Directory 2, section 5.2.1 obligates the NYISO to review TOP manual load shedding procedures.

		shed through automatic and manual *load shedding*, coincident with the *peak load* of its *transmission district* in accordance with *NYISO* procedures. The *NYISO* shall annually report compliance of this requirement to the *NYSRC*.	NERC EOP-011 requires the NYISO to review TOP Operating Plans. Therefore, D.2 R2 is obviated by NPCC and NERC requirements.