

Request to Develop or Modify Reliability Rules and Requirements (NYSRC Policy No. 1-11)

Submit request to herb@poweradvisorsllc.com via the NYSRC site www.nysrc.org

Item	Information
1. PRR No. & Title of Reliability Rule or Requirement change	PRR 149: Clarify the Interpretation of the LOLE Reliability Risk Metric in the NYSRC Resource Adequacy Criterion and the Application of Multiple Reliability Risk Metrics in IRM and Resource Adequacy Assessments
2. Rule Change Requester Information	
Name	RRS
Organization	
3. New rule or revision to existing rule?	Revisions to existing rule.
4. Need for rule change, including advantages and disadvantages	<p>This rule change has two components: (1) To express the NYSRC’s LOLE criterion’s quantification of resource adequacy in terms of “loss of load <u>event-days</u> per year” instead of “days per year,” in order to avoid a possible misinterpretation that the NYSRC’s LOLE criterion allows a loss of load duration of 2.4 hours per year, and (2) to require IRM and resource adequacy assessments to include multiple reliability risk metrics to in order to more fully describe loss of load events.</p> <p>The proposed LOLE criterion change is consistent with recommendations in the IEEE Resource Adequacy WG’s paper, <i>Clarifying the Interpretation and Use of the LOLE Resource Adequacy Metric</i>, presented at NERC’s Probabilistic Analysis Forum on October 5, 2021. This change would not affect in any way present ICS and NYISO procedures and models for IRM and resource adequacy assessments -- it brings the resource adequacy criterion in line with present study applications and criterion interpretations. An Appendix provides historical background information concerning the need for this rule change.</p>
5. Related NYSRC rules	Reliability Rules A2 and A3
6. Section A – Reliability Rule Elements	
1. Reliability Rule	An Installed Reserve Margin Requirement for the NYCA for each Capability Year shall be established.
2. Associated NERC Standards & NPCC Standards and Criteria	NPCC: Directory 1 NERC: None
3. Applicability	NYSRC Installed Capacity Subcommittee and NYISO
7. Section B Requirements	<p>R1. All probabilistic resource capacity requirement analyzes conducted by the NYSRC and NYISO, including resource adequacy evaluations and the establishment of the NYCA Installed Reserve Margin (IRM) requirement, shall meet the NYSRC Resource Adequacy Criterion in R1.1.</p>

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	<p>R1.1 NYSRC Resource Adequacy Criterion</p> <p>The loss of load expectation (LOLE) of disconnecting firm load due to resource deficiencies shall be, on average, no more than 0.1 loss of load <u>event-days</u> per year. LOLE evaluations shall make due allowance for demand uncertainty, scheduled outages and deratings, forced outages and deratings, assistance over interconnections with neighboring control areas, NYS Transmission System emergency transfer capability, and capacity and/or load relief from available operating procedures.</p> <p>R1.2 To describe the magnitude, frequency, and duration of load shortfall events, NYSRC and NYISO probabilistic resource capacity assessments and analyses, in addition to calculating the LOLE shortfall risk metric, shall calculate and report the loss of load hours (LOLH) and the expected unserved energy (EUE) shortfall risk metrics.</p> <p>R2. The NYSRC shall annually perform and document an analysis to calculate the NYCA <i>Installed Reserve Margin</i> (IRM) requirement for the following Capability Year. The IRM analysis shall:</p> <p>R2.1 Probabilistically establish the IRM requirement for the NYCA in accordance with the NYSRC Resource Adequacy Criterion in R1.1.</p> <p>R2.2 Utilize the methodology and modeling parameters for establishing NYCA IRM requirements and a timeline for the study process, as described in NYSRC Policy 5, "Procedure for Establishing NYCA Installed Capacity Requirements."</p> <p>R2.3 Prepare a technical report documenting the assumptions, models, methodology and results of the IRM Study.</p>
8. Section C – Compliance Elements	
1. Measures	
2. Levels of Non-Compliance	
3. Compliance Monitoring Process (See Policy 4):	
3.1 Compliance Monitoring Responsibility	
3.2 Reporting Frequency	
3.3 Compliance Reporting Requirements	
9. Implementation Plan	
10. Comments	Definitions for LOLH and EUE will be included in the Glossary.

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11. Date Rule Adopted	
12. PRR Revision Dates	Initial draft 11/12/21, 11/30/21

APPENDIX

HISTORICAL BACKGROUND CONCERNING THE NEED TO REVISE THE NYSRC RESOURCE ADEQUACY CRITERION

- The adoption of the 1 day in 10 years metric as an acceptable level of risk in North America began during the 1960s.
- In the late 1960s the New York Power Pool and its members also adopted this criterion.
- Probabilistic models at that time, because of program limitations, represented only 260 daily peaks per year in LOLE studies, each peak hour representing one weekday.
- Therefore, at that time ,the daily weekday peaks correctly represented the total number of days per year.
- More recently, improved computer capabilities have allowed the modeling of 8760 hours per year, i.e., 24 hours per day. Some systems have interpreted the 1 day in 10 years criterion as “24 hours in 10 years” or “2.4 hours per year” based on the premise that the original criterion referred to a full day’s duration of shortfall.
- Instead, the NYPP, and now the NYSRC, interprets the LOLE criterion as a counting measure, i.e., the expected number or frequency of loss of load events per year or per 10 years. Therefore, the NYSRC does not interpret the LOLE as equivalent to 2.4 days/year loss of load.
- Accordingly, to avoid misinterpretation, RRS proposes that “days per year” be replaced by “loss of load event-days per year” in the NYSRC resource adequacy criterion. [This change is consistent with recommendations by the IEEE Resource Adequacy Working Group in its paper, Clarifying the Interpretation and Use of the LOLE Resource Adequacy Metric, presented at the 2021 NERC Probabilistic Analysis Forum on October 5, 2021.](#)

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RRS concludes that the proposed criterion change is consistent with or more stringent than the present NPCC resource adequacy criterion.