

### **Definitions of Terms Used in Standard**

*This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the NERC Reliability Standards Glossary of Terms or the MRO Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Midwest Reliability Organization (MRO) Glossary. NERC and MRO defined terms are capitalized in the standard.*

**Resource Adequacy** - the ability of supply-side and demand-side resources to meet the aggregate electrical demand (including losses).

**A. Introduction**

1. **Title:** Planned Resource Adequacy Assessment<sup>1</sup>
2. **Number:** RES-501-MRO-02
3. **Purpose:** To establish common criteria by which to assess Resource Adequacy in the MRO for the 10 year planning horizon.
4. **Applicability**
  - 4.1. Load Serving Entity
  - 4.2. Planning Coordinator
5. **Effective Date:** 1st day of the 1st calendar quarter after applicable regulatory approval, this standard will be effective. In those jurisdictions where no regulatory approval is required, this standard becomes effective on the 1st day of the 1st calendar quarter after NERC Board of Trustees adoption.

**B. Requirements**

- R1. Each Load Serving Entity and Planning Coordinator shall perform and possess the documentation of a planned Resource Adequacy assessment. To be valid, the Resource Adequacy assessment shall [*Violation Risk Factor: Medium*] [*Time Horizon: Long-Term Planning*]:
  - 1.1. Be performed annually, unless a review of the system data used in Resource Adequacy assessments is performed and it is concluded that there has been a lack of significant changes in the system data. A new Resource Adequacy assessment is warranted if changes have occurred that require revisions in any key assumptions such as generation mix and transmission limitations that are not covered by a sensitivity study. A document summarizing the data review shall be prepared. The planned Resource Adequacy assessment is to be conducted for year one through year ten.
  - 1.2. Be supported by a study that covers a minimum of three periods within the year one, the planning year that begins with the upcoming peak season, through year ten to ensure meeting a loss of load probability target of no greater than 0.1 day and 1 year. These periods are year one, a minimum of one year in years two through five, and a minimum of one year in years six through ten. This study shall:
    - 1.2.1. Use loads developed from the expected 50:50 probability load forecast.

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<sup>1</sup>In accordance with the Energy Policy Act of 2005, this standard does not authorize the MRO, ERO or FERC to order the construction of additional generation or transmission capacity or to set and enforce compliance with standards for adequacy or safety of electric facilities or services. Nothing in this standard shall be construed to preempt any authority of any State/Province to take action to ensure the safety, adequacy, and reliability of electric service within that State, as long as such action is not inconsistent with any reliability standard, as long as such action does not result in lesser reliability outside the State/Province than that provided by the reliability standards.



- 1.3.5** Emergency assistance from other interconnected systems including multi-area assessment considering transmission limitations.
  - 1.3.6** Market resources not committed to serving load (uncommitted resources) within the planned Resource Adequacy Assessment analysis.
  - 1.4.** Express the planning reserve as a percentage of the 50:50 probability forecast peak load (planning reserve margin).
  - 1.5.** Ensure responsible entity rights to capacity resources located outside a Load Serving Entity or a Planning Coordinator area and used in this assessment have been documented and such documentation has been provided to that Load Serving Entity or a Planning Coordinator.
  - 1.6.** Document that all Load of the Load Serving Entity or all Load of the Planning Coordinator is accounted for in a Resource Adequacy assessment.
- R2.** Each Load Serving Entity and Planning Coordinator shall annually document an assessment of its Resource Adequacy by comparing its load and resource capability for the ten year period in part 1.1 expressed as a percentage of the 50:50 probability forecast peak load with the planning reserve margin benchmark in part 1.4. *[Violation Risk Factor: Lower] [Time Horizon: Long-Term Planning.*

**C. Measures**

- M1.** The Load Serving Entity and the Planning Coordinator shall have evidence of a valid planned Resource Adequacy assessment covering the 10 year planning horizon per Requirement R1.
- M2.** The Load Serving Entity and the Planning Coordinator shall have evidence that it performed an annual assessment of its Resource Adequacy for year one, a minimum of one year in years 2 through 5, and a minimum of One year in years 6 through 10 per Requirement R2.

**D. Compliance**

**1. Compliance Monitoring Process**

**1.1. Compliance Monitoring Responsibility:**

ERO delegated to Midwest Reliability Organization.

**1.2. Compliance Monitoring Period and Reset Timeframe.**

Annually.

**1.3. Annual Data Retention Period.**

The Load Serving Entity and the Planning Coordinator shall each retain the data necessary to conduct the analysis and documentation of the latest results from such analysis. In addition, entities found non-compliant shall keep information related to non-compliance until found compliant.

The Compliance Monitor shall keep the last audit and all subsequent compliance records.

**1.4. Additional Compliance Information.**

None specified

**2. Violation Severity Levels**

<b>R #</b>	<b>Lower VSL</b>	<b>Moderate VSL</b>	<b>High VSL</b>	<b>Severe VSL</b>
<b>R1</b>	<p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to document how and why 1 of the resource availability subcomponents under 1.3.1 were/were not included in the analysis</p> <p><b>OR</b></p> <p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to document how and why 1 of the load characteristic subcomponents under 1.3.2 were/were not included in the analysis</p> <p><b>OR</b></p> <p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to document how and why 1 of the transmission limitation subcomponents</p>	<p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to express the planning reserve margin developed from part 1.2 as a percentage of the 50:50 probability forecast peak load per part 1.4.</p> <p><b>OR</b></p> <p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to document how and why 2 or more of the resource availability subcomponents under 1.3.1 were/were not included in the analysis</p> <p><b>OR</b></p> <p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to document how and why 2 or more of the Load characteristics subcomponents under 1.3.2 were/were not included in</p>	<p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis was not performed or verified separately for year one through year ten per part 1.1.</p> <p><b>OR</b></p> <p>The Load Serving Entity or the Planning Coordinator failed to perform an analysis or verification for one year in the 2 through 5 year period or one year in the 6 through 10 year period or both per part 1.2.</p> <p><b>OR</b></p> <p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to include load forecast uncertainty per subcomponent 1.2.2 or transmission limitations per subcomponent 1.2.3.</p> <p><b>OR</b></p>	<p>The Load Serving Entity or the Planning Coordinator failed to perform and document a Resource Adequacy analysis annually per Requirement R1.</p> <p><b>OR</b></p> <p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to calculate a Planning reserve margin that will result in the sum of the probabilities for loss of Load for the integrated peak hour for all days of each planning year analyzed for each planning period being no greater than 0.1 per part 1.2.</p> <p><b>OR</b></p> <p>The Load Serving Entity or the Planning Coordinator failed to perform an analysis for year one per part 1.2.</p>

	under 1.3.3 were/were not included in the analysis	<p>the analysis</p> <p><b>OR</b></p> <p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to document how and why 2 or more of the transmission limitations subcomponents under 1.3.3 were/were not included in the analysis</p> <p><b>OR</b></p> <p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to document how and why the resource availability components 1.3.4, 1.3.5, or 1.3.6 were/were not included in the analysis</p>	<p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to document that capacity resources are appropriately accounted for in its Resource Adequacy analysis per part 1.5.</p> <p><b>OR</b></p> <p>The Load Serving Entity or the Planning Coordinator Resource Adequacy analysis failed to document that all Load of the Load Serving Entity or all Load of the Planning Coordinator is accounted for in a Resource Adequacy assessment per 1.6.</p>	
<b>R2</b>	Not applicable	Not applicable	Not applicable	The Load Serving Entity or the Planning Coordinator did not document an assessment of its Resource Adequacy by comparing its load and resource capability for the ten year period with the planning reserve margin benchmark per Requirement

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**Version History**

<b>Version</b>	<b>Date</b>	<b>Action</b>	<b>Change Tracking</b>