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Standard	051	Compliance Templates I.A.M1 I.A.M2 I.A.M3 I.A.M4	I. System Adequacy and Security A. Transmission Systems	
Title	Transmission System Adequacy and Security	Section	I. System Adequacy and Security A. Transmission Systems	
Purpose	System simulations and associated assessments are needed periodically to ensure that reliable systems are developed with sufficient lead time and continue to be modified or upgraded as necessary to meet present and future system needs.	Introduction for I.A	System simulations and associated assessments are needed periodically to ensure that reliable systems are developed with sufficient lead time and continue to be modified or upgraded as necessary to meet present and future system needs.	Last paragraph of Introduction for I.A
Effective Date	February 8, 2005	Approval Dates	CTTF Revised Compliance Templates I.A.M1, I.A.M2, I.A.M3 and I.A.M4 – NERC BOT approved April 2, 2004	
Standard Applicability	For Sections 1, 2, 3 and 4: Planning Authority and Transmission Planner.	Applicability	I.A.M1 - Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS). I.A.M2 - Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS). I.A.M3 - Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS). I.A.M4 - Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS).	
Section 1	System performance assessment under normal (no contingency) conditions	Brief Descriptions I.A.M1	System performance under normal (no contingency) conditions	

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Section 1 Applicability	Planning Authority and Transmission Planner.	I.A.M1 Applicable to	Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS).	
Section 1 Requirements	<p>R1-1. Assessment Requirements</p> <p>The Planning Authority and Transmission Planner shall each assess the performance of their systems in meeting this Reliability Standard.</p> <p>To be valid and compliant, assessments shall.</p> <ol style="list-style-type: none"> 1. Be made annually, 2. Be conducted for near-term (years one through five) and longer-term (years six through ten) planning horizons, 	<p>I.A.M1 Standard</p> <p>I.A. M1 Assessment Requirements</p>	<p>S1. The interconnected transmission systems shall be planned, designed, and constructed such that with all transmission facilities in service and with normal (pre-contingency) operating procedures in effect, the network can deliver generator unit output to meet projected customer demands and projected firm (non-recallable reserved) transmission services, at all demand levels over the range of forecast system demands, under the conditions defined in Category A of Table I (attached).</p> <p>Transmission system capability and configuration, reactive power resources, protection systems, and control devices shall be adequate to ensure the system performance prescribed in Table I.</p> <p>Assessment Requirements</p> <p>Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS), as determined by the Region, for example:</p> <ol style="list-style-type: none"> 1. Transmission owners, 2. Independent system operators (ISOs), 3. Regional transmission organizations (RTOs), <p>Or other groups responsible for planning the bulk electric system shall assess the performance of their systems in meeting Standard S1.</p>	<p>The content of S1 is repeated and detailed more completely in the M1 measurement and therefore not used directly in translation.</p> <p>Reference to Standard S1 was replaced with “this</p>

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	<p>3. Be supported by a current or past study and/or system simulation testing as accepted by the Region showing system performance following Category A of Table 1 (no contingencies) that addresses the plan year being assessed,</p> <p>4. Address any planned upgrades needed to meet the performance requirements of Category A.</p> <p>System Simulation Study/Testing Methods</p> <p>System simulation studies/testing shall (as agreed to by the Region):</p> <ol style="list-style-type: none"> 1. Cover critical system conditions and study years as deemed appropriate by the responsible entity. 2. Be conducted annually unless changes to system conditions do not warrant such analyses. 3. Be conducted beyond the five-year horizon only as needed to address identified marginal conditions that may have longer lead-time solutions. 4. Have established normal (pre-contingency) operating procedures in place. 5. Have all projected firm transfers modeled. 6. Be performed for selected demand levels over the range of forecast system demands. 	I.A.M1 System Simulation Study/Testing Methods	<p>To be valid <i>and compliant</i>, assessments shall:</p> <ol style="list-style-type: none"> 1. Be made annually, 2. Be conducted for near-term (years one through five) and longer-term (years six through ten) planning horizons, 3. Be supported by a current or past study and/or system simulation testing as accepted by the Region showing system performance following Category A of Table 1 (no contingencies) that addresses the plan year being assessed, 4. Address any planned upgrades needed to meet the performance requirements of Category A. <p>System Simulation Study/Testing Methods</p> <p>System simulation studies/testing shall (as agreed to by the Region):</p> <ol style="list-style-type: none"> 1. Cover critical system conditions and study years as deemed appropriate by the responsible entity. 2. Be conducted annually unless changes to system conditions do not warrant such analyses. 3. Be conducted beyond the five-year horizon only as needed to address identified marginal conditions that may have longer lead-time solutions. 4. Have established normal (pre-contingency) operating procedures in place. 5. Have all projected firm transfers modeled. 	Reliability Standard”.

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	<p>7. Demonstrate that system performance meets Table 1 for Category A (no contingencies).</p> <p>8. Include existing and planned facilities.</p> <p>9. Include reactive power resources to ensure that adequate reactive resources are available to meet system performance.</p> <p>R1-2. Corrective Plan Requirements</p> <p>When system simulations indicate an inability of the systems to respond as prescribed in Reliability Standard 051-R1-1, the Planning Authority and Transmission Planner shall:</p> <p>1. Provide a written summary of its plans to achieve the required system performance as described above throughout the planning horizon:</p> <ul style="list-style-type: none"> a. Including a schedule for implementation, b. Including a discussion of expected required in-service dates of facilities, c. Consider lead times necessary to implement plans. <p>2. For identified system facilities for which sufficient lead times exist, review in subsequent annual assessments for continuing need — detailed implementation plans are not needed.</p> <p>R1-3. Reporting Requirements</p> <p>The documentation of results of these reliability</p>	<p>I.A. M1 Corrective Plan Requirements</p> <p>I.A. M1 Reporting</p>	<p>6. Be performed for selected demand levels over the range of forecast system demands.</p> <p>7. Demonstrate that system performance meets Table 1 for Category A (no contingencies).</p> <p>8. Include existing and planned facilities.</p> <p>9. Include reactive power resources to ensure that adequate reactive resources are available to meet system performance.</p> <p>Corrective Plan Requirements</p> <p>When system simulations indicate an inability of the systems to respond as prescribed in this Measurement (M1), responsible entities shall:</p> <p>1. Provide a written summary of their plans to achieve the required system performance as described above throughout the planning horizon:</p> <ul style="list-style-type: none"> a. Including a schedule for implementation, b. Including a discussion of expected required in-service dates of facilities, c. Consider lead times necessary to implement plans. <p>2. For identified system facilities for which sufficient lead times exist, review in subsequent annual assessments for continuing need — detailed implementation plans are not needed.</p> <p>Reporting Requirements</p>	<p>Changed reference to Requirement R1-1 instead of Measurement M1</p>

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	assessments and corrective plans shall annually be provided to the entities' respective NERC Region(s), as required by the Region. Each Region, in turn, shall annually provide a report of its reliability assessments and corrective actions to NERC.	Requirements	The documentation of results of these reliability assessments and corrective plans shall annually be provided to the entities' respective NERC Region(s), as required by the Region. Each Region, in turn, shall annually provide a report of its reliability assessments and corrective actions to NERC.	
Section 1 Measures	<p>M1-1. The Planning Authority and Transmission Planner shall provide evidence that it provided assessments and corrective plans for the system responses per Standard 051 R1-1 and R1-2.</p> <p>M1-2. The Planning Authority and Transmission Planner shall provide evidence that it reported documentation of results of its reliability assessments and corrective plans per Standard 051 R1-3.</p>	IAM1 Items to be -- Measured	System performance under normal (no contingency) conditions.	Added words "assessments and corrective plans" to the language to make a measurable standard. Added reference to this Reliability Standard and its requirements.
Section 1 Regional Differences	None identified	None	None identified	
Section 1 Compliance Monitoring Process	<p>Annually</p> <p>Regional Reliability Council. Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting Process.</p>	IAM1 Timeframe Compliance Monitoring Responsibility	<p>Annually</p> <p>Regional Reliability Council. Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting Process.</p>	
Section 1 Levels of Non Compliance	<p>(If non-compliant at more than one Level, the highest Level applies.)</p> <p>Level 1 — N/A.</p> <p>Level 2 — A valid assessment and corrective plan for the</p>	IAM1 Levels of non-compliance	<p>(If non-compliant at more than one Level, the highest Level applies.)</p> <p>Level 1 — N/A.</p> <p>Level 2 — A valid assessment and corrective plan for the</p>	

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	<p>longer-term planning horizon is not available.</p> <p>Level 3 — N/A</p> <p>Level 4 — A valid assessment and corrective plan for the near-term planning horizon is not available.</p>		<p>longer-term planning horizon is not available.</p> <p>Level 3 — N/A</p> <p>Level 4 — A valid assessment and corrective plan for the near-term planning horizon is not available.</p>	
Section 2	System performance following loss of a single bulk system element	Brief Descriptions I.A.M2	System performance following loss of a single bulk system element	
Section 2 Applicability	Planning Authority and Transmission Planner.	I.A.M2 Applicable to	Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS).	
Section 2 Requirements		Standard for I.A.M2	<p>S2. The interconnected transmission systems shall be planned, designed, and constructed such that the network can be operated to supply projected customer demands and projected firm (non-recallable reserved) transmission services, at all demand levels over the range of forecast system demands, under the contingency conditions as defined in Category B of Table I (attached).</p> <p>Transmission system capability and configuration, reactive power resources, protection systems, and control devices shall be adequate to ensure the system performance prescribed in Table I.</p> <p>The transmission systems also shall be capable of accommodating planned bulk electric equipment outages and continuing to operate within thermal, voltage, and stability limits under the contingency conditions as</p>	The content of S2 is repeated and detailed more completely in the M2 measurement and therefore not used directly in translation.

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	<p>R2-1. Assessment Requirements</p> <p>Planning Authorities and Transmission Planners shall assess the performance of their systems in meeting the requirements of this Reliability Standard.</p> <p>To be valid <i>and compliant</i>, assessments shall:</p> <ol style="list-style-type: none"> 1. Be made annually, 2. Be conducted for near-term (years one through five) and longer-term (years six through ten) planning horizons, 3. Be supported by a current or past study and/or system simulation testing as accepted by the Region showing system performance following Category B contingencies that addresses the plan year being assessed, 4. Address any planned upgrades needed to meet the performance requirements of Category B, 5. Consider all contingencies applicable to Category B. 	<p>IAM2 Assessment Requirements</p>	<p>defined in Category B of Table I (attached).</p> <p>Assessment Requirements</p> <p>Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS), for example:</p> <ol style="list-style-type: none"> 1. Transmission owners, 2. Independent system operators (ISOs), 3. Regional transmission organizations (RTOs). <p>Or other groups responsible for planning the bulk electric system shall assess the performance of their systems in meeting Standard S2.</p> <p>To be valid <i>and compliant</i>, assessments shall:</p> <ol style="list-style-type: none"> 1. Be made annually, 2. Be conducted for near-term (years one through five) and longer-term (years six through ten) planning horizons, 3. Be supported by a current or past study and/or system simulation testing as accepted by the Region showing system performance following Category B contingencies that addresses the plan year being assessed, 4. Address any planned upgrades needed to meet the performance requirements of Category B, 5. Consider all contingencies applicable to Category B. 	<p>Reference to Standard S2 was replaced with “this Reliability Standard”.</p>

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	<p>System Simulation Study/Testing Methods</p> <p>System simulation studies/testing shall:</p> <ol style="list-style-type: none"> 1. Be performed and evaluated only for those Category B contingencies that would produce the more severe system results or impacts: <ol style="list-style-type: none"> a. The rationale for the contingencies selected for evaluation shall be available as supporting information, b. An explanation of why the remaining simulations would produce less severe system results shall be available as supporting information. 2. Cover critical system conditions and study years as deemed appropriate by the responsible entity. 3. Be conducted annually unless changes to system conditions do not warrant such analyses. 4. Be conducted beyond the five-year horizon only as needed to address identified marginal conditions that may have longer lead-time solutions. 5. Have all projected firm transfers modeled. 6. Be performed and evaluated for selected demand levels over the range of forecast system demands. 7. Demonstrate that system performance meets Table 1 for Category B contingencies. 	I.A.M2 System Simulation Study/Testing Methods	<p>System Simulation Study/Testing Methods</p> <p>System simulation studies/testing shall:</p> <ol style="list-style-type: none"> 1. Be performed and evaluated only for those Category B contingencies that would produce the more severe system results or impacts: <ol style="list-style-type: none"> a. The rationale for the contingencies selected for evaluation shall be available as supporting information, b. An explanation of why the remaining simulations would produce less severe system results shall be available as supporting information. 2. Cover critical system conditions and study years as deemed appropriate by the responsible entity. 3. Be conducted annually unless changes to system conditions do not warrant such analyses. 4. Be conducted beyond the five-year horizon only as needed to address identified marginal conditions that may have longer lead-time solutions. 5. Have all projected firm transfers modeled. 6. Be performed and evaluated for selected demand levels over the range of forecast system demands. 7. Demonstrate that system performance meets Table 1 for Category B contingencies. 	

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	<p>8. Include existing and planned facilities.</p> <p>9. Include reactive power resources to ensure that adequate reactive resources are available to meet system performance.</p> <p>10. Include the effects of existing and planned protection systems, including any backup or redundant systems.</p> <p>11. Include the effects of existing and planned control devices.</p> <p>12. Include the planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those demand levels for which planned (including maintenance) outages are performed</p> <p>R2-2. Corrective Plan Requirements</p> <p>When system simulations indicate an inability of the systems to respond as prescribed in Requirement R2-1, Planning Authorities and Transmission Owners responsible for planning the bulk electric system shall:</p> <p>1. Provide a written summary of their plans to achieve the required system performance as described above throughout the planning horizon:</p> <p>a. Including a schedule for implementation,</p> <p>b. Including a discussion of expected required in-service dates of facilities,</p>	<p>I.A. M2 Corrective Plan Requirements</p>	<p>8. Include existing and planned facilities.</p> <p>9. Include reactive power resources to ensure that adequate reactive resources are available to meet system performance.</p> <p>10. Include the effects of existing and planned protection systems, including any backup or redundant systems.</p> <p>11. Include the effects of existing and planned control devices.</p> <p>12. Include the planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those demand levels for which planned (including maintenance) outages are performed</p> <p>Corrective Plan Requirements</p> <p>When system simulations indicate an inability of the systems to respond as prescribed in this Measure (M2), responsible entities shall:</p> <p>1. Provide a written summary of their plans to achieve the required system performance as described above throughout the planning horizon,</p> <p>a. Including a schedule for implementation,</p> <p>b. Including a discussion of expected required in-service dates of facilities,</p> <p>c. Consider lead times necessary to implement</p>	<p>Changed reference to Requirement R2-1 instead of Measurement M2</p>

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	<p>c. Consider lead times necessary to implement plans.</p> <p>2. For identified system facilities for which sufficient lead times exist, review in subsequent annual assessments for continuing need — detailed implementation plans are not needed.</p> <p>R2-3. Reporting Requirements</p> <p>The documentation of results of these reliability assessments and corrective plans shall annually be provided to the entities’ respective NERC Region(s), as required by the Region. Each Region, in turn, shall annually provide a report of its reliability assessments and corrective actions to NERC.</p>	I.A. M2 Reporting Requirements	<p>plans.</p> <p>2. For identified system facilities for which sufficient lead times exist, review in subsequent annual assessments for continuing need — detailed implementation plans are not needed.</p> <p>Reporting Requirements</p> <p>The documentation of results of these reliability assessments and corrective plans shall annually be provided to the entities’ respective NERC Region(s), as required by the Region. Each Region, in turn, shall annually provide a report of its reliability assessments and corrective actions to NERC.</p>	
Section 2 Measures	<p>M2-1 The Planning Authority and Transmission Planner shall provide evidence that it provided assessments and corrective plans for the system responses per Standard 051 R2-1 and R2-2.</p> <p>M2-2 The Planning Authority and Transmission Planner shall provide evidence that it reported documentation of results of its reliability assessments and corrective plans</p>	IAM2 Items to be -- Measured	Assessments supported by simulated system performance following loss of a single bulk system element.	Added words “available assessments and corrective plans” to the language to make a measurable standard. Changed reference from S2 to this Reliability Standard.
Section 2 Regional Differences	None identified	None	None identified	
Section 2 Compliance Monitoring Process	<p>Annually</p> <p>Regional Reliability Council. Each Region shall report</p>	IAM2 Timeframe Compliance	<p>Annually</p> <p>Regional Reliability Council. Each Region shall report</p>	

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	compliance and violations to NERC via the NERC Compliance Reporting Process.	Monitoring Responsibility	compliance and violations to NERC via the NERC Compliance Reporting Process.	
Section 2 Levels of Non Compliance	(If non-compliant at more than one Level, the highest Level applies.) Level 1 — N/A. Level 2 — A valid assessment and corrective plan for the longer-term planning horizon is not available. Level 3 — N/A Level 4 — A valid assessment and corrective plan for the near-term planning horizon is not available.	IAM2 Levels of Non-Compliance	(If non-compliant at more than one Level, the highest Level applies.) Level 1 — N/A. Level 2 — A valid assessment and corrective plan, as defined above, for the longer-term planning horizon is not available. Level 3 — N/A Level 4 — A valid assessment and corrective plan, as defined above, for the near-term planning horizon is not available.	
Section 3	System performance following loss of two or more bulk system elements	Brief Descriptions I.A.M3	System performance following loss of two or more bulk system elements	
Section 3 Applicability	Planning Authority and Transmission Planner.	I.A.M3 Applicable to	Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS).	
Section 3 Requirements		Standard for IAM3	S3. The interconnected transmission systems shall be planned, designed, and constructed such that the network can be operated to supply projected customer demands and projected firm (non-recallable reserved) transmission services, at all demand levels over the range of forecast system demands, under the contingency conditions as defined in Category C of	The content of S3 is repeated and detailed more completely in the M3 measurement and therefore not used directly in translation.

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	<p>R3-1. Assessment Requirements</p> <p>Planning Authorities and Transmission Planners shall assess the performance of their systems in meeting the requirements of this Reliability Standard.</p>	<p>I.A. M3 Assessment Requirements</p>	<p>Table I (attached). The controlled interruption of customer demand, the planned removal of generators, or the curtailment of firm (non-recallable reserved) power transfers maybe necessary to meet this standard.</p> <p>Transmission system capability and configuration, reactive power resources, protection systems, and control devices shall be adequate to ensure the system performance prescribed in Table I.</p> <p>The transmission systems also shall be capable of accommodating planned bulk electric equipment outages and continuing to operate within thermal, voltage, and stability limits under the contingency conditions as defined in Category C of Table I (attached).</p> <p>Assessment Requirements</p> <p>Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS), as determined by the Region, for example:</p> <ol style="list-style-type: none"> 1. Transmission owners, 2. Independent system operators (ISOs), 3. Regional transmission organizations (RTOs). <p>Or other groups responsible for planning the bulk electric system shall assess the performance of their systems in meeting Standard S3.</p> <p>To be valid <i>and compliant</i>, assessments shall:</p>	<p>Reference to Standard S3 was replaced with “this Reliability Standard”.</p>

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	<p>To be valid <i>and compliant</i>, assessments shall:</p> <ol style="list-style-type: none"> 1. Be made annually, 2. Be conducted for near-term (years one through five) and longer-term (years six through ten) planning horizons, 3. Be supported by a current or past study and/or system simulation testing as accepted by the Region showing system performance following Category C contingencies that addresses the plan year being assessed, 4. Address any planned upgrades needed to meet the performance requirements of Category C, 5. Consider all contingencies applicable to Category C. <p>System Simulation Study/Testing Methods</p> <p>System simulation studies/testing shall:</p> <ol style="list-style-type: none"> 1. Be performed and evaluated only for those Category C contingencies that would produce the more severe system results or impacts. <ol style="list-style-type: none"> a. The rationale for the contingencies selected for evaluation shall be available as supporting information, b. An explanation of why the remaining simulations would produce less severe system results shall be available as supporting information. 	I.A.M3 System Simulation Study/Testing Methods	<ol style="list-style-type: none"> 1. Be made annually, 2. Be conducted for near-term (years one through five) and longer-term (years six through ten) planning horizons, 3. Be supported by a current or past study and/or system simulation testing as accepted by the Region showing system performance following Category C contingencies that addresses the plan year being assessed, 4. Address any planned upgrades needed to meet the performance requirements of Category C, 5. Consider all contingencies applicable to Category C. <p>System Simulation Study/Testing Methods</p> <p>System simulation studies/testing shall:</p> <ol style="list-style-type: none"> 1. Be performed and evaluated only for those Category C contingencies that would produce the more severe system results or impacts. <ol style="list-style-type: none"> a. The rationale for the contingencies selected for evaluation shall be available as supporting information, b. An explanation of why the remaining simulations would produce less severe system results shall be available as supporting information. 2. Cover critical system conditions and study 	

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	<ol style="list-style-type: none"> 2. Cover critical system conditions and study years as deemed appropriate by the responsible entity. 3. Be conducted annually unless changes to system conditions do not warrant such analyses. 4. Be conducted beyond the five-year horizon only as needed to address identified marginal conditions that may have longer lead-time solutions. 5. Have all projected firm transfers modeled. 6. Be performed and evaluated for selected demand levels over the range of forecast system demands. 7. Demonstrate that system performance meets Table 1 for Category C contingencies. 8. Include existing and planned facilities. 9. Include reactive power resources to ensure that adequate reactive resources are available to meet system performance. 10. Include the effects of existing and planned protection systems, including any backup or redundant systems. 11. Include the effects of existing and planned control devices. 12. Include the planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those demand levels for which planned (including maintenance) outages are performed 		<ol style="list-style-type: none"> years as deemed appropriate by the responsible entity. 3. Be conducted annually unless changes to system conditions do not warrant such analyses. 4. Be conducted beyond the five-year horizon only as needed to address identified marginal conditions that may have longer lead-time solutions. 5. Have all projected firm transfers modeled. 6. Be performed and evaluated for selected demand levels over the range of forecast system demands. 7. Demonstrate that system performance meets Table 1 for Category C contingencies. 8. Include existing and planned facilities. 9. Include reactive power resources to ensure that adequate reactive resources are available to meet system performance. 10. Include the effects of existing and planned protection systems, including any backup or redundant systems. 11. Include the effects of existing and planned control devices. 12. Include the planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those demand levels for 	

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	<p>R3-2. Corrective Plan Requirements</p> <p>When system simulations indicate an inability of the systems to respond as prescribed in Requirement 3-1, Planning Authorities and Transmission Owners responsible for planning the bulk electric system shall:</p> <ol style="list-style-type: none"> 1. Provide a written summary of their plans to achieve the required system performance as described above throughout the planning horizon: <ol style="list-style-type: none"> a. Including a schedule for implementation, b. Including a discussion of expected required in-service dates of facilities, c. Consider lead times necessary to implement plans. 2. For identified system facilities for which sufficient lead times exist, review in subsequent annual assessments for continuing need — detailed implementation plans are not needed. <p>R3-3. Reporting Requirements</p> <p>The documentation of results of these reliability assessments and corrective plans shall annually be provided to the entities' respective NERC Region(s), as required by the Region. Each Region, in turn, shall annually provide a report of its reliability assessments and corrective actions to NERC.</p>	<p>I.A. M3 Corrective Plan Requirements</p> <p>I.A. M3 Reporting Requirements</p>	<p>which planned (including maintenance) outages are performed</p> <p>Corrective Plan Requirements</p> <p>When system simulations indicate an inability of the systems to respond as prescribed in this Measure (M3), responsible entities shall:</p> <ol style="list-style-type: none"> 1 Provide a written summary of their plans to achieve the required system performance as described above throughout the planning horizon, <ol style="list-style-type: none"> a. Including a schedule for implementation, b. Including a discussion of expected required in-service dates of facilities, c. Consider lead times necessary to implement plans. 2 For identified system facilities for which sufficient lead times exist, review in subsequent annual assessments for continuing need — detailed implementation plans are not needed. <p>Reporting Requirements</p> <p>The documentation of results of these reliability assessments and corrective plans shall annually be provided to the entities' respective NERC Region(s), as required by the Region. Each Region, in turn, shall annually provide a report of its reliability</p>	<p>Changed reference to Requirement R3-1 instead of Measurement M3</p>

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			assessments and corrective actions to NERC.	
Section 3 Measures	<p>M3-1 The Planning Authority and Transmission Planner shall provide evidence that it provided assessments and corrective plans for the system responses per Standard 051 R3-1 and R3-2.</p> <p>M3-2 The Planning Authority and Transmission Planner shall provide evidence that it reported documentation of results of its reliability assessments and corrective plans</p>	IAM3 Items to be -- Measured	Assessments supported by simulated system performance following loss of two or more bulk system element.	Added words “available assessments and corrective plans” to the language to make a measurable standard. Changed reference from S3 to this Reliability Standard.
Section 3 Regional Differences	None identified	None	None identified	
Section 3 Compliance Monitoring Process	<p>Annually</p> <p>Regional Reliability Council.</p>	IAM3 Timeframe Compliance Monitoring Responsibility	<p>Annually</p> <p>Regional Reliability Council.</p>	
Section 3 Levels of Non Compliance	<p>(If non-compliant at more than one Level, the highest Level applies.)</p> <p>Level 1 — N/A.</p> <p>Level 2 — A valid assessment and corrective plan for the longer-term planning horizon is not available.</p> <p>Level 3 — N/A</p> <p>Level 4 — A valid assessment and corrective plan for the near-term planning horizon is not available.</p>	IAM3 Levels of Non-Compliance	<p>(If non-compliant at more than one Level, the highest Level applies.)</p> <p>Level 1 — N/A.</p> <p>Level 2 — A valid assessment and corrective plan, as defined above, for the longer-term planning horizon is not available.</p> <p>Level 3 — N/A</p> <p>Level 4 — A valid assessment and corrective plan, as defined above, for the near-term planning horizon is not available.</p>	

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Section 4	System performance following extreme events resulting in the loss of two or more bulk system elements	Brief Descriptions I.A.M4	System performance following extreme events resulting in the loss of two or more bulk system elements	
Section 4 Applicability	Planning Authority and Transmission Planner.	I.A.M4 Applicable to	Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS).	
Section 4 Requirements	R4-1. Assessment Requirements ¹ Planning Authorities and Transmission Planners shall assess the performance of their systems in meeting the requirements of this Reliability Standard.	Standard for I.A.M4 I.A. M4 Assessment Requirements	S4. The interconnected transmission systems shall be evaluated for the risks and consequences of a number of each of the extreme contingencies that are listed under Category D of Table I (attached). Assessment Requirements Entities Responsible for the Reliability of Interconnected transmission Systems (ERRIS), as determined by the Region, for example: <ol style="list-style-type: none"> 1. Transmission owners, 2. Independent system operators (ISOs), 3. Regional transmission organizations (RTOs). Or other groups responsible for planning the bulk electric system shall assess the performance of their systems in meeting Standard S4.	The content of S4 is repeated and detailed more completely in the M4 measurement and therefore not used directly in translation. Reference to Standard S4 was replaced with “this Reliability Standard”.

¹ Corrective Plan Requirements: None required.

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
	<p>To be valid <i>and compliant</i>, assessments shall:</p> <ol style="list-style-type: none"> 1. Be made annually, 2. Be conducted for near-term (years one through five), 3. Be supported by a current or past study and/or system simulation testing as accepted by the Region showing system performance following Category D contingencies that addresses the plan year being assessed, 4. Consider all contingencies applicable to Category D. <p>System Simulation Study/Testing Methods</p> <p>System simulation studies/testing shall (as agree to by the Region) :</p> <ol style="list-style-type: none"> 1. Be performed and evaluated only for those Category d contingencies that would produce the more severe system results or impacts. <ol style="list-style-type: none"> a. The rationale for the contingencies selected for evaluation shall be available as supporting information, b. An explanation of why the remaining simulations would produce less severe system results shall be available as supporting information. 2. Cover critical system conditions and study years as deemed appropriate by the responsible entity. 3. Be conducted annually unless changes to system 	I.A.M4 System Simulation Study/Testing Methods	<p>To be valid <i>and compliant</i>, assessments shall:</p> <ol style="list-style-type: none"> 1. Be made annually, 2. Be conducted for near-term (years one through five), 3. Be supported by a current or past study and/or system simulation testing as accepted by the Region showing system performance following Category D contingencies that addresses the plan year being assessed, 4. Consider all contingencies applicable to Category D. <p>System Simulation Study/Testing Methods</p> <p>System simulation studies/testing shall (as agree to by the Region) :</p> <ol style="list-style-type: none"> 1. Be performed and evaluated only for those Category d contingencies that would produce the more severe system results or impacts. <ol style="list-style-type: none"> c. The rationale for the contingencies selected for evaluation shall be available as supporting information, d. An explanation of why the remaining simulations would produce less severe system results shall be available as supporting information. 2. Cover critical system conditions and study years as deemed appropriate by the 	

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Heading	New Language	Heading	Existing Document Language	Comments
	<p>conditions do not warrant such analyses.</p> <ol style="list-style-type: none"> 4. Have all projected firm transfers modeled. 5. Include existing and planned facilities. 6. Include reactive power resources to ensure that adequate reactive resources are available to meet system performance. 7. Include the effects of existing and planned protection systems, including any backup or redundant systems. 8. Include the effects of existing and planned control devices. 9. Include the planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those demand levels for which planned (including maintenance) outages are performed <p>R4-2. Reporting Requirements The documentation of results of these reliability assessments shall annually be provided to the entities'</p>	<p>.A. M4 Corrective Plan Requirements</p> <p>I.A. M4 Reporting Requirements</p>	<p>responsible entity.</p> <ol style="list-style-type: none"> 3. Be conducted annually unless changes to system conditions do not warrant such analyses. 4. Have all projected firm transfers modeled. 5. Include existing and planned facilities. 6. Include reactive power resources to ensure that adequate reactive resources are available to meet system performance. 7. Include the effects of existing and planned protection systems, including any backup or redundant systems. 8. Include the effects of existing and planned control devices. 9. Include the planned (including maintenance) outage of any bulk electric equipment (including protection systems or their components) at those demand levels for which planned (including maintenance) outages are performed <p>Corrective Plan Requirements None required</p> <p>Reporting Requirements</p>	

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	respective NERC Region(s), as required by the Region.		The documentation of results of these reliability assessments shall annually be provided to the entities' respective NERC Region(s), as required by the Region.	
Section 4 Measures	M4-1. The Planning Authority and Transmission Planner shall provide assessments for the system responses per Standard 051 R3-1. M3-2. The Planning Authority and Transmission Planner shall provide evidence that it reported documentation of results of its reliability assessments per Standard 051 R4-1.	IAM4 Items to be Measured	Assessments of system performance for extreme events (more severe than in I.A.M3) resulting in loss of two or more bulk system elements.	Added words "have available assessments of" to the language to make a measurable standard. Changed reference from S4 to this Reliability Standard.
Section 4 Regional Differences	None identified	None	None identified	
Section 4 Compliance Monitoring Process	Annually Annually Regional Reliability Council. Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting Process.	IAM4 Timeframe Compliance-Monitoring Responsibility	Annually Regional Reliability Council. Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting Process.	
Section 4 Levels of Non Compliance	Level 1 — A valid assessment, as defined above, for the near-term planning horizon is not available. Level 2 — N/A Level 3 — N/A Level 4 — N/A	IAM4 Levels of non-compliance	(If non-compliant at more than one Level, the highest Level applies.) Level 1 — A valid assessment, as defined above, for the near-term planning horizon is not available. Level 2 — N/A Level 3 — N/A Level 4 — N/A	No changes

Table I. Transmission System Standards – Normal and Emergency Conditions*

Category	Contingencies		System Limits or Impacts					
	Initiating Event(s) and Contingency Element(s)		Elements Out of Service	Thermal Limits	Voltage Limits	System Stable	Loss of Demand or Curtailed Firm Transfers	Cascading ^c Outages
A - No Contingencies	All Facilities in Service		None	Applicable Rating ^a (A/R)	Applicable Rating ^a (A/R)	Yes	No	No
B - Event resulting in the loss of a single element.	Single Line Ground (SLG) or 3-Phase (3Ø) Fault, with Normal Clearing: 1. Generator 2. Transmission Circuit 3. Transformer Loss of an Element without a Fault.		Single Single Single Single	A/R A/R A/R A/R	A/R A/R A/R A/R	Yes Yes Yes Yes	No ^b No ^b No ^b No ^b	No No No No
	Single Pole Block, Normal Clearing ^f : 4. Single Pole (dc) Line		Single	A/R	A/R	Yes	No ^b	No
C - Event(s) resulting in the loss of two or more (multiple) elements.	SLG Fault, with Normal Clearing ^f : 1. Bus Section 2. Breaker (failure or internal fault)		Multiple Multiple	A/R A/R	A/R A/R	Yes Yes	Planned/Controlled ^d Planned/Controlled ^d	No No
	SLG or 3Ø Fault, with Normal Clearing ^f , Manual System Adjustments, followed by another SLG or 3Ø Fault, with Normal Clearing ^f : 3. Category B (B1, B2, B3, or B4) contingency, manual system adjustments, followed by another Category B (B1, B2, B3, or B4) contingency		Multiple	A/R	A/R	Yes	Planned/Controlled ^d	No
	Bipolar Block, with Normal Clearing ^f : 4. Bipolar (dc) Line		Multiple	A/R	A/R	Yes	Planned/Controlled ^d	No
	Fault (non 3Ø), with Normal Clearing ^f : 5. Any two circuits of a multiple circuit towerline ^e		Multiple	A/R	A/R	Yes	Planned/Controlled ^d	No
	SLG Fault, with Delayed Clearing ^f (stuck breaker or protection system failure): 6. Generator 7. Transmission Circuit 8. Transformer 9. Bus Section		Multiple Multiple	A/R A/R	A/R A/R	Yes Yes	Planned/Controlled ^d Planned/Controlled ^d	No No

* Any Region may implement standards that are more stringent, but not inconsistent with NERC’s industry-wide standards

Table I. Transmission System Standards – Normal and Emergency Conditions*

Table I. Transmission System Standards – Normal and Emergency Conditions*

<p>D^e - Extreme event resulting in two or more (multiple) elements removed or cascading out of service</p>	<p>3Ø Fault, with Delayed Clearing^f (stuck breaker or protection system failure):</p> <table border="0"> <tr> <td>1. Generator</td> <td>3. Transformer</td> </tr> <tr> <td>2. Transmission Circuit</td> <td>4. Bus Section</td> </tr> </table> <p>-----</p> <p>3Ø Fault, with Normal Clearing^f:</p> <p>5. Breaker (failure or internal fault)</p> <p>-----</p> <p>Other:</p> <ol style="list-style-type: none"> 6. Loss of towerline with three or more circuits 7. All transmission lines on a common right-of way 8. Loss of a substation (one voltage level plus transformers) 9. Loss of a switching station (one voltage level plus transformers) 10. Loss of all generating units at a station 11. Loss of a large load or major load center 12. Failure of a fully redundant special protection system (or remedial action scheme) to operate when required 13. Operation, partial operation, or misoperation of a fully redundant special protection system (or remedial action scheme) in response to an event or abnormal system condition for which it was not intended to operate 14. Impact of severe power swings or oscillations from disturbances in another Regional Council. 	1. Generator	3. Transformer	2. Transmission Circuit	4. Bus Section	<p>Evaluate for risks and consequences.</p> <ul style="list-style-type: none"> ▪ May involve substantial loss of customer demand and generation in a widespread area or areas. ▪ Portions or all of the interconnected systems may or may not achieve a new, stable operating point. ▪ Evaluation of these events may require joint studies with neighboring systems.
1. Generator	3. Transformer					
2. Transmission Circuit	4. Bus Section					

- a) Applicable rating (A/R) refers to the applicable normal and emergency facility thermal rating or system voltage limit as determined and consistently applied by the system or facility owner. Applicable ratings may include emergency ratings applicable for short durations as required to permit operating steps necessary to maintain system control. All ratings must be established consistent with applicable NERC Planning Standards addressing facility ratings.
- b) Planned or controlled interruption of electric supply to radial customers or some local network customers, connected to or supplied by the faulted element or by the affected area, may occur in certain areas without impacting the overall security of the interconnected transmission systems. To prepare for the next contingency, system adjustments are permitted, including curtailments of contracted firm (non-recallable reserved) electric power transfers.
- c) Cascading is the uncontrolled successive loss of system elements triggered by an incident at any location. Cascading results in widespread service interruption which cannot be restrained from sequentially spreading beyond an area predetermined by appropriate studies.
- d) Depending on system design and expected system impacts, the controlled interruption of electric supply to customers (load shedding), the planned removal from service of certain generators, and/or the curtailment of contracted firm (non-recallable reserved) electric power transfers may be necessary to maintain the overall security of the interconnected transmission systems.
- e) A number of extreme contingencies that are listed under Category D and judged to be critical by the transmission planning entity(ies) will be selected for evaluation. It is not expected that all possible facility outages under each listed contingency of Category D will be evaluated.
- f) Normal clearing is when the protection system operates as designed and the fault is cleared in the time normally expected with proper functioning of the installed protection systems. Delayed clearing of a fault is due to failure of any protection system component such as a relay, circuit breaker, or current transformer (CT), and not because of an intentional design delay.

Table I. Transmission System Standards – Normal and Emergency Conditions*

g) System assessments may exclude these events where multiple circuit towers are used over short distances (e.g., station entrance, river crossings) in accordance with Regional exemption criteria.

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
ID Number	052	Compliance Templates I.B.M1 I.B.M2	I. System Adequacy and Security B. Reliability Assessment	
Title	System Adequacy and Security Reliability Assessment	Section	I. System Adequacy and Security B. Reliability Assessment	
Purpose	To ensure that each Regional Reliability Council complies with the NERC Planning Standards and its own Regional planning criteria, NERC needs to review and assess the overall reliability (adequacy and security) of the interconnected bulk electric systems, both existing and as planned.	Introduction for I.B	Introduction NERC, through its Planning Committee (or successor group(s)), reviews and assesses the overall reliability (adequacy and security) of the interconnected bulk electric systems, both existing and as planned, to ensure that each Region (subregion) complies with the NERC Planning Standards and its own Regional planning criteria.	First paragraph for Introduction for I.B
Effective Date	February 8, 2005	Compliance Templates I.B.M1 I.B.M2	I.B.M1 CTTF revised and BOT approved April 2, 2004 I.B.M2, introduced in Phase 1, BOT approved June 12, 2001	
Standard Applicability	Regional Reliability Councils for Sections 1 and 2	Applicable to I.B.M1 -- I.B.M2 --	Regional Reliability Councils Regions	Changed for terminology consistency
Section 1	Regional and interregional self-assessment reliability reports.	Brief	Regional and interregional self-assessment reliability reports.	

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
		Description I.B.M1		
Section 1 Applicability	Regional Reliability Councils	Applicable to I.B.M1	Regional Reliability Councils	
Section 1 Requirements	<p>R1-1. Each Regional Reliability Council shall annually conduct reliability assessments of its respective existing and planned Regional bulk electric system (generation and transmission facilities) for:</p> <ol style="list-style-type: none"> 1. Current year: <ul style="list-style-type: none"> • winter • summer • other system conditions as deemed appropriate by the Region 2. Near-term planning horizons (years one through five) detailed assessments shall be conducted. 3. Longer-term planning horizons (years six through ten). Assessment shall focus on the analysis of trends in resources and transmission adequacy, other industry trends and developments, and reliability concerns. 4. Interregional reliability assessments to ensure that the Regional bulk electric systems are planned and developed on a coordinated or joint basis. 	<p>I.B.M1 Standard</p> <p>I.B.M1 Measure</p>	<p>S1. The overall reliability (adequacy and security) of the Regions' interconnected bulk electric systems, both existing and as planned, shall comply with the NERC Planning Standards and each Region's respective Regional planning criteria.</p> <p>M1 Each Region shall annually conduct reliability assessments of its respective existing and planned Regional bulk electric system (generation and transmission facilities) for:</p> <ol style="list-style-type: none"> 1) Current year: <ul style="list-style-type: none"> • winter • summer • other system conditions as deemed appropriate by the Region 2) Near-term planning horizons (years one through five) detailed assessments shall be conducted. 3) Longer-term planning horizons (years six through ten). Assessment shall focus on the analysis of trends in resources and transmission adequacy, other industry trends and developments, and reliability concerns. 4) Interregional reliability assessments to ensure that the Regional bulk electric systems are planned and developed on a coordinated or joint basis. 	<p>The content of S1 is repeated and detailed more completely in the M1 measurement and therefore not used directly in translation.</p>

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
	<p>The Regional Reliability Council’s Regional and interregional reliability assessments shall demonstrate that the performance of these systems is in compliance with NERC Reliability Standard 051 and respective Regional transmission and generation criteria. These assessments shall also identify key reliability issues and the risks and uncertainties affecting adequacy and security.</p> <p>Regional and interregional seasonal, near-term, and longer-term reliability assessments shall be provided to NERC on an annual basis.</p> <p>In addition, Regional Reliability Councils shall perform special reliability assessments as requested by the NERC Planning Committee or Board of Trustees under their specific directions and criteria. Such assessments may include, but are not limited to:</p> <ul style="list-style-type: none"> • Security assessments • Operational assessments • Evaluations of emergency response preparedness • Adequacy of fuel supply and hydro conditions • Reliability impacts of new or proposed environmental rules and regulations • Reliability impacts of new or proposed legislation that affects, has affected, or has the potential to affect the adequacy of the interconnected bulk electric systems in North 		<p>Regional and interregional reliability assessments shall demonstrate that the performance of these systems is in compliance with NERC Standard I.A and respective Regional transmission and generation criteria. These assessments shall also identify key reliability issues and the risks and uncertainties affecting adequacy and security.</p> <p>Regional and interregional seasonal, near-term, and longer-term reliability assessments shall be provided to NERC on an annual basis.</p> <p>In addition, special reliability assessments shall also be performed as requested by the NERC Planning Committee or Board of Trustees under their specific directions and criteria. Such assessments may include, but are not limited to:</p> <ul style="list-style-type: none"> ▪ Security assessments ▪ Operational assessments ▪ Evaluations of emergency response preparedness ▪ Adequacy of fuel supply and hydro conditions ▪ Reliability impacts of new or proposed environmental rules and regulations • Reliability impacts of new or proposed legislation that affects, has affected, or has the potential to affect the adequacy of the interconnected bulk electric systems in North America. 	

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
	America.			
Section 1 Measure	M1-1 The Regional Reliability Council shall provide evidence that annual regional and interregional assessments of reliability for seasonal, near-term, and longer-term planning horizons, and special assessments, were developed and provided as requested by other Regions or NERC.	I.B.M1 Items to be Measured	Annual Regional and interregional assessments of reliability for seasonal, near-term, and longer-term planning horizons, and special assessments as requested by other Regions or NERC.	Added the words “were developed and provided” to the language to make a measurable standard consistent with existing levels of non-compliance.
Section 1 Regional Differences	None	None	None	
Section 1 Compliance Monitoring Process	Annually or as requested by NERC. NERC.	I.B.M1 Timeframe Compliance Monitoring Responsibility	Annually or as requested by NERC. NERC.	
Section 1 Levels of Non Compliance	Level 1 — Regional, interregional, and/or special reliability assessments were provided as requested, but were incomplete. Level 2 — N/A. Level 3 — N/A Level 4 — Regional, interregional, and/or special reliability assessments were not provided.	I.B.M1 Levels of Non-Compliance	Level 1 — Regional, interregional, and/or special reliability assessments were provided as requested, but were incomplete. Level 2 — N/A. Level 3 — N/A Level 4 — Regional, interregional, and/or special reliability assessments were not provided.	
Section 2	Data from the Regions needed to assess reliability.	Brief Descriptions I.B.M2	Data from the Regions needed to assess reliability.	

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
Section 2 Applicability	Regional Reliability Councils	I.B.M2 Applicable to	Regions	
Section 2 Requirements	<p>R2-1. Each Regional Reliability Council shall provide, as requested (seasonally, annually, or as otherwise specified) by NERC, system data, including past, existing, and future facility and bulk electric system data, reports, and system performance information, necessary to assess reliability and compliance with the NERC Reliability Standards and the respective Regional Reliability Council planning criteria.</p> <p>The facility and bulk electric system data, reports, and system performance information shall include, but not be limited to, one or more of the following types of information as outlined below:</p> <ol style="list-style-type: none"> 1. Electric Demand and Net Energy for Load (actual and projected demands and net energy for load, forecast methodologies, forecast assumptions and uncertainties, and treatment of demand-side management) 2. Resource Adequacy and Supporting Information (Regional assessment reports, existing and planned resource data, resource availability and 	I.B.M2 Measurement M2	<p>S1. The overall reliability (adequacy and security) of the Regions' interconnected bulk electric systems, both existing and as planned, shall comply with the NERC Planning Standards and each Region's respective Regional planning criteria.</p> <p>M2. Each Region shall provide, as requested (seasonally, annually, or as otherwise specified) by NERC, system data, including past, existing, and future facility and bulk electric system data, reports, and system performance information, necessary to assess reliability and compliance with the NERC Planning Standards and the respective Regional planning criteria.</p> <p>The facility and bulk electric system data, reports, and system performance information shall include, but not be limited to, one or more of the following types of information as outlined below:</p> <ol style="list-style-type: none"> 1. Electric Demand and Net Energy for Load (actual and projected demands and net energy for load, forecast methodologies, forecast assumptions and uncertainties, and treatment of demand-side management) 2. Resource Adequacy and Supporting Information (Regional assessment reports, existing and planned resource data, resource availability and characteristics, 	The content of S1 is repeated and detailed more completely in the M2 measurement and therefore not used directly in translation.

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
	<p>characteristics, and fuel types and requirements)</p> <p>3. Demand-Side Resources and their characteristics (program ratings, effects on annual system loads and load shapes, contractual arrangements, and program durations)</p> <p>4. Supply-Side Resources and their characteristics (existing and planned generator units, ratings, performance characteristics, fuel types and availability, and real and reactive capabilities)</p> <p>5. Transmission System and supporting information (thermal, voltage, and stability limits, contingency analyses, system restoration, system modeling and data requirements, and protection systems)</p> <p>6. System Operations and supporting information (extreme weather impacts, interchange transactions, and congestion impacts on the reliability of the interconnected bulk electric systems)</p> <p>7. Environmental and Regulatory Issues and Impacts (air and water quality issues, and impacts of existing, new, and proposed regulations and legislation)</p>		<p>and fuel types and requirements)</p> <p>3. Demand-Side Resources and Their Characteristics (program ratings, effects on annual system loads and load shapes, contractual arrangements, and program durations)</p> <p>4. Supply-Side Resources and Their Characteristics (existing and planned generator units, ratings, performance characteristics, fuel types and availability, and real and reactive capabilities)</p> <p>5. Transmission System and Supporting Information (thermal, voltage, and stability limits, contingency analyses, system restoration, system modeling and data requirements, and protection systems)</p> <p>6. System Operations and Supporting Information (extreme weather impacts, interchange transactions, and congestion impacts on the reliability of the interconnected bulk electric systems)</p> <p>7. Environmental and Regulatory Issues and Impacts (air and water quality issues, and impacts of existing, new, and proposed regulations and legislation)</p>	
Section 2 Measures	M2-1. The Regional Reliability Councils shall provide evidence that it provided Regional system data, reports, and system performance information per Standard 052 R2-1.	I.B. M2 Items to be Measured	Regional system data, reports, and system performance information.	Made into an active voice sentence

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
Section 2 Regional Differences	None identified	None	None identified	
Section 2 Compliance Monitoring Process	Seasonally (winter and summer), annually, or as otherwise requested. NERC	I.B.M2 Timeframe Compliance Monitoring Responsibility	Seasonally (winter and summer), annually, or as otherwise requested. NERC	
Section 2 Levels of Non Compliance	Level 1 — Requested Regional system data, reports, or system performance information were incomplete. Level 2 — N/A. Level 3 — N/A Level 4 — Requested Regional system data, reports, or system performance information were not provided.	I.B.M2 Levels of Non- Compliance	Level 1 — Requested Regional system data, reports, or system performance information were incomplete. Level 2 — N/A. Level 3 — N/A Level 4 — Requested Regional system data, reports, or system performance information were not provided.	No changes

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
ID Number	053	Compliance Templates I.C.M1 I.C.M2	I. System Adequacy and Security C. Facility Connection Requirements	
Title	Facility Connection Requirements	Section	I. System Adequacy and Security C. Facility Connection Requirements	
Purpose	To avoid adverse impacts on reliability, generation and transmission owners and electricity end-users must meet facility connection and performance requirements as specified by those responsible for the reliability of the interconnected transmission systems.	Introduction for Section I.C	Introduction All facilities involved in the generation, transmission, and use of electricity must be properly connected to the interconnected transmission systems to avoid degrading the reliability of the electric systems to which they are connected. To avoid adverse impacts on reliability, generation and transmission owners and electricity end-users must meet facility connection and performance requirements as specified by those responsible for the reliability of the interconnected transmission systems.	Introduction for I.C, last Sentence
Effective Date	February 8, 2005	Compliance Templates I.C.M1 I.C.M2	I.C.M1, introduced in Phase 1, BOT approved June 12, 2001 I.C.M2, introduced in Phase 2, BOT approved October 16, 2001	
Standard Applicability	Section 1 Transmission Owners. Section 2 Planning Authorities, Transmission Planners,	Applicable to	I.C.M1 - Transmission owners and providers.	

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
	Generator Owners, Transmission Owners, Load Serving Entities, and Distribution Providers		I.C.M2 - Entities responsible for the reliability of the interconnected transmission systems. Entities seeking to integrate generation, transmission, and end-users facilities into the interconnected transmission systems.	
Section 1	Facility Connection Requirements	Brief Descriptions I.C.M1	Facility Connection Requirements	
Section 1 Applicability	Transmission Owner	Applicable to I.C.M1	Transmission owners and providers.	
Section 1 Requirements	R1-1. The Transmission Owner shall document, maintain, and publish facility connection requirements for <ul style="list-style-type: none"> a. generation facilities, b. transmission facilities, and c. end-user facilities <p>to ensure compliance with NERC Standards and applicable Regional, subregional, power pool, and individual</p>	Standard for I.C.M1 I.C.M1 Measure M1	S1. Facility connection requirements shall be documented, maintained, and published by voltage class, capacity, and other characteristics that are applicable to generation, transmission, and electricity end-user facilities which are connected to, or being planned to be connected to, the bulk interconnected transmission systems. M1. Transmission providers, in conjunction with transmission owners, shall document, maintain, and publish facility connection requirements for <ul style="list-style-type: none"> a. generation facilities, b. transmission facilities, and c. end-user facilities 	The content of S1 is repeated and detailed more completely in the M1 measurement and therefore not used directly in translation.

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
	<p>transmission owner planning criteria and facility connection requirements.</p> <p>R1-2. The Transmission Owner’s facility connection requirements shall address, but are not limited to, the following items:</p> <ol style="list-style-type: none"> 1. Procedures for coordinated joint studies of new facilities and their impacts on the interconnected transmission systems. 2. Procedures for notification of new or modified facilities to others (those responsible for the reliability of the interconnected transmission systems) as soon as feasible. 3. Voltage level and MW and Mvar capacity or demand at point of connection. 4. Breaker duty and surge protection. 5. System protection and coordination. 6. Metering and telecommunications. 7. Grounding and safety issues. 8. Insulation and insulation coordination. 9. Voltage, reactive power, and power factor control. 		<p>to ensure compliance with NERC Planning Standards and applicable Regional, subregional, power pool, and individual transmission provider/owner planning criteria and facility connection requirements.</p> <p>Facility connection requirements shall address, but are not limited to, the following items:</p> <ol style="list-style-type: none"> 1. Procedures for coordinated joint studies of new facilities and their impacts on the interconnected transmission systems. 2. Procedures for notification of new or modified facilities to others (those responsible for the reliability of the interconnected transmission systems) as soon as feasible. 3. Voltage level and MW and Mvar capacity or demand at point of connection. 4. Breaker duty and surge protection. 5. System protection and coordination 6. Metering and telecommunications. 7. Grounding and safety issues. 8. Insulation and insulation coordination. 9. Voltage, reactive power, and power factor control. 	

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Heading	New Language	Heading	Existing Document Language	Comments
	<p>10. Power quality impacts.</p> <p>11. Equipment ratings .</p> <p>12. Synchronizing of facilities.</p> <p>13. Maintenance coordination.</p> <p>14. Operational issues (abnormal frequency and voltages).</p> <p>15. Inspection requirements for existing or new facilities.</p> <p>16. Communications and procedures during normal and emergency operating conditions.</p> <p>R1-3. The Transmission Owner shall maintain and update its facility connection requirements as required. The Transmission Owner shall make documentation of these requirements available to the users of the transmission systems, the Regional Reliability Councils, and NERC on request (five business days).</p>		<p>10. Power quality impacts.</p> <p>11. Equipment ratings.</p> <p>12. Synchronizing of facilities.</p> <p>13. Maintenance coordination.</p> <p>14. Operational issues (abnormal frequency and voltages).</p> <p>15. Inspection requirements for existing or new facilities.</p> <p>16. Communications and procedures during normal and emergency operating conditions.</p> <p>Facility connection requirements shall be maintained and updated as required.</p> <p>Documentation of these requirements shall be available to the users of the transmission systems, the Regions, and NERC on request (five business days).</p>	
Section 1 Measures	<p>M1-1. The Transmission Owner shall make available for inspection evidence that it met all the requirements stated in Reliability Standard 053-R1-1 for generation facilities, transmission facilities, and end-user facilities.</p> <p>M1-2. The Transmission Owner shall make available for</p>	I.C.M1 Items to be Measured	Facility connection requirements for generation facilities, transmission facilities, and end-user facilities.	More details were added to the high level “items to be measured” so that the measures would be consistent with the levels of non-

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	<p>inspection evidence that they it met all 16 requirements stated in Reliability Standard 053-R1-2 for generation facilities, transmission facilities, and end-user facilities.</p> <p>M1-3. The Transmission Owner shall make available for inspection evidence that it met all the requirements stated in Reliability Standard 053-R1-3.</p>			compliance and the requirements
Section 1 Regional Differences	None identified	None	None identified	
Section 1 Compliance Monitoring Process	<p>On request (five business days)</p> <p>Regions</p>	<p>I.C.M1 Timeframe</p> <p>Compliance Monitoring Responsibility</p>	<p>On request (five business days)</p> <p>Regions</p>	
Section 1 Levels of Non Compliance	<p>Level 1 — Facility connection requirements were provided for generation, transmission, and end-user facilities, per Reliability Standard 053-R1-1, but the document(s) do not address all of the requirements of R1-2.</p> <p>Level 2 — Facility connection requirements were not provided for all three categories (generation, transmission, or end-user) of facilities, per Reliability Standard 053-R1-1, but the document(s) provided address all of the requirements of R1-2.</p> <p>Level 3 — Facility connection requirements were not provided for all three categories (generation, transmission, or end-user) of facilities, per Reliability Standard 053-</p>	I.C.M1 Levels of Non-Compliance	<p>Level 1 — Facility connection requirements were provided for generation, transmission, and end-user facilities, but the document(s) do not address all of the requirements.</p> <p>Level 2 — Facility connection requirements were not provided for all three categories (generation, transmission, or end-user) of facilities, but the document(s) provided address all of the requirements.</p> <p>Level 3 — Facility connection requirements were not provided for all three categories (generation, transmission, or end-user) of facilities, and the</p>	<p>Reference to Requirements R1-1 and R1-2 were added for clarity</p> <p>Reference to Requirements R1-1 and R1-2 were added for clarity</p> <p>Reference to Requirements R1-1 and R1-2 were added</p>

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	R1-1, and the document(s) provided do not address all of the requirements of R1-2. Level 4 — No document on facility connection requirements was provided per Reliability Standard 053-R1-3.		document(s) provided do not address all of the requirements Level 4 — No document on facility connection requirements was provided.	for clarity Reference to Requirement R1-3 was added for clarity
Section 2	Coordination of plans for new generation, transmission, and end-user facilities	Brief Descriptions I.C.M2	Coordination of plans for new generation, transmission, and end-user facilities	New section title
Section 2 Applicability	Planning Authority, Transmission Planner, Generator Owner, Transmission Owner, Load Serving Entity, and Distribution Provider	Applicable to I.C.M2	Entities responsible for the reliability of the interconnected transmission systems. Entities seeking to integrate generation, transmission, and end-users facilities into the interconnected transmission systems.	Incorporated Functional Model terminology
Section 2 Requirements	R2-1. The Generator Owner, Transmission Owner, Distribution Provider, or Load Serving Entity seeking to integrate generation facilities, transmission facilities, and electricity end-user facilities shall coordinate and cooperate on their respective assessments to evaluate the reliability impact of the new facilities and their connections on the interconnected transmission systems. The assessment shall include:	Standards for I.C.M2 I.C.M2 Measure	S2. Generation, transmission, and electricity end-user facilities, and their modifications, shall be planned and integrated into the interconnected transmission systems in compliance with NERC Planning Standards, applicable Regional, subregional, power pool, and individual system planning criteria and facility connection requirements. M2. Those entities responsible for the reliability of the interconnected transmission systems and those entities seeking to integrate generation facilities, transmission facilities, and electricity end-user facilities shall coordinate and cooperate on their	The content of S2 is repeated and detailed more completely in the M2 measurement and therefore not used directly in translation.

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	<ol style="list-style-type: none"> 1. Evaluation of the reliability impact of the new facilities and their connections on the interconnected transmission systems. 2. Ensurance of compliance with NERC Planning Standards and applicable Regional, subregional, power pool, and individual system planning criteria and facility connection requirements. 3. Evidence that the parties involved in the assessment have cooperated on the assessment of the reliability impacts of new facilities on the interconnected transmission systems. While these studies may be performed independently, the results shall be jointly evaluated and coordinated by the entities involved. 4. Evidence that the assessment included steady-state, short-circuit, and dynamics studies as necessary to evaluate system performance under Reliability Standard 051. 5. Documentation that the assessment included study assumptions, system performance, alternatives considered, and jointly coordinated recommendations. <p>R2-2. The Planning Authority, Transmission Planner, Generator Owner, Transmission Owner, Load Serving Entity, and Distribution Provider shall retain its documentation (of its evaluation of the reliability impact of the new facilities and their connections on the interconnected transmission systems) for three years and</p>		<p>respective assessments to evaluate the reliability impact of the new facilities and their connections on the interconnected transmission systems and to ensure compliance with NERC Planning Standards and applicable Regional, subregional, power pool, and individual system planning criteria and facility connection requirements.</p> <p>The entities involved shall present evidence that they have cooperated on the assessment of the reliability impacts of new facilities on the interconnected transmission systems. While these studies may be performed independently, the results shall be jointly evaluated and coordinated by the entities involved. Assessments shall include steady-state, short-circuit, and dynamics studies as necessary to evaluate system performance under Standard I.A.</p> <p>Documentation of these assessments shall include study assumptions, system performance, alternatives considered, and jointly coordinated recommendations. This documentation shall be retained for three years and shall be provided to the Regions and NERC on request (within 30 days).</p>	<p>Itemized the individual requirements for the assessment</p> <p>Listed last sentence as a separate requirement</p>

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	shall provide the documentation to the Regional Reliability Councils and NERC on request (within 30 days).			
Section 2 Measures	<p>M2-1. The Planning Authority, Transmission Planner, Generator Owner, Transmission Owner, Load Serving Entity, and Distribution Provider’s documentation of its assessment of the reliability impacts of new facilities shall address all items in Reliability Standard 053-R2-1.</p> <p>M2-2. The Planning Authority, Transmission Planner, Generator Owner, Transmission Owner, Load Serving Entity, and Distribution Provider shall have evidence its assessment of the reliability impacts of new facilities and their connections on the interconnected transmission systems is retained and provided to other entities in accordance with Reliability Standard 053- R2-2.</p>	I.C.M2 Items to be Measured	Assessment of the reliability impacts of new facilities.	Reworded measures for consistency with the requirements and levels of non-compliance
Section 2 Regional Differences	None		None	
Section 2 Compliance Monitoring Process	<p>On request (within 30 days)</p> <p>Regions</p>	I.C.M2 Timeframe Compliance Monitoring Responsibility	<p>On request (within 30 days)</p> <p>Regions</p>	
Section 2 Levels of Non Compliance	Level 1 — Assessments of the impacts of new facilities were provided, but were incomplete in one or more requirements of R2-1.	I.C.M2 Levels of Non-Compliance	Level 1 — Assessments of the impacts of new facilities were provided, but were incomplete in one or more requirements of Measurement M2.	Replaced reference to M1 with R2-1

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	Level 2 — Not applicable. Level 3 — Not applicable. Level 4 — Assessments of the impacts of new facilities were not provided.		Level 2 — Not applicable. Level 3 — Not applicable. Level 4 — Assessments of the impacts of new facilities were not provided.	

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Heading	New Language	Heading	Existing Document Language	Comments
Standard	054	Compliance Templates I.E.1.M1 I.E.1.M3 I.E.1.M4	I. System Adequacy and Security E. Transfer Capability 1. Total and Available Transfer Capabilities	
Title	Documentation and Review of Available Transfer Capability/Total Transfer Capability Methodologies and Calculations	Section	I. System Adequacy and Security E. Transfer Capability 1. Total and Available Transfer Capabilities	
Purpose	To promote the consistent and uniform application of transfer capability calculations among transmission system users, the Regional Reliability Councils shall develop methodologies for calculating Total Transfer Capability and Available Transfer Capability that comply with NERC definitions for Total Transfer Capability and Available Transfer Capability, the NERC Reliability Standards, and applicable Regional Reliability Council criteria. Methodologies and resulting values shall be made available to all participants of the electricity market. (To ensure that methodologies and resulting values are available to all participants in the electricity market.)			Language paraphrased from the original Planning Standard language of S1.
Effective Date	February 8, 2005	Approval Dates	NERC BOT approval on February 20, 2002 for all three measures (Phase 2B)	
Standard Applicability	Regional Reliability Council (Certain systems that are not required to post Available Transfer Capability values are exempt from this Standard.)	Standard Applicable to	Regions	
Section 1	Documentation of Total Transfer Capability and Available Transfer Capability Calculation Methodologies	I.E.1.M1 Brief Description	Documentation and Content of Each Regional TTC and ATC methodology.	

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Section 1 Applicability	Regional Reliability Council	I.E.1.M1 Applicable to	Regions	
Section 1 Requirements	<p>R1-1 Each Regional Reliability Council, in conjunction with its members, shall develop and document a Regional Total Transfer Capability and Available Transfer Capability methodology. (Certain systems that are not required to post Available Transfer Capability values are exempt from this Standard.) The Regional Reliability Council’s Total Transfer Capability and Available Transfer Capability methodology shall include each of the following nine items, and shall explain its use in determining Total Transfer Capability and Available Transfer Capability value:</p> <p>a. Include a narrative explaining how Total Transfer Capability and Available Transfer Capability values are determined.</p> <p>b. Account for how the reservations and schedules for firm (non-recallable) and non-firm (recallable) transfers, both within and outside the transmission</p>	<p>I.E.1.M1 Standard</p> <p>I.E.1.M1 Measurement</p>	<p>S1 Each Region shall develop a methodology for calculating Total Transfer Capability (TTC) and Available Transfer Capability (ATC) that shall comply with the above NERC definitions for TTC and ATC, the NERC Planning Standards, and applicable Regional criteria.</p> <p>Each Regional TTC and ATC methodology and the resulting TTC and ATC values shall be available to transmission users in the electricity market.</p> <p>M1. Each Region, in conjunction with its members, shall develop and document a Regional TTC and ATC methodology. Certain systems that are not required to post ATC values are exempt from this Standard.</p> <p>This Regional methodology shall be available to NERC, the Regions, and the transmission users in the electricity market. (S1)</p> <p>Each Region’s TTC and ATC methodology shall (S1):</p> <p>a) Include a narrative explaining how TTC and ATC values are determined.</p> <p>b) Account for how the reservations and schedules for firm (non-recallable) and non-firm (recallable) transfers, both within and</p>	

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	<p>provider's system, are included.</p> <p>c. Account for the ultimate points of power injection (sources) and power extraction (sinks) in Total Transfer Capability and Available Transfer Capability calculations.</p> <p>d. Describe how incomplete or so-called partial path transmission reservations are addressed. (Incomplete or partial path transmission reservations are those for which all transmission reservations necessary to complete the transmission path from ultimate source to ultimate sink are not identifiable due to differing reservation priorities, durations, or that the reservations have not all been made.)</p> <p>e. Require that Total Transfer Capability and Available Transfer Capability values and posting within the current week be determined at least once per day, that daily Total Transfer Capability and Available Transfer Capability values and postings for day 8 through the first month be determined at least once per week, and that monthly Total Transfer Capability and Available Transfer Capability values and postings for months 2 through 13 be determined at least once per month.</p> <p>f. Indicate the treatment and level of customer demands, including interruptible demands.</p> <p>g. Specify how system conditions, limiting facilities,</p>		<p>outside the transmission provider's system, are included.</p> <p>c) Account for the ultimate points of power injection (sources) and power extraction (sinks) in TTC and ATC calculations.</p> <p>d) Describe how incomplete or so-called partial path transmission reservations are addressed. (Incomplete or partial path transmission reservations are those for which all transmission reservations necessary to complete the transmission path from ultimate source to ultimate sink are not identifiable due to differing reservation priorities, durations, or that the reservations have not all been made.)</p> <p>e) Require that TTC and ATC values and posting within the current week be determined at least once per day, that daily TTC and ATC values and postings for day 8 through the first month be determined at least once per week, and that monthly TTC and ATC values and postings for months 2 through 13 be determined at least once per month.</p> <p>f) Indicate the treatment and level of customer demands, including interruptible demands.</p>	

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	<p>contingencies, transmission reservations, energy schedules and other data needed by transmission providers for the calculation of Total Transfer Capability and Available Transfer Capability values are shared and used within the Region Reliability Council and with neighboring interconnected electric systems, including adjacent systems, subregions, and Regional Reliability Councils. In addition, specify how this information is to be used to determine Total Transfer Capability and Available Transfer Capability values. If some data is not used, provide an explanation.</p> <p>h. Describe how the assumptions for and the calculations of Total Transfer Capability and Available Transfer Capability values change over different time (such as hourly, daily, and monthly) horizons.</p> <p>i. Describe the Regional Reliability Council’s practice on the netting of transmission reservations for purposes of Total Transfer Capability and Available Transfer Capability determination.</p> <p>R1-2. The Regional Reliability Council shall make the most recent version of the documentation of its Total Transfer Capability and Available Transfer Capability methodology available on a web site accessible by NERC, the Regional Reliability Councils, and the transmission users in the electricity market.</p>		<p>g) Specify how system conditions, limiting facilities, contingencies, transmission reservations, energy schedules, and other data needed by transmission providers for the calculation of TTC and ATC values are shared and used within the Region and with neighboring interconnected electric systems, including adjacent systems, subregions, and Regions. In addition, specify how this information is to be used to determine TTC and ATC values. If some data is not used, provide an explanation.</p> <p>h) Describe how the assumptions for and the calculations of TTC and ATC values change over different time (such as hourly, daily, and monthly) horizons.</p> <p>i) Describe the Region’s practice on the netting of transmission reservations for purposes of TTC and ATC determination.</p> <p>Each Regional TTC and ATC methodology shall address each of the items listed above and shall explain its use in determining TTC and ATC values.</p> <p>The most recent version of the documentation of each Region’s TTC and ATC methodology shall be available on a web site accessible by NERC, the Regions, and the transmission users in the electricity</p>	

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			market.	
Section 1 Measures	<p>M1-1. The Regional Reliability Council shall provide evidence that its most recent Total Transfer Capability and Available Transfer Capability methodology documentation meets Reliability Standard 054-R1-1.</p> <p>M1-2 The Regional Reliability Council shall provide evidence that its Total Transfer Capability and Available Transfer Capability methodology is available on a web site accessible by NERC, the Regional Reliability Councils, and the transmission users in the electricity market.</p>	I.E.1.M1 Items to be Measured	Development and documentation of each Region's TTC and ATC methodology and the completeness of the content of each Regional TTC and ATC methodology.	
Section 1 Regional Differences	None identified.		None identified.	
Section 1 Compliance Monitoring Process	<p>Available on a website accessible by NERC, the Regions, and transmission users.</p> <p>NERC</p>	<p>I.E.1.M1 Timeframe</p> <p>I.E.1.M1 Compliance Monitoring Responsibility</p>	<p>Available on a website accessible by NERC, the Regions, and transmission users.</p> <p>NERC</p>	
Section 1 Levels of Non Compliance	<p>Level 1 - The Regional Reliability Council's documented Total Transfer Capability and Available Transfer Capability methodology does not address one or two of the nine items required for documentation under Reliability Standard 054-R1-1.</p> <p>Level 2 - N/A</p>	<p>I.E.1.M1</p> <p>Levels of Non-Compliance</p>	<p>Level 1 - The Region's documented TTC and ATC methodology does not address one or two of the nine requirements for such documentation as listed above under Measurement M1.</p> <p>Level 2 - N/A</p>	

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	<p>Level 3 - N/A</p> <p>Level 4 - The Regional Reliability Council's documented Total Transfer Capability and Available Transfer Capability methodology does not address three or more of the nine items required for documentation under Reliability Standard 054-R1-1 or the Regional Reliability Council does not have a documented Total Transfer Capability and Available Transfer Capability methodology available on a web site in accordance with Reliability Standard 054-R1-2.</p>		<p>Level 3 - N/A</p> <p>Level 4 - The Region's documented TTC and ATC methodology does not address three or more of the nine requirements for such documentation as listed above under Measurement M1, or the Region does not have a documented TTC and ATC methodology.</p>	
Section 2	Review of Transmission Service Provider Total Transfer Capability and Available Transfer Capability calculations and results	I.E.1.M3 Brief Description	Review of transmission provider TTC and ATC calculation and resulting values for compliance with the Regional TTC and ATC methodology.	
Section 2 Requirements	<p>R2-1. Each Regional Reliability Council, in conjunction with its members, shall develop and implement a procedure to periodically review (at least annually) and ensure that the Total Transfer Capability and Available Transfer Capability calculations and resulting values of member Transmission Service Providers comply with the Regional Total Transfer Capability and Available Transfer Capability methodology and applicable Regional criteria.</p> <p>R2-2. Each Regional Reliability Council shall document the results of its periodic reviews of Total Transfer Capability</p>	<p>I.E.1.M3 Standard</p> <p>I.E.1.M3 Measurement</p>	<p>S1. Each Region shall develop a methodology for calculating Total Transfer Capability (TTC) and Available Transfer Capability (ATC) that shall comply with the above NERC definitions for TTC and ATC, the NERC Planning Standards, and applicable Regional criteria.</p> <p>Each Regional TTC and ATC methodology and the resulting TTC and ATC values shall be available to transmission users in the electricity market.</p> <p>M3 . Each Region, in conjunction with its members, shall develop and implement a procedure to review periodically (at least annually) and ensure that the TTC and ATC calculations and resulting values of</p>	

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	and Available Transfer Capability. R2-3. The Regional Reliability Council shall provide the results of its most current reviews of Total Transfer Capability and Available Transfer Capability to NERC on request (within 30 days).		member transmission providers comply with the Regional TTC and ATC methodology, the NERC Planning Standards, and applicable Regional criteria. Documentation of the results of the most current Regional reviews shall be provided to NERC on request (within 30 days).	
Section 2 Measures	M2-1. The Regional Reliability Council’s written procedure for the performance of periodic reviews of Regional Total Transfer Capability and Available Transfer Capability calculations shall comply with Reliability Standard 054-R2-1. M2-2 The Regional Reliability Council shall have evidence it provided documentation of the results of its periodic reviews of Total Transfer Capability and Available Transfer Capability to NERC within 30 days.	I.E.1.M3 Items to be Measured	Transmission provider TTC and ATC calculations and resulting values for compliance with the Regional TTC and ATC methodology.	
Section 2 Regional Differences	None identified.		None identified.	
Section 2 Compliance Monitoring Process	Procedure on Request (within 30 days) Documentation provided to NERC on request (within 30 days). NERC	I.E.1.M3 Timeframe I.E.1.M3 Compliance Monitoring Responsibility	Procedure on Request (within 30 days) Documentation of results of Regional reviews on request (within 30 days) NERC	
Section 2 Levels of Non	Level 1 - N/A.	I.E.1.M3 Levels of Non-	Level 1 - N/A.	

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Compliance	<p>Level 2 - The Regional Reliability Council did not perform a review of all Transmission Service Providers within its Region for consistency with its Total Transfer Capability and Available Transfer Capability methodology on an annual basis.</p> <p>Level 3 - N/A.</p> <p>Level 4 - The Regional Reliability Council does not have a procedure for performing a Total Transfer Capability and Available Transfer Capability methodology consistency review of all Transmission Service Providers within its Regional Reliability Council, or has not performed any such reviews on an annual basis.</p>	Compliance	<p>Level 2 - The Region did not perform a review of all transmission providers within its Region for consistency with the Regional TTC and ATC methodology, as documented per Measurement I.E.1. S1, M1, on an annual basis.</p> <p>Level 3 - N/A.</p> <p>Level 4 - The Region does not have a procedure for performing a TTC and ATC methodology consistency review of all transmission providers within its Region, or has not performed any such reviews on an annual basis.</p>	
Section 3	Regional procedure for input on Total Transfer Capability and Available Transfer Capability methodologies and values.	I.E.1.M4 Brief Description	Regional procedure for input on TTC and ATC methodologies and values.	
Section 3 Requirements	R3-1. Each Regional Reliability Council, in conjunction with its members, shall develop and document a procedure on how transmission users can input their concerns or questions regarding the Total Transfer Capability and Available Transfer Capability methodology and values of	I.E.1.M4 Standard I.E.1.M4	<p>S1. Each Region shall develop a methodology for calculating Total Transfer Capability (TTC) and Available Transfer Capability (ATC) that shall comply with the above NERC definitions for TTC and ATC, the NERC Planning Standards, and applicable Regional criteria.</p> <p>Each Regional TTC and ATC methodology and the resulting TTC and ATC values shall be available to transmission users in the electricity market.</p> <p>M4 . Each Region, in conjunction with its members, shall develop and document a procedure on how</p>	

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	<p>the Transmission Service Provider(s), and how these concerns or questions will be addressed. The Regional Reliability Council's procedure shall specify the following:</p> <ol style="list-style-type: none"> a. The name, telephone number and email address of a contact person to whom concerns are to be addressed. b. The amount of time it will take for a response. c. The manner in which the response will be communicated (e.g., email, letter, telephone, etc.) d. What recourse a customer has if the response is deemed unsatisfactory. <p>R3-2. The Regional Reliability Council shall post on a web site that is accessible by the Regions, NERC, and the transmission users in the electricity market, its procedure which addresses receiving and addressing concerns about the Total Transfer Capability and Available Transfer Capability methodology and Total Transfer Capability and Available Transfer Capability values of member Transmission Service Providers</p>	Measurement	<p>transmission users can input their concerns or questions regarding the TTC and ATC methodology and values of the transmission provider(s), and how these concerns or questions will be addressed. Documentation of the procedure shall be available on a web site accessible by the Regions, NERC, and the transmission users in the electricity market. (S1)</p> <p>Each Region's procedure shall specify (S1):</p> <ol style="list-style-type: none"> a) The name, telephone number and email address of a contact person to whom concerns are to be addressed. b) The amount of time it will take for a response. c) The manner in which the response will be communicated (e.g., email, letter, telephone, etc.) d) What recourse a customer has if the response is deemed unsatisfactory. 	
Section 3 Measures	<p>M3-1 The Regional Reliability Council shall have evidence that its procedure for receiving input for Available Transfer Capability and Total Transfer Capability methodologies and values meets Reliability Standard 054-R3-1.</p> <p>M3-2 The Regional Reliability Council shall have evidence that its procedure for receiving input for Available</p>	I.E.M4 Items to be Measured	Regional procedure for receiving and addressing transmission user concerns on the TTC and ATC methodology and TTC and ATC values of member transmission providers.	

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	Transfer Capability and Total Transfer Capability methodologies and values is available on a web site accessible by the Regions, NERC, and transmission users.			
Section 3 Regional Differences	None		None	
Section 3 Compliance Monitoring Process	Procedure available on a web site accessible by the Regions, NERC, and transmission users. NERC	I.E.1.M4 Timeframe I.E.1.M4 Compliance Monitoring Responsibility	Procedure available on a web site accessible by the Regions, NERC, and transmission users. NERC	
Section 3 Levels of Non Compliance	Level 1 - N/A. Level 2 - The Regional Reliability Council does not have a procedure available on an accessible web site, or the procedure does not incorporate all required elements of Reliability Standard 054-R3-1. Level 3 - N/A. Level 4 - The Regional Reliability Council has no procedure available.	I.E.1.M4 Levels of Non-Compliance	Level 1 - N/A. Level 2 - The Region does not have a procedure available on an accessible web site, or the procedure does not provide the information necessary to complete the submittal of a comment, have it processed by the Region, and have an answer provided as indicated in the procedure. Level 3 - N/A. Level 4 - The Region has no procedure available.	

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Standard	055	Compliance Templates I.E.2.M1 I.E.2.M3 I.E.2.M4 I.E.2.M5	I. System Adequacy and Security E. Transfer Capability 2. Transfer Capabilities Margins	
Title	Documentation and Review of Capacity Benefit Margin Methodologies and Calculations	Section	I. System Adequacy and Security E. Transfer Capability 2. Transfer Capabilities Margins	
Purpose	To promote the consistent and uniform application of transfer capability margin calculations among transmission system users, by developing methodologies for calculating Capacity Benefit Margin (CBM). This methodology shall comply with NERC definitions for Capacity Benefit Margin, the NERC Reliability Standards, and applicable Regional criteria. Regional Capacity Benefit Margin methodologies and the resulting Capacity Benefit Margin values shall be available to all participants of the electricity market, in order to facilitate intra- and inter-Regional transactions.			Purpose was paraphrased from the Standard S1, below.
Effective Date	February 8, 2005	Approval dates	February 20, 2002	Approved by the NERC Board of Trustees in February 2002. Field-tested during Phase 2b implementation.
Applicability	Regional Reliability Council	Applicable to	Regions	
Section 1	Documentation of Regional Reliability Council Capacity Benefit	I.E.2.M1 Brief	Documentation and content of each Regional Capacity Benefit Margin methodology	

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	Margin Methodologies	Description		
Section 1 Applicability	Regional Reliability Council	I.E.2.M1 Applicable to	Regions	
Section 1 Requirements	<p>R1-1. Each Regional Reliability Council, in conjunction with its members, shall develop and document a Regional Capacity Benefit Margin methodology. The Regional Reliability Council's Capacity Benefit Margin methodology shall include each of the following ten items, and shall explain its use in determining Capacity Benefit Margin value. Other items that are Regional Reliability Council specific or that are considered in each respective Regional Reliability Council methodology shall also be explained along with their use in determining Capacity Benefit Margin values.</p> <p>a). Specify that the method used by each Regional Reliability Council member to determine its generation reliability requirements as the basis for Capacity Benefit Margin shall be consistent with its generation planning criteria.</p> <p>b). Specify the frequency of calculation of the generation reliability requirement and associated Capacity Benefit Margin values.</p> <p>c). Require that generation unit outages considered in a Transmission Service Provider's Capacity Benefit Margin calculation be restricted to those</p>	<p>I.E.2.M1 Standard</p> <p>I.E.2.M1 Measurements</p>	<p>S1. Each Region shall develop a methodology for calculating Capacity Benefit Margin (CBM) that shall comply with the above NERC definition for CBM and applicable Regional criteria.</p> <p>Each Regional CBM methodology and the resulting CBM values shall be available to transmission users in the electricity market.</p> <p>M1. Each Region, in conjunction with its members, shall develop and document a Regional CBM methodology. This Regional methodology shall be available to NERC, the Regions, and the transmission users in the electricity market. (S1)</p> <p>Each Region's CBM methodology shall (S1):</p> <p>a) Specify that the method used by each Regional member to determine its generation reliability requirements as the basis for CBM shall be consistent with its generation planning criteria.</p> <p>b) Specify the frequency of calculation of the generation reliability requirement and associated CBM values.</p> <p>c) Require that generation unit outages considered</p>	

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	<p>units within the Transmission Service Provider’s system.</p> <p>d) Require that Capacity Benefit Margin be preserved only on the Transmission Service Provider’s system where the Load-Serving Entity’s load is located (i.e., Capacity Benefit Margin is an import quantity only).</p> <p>e) Describe the inclusion or exclusion rationale for generation resources of each Load Serving Entity including those generation resources not directly connected to the transmission provider’s system but serving Load Serving Entity loads connected to the Transmission Service Provider’s system.</p> <p>f) Describe the inclusion or exclusion rationale for generation connected to the transmission provider’s system but not obligated to serve native/network load connected to the Transmission Service Provider’s system.</p> <p>g) Describe the formal process and rationale for the Regional Reliability Council to grant any variances to individual transmission providers from the Regional Reliability Council’s Capacity Benefit Margin methodology.</p> <p>h) Specify the relationship of Capacity Benefit Margin to the generation reliability requirement and the allocation of the Capacity Benefit Margin</p>		<p>in a transmission provider’s CBM calculation be restricted to those units within the transmission provider’s system.</p> <p>d) Require that CBM be preserved only on the transmission provider’s system where the load-serving entity’s load is located (i.e., CBM is an import quantity only).</p> <p>e) Describe the inclusion or exclusion rationale for generation resources of each LSE including those generation resources not directly connected to the transmission provider’s system but serving LSE loads connected to the transmission provider’s system.</p> <p>f) Describe the inclusion or exclusion rationale for generation connected to the transmission provider’s system but not obligated to serve native/network load connected to the transmission provider’s system.</p> <p>g) Describe the formal process and rationale for the Region to grant any variances to individual transmission providers from the Regional CBM methodology.</p> <p>h) Specify the relationship of CBM to the generation reliability requirement and the allocation of the CBM values to the appropriate transmission facilities. The sum of the CBM</p>	

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	<p>values to the appropriate transmission facilities. The sum of the Capacity Benefit Margin values allocated to all interfaces shall not exceed that portion of the generation reliability requirement that is to be provided by outside resources.</p> <p>i) Describe the inclusion or exclusion rationale for the loads of each Load Serving Entity, including interruptible demands and buy-through contracts (type of service contract that offers the customer the option to be interrupted or to accept a higher rate for service under certain conditions).</p> <p>j) Describe the inclusion or exclusion rationale for generation reserve sharing arrangements in the Capacity Benefit Margin values.</p> <p>R1-2. The Regional Reliability Council shall make the most recent version of the documentation of its Capacity Benefit Margin methodology available on a web site accessible by NERC, the Regional Reliability Councils, and the transmission users in the electricity market.</p>		<p>values allocated to all interfaces shall not exceed that portion of the generation reliability requirement that is to be provided by outside resources.</p> <p>i) Describe the inclusion or exclusion rationale for the loads of each LSE, including interruptible demands and buy-through contracts (type of service contract that offers the customer the option to be interrupted or to accept a higher rate for service under certain conditions).</p> <p>j) Describe the inclusion or exclusion rationale for generation reserve sharing arrangements in the CBM values.</p> <p>Each Regional CBM methodology shall address each of the items listed above and shall explain its use, if any, in determining CBM values. Other items that are Regional specific or that are considered in each respective Regional methodology shall also be explained along with their use in determining CBM values.</p> <p>The most recent version of the documentation of each Region's CBM methodology shall be available on a web site accessible by NERC, the Regions, and the transmission users in the electricity market.</p>	
Section 1 Measures	M1-1. The Regional Reliability Council's most recent Capacity Benefit Margin methodology documentation	I.E.2.M1 Items to be	Development and documentation of each Region's Capability Benefit Margin methodology and the	

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	<p>shall meet Reliability Standard 055-R1-1.</p> <p>M1-2 The Regional Reliability Council’s Capacity Benefit Margin methodology shall be available on a web site accessible by NERC, the Regional Reliability Councils, and the transmission users in the electricity market.</p>	Measured	completeness of the content of each Regional CBM methodology.	
Section 1 Regional Differences	None identified.		None identified.	
Section 1 Compliance Monitoring Process	<p>Available on a web site accessible by NERC, the Regional Reliability Councils, and transmission users.</p> <p>NERC</p>	<p>I.E.2.M1 Timeframe</p> <p>I.E.2.M1 Compliance Monitoring Responsibility</p>	<p>Available on a web site accessible by NERC, the Regions, and transmission users.</p> <p>NERC</p>	
Section 1 Levels of Non Compliance	<p>Level 1 - The Regional Reliability Council’s documented Capacity Benefit Margin methodology does not address one or two of the ten items required for documentation under Reliability Standard 055-R1-1.</p> <p>Level 2 - N/A</p> <p>Level 3 - N/A</p> <p>Level 4 - The Regional Reliability Council’s documented Capacity Benefit Margin methodology does not address three or more of the ten items required for documentation under Reliability Standard 055-R1-1, or the Regional Reliability Council does not have a documented Capacity Benefit Margin</p>	<p>I.E.2.M1</p> <p>Levels of Non- Compliance</p>	<p>Level 1 - The Region’s documented CBM methodology does not address one or two of the ten requirements for such documentation as listed above under Measurement M1.</p> <p>Level 2 - N/A.</p> <p>Level 3 - N/A.</p> <p>Level 4 - The Region’s documented CBM methodology does not address three or more of the ten requirements for such documentation as listed above under Measurement M1, or the Region does not have a documented CBM methodology.</p>	

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	methodology available on a web site in accordance with Reliability Standard 055-R1-2.			
Section 2	Procedure for verifying Capacity Benefit Margin values	I.E.2.M3 Brief Description	Procedure for verifying Capacity Benefit Margin values	
Section 2 Applicability	Regional Reliability Council	I.E.2.M3 Applicable to	Regions	
Section 2 Requirements	<p>R2-1. Each Regional Reliability Council, in conjunction with its members, shall develop and implement a procedure to review (at least annually) the Capacity Benefit Margin calculations and the resulting values of member Transmission Service Providers to ensure that they comply with the Regional Reliability Council’s Capacity Benefit Margin methodology. The procedure shall include the following four requirements:</p> <p>a. Indicate the frequency under which the</p>	<p>I.E.2.M3 Standard</p> <p>I.E.2.M3 Measurements</p>	<p>S1. Each Region shall develop a methodology for calculating Capacity Benefit Margin (CBM) that shall comply with the above NERC definition for CBM and applicable Regional criteria.</p> <p>Each Regional CBM methodology and the resulting CBM values shall be available to transmission users in the electricity market.</p> <p>M3. Each Region, in conjunction with its members, shall develop and implement a procedure to review the CBM calculations and values of member transmission providers to ensure that they comply with the Regional CBM methodology and are periodically updated (at least annually) and available to transmission users. Documentation of the results of the most current Regional reviews shall be provided to NERC on request (within 30 days). (S1)</p> <p>This Regional procedure shall:</p>	

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	<p>verification review shall be implemented.</p> <p>b. Require review of the process by which Capacity Benefit Margin values are updated, and their frequency of update, to ensure that the most current Capacity Benefit Margin values are available to transmission users.</p> <p>c. Require review of the consistency of the Transmission Service Provider’s Capacity Benefit Margin components with its published planning criteria. A Capacity Benefit Margin value is considered consistent with published planning criteria if the same components that comprise Capacity Benefit Margin are also addressed in the planning criteria. The methodology used to determine and apply Capacity Benefit Margin does not have to involve the same mechanics as the planning process, but the same uncertainties must be considered and any simplifying assumptions explained. It is recognized that ATC determinations are often time constrained and thus will not permit the use of the same mechanics employed in the more rigorous planning process.</p> <p>d. Require Capacity Benefit Margin values to be periodically updated (at least annually) and available to the Regions, NERC, and transmission users in the electricity markets.</p>		<p>a) Indicate the frequency under which the verification review shall be implemented.</p> <p>b) Require review of the process by which CBM values are updated, and their frequency of update, to ensure that the most current CBM values are available to transmission users.</p> <p>c) Require review of the consistency of the transmission provider’s CBM components with its published planning criteria. A CBM value is considered consistent with published planning criteria if the same components that comprise CBM are also addressed in the planning criteria. The methodology used to determine and apply CBM does not have to involve the same mechanics as the planning process, but the same uncertainties must be considered and any simplifying assumptions explained. It is recognized that ATC determinations are often time constrained and thus will not permit the use of the same mechanics employed in the more rigorous planning process.</p> <p>d) Require CBM values to be periodically updated (at least annually) and available to the Regions, NERC, and transmission users</p>	

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	<p>R2-2. Each Regional Reliability Council shall document the results of its periodic Capacity Benefit Margin reviews and shall make the results available to NERC on request (within 30 days).</p> <p>R2-3 The Regional Reliability Council shall provide documentation of the results of the most current implementation of its Capacity Benefit Margin procedure to NERC on request (within 30 days).</p>		<p>in the electricity markets.</p> <p>The documentation of the Regional CBM procedure shall be available to NERC on request (within 30 days). Documentation of the results of the most current implementation of the procedure shall be available to NERC on request (within 30 days).</p>	
Section 2 Measures	<p>M2-1. The Regional Reliability Council’s written procedure for the performance of periodic reviews of Regional Capacity Benefit Margin calculations shall comply with Reliability Standard 055-R2-1.</p> <p>M2-2 The Regional Reliability Council shall have documentation of the results of its periodic reviews of Capacity Benefit Margin calculations, in accordance with Reliability Standard 055-R2-1 and R2-2.</p> <p>M2-3 The Regional Reliability Council shall have evidence it provided documentation of the Capacity Benefit Margin procedure and the results of the most current implementation of the procedure to NERC as requested (within 30 days).</p>	I.E.2.M3 Items to be Measured	Regional procedure and its implementation for verifying member transmission provider CBM values.	
Section 2 Regional Differences	None identified.		None identified.	

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Section 2 Compliance Monitoring Process	The documentation of the Regional Reliability Council's Capacity Benefit Margin procedure shall be available to NERC on request (within 30 days). Documentation of the results of the most current implementation of the procedure shall be available to NERC on request (within 30 days). NERC	I.E.2.M3 Timeframe I.E.2.M3 Compliance Monitoring Responsibility	The documentation of the Regional CBM procedure shall be available to NERC on request (within 30 days). Documentation of the results of the most current implementation of the procedure shall be available to NERC on request (within 30 days). NERC	
Section 2 Levels of Non Compliance	Level 1 - N/A. Level 2 - The Regional Reliability Council did not perform a review of all Transmission Service Providers within its Regional Reliability Council for consistency with the Regional Reliability Council's Capacity Benefit Margin methodology on an annual basis. Level 3 - N/A. Level 4 - The Regional Reliability Council does not have a procedure for performing a Capacity Benefit Margin methodology consistency review of all Transmission Service Providers within its Regional Reliability Council, or has not performed any such reviews on an annual basis.	I.E.2.M3 Levels of Non- Compliance	Level 1 - N/A. Level 2 - The Region did not perform a review of all transmission providers within its Region for consistency with the Regional CBM methodology, as documented per Measurement I.E.2 S1, M1, on an annual basis. Level 3 - N/A. Level 4 - The Region does not have a procedure for performing a CBM methodology consistency review of all transmission providers within its Region, or has not performed any such review on an annual basis.	
Section 3	Procedures for the use of Capacity Benefit Margin values	I.E.2.M4 Brief Description	Procedures for the use of Capacity Benefit Margin values	

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Section 3 Applicability	Transmission Service Provider	I.E.2.M4 Applicable to	Transmission Provider	
Section 3 Requirements	<p>R3-1. Each Transmission Service Provider shall document a procedure on the use of Capacity Benefit Margin (scheduling of energy against a Capacity Benefit Margin preservation), which shall include the following three components:</p> <ol style="list-style-type: none"> 1. Require that Capacity Benefit Margin is to be used only after the following steps have been taken (as time permits): all non-firm sales have been terminated, direct-control load management has been implemented, and customer interruptible demands have been interrupted. Capacity Benefit Margin may be used to reestablish operating reserves. 2. Require that Capacity Benefit Margin shall only be used if the Load Service Entity calling for its use is experiencing a generation deficiency and its Transmission Service Provider is also experiencing transmission constraints relative to imports of energy on its transmission system. 3. Describe the conditions under which Capacity Benefit Margin may be available as non-firm transmission service. <p>R3-2. Each Transmission Service Provider shall make their Capacity Benefit Margin use procedure available on a web site accessible by the Regional Reliability Councils,</p>	<p>I.E.2.M4 Standard</p> <p>I.E.2.M4 Measurements</p>	<p>S1 Each Region shall develop a methodology for calculating Capacity Benefit Margin (CBM) that shall comply with the above NERC definition for CBM and applicable Regional criteria.</p> <p>Each Regional CBM methodology and the resulting CBM values shall be available to transmission users in the electricity market.</p> <p>M4. Each transmission provider shall document and make available its procedures on the use of CBM (scheduling of energy against a CBM preservation) to the Regions, NERC, and the transmission users in the electricity market.</p> <p>These procedures shall (S1):</p> <ol style="list-style-type: none"> a) Require that CBM is to be used only after the following steps have been taken (as time permits): all non-firm sales have been terminated, direct-control load management has been implemented, and customer interruptible demands have been interrupted. CBM may be used to reestablish operating reserves. 	

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	NERC, and the transmission users in the electricity market.		<p>b) Require that CBM shall only be used if the LSE calling for its use is experiencing a generation deficiency and its transmission provider is also experiencing transmission constraints relative to imports of energy on its transmission system.</p> <p>c) Describe the conditions under which CBM may be available as non-firm transmission service. (S1)</p> <p>The transmission providers shall make their CBM use procedures available on a web site accessible by the Regions, NERC, and the transmission users in the electricity market.</p>	
Section 3 Measures	<p>M3-1 The Transmission Service Provider’s procedure for the use of Capacity Benefit Margin (scheduling of energy against a Capacity Benefit Margin preservation) shall meet Reliability Standard 055-R3-1.</p> <p>M3-2 The Transmission Service Provider’s procedure for the use of Capacity Benefit Margin (scheduling of energy against a Capacity Benefit Margin preservation) shall be available on a web site accessible by the Regions, NERC, and the transmission users in the electricity market.</p>	I.E.2.M4 Items to be Measured	Documentation of CBM use procedures.	
Section 3 Regional Differences	None identified.		None identified.	

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Section 3 Compliance Monitoring Process	Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting process. Regional Reliability Council	I.E.2.M4 Timeframe I.E.2.M4 Compliance Monitoring Responsibility	Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting process. Region	
Section 3 Levels of Non Compliance	Level 1 - The Transmission Service Provider's Capacity Benefit Margin use procedure is available and addresses only two of the three requirements for such documentation as listed above under Reliability Standard 055-R3-1. Level 2 - N/A. Level 3 - N/A. Level 4 - The Transmission Service Provider's Capacity Benefit Margin use procedure addresses one or none of the three requirements as listed above under Reliability Standard 055-R3-1, or is not available.	I.E.2.M4 Levels of Non- Compliance	Level 1 - The transmission provider's CBM use procedure is available and addresses only two of the three requirements for such documentation as listed above under Measurement M4. Level 2 - N/A. Level 3 - N/A. Level 4 - The transmission provider's CBM use procedure addresses one or none of the three requirements as listed above under Measurement M4, or is not available.	
Section 4	Documentation of the use of Capacity Benefit Margin	I.E.2.M5 Brief Description	Documentation of the use of Capacity Benefit Margin	
Section 4 Applicability	Transmission Service Provider	I.E.2.M5 Applicable to	Transmission Provider	
Section 4 Requirements		I.E.2.M5 Standard	S1 Each Region shall develop a methodology for calculating Capacity Benefit Margin (CBM) that shall comply	

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	<p>R4-1. Each Transmission Service Provider that uses Capacity Benefit Margin shall report the use of Capacity Benefit Margin by the Load Serving Entities' loads on its system, except for Capacity Benefit Margin sales as non-firm transmission service. (The use of Capacity Benefit Margin shall be consistent with the Transmission Service Provider's Capacity Benefit Margin use procedures.)</p> <p>R4-2. The Transmission Service Provider shall post the following three items within 15 days after the use of Capacity Benefit Margin for emergency purposes, on a web site accessible by the Regions, NERC, and the transmission users in the electricity market.</p> <ol style="list-style-type: none"> 1. Circumstances 2. Duration 3. Amount of Capacity Benefit Margin used 	I.E.2.M5 Measurements	<p>with the above NERC definition for CBM and applicable Regional criteria.</p> <p>Each Regional CBM methodology and the resulting CBM values shall be available to transmission users in the electricity market.</p> <p>M5. Each transmission provider that uses CBM shall report to the Regions, NERC, and the transmission users the use of CBM by the load-serving entities' loads on its system, except for CBM sales as non-firm transmission service. This disclosure may be after the fact. (S1)</p> <p>Within 15 days after the use of CBM for emergency purposes, a transmission provider shall make available the 1) circumstances, 2) duration, and 3) amount of CBM used. This information shall be available on a web site accessible by the Regions, NERC, and the transmission users in the electricity market.</p> <p>The use of CBM also shall be consistent with the transmission provider's CBM use procedures.</p> <p>The scheduling of energy against a CBM preservation as non-firm transmission service need not be disclosed to comply with this Standard.</p>	

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Section 4 Measures	<p>M4-1. The Transmission Service Provider shall have evidence it posted an after-the-fact disclosure that energy was scheduled against a Capacity Benefit Margin preservation (for purposes other than non-firm transmission sales) on a web site accessible by the Regions, NERC, and the transmission users in the electricity market.</p> <p>.M4-2If the Transmission Service Provider had energy scheduled against a Capacity Benefit Margin preservation (for purposes other than non-firm transmission sales) the Transmission Service Provider shall have evidence it posted an after-the-fact disclosure that includes the elements required by Reliability Standard 055-R4-2.</p>	I.E.2.M5 Items to be Measured	After the fact disclosure that energy was scheduled against a CBM preservation (for purposes other than non-firm transmission sales).	
Section 4 Regional Differences	None identified.		None identified.	
Section 4 Compliance Monitoring Process	<p>Within 15 days of the use of Capacity Benefit Margin (excluding non-firm sales).</p> <p>Regional Reliability Council</p>	<p>I.E.2.M5 Timeframe</p> <p>I.E.2.M5 Compliance Monitoring Responsibility</p>	<p>Within 15 days of the use of CBM (excluding non-firm sales).</p> <p>Region</p>	
Section 4 Levels of Non Compliance	<p>Level 1 - N/A.</p> <p>Level 2 - Information pertaining to the use of Capacity Benefit Margin during an energy emergency was provided, but was not made available on a web site accessible by the Regional Reliability Councils, NERC, and transmission users in the</p>	<p>I.E.2.M5 Levels of Non-Compliance</p>	<p>Level 1 - N/A.</p> <p>Level 2 - Information pertaining to the use of CBM during an energy emergency was provided, but was not made available on a web site accessible by the Regions, NERC, and transmission users in the electricity market, or meets only</p>	

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	<p>electricity market, or meets only two of the three requirements as listed in Reliability Standard 055-R4-2.</p> <p>Level 3 - N/A.</p> <p>Level 4 - After the use of Capacity Benefit Margin (excluding non-firm sales), information pertaining to the use of Capacity Benefit Margin was provided but meets one or none of the three requirements as listed above under Reliability Standard 055-R2 or no information was provided.</p>		<p>two of the three requirements as listed above under Measurement M5.</p> <p>Level 3 - N/A.</p> <p>Level 4 -After the use of CBM (excluding non-firm sales), information pertaining to the use of CBM was provided but meets one or none of the three requirements as listed above under Measurement M5, or no information was provided.</p>	

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Standard	056	Compliance Templates I.E.2.M6 I.E.2.M8	I. System Adequacy and Security E. Transfer Capability 2. Transfer Capabilities Margins	
Title	Documentation and Review of Transmission Reliability Margin Methodologies and Calculations	Section	I. System Adequacy and Security E. Transfer Capability 2. Transfer Capabilities Margins	
Purpose	To promote the consistent and uniform application of transfer capability margin calculations among transmission system users, by developing methodologies for calculating Transmission Reliability Margin. This methodology shall comply with NERC definitions for Transmission Reliability Margin, the NERC Reliability Standards, and applicable Regional criteria. Regional Transmission Reliability Margin methodologies and the resulting Transmission Reliability Margin values shall be available to all participants of the electricity market, in order to facilitate intra- and inter-Regional transactions.			Purpose was paraphrased from the Standard S2, below.
Effective Date	February 8, 2005	Approval dates	February 20, 2002 Approved by the NERC Board of Trustees in February 2002. Field-tested during Phase 2b implementation.	
Standard Applicability	Regional Reliability Council	Applicable to	Regions	
Section 1	Documentation and content of each Regional Transmission Reliability Margin methodology.	I.E.2.M6 Brief Description	Documentation and content of each Regional Transmission Reliability Margin methodology.	
Section 1	Regional Reliability Council	I.E.2.M6 Applicable to	Region	

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Applicability				
Section 1 Requirements	<p>R1-1. Each Regional Reliability Council, in conjunction with its members, shall develop and document a Regional Transmission Reliability Margin methodology. The Region’s Transmission Reliability Margin methodology shall specify or describe each of the following five items, and shall explain its use, if any, in determining Transmission Reliability Margin values. Other items that are Regional specific or that are considered in each respective Regional methodology shall also be explained along with their use in determining Transmission Reliability Margin values.</p> <ol style="list-style-type: none"> 1. Specify the update frequency of Transmission Reliability Margin calculations. 2. Specify how Transmission Reliability Margin values are incorporated into Available Transfer Capability calculations. 3. Specify the uncertainties accounted for in Transmission Reliability Margin and the methods used to determine their impacts on the Transmission Reliability Margin values. <p>The following components of uncertainty, if applied, shall be accounted for solely in Transmission Reliability Margin and not Capacity Benefit Margin: aggregate load forecast error (not included in determining generation reliability</p>	I.E.2.M6 Requirements	<p>S2. Each Region shall develop a methodology for calculating Transmission Reliability Margin (TRM) that shall comply with the above NERC definition for TRM and applicable Regional criteria.</p> <p>Each Regional TRM methodology and the resulting TRM values shall be available to transmission users in the electricity market.</p> <p>M6. Each Region, in conjunction with its members, shall develop and document a Regional TRM methodology. This Regional methodology shall be available to NERC, the Regions, and the transmission users in the electricity market. (S2)</p> <p>Each Region’s TRM methodology shall (S2):</p> <ol style="list-style-type: none"> a) Specify the update frequency of TRM calculations. b) Specify how TRM values are incorporated into ATC calculations. c) Specify the uncertainties accounted for in TRM and the methods used to determine their impacts on the TRM values. <p>The following components of uncertainty, if applied, shall be accounted for solely in TRM and not CBM: aggregate load forecast error (not included in</p>	

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	<p>requirements), load distribution error, variations in facility loadings due to balancing of generation within a control area, forecast uncertainty in transmission system topology, allowances for parallel path (loop flow) impacts, allowances for simultaneous path interactions, variations in generation dispatch, and short-term operator response (operating reserve actions not exceeding a 59-minute window).</p> <p>Any additional components of uncertainty shall benefit the interconnected transmission systems, as a whole, before they shall be permitted to be included in Transmission Reliability Margin calculations.</p> <p>4. Describe the conditions, if any, under which Transmission Reliability Margin may be available to the market as non-firm transmission service.</p> <p>5. Describe the formal process for the Region to grant any variances to individual transmission providers from the Regional Transmission Reliability Margin methodology.</p> <p>R1-2 The Regional Reliability Council shall make most recent version of the documentation of its Transmission Reliability Margin methodology available on a web site accessible by NERC, the Regional Reliability Councils, and the transmission users in the electricity market.</p>		<p>determining generation reliability requirements), load distribution error, variations in facility loadings due to balancing of generation within a control area, forecast uncertainty in transmission system topology, allowances for parallel path (loop flow) impacts, allowances for simultaneous path interactions, variations in generation dispatch, and short-term operator response (operating reserve actions not exceeding a 59-minute window).</p> <p>Any additional components of uncertainty shall benefit the interconnected transmission systems, as a whole, before they shall be permitted to be included in TRM calculations.</p> <p>d) Describe the conditions, if any, under which TRM may be available to the market as non-firm transmission service.</p> <p>e) Describe the formal process for the Region to grant any variances to individual transmission providers from the Regional TRM methodology.</p> <p>Each Regional TRM methodology shall address each of the items above and shall explain its use, if any, in determining TRM values. Other items that are Regional specific or that are considered in each respective Regional methodology shall also be explained along with their use in determining TRM values.</p> <p>The most recent version of the documentation of each</p>	

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			Region's TRM methodology shall be available on a web site accessible by NERC, the Regions, and the transmission users in the electricity market.	
Section 1 Measures	<p>M1-1. The Regional Reliability Council's most recent version of the documentation of its Transmission Reliability Margin methodology is available on a web site accessible by NERC, the Regional Reliability Councils, and the transmission users in the electricity market.</p> <p>M1-2. The Regional Reliability Council's most recent version of the documentation of its Transmission Reliability Margin contains all items in Reliability Standard 056-R1-1.</p>	I.E.2.M6 Items to be Measured	Development and documentation of each Region's Transmission Reliability Margin methodology and the completeness of the content of each Regional TRM methodology.	
Section 1 Regional Differences	None		None	
Section 1 Compliance Monitoring Process	<p>Each Regional Reliability Council shall report compliance and violations to NERC via the NERC Compliance Reporting process.</p> <p>NERC</p>	<p>I.E.2.M6 Timeframe</p> <p>I.E.2.M6 Compliance Monitoring Responsibility</p>	<p>Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting process.</p> <p>NERC</p>	
Section 1 Levels of Non Compliance	<p>Level 1 - The Regional Reliability Council's documented Total Transfer Capability and Available Transfer Capability methodology does not address one of the five items required for documentation under Reliability Standard 056-R1-1.</p> <p>Level 2 - N/A</p> <p>Level 3 - N/A</p>	<p>I.E.2.M6</p> <p>Levels of Non-Compliance</p>	<p>Level 1 - The Region's document TRM methodology does not address one of the five requirements for each documentation as listed above under Measurement M6.</p> <p>Level 2 - N/A.</p> <p>Level 3 - N/A.</p>	

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	<p>Level 4 - The Regional Reliability Council’s documented Total Transfer Capability and Available Transfer Capability methodology does not address two or more of the five items required for documentation under Reliability Standard 056-R1-1.</p> <p style="text-align: center;">Or</p> <p>the Region does not have a documented Transmission Reliability Margin methodology.</p>		<p>Level 4 - The Region’s documented TRM methodology does not address two or more of the five requirements for such documentation as listed above under Measurement M6, or the Region does not have a documented TRM methodology.</p>	
Section 2	Procedure for verifying Transmission Reliability Margin values.	I.E.2.M8 Brief Description	Procedure for verifying Transmission Reliability Margin values.	
Section 2 Applicability	Regional Reliability Council	I.E.2.M8 Applicable to	Regions	
Section 2 Requirements	<p>R2-1. Each Regional Reliability Council, shall develop and implement a procedure to review Transmission Reliability Margin calculations and resulting values of member transmission providers to ensure they comply with the Regional Transmission Reliability Margin methodology, and are periodically updated and</p>	<p>I.E.2.M8 Standard</p> <p>I.E.2.M8 Measures</p>	<p>S2. Each Region shall develop a methodology for calculating Transmission Reliability Margin (TRM) that shall comply with the above NERC definition for TRM and applicable Regional criteria.</p> <p>Each Regional TRM methodology and the resulting TRM values shall be available to transmission users in the electricity market.</p> <p>M3 . Each Region, in conjunction with its members, shall develop and implement a procedure to review the TRM calculations and values of member transmission providers to ensure that they comply with the Regional TRM methodology and are</p>	

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	<p>available to transmission users.</p> <p>This procedure shall include the following four required elements:</p> <ul style="list-style-type: none"> a) Indicate the frequency under which the verification review shall be implemented. b) Require review of the process by which Transmission Reliability Margin values are updated, and their frequency of update, to ensure that the most current Transmission Reliability Margin values are available to transmission users. c) Require review of the consistency of the transmission provider’s Transmission Reliability Margin components with its published planning criteria. A Transmission Reliability Margin value is considered consistent with published planning criteria if the same components that comprise Transmission Reliability Margin are also addressed in the planning criteria. The methodology used to determine and apply Transmission Reliability Margin does not have to involve the same mechanics as the planning process, but the same uncertainties must be considered and any simplifying assumption explained. It is recognized that Available Transfer Capability determinations are often time constrained and thus will not permit the use of the same mechanics employed in the more rigorous 		<p>periodically updated and available to transmission users. Documentation of the results of the most current Regional reviews shall be provided to NERC on request (within 30 days). (S2)</p> <p>This Regional procedure shall:</p> <ul style="list-style-type: none"> a) Indicate the frequency under which the verification review shall be implemented. b) Require review of the process by which TRM values are updated, and their frequency of update, to ensure that the most current TRM values are available to transmission users. c) Require review of the consistency of the transmission provider’s TRM components with its published planning criteria. A TRM value is considered consistent with published planning criteria if the same components that comprise TRM are also addressed in the planning criteria. The methodology used to determine and apply TRM does not have to involve the same mechanics as the planning process, but the same uncertainties must be considered and any simplifying assumption explained. It is recognized that ATC determinations are often time constrained and thus will not permit the use of the same mechanics 	

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	<p>planning process.</p> <p>d). Require Transmission Reliability Margin values to be periodically updated (at least prior to each season - winter, spring, summer, and fall), as necessary, and made available to the Regional Reliability Councils, NERC, and transmission users in the electricity market.</p> <p>R2-2. Documentation of the Regional Reliability Council's Transmission Reliability Margin procedure shall be available to NERC on request (within 30 days).</p> <p>R2-3. Documentation of the results of the most current implementation of the procedure shall be available to NERC on request (within 30 days).</p>		<p>employed in the more rigorous planning process.</p> <p>d) Require TRM values to be periodically updated (at least prior to each season winter, spring, summer, and fall), as necessary, and made available to the Regions, NERC, and transmission users in the electricity market.</p> <p>The documentation of the Regional TRM procedure shall be available to NERC on request (within 30 days). Documentation of the results of the most current implementation of the procedure shall be available to NERC on request (within 30 days).</p>	
Section 2 Measures	<p>M2-1. The Regional Reliability Council shall have evidence it provided to NERC upon request (within 30 days) a copy of the written procedure developed for the performance of periodic reviews of Regional Transmission Reliability Margin calculations.</p> <p>M2-2. The Regional Reliability Council shall have evidence it provided to NERC on request (within 30 days) documentation of the results of the most current implementation of the procedure.</p>	I.E.2.M8 Items to be Measured	Regional procedure and its implementation for verifying member transmission provider TRM values.	
Section 2 Regional Differences	None identified.		None identified.	

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Section 2 Compliance Monitoring Process	Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting process. NERC	I.E.2.M8 Timeframe I.E.2.M8 Compliance Monitoring Responsibility	Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting process. NERC	
Section 2 Levels of Non Compliance	Level 1 - N/A. Level 2 - The Regional Reliability Council did not perform a review of all Transmission Service Providers within its Regional Reliability Council for consistency with its Transmission Reliability Margin methodology on an annual basis. Level 3 - N/A. Level 4 - The Regional Reliability Council does not have a procedure for performing a Transmission Reliability Margin methodology consistency review of all transmission providers within its Region, or has not performed any such reviews on an annual basis.	I.E.2.M8 Levels of Non- Compliance	Level 1 - N/A. Level 2 - The Region did not perform a review of all transmission providers within its Region for consistency with the Regional TRM methodology, as documented per Measurement I.E.2 S2, M8, on an annual basis. Level 3 - N/A. Level 4 - The Region does not have a procedure for performing a TRM methodology consistency review of all transmission providers in its Region, or has not performed any such reviews on an annual basis.	

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Standard	057	Compliance Template I.F.M1 I.F.M2 I.F.M3 I.F.M4 I.F.M5	I. System Adequacy and Security F. Disturbance Monitoring	
Title	Requirements for the Installation and Reporting of Disturbance Monitoring Equipment	Section	I. System Adequacy and Security F. Disturbance Monitoring	
Purpose	To ensure that disturbance monitoring equipment is installed in a uniform manner to facilitate development of models and analyses of events.			Adopted from brief description in original Planning Standards.
Effective Date	February 8, 2005	Approval Dates	I.F.M1 - CTFE Revised Compliance Template, BOT Approved April 2, 2004 I.F.M2 - Approved for field testing in Phase III October 20, 2003 I.F.M3 - Approved for field testing in Phase III October 9, 2000 I.F.M4 - Approved for field testing in Phase III October 9, 2000 I.F.M5 - Approved by Engineering Committee July 14, 1998	
Standard Applicability	Section 1: Regional Reliability Council Section 2: Transmission Owner, Generator Owner Sections 3 and 4: Transmission Owner, Generator Owner, Transmission Operator, Generator Operator as applicable.	Applicable to:	M1 and M3 Regions. M2, M4 Regional members, generation owners, and transmission owners M5, Planning Authority	Incorporated Functional Model (Version 2) terminology.

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Section 1	Define and document disturbance monitoring equipment requirements	I.F.M1 Brief Description	Define and document disturbance monitoring equipment requirements	Section One is a reference to the original IF. M1
Section 1 Applicability	Regional Reliability Council	I.F.M1 Applicability	Regions	
Section 1 Requirements	<p>R1-1 The Regional Reliability Council shall develop comprehensive requirements for the installation of disturbance monitoring equipment to ensure data is available to determine system performance and the causes of system disturbances. The comprehensive requirements shall include all of the following:</p> <ol style="list-style-type: none"> 1. Type of data recording capability (e.g., sequence-of-event, fault recording, dynamic disturbance recording). 2. Equipment characteristics including but not limited to: <ol style="list-style-type: none"> a. Recording duration requirements b. Time synchronization requirements c. Data format requirements d. Event triggering requirements 3. Monitoring, recording, and reporting capabilities of the 	<p>I.F.M1 Standard</p> <p>I.F.M1 Measure</p>	<p>S1. Requirements shall be established on a Regional basis for the installation of disturbance monitoring equipment (e.g. sequence-of-event, fault recording, and dynamic disturbance recording equipment) that is necessary to ensure data is available to determine system performance and the causes of system disturbances.</p> <p>M1. Each Region shall develop comprehensive requirements for the installation of disturbance monitoring equipment to ensure data is available to determine system performance and the causes of system disturbances. The comprehensive Regional requirements shall include the following items:</p> <p>Technical requirements:</p> <ol style="list-style-type: none"> 1. Type of data recording capability (e.g., sequence-of-event, fault recording, dynamic disturbance recording). 2. Equipment characteristics including but not limited to: <ul style="list-style-type: none"> • recording duration requirements • time synchronization requirements 	Dropped subheadings to simplify format

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	<p>equipment</p> <ol style="list-style-type: none"> a. Voltage b. Current c. Frequency d. MW and/or Mvar, as appropriate <p>4. Data retention capabilities (e.g., length of time data is to be available for retrieval)</p> <p>5. Regional coverage requirements (e.g., by voltage, geographic area, electric area or subarea)</p> <p>6. Installation requirements:</p> <ol style="list-style-type: none"> a. Substations b. Transmission lines <p>7. Responsibility for maintenance and testing.</p> <p>8. Requirements for periodic (at least every five years) updating, review, and approval of the Regional requirements.</p> <p>R1-2. The Regional Reliability Council’s requirements for the installation of disturbance monitoring equipment shall be provided to other Regional Reliability Councils and NERC on request (30 days).</p>		<ul style="list-style-type: none"> • data format requirements • event triggering requirements <p>3. Monitoring, recording, and reporting capabilities of the equipment</p> <ul style="list-style-type: none"> • voltage • current • frequency • MW and/or Mvar, as appropriate <p>4. Data retention capabilities (e.g., length of time data is to be available for retrieval)</p> <p>Monitoring equipment location requirements:</p> <p>5. Regional coverage requirements (e.g., by voltage, geographic area, electric area/subarea)</p> <p>6. Installation requirements:</p> <ul style="list-style-type: none"> • substations • transmission lines <p>Testing and maintenance requirements:</p> <p>7. Responsibility for maintenance and/or testing</p> <p>Documentation requirements:</p> <p>8. Requirements for periodic (at least every five years) updating, review, and approval of the Regional requirements</p> <p>The Regional requirements shall be provided to other Regions and NERC on request (30 days).</p>	<p>Added a few words to clarify what needs to be required. Additional words were copied from the original measure.</p>

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Section 1 Measure	M1-1. The Regional Reliability Council’s document with its requirements for the installation of disturbance monitoring equipment shall address all elements listed in Standard 057-R1-1 M1-2. The Regional Reliability Council shall have evidence it provided its requirements for the installation of disturbance monitoring equipment to other Regional Reliability Councils and NERC on request (30 days).	I.F.M1 Items to be Measured	Regional requirements for the installation of disturbance monitoring equipment.	
Section 1 Regional Differences	None identified.		None identified.	
Section 1 Compliance Monitoring Process	On request by NERC (30 business days) NERC	I.F.M1 Timeframe I.F.M1 Compliance Monitoring Responsibility	On request by NERC (30 business days) NERC	
Section 1 Levels of Non-Compliance	Level 1 — The Regional Reliability Council’s disturbance monitoring requirements do not address one of the eight requirements contained in Reliability Standard 057-R1-1. Level 2 — The Regional Reliability Council’s disturbance monitoring requirements do not address two of the eight requirements contained in Reliability Standard 057-R1-1. Level 3 — The Regional Reliability Council’s disturbance monitoring requirements do not address three of the eight requirements contained in Reliability Standard 057-R1-1. Level 4 — The Regional Reliability Council’s disturbance monitoring requirements were not provided or do not address four or more of the eight requirements contained in Reliability Standard 057-R1-1.	I.F.M1 Levels of Non-Compliance	Level 1 - The Region’s disturbance monitoring requirements do not address one of the eight requirements for the installation of disturbance monitoring equipment as listed above under Measure M1. Level 2 - The Region’s disturbance monitoring requirements do not address two of the eight requirements for the installation of disturbance monitoring equipment as listed above under Measure M1. Level 3 - The Region’s disturbance monitoring requirements do not address three of the eight requirements for the installation of disturbance monitoring equipment as listed above under Measure M1.	

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			Level 4 - The Region's disturbance monitoring requirements were not provided or do not address four or more of the eight requirements for the installation of disturbance monitoring equipment as listed above under Measure M1.	
Section 2	Disturbance monitoring equipment list	I.F.M2 Brief Description	Disturbance monitoring equipment list.	This was not included in one of the Compliance Templates approved by the BOT in April, 2004. Section 2 is a reference to IF. M2.
Section 2 Applicability	Transmission Owner, Generator Owner	I.F.M2 Applicable to	Regional members, transmission owners, generation owners.	Adopt Functional Model (Version 2) terminology.
Section 2 Requirements	<p>R2-1 The Generation Owner, and Transmission Owner, shall install disturbance-monitoring equipment to meet the Regional requirements in Standard 057-R1-1.</p> <p>R2-2 The Generator Owner and Transmission Owner shall maintain the following data on the disturbance monitoring installations:</p> <ol style="list-style-type: none"> 1. Type of equipment 2. Make and model of equipment 3. Installation location 4. Monitored facilities (lines, buses, etc.) and associated quantities (MW, Mvar, etc.) 5. Operational status 6. Date last tested <p>R2-3. The Generator Owner and Transmission Owner shall provide current data on its disturbance monitoring equipment</p>	<p>I.F.M2 Standard</p> <p>I.F.M2 Measurement</p>	<p>S2. Requirements for providing disturbance monitoring data for the purpose of developing, maintaining, and updating transmission system models shall be established on a Regional basis.</p> <p>M2. Regional members, generation owners, and transmission owners shall install disturbance monitoring equipment to meet the Regional requirements determined in I.F. S1, M1.</p> <p>The following data on the disturbance monitoring installations shall be maintained:</p> <ol style="list-style-type: none"> 1. Type of equipment 2. Make and model of equipment 3. Installation location 4. Monitored facilities (lines, buses, etc.) and associated quantities (MW, Mvar, etc.) 	

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	installations to its Regional Reliability Council and NERC on request (30 business days).		5. Operational status 6. Date last tested Current data on the disturbance monitoring equipment installations shall be provided to the Regions and NERC on request (30 business days).	
Section 2 Measure	M1.The Transmission Owner, and Generator Owner shall have documentation that its disturbance monitoring equipment was installed in accordance with its Regional Reliability Council’s(s’) requirements. M2 The Transmission Owner, and Generator Owner shall provide data on its disturbance monitoring equipment installations to Regional Reliability Councils and NERC on request (30 business days) that shows the equipment’s operational status is in conformance with Standard 057-R2-2.	I.F.M2 Items to be Measured	Disturbance monitoring equipment installations and operational status.	Added M2 to link the levels of non-compliance to the measures. The existing levels of non-compliance assess whether equipment is installed where required and also assesses whether data provided was complete
Section 2 Regional differences	None identified.		None identified.	
Section 2 Compliance Monitoring Process	On request by NERC (30 business days) Regional Reliability Council	I.F.M2 Timeframe I.F.M2 Compliance Monitoring Responsibility	On request by NERC (30 business days) Regions	
Section 2 Levels of Non-Compliance	Level 1 — Disturbance monitoring equipment is installed at all required locations in accordance with Standard 057-R2-1, however data provided was incomplete and	I.F.M2 Levels of Non-Compliance	Level 1 - Disturbance monitoring equipment is installed at all required locations in accordance with the Regional requirements defined in I.F. S1, M1, however, the data	

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	<p>did not meet one of the six requirements listed in Reliability Standard 057-R2-2.</p> <p>Level 2 — Disturbance monitoring equipment is installed at all required locations in accordance with Standard 057-R2-1, however data provided was incomplete and did not meet two of the six requirements listed in Reliability Standard 057-R2-2.</p> <p>Level 3 — Disturbance monitoring equipment is installed at all required locations in accordance with Standard-057-R2-1, however data provided was incomplete and did not meet three, four or five of the six requirements listed in Reliability Standard-057-R2-2.</p> <p>Level 4 — Disturbance monitoring equipment is not installed at all required locations in accordance with Reliability Standard-057-R2-1, or data for the disturbance monitoring equipment installations was not provided.</p>		<p>provided was incomplete and did not meet one of the six requirements listed above in Measurement M2.</p> <p>Level 2 - Disturbance monitoring equipment is installed at all required locations in accordance with the Regional requirements defined in I.F. S1, M1, however, the data provided was incomplete and did not meet two of the six requirements listed above in Measurement M2.</p> <p>Level 3 - Disturbance monitoring equipment is installed at all required locations in accordance with the Regional requirements defined in I.F. S1, M1, however, the data provided was incomplete and did not meet three, four or five of the six requirements listed above in Measurement M2.</p> <p>Level 4 - Disturbance monitoring equipment is not installed at all required locations in accordance with the Regional requirements defined in I.F. S1, M1, or data for the disturbance monitoring equipment installations was not provided.</p>	
Section 3	Disturbance monitoring data reporting requirements	I.F.M3 Brief Description	Disturbance monitoring data reporting requirements.	
Section 3 Applicability	Regional Reliability Council	I.F.M3 Applicable to	Regions	
Section 3 Requirements		I.F.M3 Standard	S2. Requirements for providing disturbance monitoring data for the purpose of developing, maintaining, and updating transmission system models shall be established on a Regional basis.	
	R3-1 Each Regional Reliability Council shall establish		M3. Each Region shall establish requirements for entities	

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	<p>requirements for entities to provide disturbance-monitoring data to ensure that data is available to determine system performance and the causes of system disturbances. The data reporting requirements shall include:</p> <ol style="list-style-type: none"> 1. Definition of “disturbance” 2. General requirements for data format 3. Data content requirements and guidelines 4. Timetable for response to data request 5. Requirements for the storage and retention of the disturbance data 6. The process for the periodic review and approval of the Regional Reliability Council’s disturbance monitoring data reporting requirements. <p>R3-2 Each Regional Reliability Council shall provide its Regional disturbance data reporting requirements to other Regional Reliability Councils and NERC on request (five business days).</p>	I.F.M3 Measurement	<p>to provide disturbance monitoring data to ensure that data is available to determine system performance and the causes of system disturbances. Each Region’s disturbance monitoring data reporting requirements shall include:</p> <ol style="list-style-type: none"> 1. Definition of “disturbance” 2. General requirements for data format 3. Data content requirements and guidelines 4. Timetable for response to data request 5. Requirements for the storage and retention of the disturbance data 6. The process for the periodic review and approval of the Region’s disturbance monitoring data reporting requirements <p>Documentation of Regional data reporting requirements shall be provided to other Regions and NERC on request (five business days).</p>	
Section 3 Measure	<p>M3-1. The Regional Reliability Council’s documented disturbance monitoring data reporting requirements shall include all six elements identified in Reliability Standard 057-R3-1.</p> <p>M3-2. The Regional Reliability Council shall have evidence it provided its disturbance monitoring data reporting requirements to other Regional Reliability Councils and NERC as specified in Reliability Standard 057-R3-2.</p>	I.F.M3 Items to be Measured	Regional disturbance monitoring data reporting requirements.	
Section 3 Regional differences	None identified		None identified	
Section 3 Compliance	On request by NERC (30 business days)	I.F.M3 Timeframe	On request by NERC (30 business days)	

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Monitoring Process	NERC	I.F.M3 Compliance Monitoring Responsibility	NERC	
Section 3 Levels of Non-Compliance	<p>Level 1 - The Regional Reliability Council's requirements for providing disturbance monitoring data do not address one of the six areas listed in Standard-057-R3-1.</p> <p>Level 2 - The Regional Reliability Council's requirements for providing disturbance monitoring data do not address two of the six areas listed in Standard-057-R3-1.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - The Regional Reliability Council's requirements for providing disturbance monitoring data were not provided, or the Regional Reliability Council's requirements for providing disturbance-monitoring data do not address three or more of the six areas listed in Standard-057-R3-1.</p>	I.F.M3 Levels of Non-Compliance	<p>Level 1 - The Regional requirements for providing disturbance monitoring data do not address one of the six areas as listed above in Measurement M3.</p> <p>Level 2 - The Regional requirements for providing disturbance monitoring data do not address two of the six areas as listed above in Measurement M3.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - The Regional requirements for providing disturbance monitoring data were not provided, or the Regional requirements for providing disturbance monitoring data do not address three or more of the six areas as listed above in Measurement M3.</p>	
Section 4	Disturbance data	I.F.M4 Brief Description	Disturbance data	
Section 4 Applicability	Transmission Owner, Generator Owner, Transmission Operator, Generator Operator	I.F.M4 Applicable to	Regional members, generation owners, transmission owners.	
Section 4 Requirements	<p>R4-1 The Generator Owner, and Transmission Owner shall each provide its system disturbance data to its Regional Reliability Council(s) in compliance with the respective Regional requirements identified in Standard-057-R3-1.</p> <p>R4-2 The Generator Operator and Transmission Operator shall</p>	I.F.M4 Measurement	<p>S2. Requirements for providing disturbance monitoring data for the purpose of developing, maintaining, and updating transmission system models shall be established on a Regional basis.</p> <p>M4. Regional members, generation owners, and</p>	

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	each provide its current system disturbance data to NERC on request (30 business days).		transmission owners shall provide system disturbance data to the Regions in compliance with the respective Regional requirements identified in Measurement I.F. S2, M3. The current system disturbance data shall be provided to NERC on request (30 business days).	
Section 4 Measure	M4-1 The Transmission Owner and Generator Owner's disturbance data shall meet its Regional Reliability Council's disturbance monitoring data reporting requirements identified in Standard-057-R3-1. M4-2 The Transmission Operator, and Generator Operator shall have evidence it provided current system disturbance data to NERC on request (30 business days).	I.F.M4 Items to be Measured	System disturbance data.	
Section 4 Regional differences	None identified		None identified	
Section 4 Compliance Monitoring Process	On request by NERC (30 business days) Regional Reliability Council	I.F.M4 Timeframe I.F.M4 Compliance Monitoring Responsibility	On request by NERC (30 business days) Regions	
Section 4 Levels of Non-Compliance	Level 1 - Disturbance data from the disturbance monitoring equipment was provided, however, the data was incomplete and did not meet all of the requirements of the respective Regional Reliability Council's requirements. Level 2 - Not applicable. Level 3 - Not applicable.	I.F.M4 Levels of Non-Compliance	Level 1 - Disturbance data from the disturbance monitoring equipment was provided, however, the data was incomplete and did not meet all of the requirements of the respective Regional requirements. Level 2 - Not applicable. Level 3 - Not applicable.	

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	Level 4 - Disturbance data from the disturbance monitoring equipment was not provided.		Level 4 - Disturbance data from the disturbance monitoring equipment was not provided.	
Section 5	Use of disturbance data to develop and maintain models.	I.F.M5 Brief Description	Use of disturbance data to develop and maintain models.	
Section 5 Applicability	Planning Authority, Transmission Planner, Generation Owner	I.F.M5 Applicable to	Regional members	
Section 5 Requirements	R5-1 The Planning Authority, Transmission Planner and Generator Owner shall use recorded data from disturbance monitoring equipment to develop, maintain, and enhance steady-state and dynamic system models and generator performance models.	I.F.M5 Standard I.F.M5 Measurement	S2. Requirements for providing disturbance monitoring data for the purpose of developing, maintaining, and updating transmission system models shall be established on a Regional basis. M5. (old M6) Regional members shall use recorded data from disturbance monitoring equipment to develop, maintain, and enhance steady-state and dynamic system models and generator performance models.	Note that the source document references 'M5' which was deleted by the Engineering Committee.
Section 5 Measure	M5-1. The Planning Authority, Transmission Planner and Generator Owner's steady state and dynamic system models and generator performance models shall reflect use of data from disturbance monitoring equipment.	I.F.M5 Items to be Measured	Use of database in Standard I.F. S1 and S2, M5.	The database referenced in the source document has no logical link to existing Compliance Templates
Section 5 Regional differences	None identified		None identified	
Section 5 Compliance Monitoring Process	On request (30 days)	I.F.M5 Timeframe Compliance	On request (30 days) Regions	

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	Regional Reliability Council	Monitoring Responsibility		
Section 5 Levels of Non-Compliance		I.F.M5 I.F.M5 Levels of Non-Compliance	<p>Level 1 -Documentation of model changes resulting from the Regional database was provided on schedule, but was incomplete in one or more areas.</p> <p>Level 2 - Documentation of model changes resulting from the Regional database was not provided on schedule, but was complete when submitted.</p> <p>Level 3 - Documentation of model changes resulting from the Regional database was not provided on schedule, and was incomplete in one or more areas when submitted.</p> <p>Level 4 - Documentation of model changes resulting from the Regional database was not provided.</p>	The source document's "Items to be Measured" is looking for data to be used in a database that is no longer required, the levels of non-compliance were not translated to Version 0

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Standard	058	Compliance Templates: II.A.M1 II.A.M2 II.A.M3 II.A.M4 II.A.M5 II.A.M6	II. System Modeling Data Requirements A. System Data	
Title	Requirements for the Submittal of Steady-State and Dynamics Data and Development of System Models	Standard	II. System Modeling Data Requirements A. System Data	Adopted from brief description in original Planning Standards.
Purpose	To establish consistent data requirements, reporting procedures, and system models to be used in the analysis of the reliability of the interconnected transmission systems.			Adopted from brief description in original Planning Standards.
Effective Date	February 8, 2005	BOT Approval Date	II.A.M1-M4 - NERC BOT approved June 12, 2001 (Phase I) II.A.M5-M6 - NERC BOT approved; CTF approved on April 2, 2004 (Phase III)	
Standard Applicability	Transmission System Owners, Generation Owners, Resource Planners, Distribution Providers, Load Serving Entities, Transmission Planners, Planning Authorities, Transmission Service Providers (Sections 1 and 3) Regional Reliability Councils (Sections 2, 4, 5, and 6)	Applicability	M1 - Users of the interconnected transmission systems M2 – Regions M3 - Users of the interconnected transmission systems M4 – Regions M5 - Regions M6 - Regions	

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Section 1	Steady-state data for modeling and simulation of the interconnected transmission system	II.A.M1 Brief Description	Steady-state data for modeling and simulation of the interconnected transmission systems.	
Section 1 Applicability	Responsible Entity may be any of the following: Transmission System Owners, Generation Owners, Resource Planners, Distribution Providers, Load Serving Entities, Transmission Planners, Planning Authorities, Transmission Service Providers,	II.A.M1 Applicability	Users of the interconnected transmission systems	Expect that the TSP will have received interchange data from the Interchange Authority
Section 1 Requirements	<p>R1-1 The Responsible Entity (as specified within the applicable reporting procedures in Reliability Standard 058-R2-1) shall provide appropriate equipment characteristics, system data, and existing and future interchange transactions in compliance with its respective Interconnection-wide Regional data requirements and reporting procedures for the modeling and simulation of the steady-state behavior of the NERC Interconnections: Eastern, Western, and ERCOT.</p> <p>R1-2 The Responsible Entity (as specified within the applicable reporting procedures in Reliability Standard 058-R2-1) shall provide this data to the Regional Reliability Councils, NERC, and those entities responsible for the reliability of the interconnected transmission systems, as specified within the</p>	II.A.M1 Standard Measure	<p>S1. Electric system data required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained</p> <p>M1. All the users of the interconnected transmission systems shall provide appropriate equipment characteristics, system data, and existing and future interchange transactions in compliance with the respective Interconnection-wide Regional data requirements and reporting procedures as defined in Standard II.A. S1, M2 for the modeling and simulation of the steady-state behavior of the NERC Interconnections: Eastern, Western, and ERCOT.</p> <p>This data shall be provided to the Regions, NERC, and those entities responsible for the reliability of the interconnected transmission systems as specified within the applicable reporting procedures (Standard II.A. S1, M2). If no schedule exists, then data shall be provided on request (30 business days).</p>	

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	applicable reporting procedures (Reliability Standard 058-R2-1). If no schedule exists, then the Responsible Entity shall provide on request (30 business days).			
Section 1 Measures	M1-1 The Responsible Entity (as specified within the applicable reporting procedures in Standard 058-R2-1), shall have evidence that it provided equipment characteristics, system data, and interchange transactions for steady-state simulation to the Regional Reliability Councils and NERC as specified in (Standard 058-R1-1 and 058-R1-2)	II.A.M1 Items to be Measured	Equipment characteristics, system data, and interchange transactions for steady-state simulation.	
Section 1 Regional Differences	None.			
Section 1 Compliance Monitoring Process	As specified within the applicable reporting procedures (Reliability Standard 058-R2-M1). If no schedule exists, then on request (30 business days) Regional Reliability Councils	II.A.M1 Timeframe Compliance Monitoring Responsibility	As specified within the applicable reporting procedures (standard II.A.S1.M2). If no schedule exists, then on request (30 business days) Regions	
Section 1 Levels of Non Compliance	Level 1 — Steady-state data was provided, but was incomplete in one of the seven areas identified in Reliability Standard 058-R2-1. Level 2 — Not Applicable Level 3 — Steady-state data was provided, but was incomplete in two or more of the seven areas identified in Reliability Standard 058-R2-1.	II.A.M1 Levels of Non Compliance	Level 1 — Steady-state data was provided, but was incomplete in one of the seven areas identified in II.A.S1.M2. Level 2 — Not Applicable Level 3 — Steady-state data was provided, but were incomplete in two or more of the seven areas identified in II.A.S1.M2.	

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	Level 4 — Steady-state data was not provided.		Level 4 — Steady-state data was not provided.	

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Section 2	Maintenance and distribution of steady-state data requirements and reporting procedures	II.A.M2 Brief Description	Maintenance and distribution of steady-state data requirements and reporting procedures.	
Section 2 Applicability	Regional Reliability Councils	II.A.M2 Applicability	Regions	
Section 2 Requirements	<p>R2-1. The Regional Reliability Councils within an Interconnection, in conjunction with the entities responsible for the reliability of the interconnected transmission systems, shall develop comprehensive steady-state data requirements and reporting procedures needed to model and analyze the steady-state conditions for each of the NERC Interconnections: Eastern, Western, and ERCOT. Within an Interconnection, the Regional Reliability Councils shall jointly coordinate on the development of the data requirements and reporting procedures for that Interconnection. The Interconnection-wide requirements shall include the following steady-state data requirements:</p> <p>1. Bus (substation and switching station): name, nominal voltage, electrical demand (load) supplied</p>	II.A.M2 Measurement	<p>S1. Electric system data required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained</p> <p>M2. The Regions, in conjunction with the entities responsible for the reliability of the interconnected transmission systems, shall develop comprehensive steady-state data requirements and reporting procedures needed to model and analyze the steady-state and dynamic conditions for each of the NERC Interconnections: Eastern, Western, and ERCOT. Within an Interconnection, the Regions shall jointly coordinate on the development of the data requirements and reporting procedures for that Interconnection.</p> <p>The following list describes the steady-state data that shall be addressed in the Interconnection-wide requirements:</p> <p>1. Bus (substation and switching station): name, nominal voltage, electrical demand (load) supplied (consistent with</p>	

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	<p>(consistent with the aggregated and dispersed substation demand data supplied per Standard 061.), and location.</p> <p>2. Generating Units (including synchronous condensers, pumped storage, etc.): location, minimum and maximum ratings (net real and reactive power), regulated bus and voltage set point, and equipment status.</p> <p>3. AC Transmission Line or Circuit (overhead and underground): nominal voltage, impedance, line charging, normal and emergency ratings (consistent with methodologies defined and ratings supplied per Standard 060) equipment status, and metering locations.</p> <p>4. DC Transmission Line (overhead and underground): Line parameters, normal and emergency ratings, control parameters, rectifier data, and inverter data.</p> <p>5. Transformer (voltage and phase-shifting): nominal voltages of windings, impedance, tap ratios (voltage and/or phase angle or tap step size), regulated bus and voltage set point, normal and emergency ratings (consistent with methodologies defined and ratings supplied per Standard 060.), and equipment status.</p> <p>6. Reactive Compensation (shunt and series capacitors and reactors): nominal ratings, impedance, percent compensation, connection point, and controller</p>		<p>the aggregated and dispersed substation demand data supplied per Standard II.D.), and location.</p> <p>2. Generating Units (including synchronous condensers, pumped storage, etc.): location, minimum and maximum ratings (net real and reactive power), regulated bus and voltage set point, and equipment status.</p> <p>3. AC Transmission Line or Circuit (overhead and underground): nominal voltage, impedance, line charging, normal and emergency ratings (consistent with methodologies defined and ratings supplied per Standard II.C.), equipment status, and metering locations.</p> <p>4. DC Transmission Line (overhead and underground): Line parameters, normal and emergency ratings, control parameters, rectifier data, and inverter data.</p> <p>5. Transformer (voltage and phase-shifting): nominal voltages of windings, impedance, tap ratios (voltage and/or phase angle or tap step size), regulated bus and voltage set point, normal and emergency ratings (consistent with methodologies defined and ratings supplied per Standard II.C.), and equipment status.</p> <p>6. Reactive Compensation (shunt and series capacitors and reactors): nominal ratings, impedance, percent compensation, connection point, and controller device.</p> <p>7. Interchange Transactions: Existing and future interchange transactions and/or assumptions.</p>	

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	<p>device.</p> <p>7. Interchange Transactions: Existing and future interchange transactions and/or assumptions.</p> <p>R2-2 The Regional Reliability Councils within an Interconnection shall document their Interconnection’s data requirements and reporting procedures, shall review those data requirements and reporting procedures (at least every five years), and shall make the data requirements and reporting procedures available on request (within five business days) to Regional Reliability Councils, NERC, and all users of the interconnected transmission systems on request (five business days).</p>		<p>The data requirements and reporting procedures for each of the NERC interconnections (Eastern, Western, and ERCOT) shall be documented, reviewed (at least every five years), and available to the Regions, NERC, and all users of the interconnected transmission systems on request (five business days).</p>	
	<p>M2-1 The Regional Reliability Council shall have documentation of its Interconnection’s steady-state data requirements and reporting procedures and shall provide the documentation as specified in Reliability Standard 058-R2-2.</p>	<p>II.A.M2 Items to be Measured</p>	<p>Documentation of steady-state data requirements and reporting procedures for each NERC interconnection.</p>	
Section 2 Regional Differences	None identified.		None identified.	
Section 2 Compliance monitoring	<p>Periodic review of data requirements and reporting procedures: at least every five years.</p> <p>NERC</p>	<p>II.A.M2 Timeframe</p> <p>Compliance Monitoring</p>	<p>Data requirements and reporting procedures: on request (5 business days).</p> <p>Periodic review of data requirements and reporting procedures: at least every five years.</p> <p>NERC</p>	

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		Responsibility		
Section 2 Levels of Non Compliance	<p>Level 1 - Data requirements and reporting procedures for steady-state data were provided, but were incomplete in one of the seven areas defined in Reliability Standard 058- R2-1.</p> <p>Level 2 - Data requirements and reporting procedures for steady-state data were provided, but were incomplete in two of the seven areas defined in Reliability Standard 058-R2-1.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - Data requirements and reporting procedures for steady-state data were not provided, or the data requirements and reporting procedures provided were incomplete in three or more of the seven areas defined in Reliability Standard 058-R2-1</p>	II.A.M2 Levels of Non Compliance	<p>Level 1 - Data requirements and reporting procedures for steady-state data were provided, but were incomplete in one of the seven areas defined in above Measurement M2.</p> <p>Level 2 - Data requirements and reporting procedures for steady-state data were provided, but were incomplete in two of the seven areas defined in above Measurement M2.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - Data requirements and reporting procedures for steady-state data were not provided, or the data requirements and reporting procedures provided were incomplete in three or more of the seven areas defined in above Measurement M2.</p>	

Section 3	Dynamics data for modeling and simulation of the interconnected transmission system	II.A.M3 Brief Description	Dynamics data for modeling and simulation of the interconnected transmission systems.	
Section 3 Applicability	Responsible Entity may be any of the following: Transmission System Owners, Generation Owners, Resource Planners, Distribution Providers, Load Serving Entities, Transmission Planners, Planning Authorities, Transmission Service Providers	II.A.M3 Applicability	Users of the interconnected transmission systems	

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	<p>R3-1 The Responsible Entity (as specified in the reporting procedures of Reliability Standard 058-R4) shall provide appropriate equipment characteristics and system data in compliance with the respective Interconnection-wide Regional data requirements and reporting procedures as defined in Reliability Standard 058-R4, for the modeling and simulation of the dynamic behavior of the NERC Interconnections: Eastern, Western, and ERCOT.</p> <p>R3-2 This Responsible Entity shall provide data to its Regional Reliability Council(s), NERC, and those entities responsible for the reliability of the interconnected transmission systems as specified within the applicable reporting procedures (Reliability Standard 058-R4). If no schedule exists, then the Responsible Entity shall provide data on request (30 business days).</p>	<p>II.A.M3 Standard</p> <p>II.A.M3 Measurement</p>	<p>S1. Electric system data required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained.</p> <p>M3. All users of the interconnected transmission systems shall provide appropriate equipment characteristics and system data in compliance with the respective Interconnection-wide Regional data requirements and reporting procedures as defined in Standard II.A. S1, M4 for the modeling and simulation of the dynamic behavior of the NERC Interconnections:</p> <p>Eastern, Western, and ERCOT.</p> <p>This data shall be provided to the Regions, NERC, and those entities responsible for the reliability of the interconnected transmission systems as specified within the applicable reporting procedures (Standard II.A. S1, M4). If no schedule exists, then data shall be provided on request (30 business days).</p>	
Section 3 Measures	M3-1 The Responsible Entity shall have evidence that it provided equipment characteristics and system data in accordance with Reliability Standard 058-R3-1 and Reliability Standard 058-R3-2.	II.A.M3 Items to be Measured	Equipment characteristics and system data for dynamics simulation.	
Section 3 Regional Differences	None identified		None identified	

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Section 3 Compliance Monitoring Process	As specified within the applicable reporting procedures (Reliability Standard 058-R4). If no schedule exists, then on request (30 business days) Regional Reliability Council	II.A.M3 Timeframe II.A.M3 Compliance Monitoring Responsibility	As specified within the applicable reporting procedures (standard II.A.S1.M4). If no schedule exists, then on request (30 business days) Region	
Section 3 Levels of Non Compliance	Level 1 — Dynamics data was provided, but was incomplete in one of the four areas identified in Reliability Standard 058-R4 Level 2 — Not Applicable Level 3 — Dynamics data was provided, but was incomplete in two or more of the four areas identified in Reliability Standard 058-R4 Level 4 — Dynamics data was not provided.	II.A.M3 Levels of Non Compliance	M3: Level 1 — Dynamics data was provided, but were incomplete in one of the four areas identified in II.A.S1.M4. Level 2 — Not Applicable Level 3 — Dynamics data was provided, but was incomplete in two or more of the areas identified in II.A.S1.M4. Level 4 — Dynamic data was not provided	

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Section 4	Maintenance and distribution of dynamics data requirements and reporting procedures	II.A.M4 Brief Description	Maintenance and distribution of dynamics data requirements and reporting procedures.	
Section 4 Applicability	Regional Reliability Councils	II.A.M4 Applicability	Regions	
Section 4 Requirements	<p>R4-1. The Regional Reliability Council, in coordination with the entities responsible for the reliability of the interconnected transmission systems, shall develop comprehensive dynamics data requirements and reporting procedures needed to model and analyze the dynamic behavior or response of each of the NERC Interconnections: Eastern, Western, and ERCOT. Within an Interconnection, the Regional Reliability Councils shall jointly coordinate on the development of the data requirements and reporting procedures for that Interconnection. Each set of Interconnection-wide dynamics data requirements shall address the following:</p> <ol style="list-style-type: none"> Unit-specific dynamics data shall be reported for generators and synchronous condensers (including, as appropriate to the model, items such as inertia constant, damping coefficient, saturation 	<p>II.A.M4 Standard</p> <p>II.A.M4 Measurement</p>	<p>S1. Electric system data required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained.</p> <p>M4. The Regions, in coordination with the entities responsible for the reliability of the interconnected transmission systems, shall develop comprehensive dynamics data requirements and reporting procedures needed to model and analyze the dynamic behavior or response of each of the NERC Interconnections: Eastern, Western, and ERCOT. Within an Interconnection, the Regions shall jointly coordinate on the development of the data requirements and reporting procedures for that Interconnection.</p> <p>The following list describes the dynamics data that shall be addressed in the Interconnection-wide requirements:</p> <ol style="list-style-type: none"> Unit-specific dynamics data shall be reported for generators and synchronous condensers (including, as appropriate to the model, items such as inertia constant, 	

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	<p>parameters, and direct and quadrature axes reactance's and time constants), excitation systems, voltage regulators, turbine-governor systems, power system stabilizers, and other associated generation equipment.</p> <p>However, estimated or typical manufacturer's dynamics data, based on units of similar design and characteristics, may be submitted when unit-specific dynamics data cannot be obtained. In no case shall other than unit-specific data be reported for generator units installed after 1990.</p> <p>The Interconnection-wide requirements shall specify unit size thresholds for permitting: 1.) the use of non-detailed vs. detailed models, 2.) the netting of small generating units with bus load, and 3.) the combining of multiple generating units at one plant.</p> <p>2. Device specific dynamics data shall be reported for dynamic devices, including, among others, static VAR controls, high voltage direct current systems, flexible AC transmission systems, and static compensators.</p> <p>3. Dynamics data representing electrical demand (load) characteristics as a function of frequency and voltage.</p> <p>4. Dynamics data shall be consistent with the reported steady-state (power flow) data supplied per</p>		<p>damping coefficient, saturation parameters, and direct and quadrature axes reactances and time constants), excitation systems, voltage regulators, turbine-governor systems, power system stabilizers, and other associated generation equipment.</p> <p>However, estimated or typical manufacturer's dynamics data, based on units of similar design and characteristics, may be submitted when unit-specific dynamics data cannot be obtained. In no case shall other than unit-specific data be reported for generator units installed after 1990.</p> <p>The Interconnection-wide requirements shall specify unit size thresholds for permitting: 1.) the use of non-detailed vs. detailed models, 2.) the netting of small generating units with bus load, and 3.) the combining of multiple generating units at one plant.</p> <p>2. Device specific dynamics data shall be reported for dynamic devices, including, among others, static var controls (SVC), high voltage direct current systems (HVDC), flexible AC transmission systems (FACTS), and static compensators (STATCOM).</p> <p>3. Dynamics data representing electrical demand (load) characteristics as a function of frequency and voltage.</p> <p>4. Dynamics data shall be consistent with the reported steady-state (power flow) data supplied per IIA.S1.M1.</p>	

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	<p>Reliability Standard 058-R1.</p> <p>R4-2 The Regional Reliability Council shall participate in the documentation of its Interconnection's data requirements and reporting procedures and, shall participate in the review of those data requirements and reporting procedures (at least every five years), and shall provide those data requirements and reporting procedures on request (within five business days) to Regional Reliability Councils, NERC, and all users of the interconnected systems on request (five business days).</p>		<p>The data requirements and reporting procedures for each of the NERC Interconnections (eastern, Western and ERCOT) shall be documented, reviewed (at least every five years), and available to the Regions, NERC and all users of the interconnected systems on request (five business days).</p>	
Section 4 Measures	<p>M4-1 The Regional Reliability Councils within each Interconnection shall have documentation of their Interconnection's dynamics data requirements and reporting procedures.</p>	II.A.M4 Items to be Measured	Documentation of dynamics data requirements and reporting procedures for each NERC interconnection.	
Section 4 Regional Differences	None identified		None identified	
Section 4 Compliance Monitoring Process	<p>Data requirements and reporting procedures: on request (5 business days).</p> <p>Periodic review of data requirements and reporting procedures: at least every five years.</p> <p>NERC</p>	<p>II.A.M4 Timeframe</p> <p>II.A.M4 Compliance Monitoring Responsibility</p>	<p>Data requirements and reporting procedures: on request (5 business days).</p> <p>Periodic review of data requirements and reporting procedures: at least every five years.</p> <p>NERC</p>	

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Section 4 Levels of Non Compliance	<p>Level 1 - Data requirements and reporting procedures for dynamics data were provided, but were incomplete in one of the four areas defined in Reliability Standard 058-R4-1.</p> <p>Level 2 - Not applicable</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - Data requirements and reporting procedures for dynamics data were not provided, or the data requirements and reporting procedures provided were incomplete in two or more of the four areas defined in Reliability Standard 058-R4-1.</p>	II.A.M4 Levels of Non Compliance	<p>Level 1 - Data requirements and reporting procedures for dynamics data were provided, but were incomplete in one of the four areas defined in above Measurement M4.</p> <p>Level 2 - Not applicable.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - Data requirements and reporting procedures for dynamics data were not provided, or the data requirements and reporting procedures provided were incomplete in two or more of the four areas defined in above Measurement M4.</p>	
Section 5	Development of steady-state system models	II.A.M5 Brief Description	Development of steady-state system models.	
Section 5 Applicability	Regional Reliability Councils in Eastern Interconnection, Interconnection	II.A.M5 Applicability	Regions	
Section 5 Requirements	R5-1 Each of the NERC Interconnections shall develop and maintain a library of solved (converged) steady-state system models. Each Interconnection shall develop models for the near- and longer-term planning horizons	II.A.M5 Standard II.A.M5 Measurement	<p>S1. Electric system data required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained.</p> <p>M5. Each of the NERC Interconnections shall develop and maintain a library of solved (converged) steady-state system models. Models shall be developed for the near- and longer-term planning horizons that are</p>	

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	<p>that are representative of system conditions for projected seasonal peak, minimum, and other appropriate system demand levels. Within the Eastern Interconnection, the Regional Reliability Councils shall coordinate and jointly develop the steady-state system models for that Interconnection.</p> <p>Each Interconnection shall develop steady-state system models annually for selected study years, as determined by that Interconnection. The Interconnection shall provide the most recent solved (converged) steady-state models to Regional Reliability Councils and NERC on request (30 days).</p>		<p>representative of system conditions for projected seasonal peak, minimum, and other appropriate system demand levels. Within the Eastern Interconnection, the Regions shall coordinate and jointly develop the steady-state system models for that Interconnection.</p> <p>Steady-state system models for each of the NERC Interconnections (Eastern, Western, and ERCOT) shall be developed annually for selected study years as determined by the Interconnection. The most recent solved (converged) steady-state models shall be provided to the Regions and NERC on request (30 days).</p>	
Section 5 Measures	M5-1 Each Interconnection shall have Interconnection steady-state system models.	II.A.M5 Items to be Measured	Development of Interconnection steady-state system models.	
Section 5 Regional Differences	None identified.		None identified.	
Section 5 Compliance Monitoring Process	<p>Development of steady-state system models: annually. Most recent steady-state system models: 30 days.</p> <p>NERC</p>	<p>II.A.M5 Timeframe</p> <p>II.A.M5 Compliance Monitoring Responsibility</p>	<p>Development of steady-state system models: annually. Most recent steady-state system models: 30 days.</p> <p>NERC</p>	

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Section 5 Levels of Non Compliance	<p>An assessment of non-compliance will only be considered if a posting date is not met. Violations will not be assessed for Data Sets posted by the scheduled dates.</p> <p>Level 1 - One of a Regional Reliability Council's cases was either not submitted by the data submission deadlines, or was submitted by the data submission deadline but was not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline.</p> <p>Level 2 - Two of a Regional Reliability Council's cases were either not submitted by the data submission deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).</p> <p>Level 3 - Three of a Regional Reliability Council's cases were either not submitted by the data submission deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).</p> <p>Level 4 - Four or more of a Regional Reliability Council's cases were either not submitted by the data submission deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).</p>	II.A.M5 Levels of Non Compliance	<p>An assessment of non-compliance will only be considered if a posting date is not met. Violations will not be assessed for Data Sets posted by the scheduled dates.</p> <p>Level 1 - One of a Region's cases was either not submitted by the data submission deadlines, or was submitted by the data submission deadline but was not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline.</p> <p>Level 2 - Two of a Region's cases were either not submitted by the data submission deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).</p> <p>Level 3 - Three of a Region's cases were either not submitted by the data submission deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).</p> <p>Level 4 - Four or more of a Region's cases were either not submitted by the data submission</p>	The levels of non-compliance are assessed against the Regions, but there are no Regional requirements.
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			deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).	
Section 6	Development of dynamics system models	II.A.M6 Brief Description	Development of dynamics system models.	
Section 6 Applicability	Regional Reliability Councils, Interconnection	II.A.M6 Applicability	Regions	
Section 6 Requirements	R6-1 Each of the Interconnections shall develop and maintain a library of initialized (with no faults or system disturbances) dynamics system models. Models shall be developed for at least two timeframes (present or near-term model and a future or longer-term model). Additional seasonal and demand level models shall be developed, as necessary, to analyze the dynamic response of each of the NERC Interconnections: Eastern, Western, and ERCOT. These dynamics system models shall be linked to the steady-state system models, as appropriate, of Standard II.A.M5. Within the Eastern Interconnection, the Regions shall coordinate	II.A.M6 Standard II.A.M6 Measure	S1. Electric system data required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained. M6. Each of the Interconnections shall develop and maintain a library of initialized (with no faults or system disturbances) dynamics system models. Models shall be developed for at least two timeframes (present or near-term model and a future or longer-term model). Additional seasonal and demand level models shall be developed, as necessary, to analyze the dynamic response of each of the NERC Interconnections: Eastern, Western, and ERCOT. These dynamics system models shall be linked to the steady-state system models, as appropriate, of Standard II.A.M5. Within the	

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	<p>and jointly develop the dynamics system models for that Interconnection.</p> <p>The Regional Reliability Councils within each Interconnection shall develop Interconnection dynamics system models for their Interconnection annually for selected study years as determined by the Interconnection and shall provide the most recent initialized (approximately 25 seconds, no-fault) models shall be provided to the Regions and NERC on request (30 days).</p>		<p>Eastern Interconnection, the Regions shall coordinate and jointly develop the dynamics system models for that Interconnection.</p> <p>Dynamics system models for each of the NERC Interconnections (Eastern, Western, and ERCOT) shall be developed annually for selected study years as determined by the Interconnection. The most recent initialized (approximately 25 seconds, no-fault) models shall be provided to the Regions and NERC on request (30 days).</p>	
Section 6 Measures	M6-1 The Regional Reliability Council shall have evidence that it contributed to the development of its Interconnection dynamics system models in accordance with Reliability Standard 058-R6-1.	II.A.M6 Items to be Measured	Items to be Measured – Development of Interconnection dynamics system models.	
Section 6 Regional Differences	None identified		None identified	
Section 6 Compliance Monitoring Process	Development of dynamics system models: annually. Most recent dynamics system models: 30 days. NERC	II.A.M6 Timeframe II.A.M6 Compliance Monitoring Responsibility	Development of dynamics system models: annually. Most recent dynamics system models: 30 days. NERC	
Section 6 Levels of Non	An assessment of non-compliance will only be considered if a posting date is not met. Violations will not be assessed for Data Sets posted by the scheduled dates.	II.A.M6 Levels of Non-	An assessment of non-compliance will only be considered if a posting date is not met. Violations will not be assessed for Data Sets posted by the scheduled dates.	

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Compliance	<p>Level 1 - One of a Regional Reliability Council's cases was either not submitted by the data submission deadlines, or was submitted by the data submission deadline but was not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline.</p> <p>Level 2 - Two of a Regional Reliability Council's cases were either not submitted by the data submission deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).</p> <p>Level 3 - Three of a Regional Reliability Council's cases were either not submitted by the data submission deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).</p> <p>Level 4 - Four or more of a Regional Reliability Council's cases were either not submitted by the data submission deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).</p>	compliance	<p>Level 1 - One of a Region's cases was either not submitted by the data submission deadlines, or was submitted by the data submission deadline but was not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline.</p> <p>Level 2 - Two of a Region's cases were either not submitted by the data submission deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).</p> <p>Level 3 - Three of a Region's cases were either not submitted by the data submission deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).</p> <p>Level 4 - Four or more of a Region's cases were either not submitted by the data submission deadlines, or were submitted by the data submission deadline but were not fully solved/ initialized or had other identified errors, or corrections were not submitted by the correction submittal deadline (or a combination thereof).</p>	

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Standard	059	Compliance Templates II.B.M1 II.B.M2 II.B.M3 II.B.M4 II.B.M5 II.B.M6	II. System Modeling Data Requirements B. Generation Equipment	
Title	System Modeling Data Requirements - Generation Equipment	Section	II. System Modeling Data Requirements B. Generation Equipment	
Purpose	Validation of generator modeling data, through field verification and testing, to provide accurate, validated generator models and data required in planning and operating studies used to ensure electric system reliability.			
Effective Date	February 8, 2005 all Sections	Approval dates	II.B.M1-6 Approved by Engineering Committee: July, 14, 1998 - Phase IV	
Standard Applicability	Section 1 Regional Reliability Council Section 2 Generator Owner Section 3 Generator Owner Section 4 Generator Owner Section 5 Generator Owner Section 6 Generator Owner	Applicable to	II.B. M1 Regions II.B. M2 Generation equipment owners II.B. M3 Generation equipment owners II.B. M4 Generation equipment owners II.B.M5 Generation equipment owners II.B. M6 Generation equipment owners	
Section 1	Regional procedures for generation equipment testing.	II.B.M1 Brief	Regional procedures for generation equipment testing.	

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		Description		
Section 1 Applicability	Regional Reliability Council	II.B.M1 Applicable to	Regions	
Section 1 Requirements	R1-1. Each Regional Reliability Council shall establish and maintain procedures for generation equipment data verification and testing for all types of generating units in its Region. These procedures shall address generator gross and net dependable capability, reactive power capability, voltage regulator controls, speed/load governor controls, and excitation systems (including power system stabilizers and other devices, if applicable). These procedures shall also address generating unit exemption criteria and shall require documentation of those generating units that are exempt from a portion or all of these procedures. These procedures shall contain the schedule for the testing of the generation equipment and the schedule for the submittal of the verification or test data to the Regional Reliability Councils shall be included in the Regional procedures.	II.B.M1 Standard Measurements Full (100%) Compliance Requirement	S1. Generation equipment shall be tested to verify that data submitted for steady-state and dynamics modeling in planning and operating studies is consistent with the actual physical characteristics of the equipment. The data to be verified and provided shall include generator gross and net dependable capability, gross and net reactive power capability, voltage regulator controls, speed/load governor controls, and excitation systems. M1. Each Region shall establish and maintain procedures for generation equipment data verification and testing for all types of generating units in its Region. These procedures shall address generator gross and net dependable capability, reactive power capability, voltage regulator controls, speed/load governor controls, and excitation systems (including power system stabilizers and other devices, if applicable). These procedures shall also address generating unit exemption criteria and shall require documentation of those generating units that are exempt from a portion or all of these procedures. Full (100%) Compliance Requirement Each Region shall establish, maintain, and document procedures for generation equipment data verification and testing for all non-exempt generating units in its Region. The equipment to be tested and the data to be reported shall	Measurement M1 and the Full (100%) Compliance Requirement were merged to produce Requirement R1-1.

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	R1-2 The Regional Reliability Council’s documentation of verification and testing procedures shall be available to all reporting parties on request (five business days).		include, as a minimum, those items specified under Measurements M1, M2, M3, M4, M5, and M6 of this Standard II.B. S1. The schedule for the testing of the generation equipment, as defined in Measurements M2, M3, M4, M5, and M6, and the schedule for the submittal of the verification or test data to the Regions shall be included in the Regional procedures. Each Region shall also develop the criteria under which generation equipment may be exempt from a portion or all of the required testing procedures. A list of the exempt units shall be maintained by each Region. Documentation of verification and testing procedures shall be available to all reporting parties on request (five business days).	
Section 1 Measures	M1-1. The Regional Reliability Council’s procedures for validating generation equipment data shall contain all items identified in Reliability Standard 059-R1-1. M1-2 The Regional Reliability Council shall have evidence it provided documentation of its procedures for validating generation equipment data on request (five business days).	II.B.M1 Items to be measured	Procedures for validating generation equipment data.	
Section 1 Regional Differences	None identified		None identified	
Section 1 Compliance Monitoring	On request (five business days).	II.B.M1 Timeframe Compliance Monitoring	On request (five business days).	

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Process	NERC	Responsibility	NERC	
Section 1 Levels of Non Compliance	<p>Level 1 - Documentation of Regional Reliability Council procedures for generation equipment testing was provided when requested, but was incomplete in one or more areas.</p> <p>Level 2 - Documentation of Regional procedures for generation equipment testing was not provided when requested, but was complete when submitted.</p> <p>Level 3 - Documentation of Regional Reliability Council procedures for generation equipment testing was not provided when requested, and was incomplete in one or more areas when submitted.</p> <p>Level 4 - Documentation of Regional Reliability Council procedures for generation equipment testing was not provided.</p>	III.C.M1 Levels of Non-Compliance	<p>Level 1 - Documentation of Regional procedures for generation equipment testing was provided on schedule, but was incomplete in one or more areas.</p> <p>Level 2 - Documentation of Regional procedures for generation equipment testing was not provided on schedule, but was complete when submitted.</p> <p>Level 3 - Documentation of Regional procedures for generation equipment testing was not provided on schedule, and was incomplete in one or more areas when submitted.</p> <p>Level 4 - Documentation of Regional procedures for generation equipment testing was not provided.</p>	
Section 2	Verification of gross and net real power dependable capability of generators.	II.B.M2 Brief Description	Verification of gross and net real power dependable capability of generators.	
Section 2 Applicability	Generator Owner	II.B.M2 Applicable to	Generation equipment owners	
Section 2 Requirements		II.B.M2 Standard	S1. Generation equipment shall be tested to verify that data submitted for steady-state and dynamics modeling in planning and operating studies is consistent with the actual physical characteristics of the equipment. The	Measurement M2 and the Full (100%) Compliance Requirement were merged to

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	<p>R2-1 The Generator Owner shall annually test to verify the gross and net dependable capability of its units. The Generator Owner shall provide the Regional Reliability Council(s) with the following information on request:</p> <ul style="list-style-type: none"> a. Summer and winter gross and net capabilities of each unit based on the power factor level expected for each unit at the time of summer and winter peak demand, respectively. b. Active or real power requirements of auxiliary loads. c. Date and conditions during tests (ambient and design temperatures, generator loading, voltages, hydrogen pressure, high-side voltage, and auxiliary loads). <p>Test conditions and test results shall be documented and all data requested by the Region shall be provided by the generation equipment owners in accordance with the Regional procedures in Section 1 of Standard 059. Exceptions to the schedules in the Regional procedures will need to be agreed to by the Region and the generation equipment owners.</p>	<p>Measurements</p> <p>Full (100%) Compliance Requirement</p>	<p>data to be verified and provided shall include generator gross and net dependable capability, gross and net reactive power capability, voltage regulator controls, speed/load governor controls, and excitation systems.</p> <p>M2. Generation equipment owners shall annually test to verify the gross and net dependable capability of their units. They shall provide the Regions with the following information on request:</p> <ul style="list-style-type: none"> a. Summer and winter gross and net capabilities of each unit based on the power factor level expected for each unit at the time of summer and winter peak demand, respectively. b. Active or real power requirements of auxiliary loads. c. Date and conditions during tests (ambient and design temperatures, generator loading, voltages, hydrogen pressure, high-side voltage, and auxiliary loads). <p>Generation equipment owners shall test annually all of their non-exempt generation equipment for summer and winter gross and net real power (MW) dependable capability according to the Regional procedures under Measurement M1 of this Standard II.B. S1. Operating data may be acceptable as test data providing it was obtained under test-like</p>	<p>produce Requirement R2-1.</p>
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			<p>conditions.</p> <p>Test conditions and test results shall be documented and all data requested by the Region shall be provided by the generation equipment owners in accordance with the Regional procedures in Measurement M1 of Standard II.B. S1. Exceptions to the schedules in the Regional procedures will need to be agreed to by the Region and the generation equipment owners.</p>	
Section 2 Measures	<p>M2-1. The Generator Owner shall have documentation of its verification of gross and net real power dependable capability of generators as specified in Reliability Standard 059-R2-1.</p> <p>M2-2 The Generator Owner shall have evidence it provided the Regional Reliability Council(s) with verification of generator gross and net real power dependable capability as specified in Reliability Standard 059-R2-1.</p>	<p>II.B.M2</p> <p>Items to be measured</p>	<p>Verification of gross and net dependable capability of generators.</p>	
Section 2 Regional Differences	None identified		None identified	
Section 2 Compliance Monitoring Process	<p>Annually.</p> <p>Regional Reliability Council</p>	<p>II.B.M2</p> <p>Timeframe</p> <p>Compliance Monitoring Responsibility</p>	<p>Annually.</p> <p>Regions</p>	

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Section 2 Levels of Non Compliance	<p>Level 1 - Verification of generator gross and net real power dependable capability was provided on schedule, but was incomplete in one or more areas</p> <p>Level 2 - Verification of generator gross and net real power dependable capability was not provided on schedule, but was complete when submitted.</p> <p>Level 3 - Verification of generator gross and net real power dependable capability was not provided on schedule, and was incomplete in one or more areas when submitted.</p> <p>Level 4 - Verification of generator gross and net real power dependable capability was not provided.</p>	II.B.M2 Levels of Non-Compliance	<p>Level 1 - Verification of generator gross and net real power dependable capability was provided on schedule, but was incomplete in one or more areas.</p> <p>Level 2 - Verification of generator gross and net real power dependable capability was not provided on schedule, but was complete when submitted.</p> <p>Level 3 - Verification of generator gross and net real power dependable capability was not provided on schedule, and was incomplete in one or more areas when submitted.</p> <p>Level 4 - Verification of generator gross and net real power dependable capability was not provided.</p>	
Section 3	Verification of gross and net reactive power capability of generators.	II.B.M3 Brief Description	Verification of gross and net reactive power capability of generators.	
Section 3 Applicability	Generator Owner	II.B.M3 Applicable to	Generation equipment owners	
Section 3 Requirements		II.B.M3 Standard	S1. Generation equipment shall be tested to verify that data submitted for steady-state and dynamics modeling in planning and operating studies is consistent with the actual physical characteristics of the equipment. The data to be verified and provided shall include generator gross and net dependable capability, gross and net reactive power capability, voltage regulator	Measurement M3 and the Full (100%) Compliance Requirement were merged to produce Requirement R3-1.

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	<p>R3-1. The Generator Owner shall test to verify the gross and net reactive power capability of its units at least every five years. The Generator Owner shall provide the Regional Reliability Councils with the following information on request:</p> <ol style="list-style-type: none"> Maximum sustained reactive power capability (both lagging and leading) as a function of real power output and generator terminal voltage. If safety or system conditions do not allow testing to full capability, computations and engineering reports of estimated capability shall be provided. Reason for reactive power limitation. Reactive power requirements of auxiliary loads. Date and conditions during tests (ambient and design temperatures, generator loading, voltages, hydrogen pressure, high-side voltage, and auxiliary loads). <p>Test conditions and test results shall be documented and all data requested by the Region shall be provided by the generation equipment owners in accordance with the Regional procedures in Section 1 of Standard 059. Exceptions to the schedules in the Regional procedures will need to be agreed to by the Region and the generation equipment owners.</p>	<p>Measurement</p> <p>Full (100%) Compliance Requirement</p>	<p>controls, speed/load governor controls, and excitation systems.</p> <p>M3. Generation equipment owners shall test to verify the gross and net reactive power capability of their units at least every five years. They shall provide the Regions with the following information on request:</p> <ol style="list-style-type: none"> Maximum sustained reactive power capability (both lagging and leading) as a function of real power output and generator terminal voltage. If safety or system conditions do not allow testing to full capability, computations and engineering reports of estimated capability shall be provided. Reason for reactive power limitation. Reactive power requirements of auxiliary loads. Date and conditions during tests (ambient and design temperatures, generator loading, voltages, hydrogen pressure, high-side voltage, and auxiliary loads). <p>Generation equipment owners shall test at least every five years all of their non-exempt generating units for reactive power capability according to the Regional procedures required under Measurement M1 of this Standard II.B. S1.</p> <p>Test conditions and test results shall be documented and all data requested by the Region shall be provided by the</p>	

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			generation equipment owners in accordance with the Regional procedures in Measurement M1 of Standard II.B. S1. Exceptions to the schedules in the Regional procedures will need to be agreed to by the Region and the generation equipment owners.	
Section 3 Measures	M3-1. The Generator Owner’s documentation of its verification of gross and net reactive power capability of generators shall contain all items specified in Standard 059-R3-1. M3-2 The Generator Owner shall have evidence it provided the Regional Reliability Council(s) with documentation of its verification of gross and net reactive power capability of generators as specified in Reliability Standard 059-R3-1.	II.B.M3 Items to be measured	Verification of gross and net reactive power capability of generators.	
Section 3 Regional Differences	None identified		None identified	
Section 3 Compliance Monitoring Process	At least every five years. Regional Reliability Council	II.B.M3 Timeframe Compliance Monitoring Responsibility	At least every five years. Regions	
Section 3 Levels of Non Compliance	Level 1 -Verification of generator gross and net reactive power capability was provided on schedule, but was incomplete in one or more areas. Level 2 - Verification of generator gross and net reactive power capability was not provided on schedule, but was	II.B.M3 Levels of Non-	Level 1 - Verification of generator gross and net reactive power capability was provided on schedule, but was incomplete in one or more areas. Level 2 - Verification of generator gross and net reactive power capability was not provided on schedule, but was completed when submitted.	

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	<p>completed when submitted.</p> <p>Level 3 - Verification of generator gross and net reactive power capability was not provided on schedule, and was incomplete in one or more areas when submitted.</p> <p>Level 4 - Verification of generator gross and net reactive power capability was not provided.</p>	Compliance	<p>Level 3 - Verification of generator gross and net reactive power capability was not provided on schedule, and was incomplete in one or more areas when submitted.</p> <p>Level 4 - Verification of generator gross and net reactive power capability was not provided.</p>	
Section 4	Test results of generator voltage regulator controls and limit functions.	II.B.M4 Brief Description	Test results of generator voltage regulator controls and limit functions.	
Section 4 Applicability	Generator Owner	II.B.M4 Applicable to	Generation equipment owners	
Section 4 Requirements	R4-1. The Generator Owner shall test its voltage regulator	II.B.M4 Standards Measurement	<p>S1. Generation equipment shall be tested to verify that data submitted for steady-state and dynamics modeling in planning and operating studies is consistent with the actual physical characteristics of the equipment. The data to be verified and provided shall include generator gross and net dependable capability, gross and net reactive power capability, voltage regulator controls, speed/load governor controls, and excitation systems.</p> <p>M4. Generation equipment owners shall test voltage</p>	Measurement M4 and the Full (100%) Compliance Requirement were merged to produce Requirement R4-1.

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	<p>controls and limit functions at least every five years. Upon request, the Generator Owner shall provide the Regions with the status of voltage regulator testing as well as information that describes how generator controls coordinate with the generator's short-term capabilities and protective relays. Test reports shall include minimum and maximum excitation limiters (volts/hertz), gain and time constants, the type of voltage regulator control function, date tested, and the voltage regulator control setting.</p> <p>All test data and status information requested by the Region shall be provided by the generation equipment owners in accordance with the Regional procedures in Section 1 of Standard 059. Exceptions to the schedules in the Regional procedures will need to be agreed to by the Region and the generation equipment owners.</p>	Full (100%) Compliance Requirement	<p>regulator controls and limit functions at least every five years. Upon request, they shall provide the Regions with the status of voltage regulator testing as well as information that describes how generator controls coordinate with the generator's short-term capabilities and protective relays. Test reports shall include minimum and maximum excitation limiters (volts/hertz), gain and time constants, the type of voltage regulator control function, date tested, and the voltage regulator control setting.</p> <p>Generation equipment owners shall test at least every five years all of their non-exempt voltage regulator controls and limit functions in accordance with Measurement M4 above and the Regional procedures required under Measurement M1 of this Standard II.B. S1.</p> <p>All test data and status information requested by the Region shall be provided by the generation equipment owners in accordance with the Regional procedures in Measurement M1 of Standard II.B. S1. Exceptions to the schedules in the Regional procedures will need to be agreed to by the Region and the generation equipment owners.</p>	
Section 4 Measures	<p>M4-1. The Generator Owner shall have documentation of test results of generator voltage regulator controls and limit functions as specified in Standard 059-R4-1.</p> <p>M4-2 The Generator Owner shall have evidence it provided the Regional Reliability Council(s) with test data and status information as specified in Reliability Standard 059-R4-</p>	II.B.M4 Items to be measured	Test results of generator voltage regulator controls and limit functions.	

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Section 4 Regional Differences	None identified		None identified	
Section 4 Compliance Monitoring Process	At least every five years. Regional Reliability Council	II.B.M4 Timeframe Compliance Monitoring Responsibility	At least every five years. Regions	
Section 4 Levels of Non Compliance	Level 1 - Test results of generator voltage regulator controls and limit functions were provided on schedule, but were incomplete in one or more areas. Level 2 - Test results of generator voltage regulator controls and limit functions were not provided on schedule, but were complete when submitted. Level 3 - Test results of generator voltage regulator controls and limit functions were not provided on schedule, and were incomplete in one or more areas when submitted. Level 4 - Test results of generator voltage regulator controls and limit functions were not provided.	II.B.M4 Levels of Non-Compliance	Level 1- Test results of generator voltage regulator controls and limit functions were provided on schedule, but were incomplete in one or more areas. Level 2 - Test results of generator voltage regulator controls and limit functions were not provided on schedule, but were complete when submitted. Level 3 - Test results of generator voltage regulator controls and limit functions were not provided on schedule, and were incomplete in one or more areas when submitted. Level 4 - Test results of generator voltage regulator controls and limit functions were not provided.	
Section 5	Test results of speed/load governor controls.	II.B.M5 Brief	Test results of speed/load governor controls.	

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		Description		
Section 5 Applicability	Generator Owner	II.B.M5 Applicable to	Generation equipment owners	
Section 5 Requirements	<p>R5-1. The Generator Owner shall test its speed/load governor controls at least every five years. Upon request, the Generator Owner shall provide the Regional Reliability Council(s) with the status of governor tests as well as information that describes the characteristics (droop and deadband) of the speed/load governing system.</p> <p>All test data and status information requested by the Region shall be provided by the generation equipment owners in accordance with the Regional procedures in Section 1 of Standard 059. Exceptions to the schedules in the Regional procedures will need to be agreed to by the Region and the generation equipment owners.</p>	<p>II.B.M5 Standard</p> <p>Measurement</p> <p>Full (100%) Compliance Requirement</p>	<p>S1. Generation equipment shall be tested to verify that data submitted for steady-state and dynamics modeling in planning and operating studies is consistent with the actual physical characteristics of the equipment. The data to be verified and provided shall include generator gross and net dependable capability, gross and net reactive power capability, voltage regulator controls, speed/load governor controls, and excitation systems.</p> <p>M5. Generation equipment owners shall test speed/load governor controls at least every five years. Upon request, they shall provide the Regions with the status of governor tests as well as information that describes the characteristics (droop and deadband) of the speed/load governing system.</p> <p>Generation equipment owners shall test at least every five years all of their non-exempt speed/load governor controls according to the Regional procedures required under Measurement M1 of this Standard II.B. S1. They shall also provide on request (within 30 days) information on the characteristics (droop and deadband) of the speed/load governing system.</p> <p>All test data and status information requested by the Region</p>	Measurement M5 and the Full (100%) Compliance Requirement were merged to produce Requirement R5-1.

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			shall be provided by the generation equipment owners in accordance with the Regional procedures in Measurement M1 of Standard II.B. S1. Exceptions to the schedules in the Regional procedures will need to be agreed to by the Region and the generation equipment owners.	
Section 5 Measures	<p>M5-1. The Generator Owner shall have documentation of its test results of speed/load governor controls as specified in Standard 059-R5-1.</p> <p>M5-2 The Generator Owner shall have evidence it provided the Regional Reliability Council(s) with documentation of its test data and status of speed/load governor controls as specified in Reliability Standard 059-R5-1.</p>	<p>II.B.M5</p> <p>Items to be measured</p>	Test results of speed/load governor controls.	
Section 5 Regional Differences	None identified		None identified	
Section 5 Compliance Monitoring Process	<p>At least every five years.</p> <p>Regional Reliability Council</p>	<p>II.B.M5</p> <p>Timeframe</p> <p>Compliance Monitoring Responsibility</p>	<p>At least every five years.</p> <p>Regions</p>	
Section 5 Levels of Non Compliance	<p>Level 1 - Test results of speed/load governor controls were provided on schedule, but were incomplete in one or more areas.</p> <p>Level 2 - Test results of speed/load governor controls were not provided on schedule, but were complete when submitted.</p> <p>Level 3 - Test results of speed/load governor controls were not provided on schedule, and were incomplete in one or</p>	<p>II.B.M5</p> <p>Levels of Non-Compliance</p>	<p>Level 1 - Test results of speed/load governor controls were provided on schedule, but were incomplete in one or more areas.</p> <p>Level 2 - Test results of speed/load governor controls were not provided on schedule, but were complete when submitted.</p> <p>Level 3 - Test results of speed/load governor controls were not provided on schedule, and were incomplete in one or more areas when submitted.</p> <p>Level 4 - Test results of speed/load governor controls were</p>	

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	more areas when submitted. Level 4 - Test results of speed/load governor controls were not provided.		not provided.	
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Section 6	Verification of excitation system dynamic modeling data.	II.B.M6 Brief Description	Verification of excitation system dynamic modeling data.	
Section 6 Applicability	Generator Owner	II.B.M6 Applicable to	Generation equipment owners	
Section 6 Requirements	R6-1. The Generator Owner shall verify the dynamic model data for excitation systems (including power system stabilizers and other devices, if applicable) at least every five years. The Generator Owner shall provide design data for new or refurbished excitation systems at least one year prior to the in-service date with updated data provided once the unit is in service. The Generator	II.B.M6 Standard Measurements	S1. Generation equipment shall be tested to verify that data submitted for steady-state and dynamics modeling in planning and operating studies is consistent with the actual physical characteristics of the equipment. The data to be verified and provided shall include generator gross and net dependable capability, gross and net reactive power capability, voltage regulator controls, speed/load governor controls, and excitation systems. M6. Generation equipment owners shall verify the dynamic model data for excitation systems (including power system stabilizers and other devices, if applicable) at least every five years. Design data for new or refurbished excitation systems shall be provided at least one year prior to the in-service date with updated data provided once	

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	Owner shall provide open circuit test response chart recordings showing generator field voltage and generator terminal voltage. (Brushless units shall include exciter field voltage and current.)		the unit is in service. Open circuit test response chart recordings shall be provided showing generator field voltage and generator terminal voltage. (Brushless units shall include exciter field voltage and current.)	
Section 6 Measures	M6-1. The Generator Owner shall have documentation of its verification of excitation system dynamic modeling data as specified in Reliability Standard 059-R6-1. M6-2 The Generator Owner shall have evidence it provided the Regional Reliability Council(s) with verification of its excitation system dynamic modeling data as specified in Reliability Standard 059-R6-1.	II.B.M6 Items to be measured	Verification of excitation system dynamic modeling data.	
Section 6 Regional Differences	None identified		None identified	
Section 6 Compliance Monitoring Process	At least every five years. Regional Reliability Council	II.B.M6 Timeframe Compliance Monitoring Responsibility	At least every five years. Regions	
Section 6 Levels of Non Compliance	Level 1 - Verification of excitation system dynamic modeling data was provided on schedule, but was incomplete in one or more areas. Level 2 - Verification of excitation system dynamic modeling data was not provided on schedule, but was complete when submitted. Level 3 -Verification of excitation system dynamic modeling data	II.B.M6 Levels of Non-Compliance	Level 1 - Verification of excitation system dynamic modeling data was provided on schedule, but was incomplete in one or more areas. Level 2 - Verification of excitation system dynamic modeling data was not provided on schedule, but was complete when submitted. Level 3 - Verification of excitation system dynamic modeling data was not provided on schedule, and	

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	<p>was not provided on schedule, and was incomplete in one or more areas when submitted.</p> <p>Level 4 - Verification of excitation system dynamic modeling data was not provided.</p>		<p>was incomplete in one or more areas when submitted.</p> <p>Level 4 - Verification of excitation system dynamic modeling data was not provided.</p>	
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Standard	060	Compliance Templates II.C.M1 II.C.M2	II. System Modeling Data Requirements C. Facility Ratings	
Title	Facility Ratings	Section	II. System Modeling Data Requirements C. Facility Ratings	
Purpose	To ensure that electrical facilities used in the transmission and storage of electricity are rated in compliance with applicable Regional Reliability Council requirements.		S1. Electrical facilities used in the transmission and storage of electricity shall be rated in compliance with applicable Regional requirements.	Purpose was paraphrased from the Standard S1
Effective Date	February 8, 2005	Approval Dates	II.C.M1 CTTF Revised Compliance Template, NERC BOT Approved – April 2, 2004 II.C.M2 NERC BOT approved in Phase I – June 12, 2001	
Standard Applicability	Transmission Owner and Generator Owner	Applicable to	M1 – Facility owners M2 - Facility owners	
Section 1	Methodology(ies) for Determining Electrical Facility Ratings	II.C.M1 Brief Description	Methodology(ies) for determining electrical facility ratings.	
Section 1 Applicability	Transmission Owner and Generator Owner	II.C.M1 Applicable to	Facility owners	
Section 1 Requirements	R1-1 The Transmission Owner and Generator Owner shall document the methodology(s) used to determine its electrical facility and equipment rating. Further, the methodology(s) shall comply with applicable Regional Reliability Council requirements. The documentation shall address and include: 1. The methodology(s) used to determine facility and equipment rating of the items listed for both normal and emergency conditions: a. Transmission circuits	II.C.M1 Standard II.C.M1 Measure	S1. Electrical facilities used in the transmission and storage of electricity shall be rated in compliance with applicable Regional requirements. M1. Facility owners shall document the methodology(s) used to determine their electrical facility and equipment rating. Further, the methodology(s) shall be compliant with applicable Regional requirements. The documentation shall address and include: 1. The methodology(s) used to determine facility and equipment rating of the items listed for both normal and emergency conditions:	Changed Regional to Regional Reliability Council to match the Functional Model Changed Facility owners to Transmission Owners and Generation Owners to match the Functional Model

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	<ul style="list-style-type: none"> b. Transformers c. Series and shunt reactive elements d. Terminal equipment (e.g., switches, breakers, current transformers, etc.) e. VAR compensators (SVC) f. High voltage direct current (HVDC) converters g. Any other device listed as a limiting element <p>2. The rating of a facility shall not exceed the rating(s) of the most limiting element(s) in the circuit, including terminal connections and associated equipment.</p> <p>3. In cases where protection systems and control settings constitute a loading limit on a facility, this limit shall become the rating for that facility.</p> <p>4. Ratings of jointly-owned and jointly-operated facilities shall be coordinated among the joint owners and joint operators resulting in a single set of ratings.</p> <p>5. The documentation shall identify the assumptions used to determine each of the facility and equipment ratings, including references to industry rating practices and standards (e.g., ANSI, IEEE, etc.). Seasonal ratings and variations in assumptions shall be included.</p> <p>R1-2 The Transmission Owner and Generator Owner shall provide documentation of the methodology(ies) used to determine its transmission facility ratings to the Regional Reliability Council(s) and NERC on request (five business days).</p>		<ul style="list-style-type: none"> a. Transmission circuits b. Transformers c. Series and shunt reactive elements d. Terminal equipment (e.g., switches, breakers, current transformers, etc.) e. VAR compensators (SVC) f. High voltage direct current (HVDC) converters g. Any other device listed as a limiting element <p>2. The rating of a facility shall not exceed the rating(s) of the most limiting element(s) in the circuit, including terminal connections and associated equipment.</p> <p>3. In cases where protection systems and control settings constitute a loading limit on a facility, this limit shall become the rating for that facility.</p> <p>4. Ratings of jointly-owned and jointly-operated facilities shall be coordinated among the joint owners and joint operators resulting in a single set of ratings.</p> <p>5. The documentation shall identify the assumptions used to determine each of the facility and equipment ratings, including references to industry rating practices and standards (e.g., ANSI, IEEE, etc.). Seasonal ratings and variations in assumptions shall be included.</p> <p>The documentation of the methodology(ies) used to determine transmission facility ratings shall be provided to the Regions and NERC on request (five business days).</p>	
Section 1 Measure	M1-1 The Transmission Owner or Generator Owner shall provide documentation that the methodology(ies) used for determining facility ratings meets the requirements of Standard	II.C.M1 Items to be Measured	Methodology(ies) used for determining facility ratings.	

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	060-R1-1 as specified in Standard 060-R1-2.			
Section 1 Regional Differences	None identified		None identified	
Section 1 Compliance Monitoring Process	On request (five business days). Regional Reliability Council.	II.C.M1 Timeframe Compliance Monitoring Responsibility	On request (five business days). Regions.	
Section 1 Levels of Non- Compliance	Level 1 - Facility and equipment rating methodology(s) do not address one of the five elements (1-5) listed in Reliability Standard 060-R1-1. Level 2 - N/A Level 3 - Facility and equipment rating methodology(s) do not address two of the five elements (1-5) listed in Reliability Standard 060-R1-1. Level 4 - Facility and equipment rating methodology(s) do not address three or more of the five elements (1-5) listed in Reliability Standard 060-R1-1, or no facility and equipment rating methodology was provided.	II.C.M1 Levels of Non- Compliance	Level 1 - Facility and equipment rating methodology(s) do not address one of the requirements listed in the above Measurement M1. Level 2 - N/A Level 3 - Facility and equipment rating methodology(s) do not address two of the requirements listed in the above Measurement M1. Level 4 - Facility and equipment rating methodology(s) do not address three or more of the requirements listed in the above Measurement M1, or no facility and equipment rating methodology was provided.	Changed “requirements” to “elements” to prevent confusion with Requirements
Section 2	Electrical facility ratings for system modeling.	II.C.M2 Brief Description	Electrical facility ratings for system modeling.	
Section 2 Applicability	Transmission Owner, Generator Owner	II.C.M2 Applicable to	Facility Owners	
Section 2 Requirements	R2-1 The Transmission owner, and Generator Owner shall have on file or be able to readily provide, a document or database identifying the normal and emergency ratings of all of their transmission facilities (e.g., lines, transformers, terminal equipment, and storage devices) that are part of the bulk interconnected transmission systems. Seasonal variations in ratings shall be included as appropriate.	II.C.M2 Standard II.C.M2 Measure	M2. Facility owners shall have on file or be able to readily provide, a document or database identifying the normal and emergency ratings of all of their transmission facilities (e.g., lines, transformers, terminal equipment, and storage devices) that are part of the bulk interconnected transmission systems. Seasonal variations in ratings shall be included as appropriate.	

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	<p>The ratings shall be consistent with the methodologies for determining facility ratings and shall be updated as facility changes occur.</p> <p>R2-2 The Transmission Owner and Generator Owner shall provide the normal and emergency ratings of all its transmission facilities to the Regional Reliability Council(s) and NERC on request (30 business days)</p>		<p>The ratings shall be consistent with the methodologies for determining facility ratings and shall be updated as facility changes occur. The ratings shall be provided to the Regions and NERC on request (30 business days)</p>	
Section 2 Measures	M2-1 The Transmission Owner and Generator Owner shall provide documentation of its facility ratings as specified in Reliability Standard 060-R2-1 and Standard 060-R2-2.	II.C.M2 Items to be Measured	Electrical facility ratings (normal and emergency, as appropriate).	
Section 2 Regional Differences	None identified		None identified	
Section 2 Compliance Monitoring Process	<p>On request (30 days).</p> <p>Regional Reliability Council.</p>	<p>II.C.M2 Timeframe</p> <p>Compliance Monitoring Responsibility</p>	<p>On request (30 days).</p> <p>Regions.</p>	
Section 2 Levels of Non-Compliance	<p>Level 1 - Facility ratings were incomplete or the methodology(ies) inconsistently applied in one facility type.</p> <p>Level 2 - Facility ratings were incomplete or the methodology(ies) inconsistently applied in two facility types.</p> <p>Level 3 - Facility ratings were incomplete or the methodology(ies) inconsistently applied in three or more facility types.</p> <p>Level 4 - Facility ratings were not provided.</p>	<p>II.C.M2 Levels of Non-Compliance</p>	<p>Level 1 - Facility ratings were incomplete or the methodology(ies) inconsistently applied in one facility type.</p> <p>Level 2 - Facility ratings were incomplete or the methodology(ies) inconsistently applied in two facility types.</p> <p>Level 3 - Facility ratings were incomplete or the methodology(ies) inconsistently applied in three or more facility types.</p> <p>Level 4 - Facility ratings were not provided.</p>	

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Standard	061	Compliance Templates II.D.M1 II.D.M2 II.D.M3 II.D.M4 II.D.M6 II.D.M10 II.D.M11 II.D.M12	II. System Modeling Data Requirements D. Actual and Forecast Demands	
Title	Actual and Forecast Demands	Sections	II. System Modeling Data Requirements D. Actual and Forecast Demands	
Purpose	To ensure that assessments and validation of past events and databases can be performed, reporting of actual demand data is needed. Forecast demand data is needed to perform future system assessment to identify the need for system reinforcement for the continued reliability. In addition to assist in proper real time operating, load information related to controllable demand-side management programs is needed.	Introduction for II.D	Actual demand data is needed for forecasting future electrical requirements, reliability assessments of past electric system events, load diversity studies, and validation of databases. Forecast demand data is needed for system modeling and the analysis of the adequacy and security of the interconnected bulk electric systems, and for identifying the need and timing of system reinforcements to reliably supply customer electrical requirements. Actual and forecast demand data generally includes hourly, monthly, and annual demands and monthly and annual net energy for load. This data may be required on an aggregated Regional, subregional, power pool, individual system basis, or on a dispersed transmission substation basis for system modeling and reliability analysis.	Paraphrased the Introduction for II.D

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			In addition to demands and net energy for load, that portion of demand that is included in or part of controllable demand-side management programs and which may be interrupted by system operators also may be required in evaluating the adequacy and security of the interconnected bulk electric systems.	
Effective Date	February 8, 2005	Approval Dates	<p>II.D.M1 & II.D.M4 & II.D.M10, introduced in Phase 1, NERC BOT approved June 12, 2001</p> <p>II.D.M2 & II.D.M3, proposed for Phase 4, NERC Engineering Committee approved July 14, 1998</p> <p>II.D.M6 & II.D.M11 & II.D.M12, introduced in Phase 2, NERC BOT approved October 16, 2001</p>	
Standard Applicability	<p>II.D.M1 & II.D.M2, Planning Authority and Regional Reliability Council</p> <p>II.D.M3 & II.D.M4 & II.D.M6 & II.D.M10 & II.D.M11 & II.D.M12, Load Serving Entity, Planning Authority and Resource Planner</p>	Applicability	<p>II.D.M1, Entities responsible for the reliability of the interconnected transmission systems and the Regions.</p> <p>II.D.M2, Entities responsible for the reliability of the interconnected transmission systems in conjunction with the Regions.</p> <p>II.D.M3, Entities required to report actual and forecast demand data.</p> <p>II.D.M4 & II.D.M6 & II.D.M10 & II.D.M12, Entities required by the Region to report actual and forecast demand data.</p> <p>II.D.M11, Entities responsible for the reliability of the</p>	

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			interconnected transmission systems.	

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Section 1	Documentation of data reporting requirements for actual and forecast demands, net energy for load, and controllable demand-side management.	Brief Descriptions II.D.M1	Documentation of data reporting requirements for actual and forecast demands, net energy for load, and controllable demand-side management.	
Section 1 Applicability	Planning Authority and Regional Reliability Council.	II.D.M1 Applicable to	Entities responsible for the reliability of the interconnected transmission systems and the Regions.	Incorporated Functional Model terminology
Section 1 Requirements	<p>R1-1. The Planning Authority and Regional Reliability Council shall have documentation identifying the scope and details of the actual and forecast (a) demand data, (b) net energy for load data, and (c) controllable demand-side management data to be reported for system modeling and reliability analyses.</p> <p>The aggregated and dispersed data submittal requirements shall</p>	<p>Standards for II.D.M1</p> <p>II.D.M1 Measurements</p>	<p>S1. Actual demands and net energy for load data shall be provided on an aggregated Regional, subregional, power pool, individual system, or load serving entity basis. Actual demand data on a dispersed substation basis shall be supplied when requested.</p> <p>Forecast demands and net energy for load data shall be developed and maintained on an aggregated Regional, subregional, power pool, individual system, or load serving entity basis. Forecast demand data shall also be developed on a dispersed substation basis.</p> <p>S2. Controllable demand-side management (interruptible demands and direct control load management) programs and data shall be identified and documented.</p> <p>M1. The entities responsible for the reliability of the interconnected transmission systems, in conjunction with the Regions, shall have documentation identifying the scope and details of the actual and forecast (a) demand data, (b) net energy for load data, and (c) controllable demand-side management data to be reported for system modeling and</p>	The content of S1 and S2 related to this section is repeated and detailed more completely in the M1 measurement and therefore not used directly in translation.

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	<p>ensure that consistent data is supplied for Reliability Standards 052, 058, and 061.</p> <p>R1-2. The documentation of the scope and details of the data reporting requirements shall be available on request (five business days).</p>		<p>reliability analyses.</p> <p>The aggregated and dispersed data submittal requirements shall ensure that consistent data is supplied for Standards IB, IIA, and IID.</p> <p>The documentation of the scope and details of the data reporting requirements shall be available on request (five business days).</p>	Reference to current Standards were replaced with Version 0 Standards
Section 1 Measures	M1-1 The Planning Authority and Regional Reliability Council shall provide evidence that it provided data and reporting procedures per Reliability Standard 061 R1-1 and R1-2.	II.D.M1 Items to be Measured	Scope and details of demand, net energy for load, and controllable demand-side management data and reporting procedures.	Incorporated Functional Model terminology.
Section 1 Regional Differences	None identified	None	None identified	
Section 1 Compliance Monitoring Process	<p>Regional Reliability Council and NERC.</p> <p>On request (five business days).</p>	<p>II.D.M1 Timeframe</p> <p>Compliance Monitoring Responsibility</p>	<p>Regions and NERC.</p> <p>On request (five business days).</p>	
Section 1 Levels of Non Compliance	<p>Level 1 - The Region and the entities responsible for the reliability of the interconnected transmission systems have identified the scope and details of demand, net energy for load, and controllable demand-side management data to be reported and the reporting procedures but have not specified that consistent data is to be supplied for Reliability Standards 052, 058, and 061.</p> <p>Level 2 - Not applicable.</p>	<p>II.D.M1 Levels of non-compliance</p>	<p>Level 1 - The Region and the entities responsible for the reliability of the interconnected transmission systems have identified the scope and details of demand, net energy for load, and controllable demand-side management data to be reported and the reporting procedures but have not specified that consistent data is to be supplied for Standards I.B, II.A, and II.D.</p> <p>Level 2 - Not applicable.</p>	

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	<p>Level 3 - Not applicable.</p> <p>Level 4 - The Region and the entities responsible for the reliability of the interconnected transmission systems have not identified the scope and details of demand, net energy for load, and controllable demand-side management data to be reported and the reporting procedures.</p>		<p>Level 3 - Not applicable.</p> <p>Level 4 - The Region and the entities responsible for the reliability of the interconnected transmission systems have not identified the scope and details of demand, net energy for load, and controllable demand-side management data to be reported and the reporting procedures.</p>	
Section 2	Reporting procedures to ensure against double counting or the omission of customer demand data.	Brief Descriptions II.D.M2	Reporting procedures to ensure against double counting or the omission of customer demand data.	
Section 2 Applicability	Planning Authority and Regional Reliability Council.	II.D.M2 Applicable to	Entities responsible for the reliability of the interconnected transmission systems in conjunction with the Regions.	
Section 2 Requirements	<p>R2-1. The Planning Authority and Regional Reliability Council reporting procedures that are developed shall ensure that customer demands are not double counted or omitted in reporting actual or forecast demand data on either an aggregated or dispersed basis within an area or Region.</p> <p>R2-2. The Planning Authority and Regional Reliability Council data reporting procedures shall be available on request (five business days) to the Regions and NERC.</p>	<p>II.D.M2 Standard</p> <p>II.D.M2 Measurement</p> <p>II.D.M2 Full (100%) Compliance Requirement</p>	<p>S1. Actual and forecast customer demands and net energy for load data required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained on an aggregated Regional, subregional, power pool, and individual system basis and on a dispersed substation basis.</p> <p>M2. The reporting procedures that are developed shall ensure that customer demands are not double counted or omitted in reporting actual or forecast demand data on either an aggregated or dispersed basis within an area or Region.</p> <p>The data reporting procedures shall adequately address prevention of double counting, the omission of data in accordance with Measurement M2 above, and shall be available on request (five business days) to the Regions and</p>	The content of S1 related to this section is repeated and detailed more completely in the Measurement and Full (100%) Compliance Requirement and therefore not used directly in translation

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			NERC.	
Section 2 Measures	M2-1 The Planning Authority and Regional Reliability Council shall provide evidence that it provided data reporting procedures per Reliability Standard 061 R2-1 and R2-2.	II.D.M2 Items to be Measured	Reporting procedures that ensure against double counting or the omission of customer demand data.	Added words to the language to make a measurable standard.
Section 2 Regional Differences	None identified	None	None identified	
Section 2 Compliance Monitoring Process	On request (five business days) NERC and the Regional Reliability Council	II.D.M2 Timeframe Compliance Monitoring Responsibility	On request (five business days) Regions and NERC	
Section 2 Levels of Non Compliance	Level 1 - Reporting procedures that address double counting and the omission of data were provided on schedule, but were incomplete in one or more areas. Level 2 - Reporting procedures that address double counting and the omission of data were not provided on schedule, but were complete when submitted. Level 3 - Reporting procedures that address double counting and the omission of data were not provided on schedule, and were incomplete in one or more areas when submitted. Level 4 - Reporting procedures that address double counting and the omission of data were not provided.	II.D.M2 Levels of Non-Compliance	Level 1 - Reporting procedures that address double counting and the omission of data were provided on schedule, but were incomplete in one or more areas. Level 2 - Reporting procedures that address double counting and the omission of data were not provided on schedule, but were complete when submitted. Level 3 - Reporting procedures that address double counting and the omission of data were not provided on schedule, and were incomplete in one or more areas when submitted. Level 4 - Reporting procedures that address double counting and the omission of data were not provided.	No Changes
Section 3	Consistency of actual and forecast demands and controllable demand-side management data reported for reliability and to	Brief Descriptions	Consistency of actual and forecast demands and controllable demand-side management data reported for	

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Heading	New Language	Heading	Existing Document Language	Comments
	government agencies.	II.D.M3	reliability and to government agencies.	
Section 3 Applicability	Load Serving Entity, Planning Authority and Resource Planner	II.D.M3 Applicable to	Entities required to report actual and forecast demand data.	
Section 3 Requirements	R3-1. (No translation attempted)	Standard for IIDM3 II.D. M3 Measurement II.D.M3 Full (100%) Compliance Requirement	S1. Actual and forecast customer demands and net energy for load data required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained on an aggregated Regional, subregional, power pool, and individual system basis and on a dispersed substation basis. S2. Controllable demand-side management (interruptible demands and direct control load management) programs and data shall be identified and documented. M3. Actual and forecast customer demand data and controllable demand-side management data reported to government agencies shall be consistent with data reported to those entities responsible for the reliability of the interconnected transmission systems, the Regions, and NERC The procedures shall require consistency in reporting actual and forecast demands and controllable demand-side management data for reliability purposes and to government agencies.	The content of S1 and S2 are repeated and detailed more completely in the M3 measurement and therefore not used directly in translation. Full (100%) Compliance Requirement does not agree with Measurement M3 and therefore no translation was attempted.
Section 3 Measures	M3-1 (No translation attempted)	II.D.M3 Items to be Measured	Procedures requiring consistency of data reported for reliability purposes and to government agencies.	Items to be Measured do not agree with Measurement M3 and therefore no translation was attempted.
Section 3 Regional	None identified	None	None identified	

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Heading	New Language	Heading	Existing Document Language	Comments
Differences				
Section 3 Compliance Monitoring Process	Regional Reliability Council Annually or as specified in the documentation (Reliability Standard 061-R1-1)	II.D.M3 Compliance Monitoring Responsibility II.D.M3 Timeframe	Regions Annually or as specified in the documentation (Standard II.D. S1-S2, M1)	No translation was attempted due to above inconsistency
Section 3 Levels of Non Compliance	(No translation attempted)	II.D.M3 Levels of Non- Compliance	Level 1 - Consistent demand data was provided on schedule, but was incomplete in one or more areas. Level 2 - Consistent demand data was not provided on schedule, but was complete when submitted. Level 3 - Consistent demand data was not provided on schedule, and was incomplete in one or more areas when submitted. Level 4 - Consistent demand data was not provided	No translation was attempted due to above inconsistency
Section 4	Aggregated actual and forecast demands and net energy for load	Brief Descriptions II.D.M4	Aggregated actual and forecast demands and net energy for load	
Section 4 Applicability	Load Serving Entity, Planning Authority and Resource Planner.	II.D.M4 Applicable to	Entities required by the Region to report actual and forecast demand data.	Incorporated Functional Model terminology
Section 4 Requirements		Standard for II.D.M4	S1. Actual and forecast customer demands and net energy for load data required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained on an aggregated Regional, subregional, power	The content of S1 related to this section is repeated and detailed more completely in the M4 measurement and

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Heading	New Language	Heading	Existing Document Language	Comments
	<p>R4-1. Load Serving Entity, Planning Authority and Resource Planner shall provide the following information annually on an aggregated Regional, subregional, power pool, individual system, or load serving entity basis to NERC, the Regions, and those entities responsible for the reliability of the interconnected transmission systems as specified by the documentation in Standard 061, Section 1.</p> <ol style="list-style-type: none"> 1. Integrated hourly demands in megawatts (MW) for the prior year. 2. Monthly and annual peak hour actual demands in MW and net energy for load in gigawatthours (GWh) for the prior year. 3. Monthly peak hour forecast demands in MW and net energy for load in GWh for the next two years. 4. Annual peak hour forecast demands (summer and winter) in MW and annual net energy for load in GWh for at least five years and up to ten years into the future, as requested 	II.D.M4 Measurement	<p>pool, and individual system basis and on a dispersed substation basis.</p> <p>M4. The following information shall be provided annually on an aggregated Regional, subregional, power pool, individual system, or load serving entity basis to NERC, the Regions, and those entities responsible for the reliability of the interconnected transmission systems as specified by the documentation in Standard II.D. S1-S2, M1.</p> <ol style="list-style-type: none"> 1. Integrated hourly demands in megawatts (MW) for the prior year. 2. Monthly and annual peak hour actual demands in MW and net energy for load in gigawatthours (GWh) for the prior year. 3. Monthly peak hour forecast demands in MW and net energy for load in GWh for the next two years. 4. Annual peak hour forecast demands (summer and winter) in MW and annual net energy for load in GWh for at least five years and up to ten years into the future, as requested 	<p>therefore not used directly in translation.</p> <p>M4 was modified to incorporate functional model terminology.</p> <p>Reference to II.D. S1-S2, M1 was replaced with “Standard 061, Section 1”.</p>
Section 4 Measures	M4-1 Load Serving Entity, Planning Authority and Resource Planner shall provide evidence that it provided load data per Standard 061 R4-1.	II.D.M4 Items to be Measured	Aggregated actual and forecast demand and net energy for load data	Added words “provide evidence” to the language to make a measurable standard.
Section 4 Regional Differences	None identified	None	None identified	

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Heading	New Language	Heading	Existing Document Language	Comments
Section 4 Compliance Monitoring Process	Regional Reliability Council Annually or as specified in the documentation (Standard 061, Section 1)	II.D.M4 Timeframe Compliance Monitoring Responsibility	Annually or as specified in the documentation (Standard II.D. S1-S2, M1) Regions.	Combined compliance monitoring responsibility and timeframe and changed “Standard” reference to Version 0
Section 4 Levels of Non Compliance	Level 1 - Entities required by the Region to report actual and forecast demands did not provide actual and forecast demands and net energy for load data in one of the four areas as required in the above Measurement M4. Level 2 - Entities required by the Region to report actual and forecast demands did not provide actual and forecast demands and net energy for load data in two of the four areas as required in the above Measurement M4. Level 3 - Entities required by the Region to report actual and forecast demands did not provide actual and forecast demands and net energy for load data in three of the four areas as required in the above Measurement M4. Level 4 - Entities required by the Region to report actual and forecast demands did not provide actual and forecast demands and net energy for load data in any of the areas as required in the above Measurement M4.	II.D.M4 Levels of non-compliance	Level 1 - Entities required by the Region to report actual and forecast demands did not provide actual and forecast demands and net energy for load data in one of the four areas as required in the above Measurement M4. Level 2 - Entities required by the Region to report actual and forecast demands did not provide actual and forecast demands and net energy for load data in two of the four areas as required in the above Measurement M4. Level 3 - Entities required by the Region to report actual and forecast demands did not provide actual and forecast demands and net energy for load data in three of the four areas as required in the above Measurement M4. Level 4 - Entities required by the Region to report actual and forecast demands did not provide actual and forecast demands and net energy for load data in any of the areas as required in the above Measurement M4.	No changes
Section 5	Treatment of nonmember demand data and how uncertainties are addressed in the forecasts of demand and net energy for load.	II.D.M6 Brief Descriptions	Treatment of nonmember demand data and how uncertainties are addressed in the forecasts of demand and net energy for load.	
Section 5	Load Serving Entity, Planning Authority and Resource Planner.	II.D.M6 Applicable to	Entities required by the Region to report actual and forecast	

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Applicability			demand data.	
Section 5 Requirements	<p>R5-1. Load Serving Entity, Planning Authority and Resource Planner actual and forecast demand data reported on either an aggregated or dispersed basis shall:</p> <ol style="list-style-type: none"> 1. indicate whether the demand data of nonmember entities within an area or Regional Reliability Council are included, and 2. address assumptions, methods, and the manner in which uncertainties are treated in the forecasts of aggregated peak demands and net energy for load. <p>Full compliance requires items (1) and (2) to be addressed as described in the reporting procedures developed for Standard 061, Section 1.</p> <p>R5-2. Load Serving Entity, Planning Authority and Resource Planner shall report data associated with Requirement R5-1 to NERC, the Regional Reliability Council, Load Serving Entity, Planning Authority, and Resource Planner on request (within 30 days).</p>	<p>Standard for II.D.M6</p> <p>II.D.M6 Measurement</p>	<p>S1. Actual and forecast customer demands and net energy for load data required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained on an aggregated Regional, subregional, power pool, and individual system basis and on a dispersed substation basis.</p> <p>M6. The actual and forecast demand data reported on either an aggregated or dispersed basis shall:</p> <ol style="list-style-type: none"> a) indicate whether the demand data of nonmember entities within an area or Region are included, and b) address assumptions, methods, and the manner in which uncertainties are treated in the forecasts of aggregated peak demands and net energy for load. <p>Full compliance requires items (a) and (b) to be addressed as described in the reporting procedures developed for Measurement M1 of this Standard II.D. Current information on items a) and b) shall be reported to NERC, the Regions, and those entities responsible for the reliability of the interconnected transmission systems on request (within 30 days).</p>	<p>The content of S1 related to this section is repeated and detailed more completely in the M6 measurement and therefore not used directly in translation.</p> <p>M6 was modified to incorporate functional model terminology.</p> <p>Reference to II.D. S1-S2, M1 was replaced with “Standard 061, Section 1”.</p>
Section 5	M5-1 Load Serving Entity, Planning Authority and Resource Planner shall provide evidence that its actual and	II.D.M6 Items to be	a) Treatment of actual and forecast demand data of	

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Heading	New Language	Heading	Existing Document Language	Comments
Measures	<p>forecast demand data was addressed as described in the reporting procedures developed for Reliability Standard 061, Section 1.</p> <p>M5-2 Load Serving Entity, Planning Authority and Resource Planner shall report current information for Reliability Standard 061-R5 -1 to NERC, the Regional Reliability Council, Load Serving Entity, Planning Authority, and Resource Planner on request (within 30 days).</p>	Measured	<p>nonmember entities.</p> <p>b) Information on assumptions, methods, and how uncertainties are addressed in the forecasts of demand and net energy for load data.</p>	
Section 5 Regional Differences	None identified		None identified	
Section 5 Compliance Monitoring Process	<p>On Request (within 30 days)</p> <p>Regional Reliability Councils</p>	<p>II.D.M6 Timeframe</p> <p>II.D.M6 Compliance Monitoring Responsibility</p>	<p>On Request (within 30 days)</p> <p>Regions.</p>	Combined compliance monitoring responsibility and timeframe and changed “Standard” reference to Version 0
Section 5 Levels of Non Compliance	<p>Level 1 - Information on items a) or b) was not provided.</p> <p>Level 2 - Information on items a) and b) was not provided.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - Not applicable.</p>	II.D.M6 Levels of non-compliance	<p>Level 1 - Information on items a) or b) was not provided.</p> <p>Level 2 - Information on items a) and b) was not provided.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - Not applicable.</p>	
Section 6	Reporting of interruptible demands and direct control load	II.D.M10 Brief	Reporting of interruptible demands and direct control load	

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	management.	Descriptions	management.	
Section 6 Applicability	Load Serving Entity, Planning Authority and Resource Planner.	II.D.M10 Applicable to	Entities required by the Region to report actual and forecast demand data.	
Section 6 Requirements	R6-1 Forecasts of interruptible demands and direct control load management data shall be provided annually for at least five years and up to ten years into the future, as requested, for summer and winter peak system conditions to NERC, the Regions, and other entities (Load Serving Entity, Planning Authority and Resource Planner) as specified by the documentation in Reliability Standard 061, Section 1.	Standard for II.D.M10 II.D.M10 Measurement	S2. Controllable demand-side management (interruptible demands and direct control load management) programs and data shall be identified and documented. M10. Forecasts of interruptible demands and direct control load management data shall be provided annually for at least five years and up to ten years into the future, as requested, for summer and winter peak system conditions to NERC, the Regions, and those entities responsible for the reliability of the interconnected transmission systems as specified by the documentation in Standard II.D. S1-S2, M1.	Reference to II.D. S1-S2, M1 was replaced with "Standard 061, Section 1".
Section 6 Measures	M6-1 Load Serving Entity, Planning Authority and Resource Planner shall provide evidence that they provided forecasts of interruptible demands and direct control load management data per Reliability Standard 061 R6-1.	II.D.M10 Items to be Measured	Interruptible demands and direct control load management data.	
Section 6 Regional Differences	None identified		None identified	
Section 6 Compliance Monitoring	Annually or as specified in the documentation (Reliability	II.D.M10 Timeframe	Annually or as specified in the documentation (Standard	Combined compliance monitoring responsibility and timeframe and changed

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Process	Standard 061, Section 1) Each Regional Reliability Council	II.D.M10 Compliance Monitoring Responsibility	II.D. S1-S2, M1). Regions.	“Standard” reference to Version 0
Section 6 Levels of Non Compliance	Level 1 – Not applicable Level 2 – Not applicable Level 3 – Not applicable Level 4 - The Load Serving Entity, Planning Authority or Resource Planner did not provide the controlled demand-side management data as required in Standard 061, Section 1, above.	II.D.M10 Levels of non- compliance	Level 1 – Not applicable Level 2 – Not applicable Level 3 – Not applicable Level 4 - The reporting entity did not provide the controlled demand-side management data as required in the above Measurement M1.	Incorporated Functional Model Terminology.
Section 7	Providing interruptible demands and direct control load management data to system operators and security center coordinators.	II.D.M11 Brief Description	Interruptible demands and direct control load management data to be made known to system operators and security center coordinators.	
Section 7 Applicability	Load Serving Entity, Planning Authority and Resource Planner	II.D.M11 Applicable to	Entities required by the Region to report actual and forecast demand data.	
Section 7 Requirements	R7-1 The Load Serving Entity, Planning Authority and Resource Planner shall be made known its amount of interruptible demands and direct control load management to system operators and security center coordinators on request within 30 days.	II.D.M11 Standard II.D.M11 Measure	S2. Controllable demand-side management (interruptible demands and direct control load management) programs and data shall be identified and documented. M11. The amount of interruptible demands and direct control load management shall be made known to system operators and security center coordinators on request.	

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Heading	New Language	Heading	Existing Document Language	Comments
			Full compliance requires the reporting of this data to system operators and security center coordinators within 30 days of a request.	
Section 7 Measures	M7-1 The Load Serving Entity, Planning Authority and Resource Planner made known its amount of interruptible demands and direct control load management to system operators and security center coordinators on request within 30 days	II.D.M11 Items to be measured	Reporting of interruptible demands and direct control load management data to system operators and security center coordinators	
Section 7 Regional Differences	None identified	None	None identified	
Section 7 Compliance Monitoring Process	On request (within 30 days). Regional Reliability Council	II.D.M11 Timeframe II.D.M11 Compliance Monitoring Responsibility	On request (within 30 days). Regions.	
Section 7 Levels of Non Compliance	Level 1 Interruptible demands and direct control load management data were provided to system operators and security center coordinators, but were incomplete. Level 2 Not applicable. Level 3 Not applicable. Level 4 Interruptible demands and direct control load management data were not provided to system operators and	II.D.M11 Levels of Noncompliance	Level 1 Interruptible demands and direct control load management data were provided to system operators and security center coordinators, but were incomplete. Level 2 Not applicable. Level 3 Not applicable. Level 4 Interruptible demands and direct control load management data were not provided to system operators and	

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
	security center coordinators.		security center coordinators.	
Section 8	Documentation of the accounting methodology for the effects of controllable demand-side management in demand and energy forecasts.	II.D.M12 Brief Description	Documentation of the method of accounting for the effects of controllable demand-side management in demand and energy forecasts.	
Section 8 Applicability	Load Serving Entity, Planning Authority and Resource Planner	II.D.M12 Applicable to	Entities required by the Region to report actual and forecast demand data.	Incorporated Functional Model terminology
Section 8 Requirements	<p>R8-1 The Load Serving Entity, Planning Authority and Resource Planner forecasts shall clearly document how the demand and energy effects of demand-side management programs (such as conservation, time-of-use rates, interruptible demands, and direct control load management) are addressed.</p> <p>R8-2 The Load Serving Entity, Planning Authority and Resource Planner information detailing how demand-side management measures are addressed in the forecasts of peak demand and annual net energy for load shall be included in the data reporting procedures of Standard 061-R1-1.</p> <p>R8-3 The Load Serving Entity, Planning Authority and Resource Planner documentation on the treatment of demand-side management programs shall be available to NERC on request (within 30 days).</p>	II.D.M12 Standard II.D.M12 Measure	<p>S2. Controllable demand-side management (interruptible demands and direct control load management) programs and data shall be identified and documented.</p> <p>M12. Forecasts shall clearly document how the demand and energy effects of demand-side management programs (such as conservation, time-of-use rates, interruptible demands, and direct control load management) are addressed.</p> <p>Information detailing how demand-side management measures are addressed in the forecasts of peak demand and annual net energy for load shall be included in the data reporting procedures of Measurement M1 of this Standard II.D. Documentation on the treatment of demand-side management programs shall be available to NERC on request (within 30 days).</p>	<p>Incorporated Functional Model terminology</p> <p>Divided M12 into three Requirements</p>

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Heading	New Language	Heading	Existing Document Language	Comments
Section 8 Measures	<p>M8-1 The Load Serving Entity, Planning Authority and Resource Planner forecasts clearly document how the demand and energy effects of demand-side management programs (such as conservation, time-of-use rates, interruptible demands, and direct control load management) are addressed.</p> <p>M8-2 The Load Serving Entity, Planning Authority and Resource Planner information detailing how demand-side management measures are addressed in the forecasts of peak demand and annual net energy for load are included in the data reporting procedures of Reliability Standard 061-R1-1.</p> <p>M8-3 The Load Serving Entity, Planning Authority and Resource Planner provided evidence that it provided documentation on the treatment of demand-side management programs to NERC as requested (within 30 days).</p>	II.D.M12 Items to be measured	How the effects of demand-side management programs are addressed in the forecasts of peak demand and annual net energy for load.	
Section 8 Regional Differences	None identified	None	None identified	
Section 8 Compliance Monitoring Process	<p>On request (within 30 days).</p> <p>Regional Reliability Council</p>	<p>II.D.M12 Timeframe</p> <p>II.D.M12 Compliance Monitoring Responsibility</p>	<p>On request (within 30 days).</p> <p>Regions.</p>	
Section 8 Levels of Non Compliance	Level 1 Documentation on the treatment of demand-side management programs in the demand and energy forecasts was provided, but was incomplete.	II.D.M12 Levels of Noncompliance	Level 1 Documentation on the treatment of demand-side management programs in the demand and energy forecasts was provided, but was incomplete.	

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Heading	New Language	Heading	Existing Document Language	Comments
	<p>Level 2 Not applicable.</p> <p>Level 3 Not applicable.</p> <p>Level 4 Documentation on the treatment of demand-side management programs in the demand and energy forecasts was not provided.</p>		<p>Level 2 Not applicable.</p> <p>Level 3 Not applicable.</p> <p>Level 4 Documentation on the treatment of demand-side management programs in the demand and energy forecasts was not provided.</p>	

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
Standard	062	Compliance Templates II.E.M1 II.E.M2 II.E.M3	II. System Modeling Data Requirements E. Demand characteristics (Dynamic)	
Title	Load Models for System Dynamics Studies	Section	II. System Modeling Data Requirements E. Demand characteristics (Dynamic)	
Purpose	Ensure accurate frequency and voltage characteristics of customer demands (models of loads for dynamics studies) required for the analysis of the reliability of the interconnected transmission system.			
Effective Date	February 8, 2005	Approval Dates	II.E.M1 – Engineering Committee July 14, 1998 II.E.M2 - Engineering Committee July 14, 1998 II.E.M3 - Engineering Committee July 14, 1998	
Standard Applicability	Section 1 - Regional Reliability Council, Planning Authority Section 2 - Regional Reliability Council, NERC System Dynamics Database Working Group Section 3 – Load-serving Entity	Applicability	M1 - The entities responsible for the reliability of the interconnected transmission systems, in conjunction with the Regions M2 - Systems Dynamics Database Working Group (Eastern Interconnection), and the Western, ERCOT, and Hydro-Québec Interconnections. M3 - Load Serving Entities	
Section 1	Customer (dynamic) demand characteristics to be determined and reported for reliability analyses.	II.E.M1 Brief Description	Customer (dynamic) demand characteristics to be determined and reported for reliability analysis	

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Section 1 Applicability	Regional Reliability Council, Planning Authority	II.E.M1 Applicable to	The entities responsible for the reliability of the interconnected transmission systems, in conjunction with the Regions	
Section 1 Requirements	<p>R1-1 The Planning Authorities in conjunction with the Regional Reliability Council(s) shall develop a plan for determining and promoting the accuracy of the dynamic representation (e.g., frequency and voltage characteristics) of customer demands, identify the scope and specificity of the frequency and voltage characteristics of customer demands, and determine the procedures and schedule for data reporting.</p> <p>R1-2. The Planning Authority shall provide documentation of these customer demand characteristics (dynamic) plans and reporting procedures to NERC and the Regional Reliability Councils on request (five business days).</p>	<p>II.E.M1 Standard</p> <p>II.E.M1 Measurement</p> <p>Full (100%) Compliance Requirement</p>	<p>S1. Representative frequency and voltage characteristics of customer demands (real and reactive power) required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained.</p> <p>M1. The entities responsible for the reliability of the interconnected transmission systems, in conjunction with the Regions, shall develop a plan for determining and promoting the accuracy of the representation of customer demands, identify the scope and specificity of the frequency and voltage characteristics of customer demands, and determine the procedures and schedule for data reporting. Documentation of these customer demand characteristics (dynamic) plans and reporting procedures shall be provided to NERC and the Regions on request.</p> <p>Entities responsible for the reliability of the interconnected transmission systems in conjunction with the Regions, as appropriate, shall develop and maintain a plan for determining and promoting the accuracy of the dynamic representation (e.g., frequency and voltage characteristics) of customer demands in accordance with Measurements M1 and M2 of this Standard II.E. S1. This plan shall also include the procedures and scheduling for the</p>	

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			reporting of customer (dynamic) demand characteristics by load-serving entities. The documentation of this plan and procedures shall be available to the Regions and NERC on request (five business days).	
Section 1 Measures	<p>M1-1. The Planning Authority and the Regional Reliability Council shall have a plan for the evaluation and reporting of the voltage and frequency characteristics of customer demands</p> <p>M1-2 The Planning Authority and the Regional Reliability Council shall provide documentation of these customer demand characteristics and reporting procedures to the Regional Reliability Councils and NERC on request (five business days).</p>	II.E.M1 Items to be Measured	Plans for the evaluation and reporting of the voltage and frequency characteristics of customer demands.	
Section 1 Regional Differences	None identified		None identified	
Section 1 Compliance Monitoring Process	<p>On request (five business days).</p> <p>Regional Reliability Council and NERC</p>	II.E.M1 Timeframe II.E.M1 Compliance Monitoring Responsibility	<p>On request (five business days).</p> <p>Regions and NERC</p>	
Section 1 Levels of Non Compliance	<p>Level 1 - Documentation of a plan for determining and reporting the dynamic characteristics of customer demand was provided on schedule, but was incomplete in one or more areas.</p> <p>Level 2 - Documentation of a plan for determining and reporting the dynamic characteristics of customer demand was not provided, but was complete when submitted.</p>	II.E.M1 Levels of Non-compliance	<p>Level 1 - Documentation of a plan for determining and reporting the dynamic characteristics of customer demand was provided on schedule, but was incomplete in one or more areas.</p> <p>Level 2 - Documentation of a plan for determining and reporting the dynamic characteristics of customer demand was not provided, but was complete when</p>	

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	<p>Level 3 - Documentation of a plan for determining and reporting the dynamic characteristics of customer demand was not provided on schedule, and was incomplete in one or more areas when submitted.</p> <p>Level 4 - Documentation of a plan for determining and reporting the dynamic characteristics of customer demand was not provided.</p>		<p>submitted.</p> <p>Level 3 - Documentation of a plan for determining and reporting the dynamic characteristics of customer demand was not provided on schedule, and was incomplete in one or more areas when submitted.</p> <p>Level 4 - Documentation of a plan for determining and reporting the dynamic characteristics of customer demand was not provided.</p>	
Section 2	Requirements for determining customer (dynamic) demand characteristics to be included in procedural manuals.	II.E.M2 Brief Description	Requirements for determining customer (dynamic) demand characteristics to be included in procedural manuals.	
Section 2 Applicability	Regional Reliability Council, NERC System Dynamics Database Working Group	II.E.M2 Applicability	Systems Dynamics Database Working Group (Eastern Interconnection), and the Western, ERCOT, and Hydro-Québec Interconnections.	
Section 2 Requirements		II.E.M2 Standard	S1. Representative frequency and voltage characteristics of customer demands (real and reactive power) required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained.	
		II.E.M2	M2. The NERC System Dynamics Database Working	

⁶Hydro-Québec uses the Procedural Manual of the Eastern Interconnection.

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Heading	New Language	Heading	Existing Document Language	Comments
	<p>R2-1 The Regional Reliability Councils, collectively on an Interconnection basis, shall maintain and publish customer demand characteristics requirements in its “procedural manual” pertaining to the Interconnection. For the Eastern Interconnection and Hydro-Quebec, the NERC System Dynamics Database Working Group or its successor group(s) shall work with the associated Regional Reliability Councils to maintain and publish customer demand characteristics requirements in its “procedural manual” pertaining to the Eastern Interconnection and the Hydro-Quebec Interconnection. These procedural manuals shall include plans for determining and promoting the accuracy of the representation of customer demands.</p> <p>R2-2 Procedural manuals shall be available to the Regional Reliability Councils and NERC on request (five business days).</p>	<p>Measurements</p> <p>Full (100%) Compliance Requirements</p>	<p>Group or its successor group(s) shall maintain and publish customer demand characteristics requirements in its “procedural manual” pertaining to the Eastern Interconnection. Similar “procedural manuals” shall be maintained and published by the Western (WSCC), ERCOT, and Hydro-Québec⁶ Interconnections. These procedural manuals shall include plans for determining and promoting the accuracy of the representation of customer demands.</p> <p>Procedural manuals for the Eastern, Western, ERCOT, and Hydro-Quebec interconnections shall include the requirements for determining and promoting the accuracy of the dynamic representation of customer demands in accordance with Measurement M5 above and Measurements M4 and M5 of Standard II.A. These procedural manuals should be available to the Regions and NERC on request (five business days).</p>	
Section 2 Measures	M2-1 The Regional Reliability Council shall have a procedural manual containing plans for determining and promoting the accuracy of the representation of customer demands that contains all elements of Section 1 of Reliability Standard 062, Section 4 of Reliability Standard 058, and Section 5 of Reliability Standard 058.	II.E.M2 Items to be Measured	Documentation of requirements for determining dynamic characteristics of customer demands.	
Section 2 Regional Differences	None identified		None identified	

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Heading	New Language	Heading	Existing Document Language	Comments
Section 2 Compliance Monitoring Process	On request (five business days). NERC	II.E.M2 Timeframe II.E.M2 Compliance Monitoring Responsibility	On request (five business days). NERC	
Section 2 Levels of Non Compliance	Level 1 - Procedural manuals that include requirements for determining customer (dynamic) demand characteristics were provided on schedule, but were incomplete in one or more areas. Level 2 - Procedural manuals that include requirements for determining customer (dynamic) demand characteristics were not provided on schedule, but were complete when submitted. Level 3 - Procedural manuals that include requirements for determining customer (dynamic) demand characteristics were provided on schedule, and were incomplete in one or more areas when submitted. Level 4 - Procedural manuals that include requirements for determining customer (dynamic) demand characteristics were not provided.	II.E.M2 Levels of Non- compliance	Level 1 - Procedural manuals that include requirements for determining customer (dynamic) demand characteristics were provided on schedule, but were incomplete in one or more areas. Level 2 - Procedural manuals that include requirements for determining customer (dynamic) demand characteristics were not provided on schedule, but were complete when submitted. Level 3 - Procedural manuals that include requirements for determining customer (dynamic) demand characteristics were provided on schedule, and were incomplete in one or more areas when submitted. Level 4 - Procedural manuals that include requirements for determining customer (dynamic) demand characteristics were not provided.	
Section 3	Load-serving entities to provide customer (dynamic) demand characteristics.	II.E.M3 <u>Brief</u> <u>Description</u>	Load-serving entities to provide customer (dynamic) demand characteristics.	

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Section 3 Applicability	Load Serving Entity	II.E.M3 Applicability	Load Serving Entities	
Section 3 Requirements	R3-1 The Load-Serving Entity shall provide customer demand characteristics to the Regional Reliability Councils and Planning Authorities in compliance with the respective procedural manuals for the modeling of portions or all of the four NERC Interconnections: Eastern, Western, ERCOT, and Hydro-Québec. ⁷	II.E.M3 Standard II.E.M3 Measurement Full (100%) Compliance Requirement	S1. Representative frequency and voltage characteristics of customer demands (real and reactive power) required for the analysis of the reliability of the interconnected transmission systems shall be developed and maintained. M3. Load-serving entities shall provide customer demand characteristics to the Regions and those entities responsible for the reliability of the interconnected transmission systems in compliance with the respective procedural manuals for the modeling of portions or all of the four NERC Interconnections: Eastern, Western, ERCOT, and Hydro-Québec. ⁷ Load-serving entities shall provide customer demand characteristics in accordance with Measurement M3 above and the procedural manuals of Measurement M2 of this Standard II.E.	
Section 3 Measures	M3-1 The Load-Serving Entity shall have evidence that it provided customer demand dynamic characteristics (Load Models) in accordance with Section 2 of Reliability Standard 062.	II.E.M3 Items to be Measured	Customer (dynamic) demand characteristics.	
Section 3 Regional Differences	None identified		None identified	
Section 3	As specified in the documentation (Standard 062-R2-1)	II.E.M3	As specified in the documentation (Standard II.E. S1, M1-	

⁷ Hydro-Québec uses the Procedural Manual of the Eastern Interconnection.

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Heading	New Language	Heading	Existing Document Language	Comments

Compliance Monitoring Process	Regional Reliability Council	Timeframe II.E.M3 Compliance Monitoring Responsibility	M2). Regions	
Section 3 Levels of Non Compliance	<p>Level 1 - Customer demand (dynamic) characteristics were provided on schedule, but were incomplete in one or more areas.</p> <p>Level 2 - Customer demand (dynamic) characteristics were not provided on schedule, but were complete when submitted.</p> <p>Level 3 - Customer demand (dynamic) characteristics were not provided on schedule, and were incomplete in one or more areas when submitted.</p> <p>Level 4 - Customer demand (dynamic) characteristics were not provided</p>	II.E.M3 Levels of Non-compliance	<p>Level 1 - Customer demand (dynamic) characteristics were provided on schedule, but were incomplete in one or more areas.</p> <p>Level 2 - Customer demand (dynamic) characteristics were not provided on schedule, but were complete when submitted.</p> <p>Level 3 - Customer demand (dynamic) characteristics were not provided on schedule, and were incomplete in one or more areas when submitted.</p> <p>Level 4 - Customer demand (dynamic) characteristics were not provided</p>	

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
Standard	063	Compliance Template III.A.M3 III.A.M4 III.A.M5	III. System Protection and Control A. Transmission Protection Systems	Current Planning Standards IIIA S3 M3 and M5 Some statements from the Standards and Compliance Templates have been rewritten to incorporate the Functional Model terminology and speak in “active voice”
Title	Transmission Protection System	Section	III. System Protection and Control A. Transmission Protection Systems	
Purpose	To ensure all transmission protection system misoperations are analyzed for cause and corrective action and maintenance and testing programs are developed and implemented.	Standard for III.A.M3 III.A.M4 III.A.M5		Purpose derived from Standard S3 and S4
Effective Date	February 8, 2005	Approvals	III.A.M3 - BOT Approved February 20, 2002 III.A.M4 - CTTF Revised Compliance Template, BOT Approved April 2, 2004 III.A.M5 - BOT Approved February 20, 2002	
Standard Applicability	Section 1: Regional Reliability Council Section 2: Transmission Owner and Generator Owner Section 3: Transmission Owner and Generator Owner	Applicable to III.A.M3 III.A. M4 III.A.M4	M3 – Regions M4 - Transmission protection system owners M5 - Transmission protection system owners	Incorporated functional model terminology
Section 1	Regional Procedure for Transmission Protection system misoperations.	III.A.M3 Brief Description	(none identified)	New section title
Section 1 Applicability	Regional Reliability Council	III.A.M3 Applicable to	Regions	Incorporated functional

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
				model terminology
Section 1 Requirements	<p>R1-1. Each Regional Reliability Council shall have a procedure for the monitoring, review, analysis, and correction of transmission protection system misoperations. Each Regional Reliability Council’s procedure shall include the following elements:</p> <ol style="list-style-type: none"> 1. Requirements for monitoring and analysis of all transmission protective device misoperations. 2. Description of the data reporting requirements (periodicity and format) for those misoperations that adversely affects the reliability of the bulk electric systems as specified by the Regional Reliability Council. 3. Process for review, follow up, and documentation of corrective action plans for misoperations. 4. Identification of the Regional Reliability Council group responsible for the procedure and the process for Regional Reliability Council approval of the procedure. 5. Regional Reliability Council definition of misoperations. <p>R1-2. Each Regional Reliability Council shall maintain documentation of its procedure and provide it to NERC on request (within 30 days).</p>	<p>III.A.M3 Standard</p> <p>III.A.M3 Measure</p>	<p>S3. All transmission protection system misoperations shall be analyzed for cause and corrective action.</p> <p>M3. Each Region shall have a procedure for the monitoring, review, analysis, and correction of transmission protection system misoperations. The Regional procedure shall include the following elements:</p> <ol style="list-style-type: none"> 1. Requirements for monitoring and analysis of all transmission protective device misoperations. 2. Description of the data reporting requirements (periodicity and format) for those misoperations that adversely affect the reliability of the bulk electric systems as specified by the Region. 3. Process for review, follow up, and documentation of corrective action plans for misoperations. 4. Identification of the Regional group responsible for the procedure and the process for Regional approval of the procedure. 5. Regional definition of misoperations. <p>Documentation of the Regional procedure shall be maintained and provided to NERC on request (within 30</p>	<p>R1-1 restates M3 incorporating functional model terminology</p> <p>R1-2 restates the last paragraph of M3</p>

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Heading	New Language	Heading	Existing Document Language	Comments
			days).	incorporating functional model terminology
Section 1 Measures	<p>M1-1. The Regional Reliability Council shall have a procedure for the monitoring, review, analysis, and correction of transmission protection system misoperations as defined in Standard 063-R1-1.</p> <p>M1-2. The Regional Reliability Council shall have evidence it provided documentation of its procedure as defined in Standard 063-R1-2.</p>	III.A.M3 Items to be Measured	Procedure for monitoring, review, analysis, and correction of all transmission protection system misoperations	Suggested measures for Requirements R1-1 and R1-2
Section 1 Regional Differences	Not identified		Not identified	No known regional differences
Section 1 Compliance Monitoring Process	<p>On request (within 30 days)</p> <p>NERC</p>	<p>III.A.M3 Timeframe</p> <p>III.A.M3 Compliance Monitoring Responsibility</p>	<p>On request (within 30 days)</p> <p>NERC</p>	
Section 1 Levels of Non Compliance	<p>Level 1 The Regional Reliability Council's procedure does not address all the requirements as defined above in Standard 063-R1-1.</p> <p>Level 2 Not applicable.</p> <p>Level 3 Not applicable.</p> <p>Level 4 The Regional Reliability Council's procedure was not</p>	III.A.M3 Levels of Compliance	<p>Level 1 The Regional procedure does not address all the requirements as defined above in Measurement M3.</p> <p>Level 2 Not applicable.</p> <p>Level 3 Not applicable.</p> <p>Level 4 The Regional procedure was not provided.</p>	Incorporated functional model terminology and changed references to match the requirements used in the new standard.

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
	provided.			
Section 2	Analysis and Reporting of Transmission Protection System Misoperations	III.A. M5 Brief Description	Analysis and reporting of transmission protection system mis-operations	New section title
Section 2 Applicability	Transmission Owners, Generator Owners, Distribution Providers	III.A. M5 Applicable to	Transmission protection system owners	Incorporated functional model terminology
Section 2 Requirements	<p>R2-1. The Transmission Owner, Generator Owner, Distribution Provider that owns transmission protection system(s) shall analyze all protection system misoperations and shall take corrective actions to avoid future misoperations.</p> <p>R2-2. The Transmission Owner, Generator Owner, Distribution Provider that owns transmission protection system(s) shall provide to the affected Regional Reliability Council and NERC on request (within 30 days) documentation of the misoperations analyses and corrective actions according to the Regional Reliability Council's procedures of Standard 063-R1-1.</p>	<p>III.A.M5 Standard</p> <p>III.A. M5 Measure</p>	<p>S3. All transmission protection system misoperations shall be analyzed for cause and corrective action.</p> <p>M5 Transmission protection system owners shall analyze all protection system misoperations and shall take corrective actions to avoid future misoperations.</p> <p>Documentation of the misoperation analyses and corrective actions shall be provided to the affected Regions and NERC on request (within 30 days) according to the Regional procedures of Measurement III.A. S3, M3.</p>	<p>R2-1 restates M5 incorporating functional model terminology</p> <p>R1-2 restates the last paragraph of M5 incorporating functional model terminology and changed reference to the requirements of the new standard.</p>
Section 2 Measures	<p>M2-1. The Transmission Owner, Generator Owner, and Distribution Provider that owns transmission protection system(s) shall have evidence it analyzed its protection system misoperation(s) and took corrective action(s) to avoid future misoperations.</p> <p>M2-2. The Transmission Owner, Generator Owner, and Distribution Provider that owns transmission protection system(s) shall have evidence it provided documentation of its protection system misoperations, analyses and corrective action(s) according to the Regional Reliability Council</p>	III.A. M5 Items to be Measured	Documentation of protection system misoperations, analyses, and corrective actions.	Suggested measures for Requirements R2-1 and R2-2

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
	procedures of Standard 063-R1-1.			
Section 2 Regional Differences	Not identified		Not identified	No known regional differences
Section 2 Compliance Monitoring Process	On request (within 30 days) Regional Reliability Council	III.A.M5 Timeframe III.A.M5 Compliance Monitoring Responsibility	On request (within 30 days) Regions	Incorporated functional model terminology
Section 2 Levels of Non Compliance	Level 1— Documentation of transmission protection system misoperations is complete according to Standard 063-R1-1 but documentation of corrective actions taken for all identified misoperations is incomplete. Level 2 – Documentation of corrective actions taken for misoperations is complete but documentation of transmission protection system misoperations is incomplete according to Standard 063-R1-1. Level 3 – Documentation of misoperations and corrective actions is incomplete. Level 4 – No documentation of misoperations or corrective actions was provided.	III.A.M5 Levels of Compliance	Level 1 Documentation of transmission protection system misoperations is complete according to Measurement III.A. S3, M3 but documentation of corrective actions taken for all identified misoperations is incomplete. Level 2 Documentation of corrective actions taken for misoperations is complete but documentation of transmission protection system misoperations is incomplete according to Measurement III.A. S3, M3 Level 3 Documentation of misoperations and corrective actions is incomplete. Level 4 No documentation of misoperations or corrective actions was provided.	Incorporated functional model terminology and changed references to match the requirements used in the new standard.
Section 3	Transmission Maintenance and Testing	III.A.M4 Brief Description	Transmission Maintenance and Testing	

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
Section 3 Applicability	Transmission Owner and Generator Owner	III.A.M4 Applicable to	Transmission protection system owner	Applicability
Section 3 Requirements	<p>R3-1. The Transmission Owner and Generator Owner that owns transmission protection system(s) shall have a system maintenance and testing program(s) in place. The program(s) shall include:</p> <ol style="list-style-type: none"> a. Transmission Protection system identification shall include but are not limited to: <ul style="list-style-type: none"> ▪ relays ▪ instrument transformers ▪ communications systems, where appropriate ▪ batteries b. Documentation of maintenance and testing intervals and their basis c. Summary of testing procedure d. Schedule for system testing e. Schedule for system maintenance f. Date last tested/maintained <p>R3-2. The Transmission Owner and Generator Owner that owns transmission protection system(s) shall provide documentation of the program and its implementation to the appropriate Regional Reliability Council and NERC on request (within 30 days).</p>	<p>III.A.M4 Standard</p> <p>III.A. M4 Measure</p>	<p>S4. Transmission protection system maintenance and testing programs shall be developed and implemented.</p> <p>M4. Transmission protection system owners shall have a system maintenance and testing program(s) in place. The program(s) shall include:</p> <ol style="list-style-type: none"> a. Transmission Protection system identification shall include but are not limited to: <ul style="list-style-type: none"> ▪ relays ▪ instrument transformers ▪ communications systems, where appropriate ▪ batteries b. Documentation of maintenance and testing intervals and their basis c. Summary of testing procedure d. Schedule for system testing e. Schedule for system maintenance f. Date last tested/maintained <p>Documentation of the program and its implementation shall be provided to the appropriate Regions and NERC on request (within 30 days).</p>	<p>R1 restates M4 incorporating functional model terminology</p> <p>R2 restates the last paragraph of M4 incorporating functional model terminology</p>
Section 3 Measures	M3-1. The Transmission Owner or Generator Owner that owns a transmission system protection system(s) has a system shall have a maintenance and testing program(s) as defined in Standard 063-R3-1.	III.A.M4 Items to be Measured	Documentation and implementation of transmission protection system maintenance and testing program.	Suggested measures for Requirements R1 and R2.

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
	M3-2. The Transmission Owner and Generator Owner that owns transmission system protection system(s) shall have evidence it provided documentation of its system maintenance and testing program(s) and the implementation of its program(s) as defined in Standard 063-R3-2.			
Section 3 Regional Differences	Not identified		Not identified	No known regional differences
Section 3 Compliance Monitoring Process	On request (within 30 days) Regional Reliability Council. Each Regional Reliability Council shall report compliance and violations to NERC via the NERC Compliance Reporting process.	III.A.M4 Timeframe III.A.M4 Compliance Monitoring Responsibility	On request (within 30 days) Regional Reliability Council. Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting process.	Incorporated functional model terminology
Section 3 Levels of Non Compliance	Level 1 — Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule. Level 2 — Documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule. Level 3 — Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule. Level 4 — Documentation of the maintenance and testing program, or its implementation, was not provided.	III.A.M4 Levels of Compliance	Level 1 — Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule. Level 2 — Documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule. Level 3 — Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule. Level 4 — Documentation of the maintenance and testing program, or its implementation, was not provided.	Incorporated functional model terminology

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Standard	063	Compliance Template III.A.M3 III.A.M4 III.A.M5	III. System Protection and Control A. Transmission Protection Systems	Current Planning Standards IIIA S3 M3 and M5 Some statements from the Standards and Compliance Templates have been rewritten to incorporate the Functional Model terminology and speak in “active voice”
Title	Transmission Protection System	Section	III. System Protection and Control A. Transmission Protection Systems	
Purpose	To ensure all transmission protection system misoperations are analyzed for cause and corrective action and maintenance and testing programs are developed and implemented.	Standard for III.A.M3 III.A.M4 III.A.M5		Purpose derived from Standard S3 and S4
Effective Date	February 8, 2005	Approvals	III.A.M3 - BOT Approved February 20, 2002 III.A.M4 - CTTF Revised Compliance Template, BOT Approved April 2, 2004 III.A.M5 - BOT Approved February 20, 2002	
Standard Applicability	Section 1: Regional Reliability Council Section 2: Transmission Owner and Generator Owner Section 3: Transmission Owner and Generator Owner	Applicable to III.A.M3 III.A. M4 III.A.M4	M3 – Regions M4 - Transmission protection system owners M5 - Transmission protection system owners	Incorporated functional model terminology
Section 1	Regional Procedure for Transmission Protection system misoperations.	III.A.M3 Brief Description	(none identified)	New section title
Section 1 Applicability	Regional Reliability Council	III.A.M3 Applicable to	Regions	Incorporated functional

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				model terminology
Section 1 Requirements	<p>R1-1. Each Regional Reliability Council shall have a procedure for the monitoring, review, analysis, and correction of transmission protection system misoperations. Each Regional Reliability Council’s procedure shall include the following elements:</p> <ol style="list-style-type: none"> 1. Requirements for monitoring and analysis of all transmission protective device misoperations. 2. Description of the data reporting requirements (periodicity and format) for those misoperations that adversely affects the reliability of the bulk electric systems as specified by the Regional Reliability Council. 3. Process for review, follow up, and documentation of corrective action plans for misoperations. 4. Identification of the Regional Reliability Council group responsible for the procedure and the process for Regional Reliability Council approval of the procedure. 5. Regional Reliability Council definition of misoperations. <p>R1-2. Each Regional Reliability Council shall maintain documentation of its procedure and provide it to NERC on request (within 30 days).</p>	<p>III.A.M3 Standard</p> <p>III.A.M3 Measure</p>	<p>S3. All transmission protection system misoperations shall be analyzed for cause and corrective action.</p> <p>M3. Each Region shall have a procedure for the monitoring, review, analysis, and correction of transmission protection system misoperations. The Regional procedure shall include the following elements:</p> <ol style="list-style-type: none"> 1. Requirements for monitoring and analysis of all transmission protective device misoperations. 2. Description of the data reporting requirements (periodicity and format) for those misoperations that adversely affect the reliability of the bulk electric systems as specified by the Region. 3. Process for review, follow up, and documentation of corrective action plans for misoperations. 4. Identification of the Regional group responsible for the procedure and the process for Regional approval of the procedure. 5. Regional definition of misoperations. <p>Documentation of the Regional procedure shall be maintained and provided to NERC on request (within 30</p>	<p>R1-1 restates M3 incorporating functional model terminology</p> <p>R1-2 restates the last paragraph of M3</p>

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			days).	incorporating functional model terminology
Section 1 Measures	<p>M1-1. The Regional Reliability Council shall have a procedure for the monitoring, review, analysis, and correction of transmission protection system misoperations as defined in Standard 063-R1-1.</p> <p>M1-2. The Regional Reliability Council shall have evidence it provided documentation of its procedure as defined in Standard 063-R1-2.</p>	III.A.M3 Items to be Measured	Procedure for monitoring, review, analysis, and correction of all transmission protection system misoperations	Suggested measures for Requirements R1-1 and R1-2
Section 1 Regional Differences	Not identified		Not identified	No known regional differences
Section 1 Compliance Monitoring Process	<p>On request (within 30 days)</p> <p>NERC</p>	<p>III.A.M3 Timeframe</p> <p>III.A.M3 Compliance Monitoring Responsibility</p>	<p>On request (within 30 days)</p> <p>NERC</p>	
Section 1 Levels of Non Compliance	<p>Level 1 The Regional Reliability Council's procedure does not address all the requirements as defined above in Standard 063-R1-1.</p> <p>Level 2 Not applicable.</p> <p>Level 3 Not applicable.</p> <p>Level 4 The Regional Reliability Council's procedure was not</p>	III.A.M3 Levels of Compliance	<p>Level 1 The Regional procedure does not address all the requirements as defined above in Measurement M3.</p> <p>Level 2 Not applicable.</p> <p>Level 3 Not applicable.</p> <p>Level 4 The Regional procedure was not provided.</p>	Incorporated functional model terminology and changed references to match the requirements used in the new standard.

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	provided.			
Section 2	Analysis and Reporting of Transmission Protection System Misoperations	III.A. M5 Brief Description	Analysis and reporting of transmission protection system mis-operations	New section title
Section 2 Applicability	Transmission Owners, Generator Owners, Distribution Providers	III.A. M5 Applicable to	Transmission protection system owners	Incorporated functional model terminology
Section 2 Requirements	<p>R2-1. The Transmission Owner, Generator Owner, Distribution Provider that owns transmission protection system(s) shall analyze all protection system misoperations and shall take corrective actions to avoid future misoperations.</p> <p>R2-2. The Transmission Owner, Generator Owner, Distribution Provider that owns transmission protection system(s) shall provide to the affected Regional Reliability Council and NERC on request (within 30 days) documentation of the misoperations analyses and corrective actions according to the Regional Reliability Council's procedures of Standard 063-R1-1.</p>	<p>III.A.M5 Standard</p> <p>III.A. M5 Measure</p>	<p>S3. All transmission protection system misoperations shall be analyzed for cause and corrective action.</p> <p>M5 Transmission protection system owners shall analyze all protection system misoperations and shall take corrective actions to avoid future misoperations.</p> <p>Documentation of the misoperation analyses and corrective actions shall be provided to the affected Regions and NERC on request (within 30 days) according to the Regional procedures of Measurement III.A. S3, M3.</p>	<p>R2-1 restates M5 incorporating functional model terminology</p> <p>R1-2 restates the last paragraph of M5 incorporating functional model terminology and changed reference to the requirements of the new standard.</p>
Section 2 Measures	<p>M2-1. The Transmission Owner, Generator Owner, and Distribution Provider that owns transmission protection system(s) shall have evidence it analyzed its protection system misoperation(s) and took corrective action(s) to avoid future misoperations.</p> <p>M2-2. The Transmission Owner, Generator Owner, and Distribution Provider that owns transmission protection system(s) shall have evidence it provided documentation of its protection system misoperations, analyses and corrective action(s) according to the Regional Reliability Council</p>	III.A. M5 Items to be Measured	Documentation of protection system misoperations, analyses, and corrective actions.	Suggested measures for Requirements R2-1 and R2-2

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	procedures of Standard 063-R1-1.			
Section 2 Regional Differences	Not identified		Not identified	No known regional differences
Section 2 Compliance Monitoring Process	On request (within 30 days) Regional Reliability Council	III.A.M5 Timeframe III.A.M5 Compliance Monitoring Responsibility	On request (within 30 days) Regions	Incorporated functional model terminology
Section 2 Levels of Non Compliance	Level 1— Documentation of transmission protection system misoperations is complete according to Standard 063-R1-1 but documentation of corrective actions taken for all identified misoperations is incomplete. Level 2 – Documentation of corrective actions taken for misoperations is complete but documentation of transmission protection system misoperations is incomplete according to Standard 063-R1-1. Level 3 – Documentation of misoperations and corrective actions is incomplete. Level 4 – No documentation of misoperations or corrective actions was provided.	III.A.M5 Levels of Compliance	Level 1 Documentation of transmission protection system misoperations is complete according to Measurement III.A. S3, M3 but documentation of corrective actions taken for all identified misoperations is incomplete. Level 2 Documentation of corrective actions taken for misoperations is complete but documentation of transmission protection system misoperations is incomplete according to Measurement III.A. S3, M3 Level 3 Documentation of misoperations and corrective actions is incomplete. Level 4 No documentation of misoperations or corrective actions was provided.	Incorporated functional model terminology and changed references to match the requirements used in the new standard.
Section 3	Transmission Maintenance and Testing	III.A.M4 Brief Description	Transmission Maintenance and Testing	

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Section 3 Applicability	Transmission Owner and Generator Owner	III.A.M4 Applicable to	Transmission protection system owner	Applicability
Section 3 Requirements	<p>R3-1. The Transmission Owner and Generator Owner that owns transmission protection system(s) shall have a system maintenance and testing program(s) in place. The program(s) shall include:</p> <ul style="list-style-type: none"> a. Transmission Protection system identification shall include but are not limited to: <ul style="list-style-type: none"> ▪ relays ▪ instrument transformers ▪ communications systems, where appropriate ▪ batteries b. Documentation of maintenance and testing intervals and their basis c. Summary of testing procedure d. Schedule for system testing e. Schedule for system maintenance f. Date last tested/maintained <p>R3-2. The Transmission Owner and Generator Owner that owns transmission protection system(s) shall provide documentation of the program and its implementation to the appropriate Regional Reliability Council and NERC on request (within 30 days).</p>	<p>III.A.M4 Standard</p> <p>III.A. M4 Measure</p>	<p>S4. Transmission protection system maintenance and testing programs shall be developed and implemented.</p> <p>M4. Transmission protection system owners shall have a system maintenance and testing program(s) in place. The program(s) shall include:</p> <ul style="list-style-type: none"> a. Transmission Protection system identification shall include but are not limited to: <ul style="list-style-type: none"> ▪ relays ▪ instrument transformers ▪ communications systems, where appropriate ▪ batteries b. Documentation of maintenance and testing intervals and their basis c. Summary of testing procedure d. Schedule for system testing e. Schedule for system maintenance f. Date last tested/maintained <p>Documentation of the program and its implementation shall be provided to the appropriate Regions and NERC on request (within 30 days).</p>	<p>R1 restates M4 incorporating functional model terminology</p> <p>R2 restates the last paragraph of M4 incorporating functional model terminology</p>
Section 3 Measures	M3-1. The Transmission Owner or Generator Owner that owns a transmission system protection system(s) has a system shall have a maintenance and testing program(s) as defined in Standard 063-R3-1.	III.A.M4 Items to be Measured	Documentation and implementation of transmission protection system maintenance and testing program.	Suggested measures for Requirements R1 and R2.

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	M3-2. The Transmission Owner and Generator Owner that owns transmission system protection system(s) shall have evidence it provided documentation of its system maintenance and testing program(s) and the implementation of its program(s) as defined in Standard 063-R3-2.			
Section 3 Regional Differences	Not identified		Not identified	No known regional differences
Section 3 Compliance Monitoring Process	On request (within 30 days) Regional Reliability Council. Each Regional Reliability Council shall report compliance and violations to NERC via the NERC Compliance Reporting process.	III.A.M4 Timeframe III.A.M4 Compliance Monitoring Responsibility	On request (within 30 days) Regional Reliability Council. Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting process.	Incorporated functional model terminology
Section 3 Levels of Non Compliance	Level 1 — Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule. Level 2 — Documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule. Level 3 — Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule. Level 4 — Documentation of the maintenance and testing program, or its implementation, was not provided.	III.A.M4 Levels of Compliance	Level 1 — Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule. Level 2 — Documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule. Level 3 — Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule. Level 4 — Documentation of the maintenance and testing program, or its implementation, was not provided.	Incorporated functional model terminology

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Standard	064	Compliance Templates I.D.M1 I.D.M2	I. System Adequacy and Security D. Voltage Support and Reactive Power	
Title	Voltage Support and Reactive Power	Section	I. System Adequacy and Security D. Voltage Support and Reactive Power	
Purpose	To ensure that reactive power resources, with a balance between static and dynamic characteristics, are planned and distributed throughout the interconnected transmission systems.			Language paraphrased from the original Planning Standard language of S1.
Effective Date	February 8, 2005	Approval Dates	Approved by the Engineering Committee for Field Testing in Phase IV, July 14, 1998	Approved as a Phase IV measurement.
Applicability	Section 1: Transmission Planner Section 2: Transmission Planner, Transmission Owner, Transmission Operator, Generator Owner, Generator Operator	Applicable to	I.D.M1: Entities Responsible for the Reliability of the Interconnected Transmission Systems I.D.M2: Generation Owners and Transmission Providers	
Section 1	Adequate voltage resources to meet future customer demands.	I.D.M1 Brief Description	Adequate voltage resources to meet future customer demands.	
Section 1 Applicability	Transmission Planner	I.D.M1 Applicable to	Entities Responsible for the Reliability of the Interconnected Transmission Systems	Made applicable to Transmission Planners, since this requirement deals with an assessment of the system.
Section 1 Requirements	R1-1 Transmission Planners shall conduct assessments (at least every five years or as required by changes in system conditions) to	I.D.M1 Requirements	S1. Reactive power resources, with a balance between static and dynamic characteristics, shall be planned and distributed throughout the interconnected transmission systems to ensure system performance as defined in Categories A, B, and C of Table I in the I.A. Standards on Transmission Systems. M1. Entities responsible for the reliability of the interconnected transmission systems shall conduct assessments (at least every five years or as required by changes in system	With the exception of “with a balance between static and dynamic characteristics,” the existing Planning Standard S1 was sufficiently captured in Measurement M1. Measurement M1 translated in Requirement R1-1.

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	<p>ensure reactive power resources, with a balance between static and dynamic characteristics, are adequate to meet future system performance requirements (i.e., projected customer demands, firm (non-recallable) electric power transfers, and the system performance requirements as defined in Sections 1, 2, and 3 of Reliability Standard 051).</p> <p>R1-2 The Transmission Planner’s assessment of reactive power resources shall address how known changes in system conditions may affect system reliability.</p> <p>R1-3 The Transmission Planner’s assessment of reactive power resources shall be conducted once every five years or as required by system conditions.</p> <p>R1-4 The Transmission Planner shall document its assessment of reactive power resources and shall provide these assessments to the Regional Reliability Councils and NERC on request.</p>		<p>conditions) to ensure reactive power resources are available to meet projected customer demands, firm (non-recallable) electric power transfers, and the system performance requirements as defined in Categories A, B, and C of Table I of the I.A. Standards on Transmission Systems.</p> <p>Documentation of these assessments shall be provided to the Regions and NERC on request.</p>	<p>Requirements found under the “Full Compliance” section (below) were translated into Requirements R1-2 and R1-3.</p>

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Section 1 Measures	<p>M1-1 The Transmission Planner’s assessment of reactive power resources shall ensure that adequate reactive resources are available to meet future system performance requirements, and shall demonstrate that system performance is consistent with the system performance requirements as defined in Sections 1, 2, and 3 of Reliability Standard 51.</p> <p>M1-2 The Transmission Planner’s assessment of reactive power resources shall address how known changes in system conditions may affect system reliability.</p> <p>M1-3 The Transmission Planner shall have evidence it conducted an assessment of its reactive power resources within the past five years or as required by system conditions.</p> <p>M1-4 The Transmission Planner shall have evidence it provided documentation of the current assessment results to the Regional Reliability Council and NERC on request (within 30 business days).</p>	<p>I.D.M1 Items to be Measured</p> <p>I.D.M1 Full (100%) Compliance Requirements</p>	<p>Assessment of reactive power resources.</p> <p>The entities shall assess reactive power resources to ensure that adequate reactive resources are available to meet future system performance requirements. These assessment shall demonstrate that system performance is consistent with Categories A, B, and C of Table I of Standard I.A. Additionally, the assessments should address how known changes in system conditions may affect system reliability. These assessments shall be conducted every five years or as required by system conditions. The current assessment results shall be provided to the Regions and NERC on request (within 30 days).</p>	Added “business” to clarify reporting requirement.
Section 1 Regional Differences	None identified.		None identified.	
Section 1 Compliance Monitoring Process	<p>Every five years or as required by system conditions.</p> <p>Regional Reliability Council</p>	<p>Timeframe</p> <p>Compliance Monitoring Responsibility</p>	<p>Every five years or as required by system conditions.</p> <p>Regions</p>	
Section 1 Levels of Non Compliance	<p>Level 1 - Assessments of reactive power resources were provided on schedule, but were incomplete in one or more areas.</p> <p>Level 2 - Assessments of reactive power resources were not provided on schedule, but were complete when submitted.</p> <p>Level 3 - Assessments of reactive power resources were not provided on schedule, and were incomplete in one or more areas</p>	<p>I.D.M1</p> <p>Levels of Non-Compliance</p>	<p>Level 1 - Assessments of reactive power resources were provided on schedule, but were incomplete in one or more areas.</p> <p>Level 2 - Assessments of reactive power resources were not provided on schedule, but were complete when submitted.</p> <p>Level 3 - Assessments of reactive power resources were not</p>	

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	when submitted. Level 4 - Assessments of reactive power resources were not provided.		provided on schedule, and were incomplete in one or more areas when submitted. Level 4 - Assessments of reactive power resources were not provided.	
Section 2	Coordinate and optimize the use of generator reactive capability.	I.D.M2 Brief Description	Coordinate and optimize the use of generator reactive capability.	
Section 2 Applicability	Generator Owner and Transmission Planner	I.D.M2 Applicable to	Generation Owners and Transmission Providers	Made applicable to Transmission Planners, since this requirement deals with an assessment of the system.
Section 2 Requirements	<p>R2-1 The Transmission Planner and Generator Owner shall work jointly to optimize the use of generator reactive power capability. These joint efforts shall include:</p> <ul style="list-style-type: none"> a. Coordination of generator step-up transformer impedance and tap specifications and settings, b. Calculation of underexcited limits based on machine thermal and stability considerations, and c. Ensuring that the full range of generator reactive power capability is available for applicable normal and emergency network voltage ranges. <p>R2-2 The Transmission Planner shall document an assessment of the coordinated efforts outlined in Reliability Standard 064-R2-1, when all required data has been received from the Generator Owner(s), and at least every five years thereafter (or when warranted by changes in generation equipment or system conditions).</p> <p>R2-3 The Transmission Planner shall provide documentation of its assessments regarding the optimization of generator reactive</p>	I.D.M2 Requirements	<p>M2. Generation owners and transmission providers shall work jointly to optimize the use of generator reactive power capability. These joint efforts shall include:</p> <ul style="list-style-type: none"> a. Coordination of generator step-up transformer impedance and tap specifications and settings, b. Calculation of underexcited limits based on machine thermal and stability considerations, and c. Ensuring that the full range of generator reactive power capability is available for applicable normal and emergency network voltage ranges. 	<p>Some portions (e.g., R2-2) of the requirements are taken from the 100% Full Compliance section below, such as the documentation of an assessment by the Transmission Planner (Provider).</p> <p>The 30-day requirement for submittal of information also comes from the 100% Full Compliance Section, below.</p>

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	power capability to the Regional Reliability Councils and NERC on request (within 30 business days).			
Section 2 Measures	<p>M2-1 The Transmission Planner’s and Generator Owner’s assessment regarding optimization of the use of generator reactive power capability shall cover the required components of Reliability Standard 064-R2-1..</p> <p>M2-2 The Transmission Planner shall have evidence it conducted an assessment regarding optimization of the use of generator reactive power capability within the past five years or as required by system conditions.</p> <p>M2-3 The Transmission Planner shall have evidence it provided documentation of its current assessment results to the Regional Reliability Council and NERC on request (within 30 business days).</p>	<p>I.D.M2 Items to be Measured</p> <p>I.D.M2 Full (100%) Compliance Requirements</p>	<p>Generator reactive power capability</p> <p>Transmission providers and generator owners shall coordinate on optimizing the amount of generator reactive power capability available for use by the transmission network. These efforts should address items such as generator step-up transformers impedance, transformer tap specifications and settings, as well as the calculation of underexcited limits, and other generator thermal and stability considerations.</p> <p>Transmission providers should generally perform an initial coordination assessment when all required data has been received from the generator owners. Follow-on coordination assessments should be performed at least every five years or when warranted by changes in generation equipment or system conditions. The current assessment results shall be provided to the Regions and NERC on request (within 30 days).</p>	
Section 2 Regional Differences	None identified.		None identified.	
Section 2 Compliance Monitoring Process	<p>Every five years or as required by changes in generator equipment or system conditions.</p> <p>Regions</p>	<p>Timeframe</p> <p>Compliance Monitoring Responsibility</p>	<p>Every five years or as required by changes in generator equipment or system conditions.</p> <p>Regions</p>	
Section 2 Levels of Non Compliance	Level 1 - Assessments for the optimum use of generator reactive capability were provided on schedule, but were incomplete in one or more areas.	I.D.M2 Levels of Non-Compliance	Level 1 - Assessments for the optimum use of generator reactive capability were provided on schedule, but were incomplete in one or more areas.	

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	<p>Level 2 - Assessments for the optimum use of generator reactive capability were not provided on schedule, but were complete when submitted.</p> <p>Level 3 - Assessments for the optimum use of generator reactive capability were not provided on schedule, and were incomplete in one or more areas when submitted.</p> <p>Level 4 - Assessments for the optimum use of generator reactive capability were not provided.</p>		<p>Level 2 - Assessments for the optimum use of generator reactive capability were not provided on schedule, but were complete when submitted.</p> <p>Level 3 - Assessments for the optimum use of generator reactive capability were not provided on schedule, and were incomplete in one or more areas when submitted.</p> <p>Level 4 - Assessments for the optimum use of generator reactive capability were not provided.</p>	

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Standard	065	Compliance Templates III.C.M1 III.C.M2 III.C.M3 III.C.M4 III.C.M5 III.C.M6 III.C.M7 III.C.M8 III.C.M9 III.C.M10 III.C.M11 III.C.M12	III. System Protection and Control C. Generation Control and Protection Measurements M1-M12	
Title	Generation Control and Protection	Section	III. System Protection and Control C. Generation Control and Protection	
Purpose	To ensure that generation control and protection systems are planned and designed to provide a balance between the need for generation to support the electrical system and the need to protect generation equipment and to ensure that generation control and protection equipment is accurately modeled in system reliability studies			.
Effective Date	February 8, 2005 all Sections	Approval dates	III.C.M1-12 effective October 9, 2000 Phase III	
Standard Applicability	Section 1 Transmission Operator Section 2 Generator Operator Section 3 Transmission Operator Section 4 Generator Owner Section 5 Transmission Operator Section 6 Generator Owner	Applicable to	III.C.M1 Transmission System Operators III.C.M2 Generation owners/operators III.C.M3 Transmission System Operators III.C.M4 Generation owners/operators III.C.M5 Transmission System Operators III.C.M6 Generation owners/operators	To clarify accountability, responsibility was assigned to either Generator Owner or Generator Operator as

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	Section 7 Regional Reliability Council Section 8 Generator Owner Section 9 Generator Owner Section 10 Regional Reliability Council Section 11 Generator Owner Section 12 Generator Owner		III.C.M7 Regions III.C.M8 Generation owners/operators III.C.M9 Generation owner/operator III.C.M10 Regions III.C.M11 Generation owner/operator III.C.M12 Generation owner/operator	considered appropriate
Section 1	Operation of all synchronous generators in the automatic voltage control mode.	III.C.M1 Brief Description	Operation of all synchronous generators in the automatic voltage control mode.	
Section 1 Applicability	Transmission Operator	III.C.M1 Applicable to	Transmission System Operators	
Section 1 Requirements	<p>R1-1. The Transmission Operator shall have procedures requiring Generator Operator to provide the following information to them, the Regional Reliability Council, and NERC on request (five business days):</p> <ul style="list-style-type: none"> a. Summary reports showing the number of hours each synchronous generator did not operate in the automatic voltage control mode during a specified time period, and b. Detailed reports of the date, duration, and reason for each period when a synchronous generator was not operated in the automatic voltage control mode. <p>R1-2. The procedures shall require the Generator Operator to retain the above information for 12 rolling months.</p> <p>R1-3. The procedures shall also specify criteria by which generators are to be exempt from the above</p>	III.C.M1 Standards and Measurements	<p>S1. All synchronous generators connected to the interconnected transmission systems shall be operated with their excitation system in the automatic voltage control mode (automatic voltage regulator in service and controlling voltage) unless approved otherwise by the Transmission Operator.</p> <p>M1. Transmission Operators shall have procedures requiring synchronous generator owners/operators to provide the following information to them, the Region, and NERC on request (five business days):</p> <ul style="list-style-type: none"> a. Summary reports showing the number of hours each synchronous generator did not operate in the automatic voltage control mode during a specified time period, and b. Detailed reports of the date, duration, and reason for each period when a synchronous generator was not operated in the automatic voltage control mode. 	The Functional Model assigns to the Generator Operator the responsibility of reporting of status of automatic voltage regulators to Transmission Operators

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	requirements.		The procedures shall require the generator owner/operator to retain the above information for 12 rolling months. The procedures shall also specify criteria by which generators are to be exempt from the above requirements.	
Section 1 Measures	M1-1. The Transmission Operator has evidence that the written procedures for synchronous generators meet Reliability Standard 065-R1-1 to 065-R1-3.	III.C.M1 Items to be measured	Documentation of procedures for reporting when a synchronous generator is operated without automatic voltage control equipment in service.	
Section 1 Regional Differences	None identified		None identified	
Section 1 Compliance Monitoring Process	On request (five business days). Regional Reliability Council	III.C.M1 Timeframe Compliance Monitoring Responsibility	On request (five business days). Regions	
Section 1 Levels of Non Compliance	Level 1 - Transmission Operator has procedures for Generator Operators to follow but they do not include all of the requirements of above Requirements R1-1 to R1-3. Level 2 - N/A. Level 3 - N/A. Level 4 - Transmission Operator has no procedures for Generator Operator to follow to report generator operation in the non-automatic voltage control mode.	III.C.M1 Levels of Non-Compliance	Level 1 - Transmission Operator has procedures for synchronous generator owners/operators to follow but they do not include all of the requirements of above Measurement M1. Level 2 - N/A. Level 3 - N/A. Level 4 - Transmission Operator has no procedures for synchronous generator owners/operators to follow to report generator operation in the non-automatic voltage control mode.	The Functional Model assigns to the Generator Operator the responsibility of reporting of status of automatic voltage regulators to Transmission Operators

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Section 2	Operation of all synchronous generators in the automatic voltage control mode.	III.C.M2 Brief Description	Operation of all synchronous generators in the automatic voltage control mode.	
Section 2 Applicability	Generator Operator	III.C.M2 Applicable to	Generation owners/operators	The Functional Model assigns to the Generator Operator the responsibility of reporting of status of automatic voltage regulators to Transmission Operators
Section 2 Requirements	<p>R2-1 The Generation Operator shall operate each synchronous generating unit connected to the interconnected transmission system in the automatic voltage control mode unless otherwise approved by the Transmission Operator.</p> <p>R2-2 The Generator Operator shall provide to the Transmission Operator, the Regional Reliability Council, and NERC, on request (30 business days), information on the operation of the synchronous generator's excitation system according to the Transmission Operator's procedures for synchronous generators as defined in Reliability Standard 065- R1-1 to 065-R1-3.</p>	<p>III.C.M2 Standard</p> <p>Measurements</p>	<p>S1. All synchronous generators connected to the interconnected transmission systems shall be operated with their excitation system in the automatic voltage control mode (automatic voltage regulator in service and controlling voltage) unless approved otherwise by the Transmission Operator.</p> <p>M2. Each synchronous generating unit shall be operated in the automatic voltage control mode unless otherwise approved by the Transmission Operator.</p> <p>Each synchronous generator owner/operator shall provide to the Transmission Operator, the Region, and NERC, on request (30 business days), information on the operation of the synchronous generator's excitation system according to the</p>	The Functional Model assigns to the Generator Operator the responsibility of reporting of status of automatic voltage regulators to Transmission Operators

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			Transmission Operator's procedures for synchronous generators as defined in Measurement III.C. S1, M1.	
Section 2 Measures	M2-1. The Generator Operator shall submit the documentation to be measured to the Regional Reliability Council on request (30 business days) to be reviewed to verify compliance with this Reliability Standard.	III.C.M2 Items to be measured	Information on the operation of synchronous generators in the non-automatic voltage control mode as defined in Measurement III.C. S1, M1.	
Section 2 Regional Differences	None identified		None identified	
Section 2 Compliance Monitoring Process	On request (30 business days). Regional Reliability Councils	III.C.M2 Timeframe Compliance Monitoring Responsibility	On request (30 business days). Regions	
Section 2 Levels of Non Compliance	Level 1 - Reports indicate incidents of synchronous generator operation without automatic voltage control for a total of less than 8 unit-hours, without permission from the Transmission Operator. Level 2 - Reports indicate incidents of synchronous generator operation without automatic voltage control for a total of less than 16 unit-hours, without permission from the Transmission Operator. Level 3 - Reports were incomplete, or indicate incidents of synchronous generator operation without automatic voltage control for a total of less than 24 unit-hours, without permission from the Transmission Operator. Level 4 - Reports on the requested information were not provided, or indicate incidents of synchronous generator	III.C.M2 Levels of Non-Compliance	Level 1 - Reports indicate incidents of synchronous generator operation without automatic voltage control for a total of less than 8 unit-hours, without permission from the Transmission Operator. Level 2 - Reports indicate incidents of synchronous generator operation without automatic voltage control for a total of less than 16 unit-hours, without permission from the Transmission Operator. Level 3 - Reports were incomplete, or indicate incidents of synchronous generator operation without automatic voltage control for a total of less than 24 unit-hours, without permission from the Transmission Operator. Level 4 - Reports on the requested information were not provided, or indicate incidents of synchronous generator	

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	operation without automatic voltage control for a total of 24 unit-hours or more, without permission from the Transmission Operator.		operation without automatic voltage control for a total of 24 unit-hours or more, without permission from the Transmission Operator.	

Section 3				
Section 3	Generator operation for maintaining network voltage schedules.	III.C.M3 Brief Description	Generator operation for maintaining network voltage schedules.	
Section 3 Applicability	Transmission Operator	III.C.M3 Applicable to	III.C.M3 Transmission Operator/owner	
Section 3 Requirements	<p>R3-1. Each Transmission Operator shall specify a voltage or reactive schedule to be maintained by each synchronous generator, within the reactive capability of the unit, at a specified bus and shall provide this information to the Generator Operator. The Transmission Operator shall provide documentation of the information provided to the Generator Operator to the Regional Reliability Council and NERC on request (five business days).</p> <p>R3-2. Each Transmission Operator shall maintain a list of synchronous generators that are exempt from the requirement of maintaining a network voltage or reactive schedule. The Transmission Operator shall make available the list of exempt generators to the Regional Reliability Council and NERC on request (five business days).</p>	<p>III.C.M3 Standard</p> <p>III.C.M3 Measurements</p>	<p>S2. Synchronous generators shall maintain a network voltage or reactive power output as required by the Transmission Operator within the reactive capability of the units. Generator step-up and auxiliary transformers shall have their tap settings coordinated with electric system voltage requirements.</p> <p>M3. Each Transmission Operator shall specify a voltage or reactive schedule to be maintained by each synchronous generator at a specified bus and shall provide this information to the generator owner/operator. Documentation of the information provided to the generator owner/operator shall be provided to the Region and NERC on request (five business days).</p> <p>Each Transmission Operator shall maintain a list of synchronous generators that are exempt from the requirement of maintaining a network voltage or reactive schedule. The list of exempt generators shall be made available to the Region and NERC on</p>	<p>Added the phrase “within the reactive capability of the unit” from S2 to M3 to get R3-1</p> <p>The Generator Operator should receive the voltage or reactive schedule rather than the Generator Owner as the Generation Operator is responsible for generator operation.</p>

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			request (five business days).	
Section 3 Measures	M3-1. The Transmission Operator has documentation of the voltage or reactive schedule provided to the Generator Operator. M3-2. The Transmission Operator provides to the Regional Reliability Council and NERC upon request (five business days) the list of exempt generators.	III.C.M3 Items to be measured	Documentation of the voltage or reactive schedule provided to synchronous generator owners/operators. List of exempt synchronous generators.	
Section 3 Regional Differences	None identified		None identified	
Section 3 Compliance Monitoring Process	On request (five business days). Regional Reliability Council	III.C.M3 Timeframe Compliance Monitoring Responsibility	On request (five business days). Regions	
Section 3 Levels of Non Compliance	Level 1 - Not applicable. Level 2 - An incomplete list of exempt synchronous generators was provided Level 3 - Incomplete documentation of the requested voltage or reactive schedule was provided. Level 4 - No documentation of the voltage or reactive schedule was provided	III.C.M3 Levels of Non-Compliance	Level 1 - Not applicable. Level 2 - An incomplete list of exempt synchronous generators was provided Level 3 - Incomplete documentation of the requested voltage or reactive schedule was provided. Level 4 - No documentation of the voltage or reactive schedule was provided	
Section 4	Generator operation for maintaining network voltage schedules.	III.C.M4 Brief Description	Generator operation for maintaining network voltage schedules.	

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Section 4 Applicability	Generator Operator	III.C.M4 Applicable to	Generation owners/operators	
Section 4 Requirements	<p>R4-1. Generator Operator shall maintain the synchronous generator voltage or reactive output as specified by the Transmission Operator, unless otherwise approved by the Transmission Operator.</p> <p>R4-2. When requested by the Regional Reliability Council and NERC, the Generator Operator shall provide (30 business days) a log that specifies the date, duration, and reason for not maintaining the established voltage or reactive power schedule, along with approvals for such operation received from the Transmission Operator.</p>	<p>III.C.M4 Standard</p> <p>III.C.M4 Measurements</p>	<p>S2. Synchronous generators shall maintain a network voltage or reactive power output as required by the Transmission Operator within the reactive capability of the units. Generator step-up and auxiliary transformers shall have their tap settings coordinated with electric system voltage requirements.</p> <p>M4. Synchronous generator owners/operators shall maintain the voltage or reactive output as specified by the Transmission Operator, unless otherwise approved by the Transmission Operator.</p> <p>When requested by the Region and NERC, the synchronous generator owner/operator shall provide (30 business days) a log that specifies the date, duration, and reason for not maintaining the established voltage or reactive power schedule, along with approvals for such operation received from the Transmission Operator.</p>	Generator Operators are responsible for generator operation
Section 4 Measures	M4-1. Generator Operator has a log that specifies the date, duration, and reason for not maintaining the established voltage or reactive power schedule, along with approvals for such operation received from the Transmission Operator.	III.C.M4 Items to be measured	Log of date, duration, and reason for each specified period when the synchronous generator did not maintain the established network voltage or reactive power schedule, with documentation of any approvals for such operation received from the Transmission Operator.	
Section 4 Regional Differences	None identified		None identified	
Section 4 Compliance Monitoring Process	<p>On request (30 business days).</p> <p>Regional Reliability Council</p>	<p>III.C.M4 Timeframe</p> <p>Compliance</p>	<p>On request (30 business days).</p> <p>Regions</p>	

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		Monitoring Responsibility		
Section 4 Levels of Non Compliance	<p>Level 1 - Logs indicate incidents of synchronous generator operation off the voltage or reactive schedule for a total of less than 8 unit-hours, without permission from the Transmission Operator.</p> <p>Level 2 - Logs indicate incidents of synchronous generator operation off the voltage or reactive schedule for a total of less than 16 unit-hours, without permission from the Transmission Operator.</p> <p>Level 3 - Logs of synchronous generator operation off the voltage or reactive schedule were incomplete, or the logs indicate incidents of operating off the voltage or reactive schedule for a total of less than 24 unit-hours, without permission from the Transmission Operator.</p> <p>Level 4 - Logs of synchronous generator operation off the voltage or reactive schedule were not provided, or the logs indicate incidents of operating off the voltage or reactive schedule for a total of 24 unit-hours or more, without permission from the Transmission Operator.</p>	III.C.M4 Levels of Non-Compliance	<p>Level 1 - Logs indicate incidents of synchronous generator operation off the voltage or reactive schedule for a total of less than 8 unit-hours, without permission from the Transmission Operator.</p> <p>Level 2 - Logs indicate incidents of synchronous generator operation off the voltage or reactive schedule for a total of less than 16 unit-hours, without permission from the Transmission Operator.</p> <p>Level 3 - Logs of synchronous generator operation off the voltage or reactive schedule were incomplete, or the logs indicate incidents of operating off the voltage or reactive schedule for a total of less than 24 unit-hours, without permission from the Transmission Operator.</p> <p>Level 4 - Logs of synchronous generator operation off the voltage or reactive schedule were not provided, or the logs indicate incidents of operating off the voltage or reactive schedule for a total of 24 unit-hours or more, without permission from the Transmission Operator.</p>	

Section 5	Tap settings of generator step-up and auxiliary transformers.	III.C.M5 Brief Description	Tap settings of generator step-up and auxiliary transformers.	
Section 5 Applicability	Transmission Operator	III.C.M5 Applicable to	Transmission System Operators	
Section 5	R5-1. The Transmission Operator shall have procedures	III.C.M5	S2. Synchronous generators shall maintain a network	

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Requirements	<p>requiring the Generator Owner to provide tap settings, available tap ranges, and impedance data for generator step-up and auxiliary transformers. When tap changes are necessary, the Transmission Operator shall provide the Generator Owner and Generator Operator with a report that specifies the required tap changes and technical justification for these changes. The procedures for reporting the data shall also address generating unit exemption criteria (including any that may apply to nuclear units) and shall require documentation of those generating units that are exempt from a portion or all of these reporting requirements.</p> <p>R5-2. The Transmission Operator shall provide documentation of these procedures to the Regional Reliability Council and NERC on request (five business days).</p>	Standards and Measurements	<p>voltage or reactive power output as required by the Transmission Operator within the reactive capability of the units. Generator step-up and auxiliary transformers shall have their tap settings coordinated with electric system voltage requirements.</p> <p>M5. The Transmission Operator shall have procedures requiring synchronous generator owners/operators to provide tap settings, available tap ranges, and impedance data for generator step-up and auxiliary transformers. When tap changes are necessary, the Transmission Operator shall provide the generator owner/operator with a report that specifies the required tap changes and technical justification for these changes. The procedures for reporting the data shall also address generating unit exemption criteria (including any that may apply to nuclear units) and shall require documentation of those generating units that are exempt from a portion or all of these reporting requirements.</p> <p>Documentation of these procedures shall be provided to the Region and NERC on request (five business days).</p>	
Section 5 Measures	<p>M5-1. The Transmission Owner shall have procedures for reporting synchronous generator step-up and auxiliary transformer tap settings and available tap ranges as specified in Reliability Standard 065-R5-1.</p> <p>M5-2. The Transmission Owner shall have evidence it provided its procedures for reporting synchronous generator step-up and auxiliary transformer tap settings and available tap</p>	III.C.M5 Items to be measured	Procedures for reporting synchronous generator step-up and auxiliary transformer tap settings and available tap ranges.	

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	ranges to the Regional Reliability Council and NERC on request (five business days).			
Section 5 Regional Differences	None identified		None identified	
Section 5 Compliance Monitoring Process	On request (five business days). Regional Reliability Council	III.C.M5 Timeframe Compliance Monitoring Responsibility	On request (five business days). Regions	
Levels of Non Compliance	Level 1 - Procedures exist but do not include all the requirements as defined in above Requirement R1. Level 2 - Not applicable. Level 3 - Not applicable. Level 4 - Procedures were not provided.	III.C.M5 Levels of Non-Compliance	Level 1 - Procedures exist but do not include all the requirements as defined in above Measurement M5. Level 2 - Not applicable. Level 3 - Not applicable. Level 4 - Procedures were not provided.	
Section 6	Tap settings of generator step-up and auxiliary transformers.	III.C.M6 Brief Description	Tap settings of generator step-up and auxiliary transformers.	
Section 6 Applicability	Generator Owner	III.C.M6 Applicable to	Generation owners/operators	
Section 6	R6-1. The Generator Owner shall provide the tap settings and the available tap ranges and impedance data for	III.C.M6	S2. Synchronous generators shall maintain a network voltage or reactive power output as required by the	The Generation Owner is responsible for maintenance,

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Requirements	<p>generator step-up and auxiliary transformers to the Transmission Operator, the Regional Reliability Council, and NERC on request (five business days) as defined in Requirement R5-1 of this Reliability Standard.</p> <p>R6-2. The Generator Owner shall change tap positions according to the procedures provided by the Transmission Operator within a mutually agreed upon time frame as defined in Requirement R5-1 of this Reliability Standard.</p>	Standards and Measurements	<p>Transmission Operator within the reactive capability of the units. Generator step-up and auxiliary transformers shall have their tap settings coordinated with electric system voltage requirements.</p> <p>M6. A synchronous generator owner/operator shall provide the tap settings and the available tap ranges and impedance data for generator step-up and auxiliary transformers to the Transmission Operator, the Region, and NERC on request (five business days). A generator owner/operator shall change tap positions according to the procedures provided by the Transmission Operator within a mutually agreed upon time frame as defined in Measurement III.C. S2, M5.</p>	including equipment data, and for providing voltage support to the Transmission Operator
Section 6 Measures	M6-1. The Generator Owner has documentation of tap settings and changes, available tap ranges, and impedances for generator step-up and auxiliary transformers.	III.C.M6 Items to be measured	Reporting of tap settings, available tap ranges, and impedances for generator step-up and auxiliary transformers.	
Section 6 Regional Differences	None identified		None identified	
Section 6 Compliance Monitoring Process	<p>On request (five business days).</p> <p>Regional Reliability Council</p>	<p>III.C.M6 Timeframe</p> <p>Compliance Monitoring Responsibility</p>	<p>On request (five business days).</p> <p>Regions</p>	
Levels of Non Compliance	<p>Level 1 - Report does not include all the information requested as defined Requirement III.C.S2.Section C.R1</p> <p>Level 2 - Not applicable.</p>	<p>III.C.M6 Levels of Non-Compliance</p>	<p>Level 1 - Report does not include all the information requested as defined in Measurement III.C. S2, M5.</p> <p>Level 2 - Not applicable.</p>	

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	<p>Level 3 - Not applicable.</p> <p>Level 4 - Report on tap settings, available tap ranges, and impedances for generator step-up and auxiliary transformers was not provided, or report indicates generator operator did not change tap settings as requested by the Transmission Operator during the mutually agreed upon time frame.</p>		<p>Level 3 - Not applicable.</p> <p>Level 4 - Report on tap settings, available tap ranges, and impedances for generator step-up and auxiliary transformers was not provided, or report indicates generator owner/operator did not change tap settings as requested by the Transmission Operator during the mutually agreed upon time frame.</p>	
Section 7	Generators performance during temporary excursions in frequency, voltage, etc.	III.C.M7 Brief Description	Generators performance during temporary excursions in frequency, voltage, etc.	
Section 7 Applicability	Regional Reliability Council	III.C.M7 Applicable to	Regions	

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Section 7 Requirements	<p>R7-1. The Regional Reliability Council shall establish requirements for generators to remain interconnected during temporary excursions in voltage, frequency, and real and reactive power output. These requirements shall include generator exemption criteria.</p> <p>R7-2. The Regional Reliability Council shall make available documentation of these excursion requirements to the Transmission Operator and NERC upon request (30 business days).</p>	III.C.M7 Standards and Measurements	<p>S3. Temporary excursions in voltage, frequency, and real and reactive power output that a generator shall be able to sustain shall be defined and coordinated on a Regional basis.</p> <p>M7. The Regions shall establish requirements for generators to remain interconnected during temporary excursions in voltage, frequency, and real and reactive power output. These requirements shall include generator exemption criteria.</p> <p>Documentation of these excursion requirements shall be available to the Transmission Operator and NERC upon request (30 business days).</p>	
Section 7 Measures	M7-1. The Regional Reliability Council shall provide to the Transmission Operator and NERC upon request (30 business days) documentation of the requirements for withstanding temporary excursions in voltage, frequency, and real and reactive power output of a generator.	III.C.M7 Items to be measured	Requirements for withstanding temporary excursions in voltage, frequency, and real and reactive power output of a generator.	
Section 7 Regional Differences	None identified		None identified	
Section 7 Compliance Monitoring Process	<p>On request (30 business days).</p> <p>NERC</p>	III.C.M7 Timeframe Compliance Monitoring Responsibility	<p>On request (30 business days).</p> <p>NERC</p>	
Section 7 Levels of Non Compliance	Level 1 - Documentation of Regional Reliability Council requirements provided does not address all three generator parameters (voltage, frequency, or real and reactive power output).	III.C.M7 Levels of Non-Compliance	Level 1 - Documentation of Regional requirements provided does not address all three generator parameters (voltage, frequency, or real and reactive power output).	

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	<p>Level 2 - Not applicable.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - Documentation of Regional Reliability Council requirements was not provided.</p>		<p>Level 2 - Not applicable.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - Documentation of Regional requirements was not provided.</p>	

Section 8				
Section 8	Coordination of generator controls with the generator's short-term capabilities and protective relays.	III.C.M8 Brief Description	Coordination of generator controls with the generator's short-term capabilities and protective relays.	
Section 8 Applicability	Generator Owner	III.C.M8 Applicable to	III.C.M8 Generator owner/operator	Generation Owner is responsible for this
Section 8 Requirements	R8-1. The Generator Owner shall provide the Regional Reliability Council, the Transmission Operator, and NERC, as requested (30 business days), with information that ensures that the generator voltage regulator controls and limit functions (such as over and under excitation and volts/hertz limiters) coordinate with the generator's short-term capabilities and protective relays, unless exempted by the Regional Reliability Councils.	III.C.M8 Standard Measurements	<p>S4. Voltage regulator controls and limit functions (such as over and under excitation and volts/hertz limiters) shall coordinate with the generator's short duration capabilities and protective relays.</p> <p>M8. Generator owners/operators shall provide the Region, the Transmission Operator, and NERC, as requested (30 business days), with information that ensures that the generator voltage regulator controls and limit functions (such as over and under excitation and volts/hertz limiters) coordinate with the generator's short-term capabilities and protective relays, unless exempted by the Region.</p>	
Section 8	M8-1. The Generator Owner shall have information indicating	III.C.M8	Information indicating coordination of generator voltage	

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Measures	coordination of generator voltage regulator controls and limit functions with the generator's short-term capabilities and protective relays.	Items to be measured	regulator controls and limit functions with the generator's short-term capabilities and protective relays.	
Section 8 Regional Differences	None identified		None identified	
Section 8 Compliance Monitoring Process	On request (30 business days). Regional Reliability Council	III.C.M8 Timeframe Compliance Monitoring Responsibility	On request (30 business days). Regions	
Section 8 Levels of Non Compliance	Level 1 - Information on generator voltage regulator controls and limit functions and their coordination with the generator's short-term capabilities and protective relays was provided, but was incomplete in one or more areas. Level 2 - Not applicable. Level 3 - Not applicable. Level 4 - Information on generator controls and their coordination with the generator's short-term capabilities and protective relays was not provided.	III.C.M8 Levels of Non-Compliance	Level 1 - Information on generator voltage regulator controls and limit functions and their coordination with the generator's short-term capabilities and protective relays was provided, but was incomplete in one or more areas. Level 2 - Not applicable. Level 3 - Not applicable. Level 4 - Information on generator controls and their coordination with the generator's short-term capabilities and protective relays was not provided.	

Section 9	Speed/load governing system.	III.C.M9 Brief Description	Speed/load governing system.	
Section 9 Applicability	Generator Owners	III.C.M9 Applicable to	Generator owner/operator	

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Section 9 Requirements	<p>R9-1. The Generator Owner shall:</p> <ul style="list-style-type: none"> (a) Provide the Regional Reliability Council, the Transmission Operator, and NERC as requested (30 business days) with the characteristics of the generator's speed/load governing system. (b) Coordinate boiler or nuclear reactor control to maintain the capability of the generator to aid control of system frequency during an electric system disturbance. (c) Report non-functioning or blocked speed/load governor controls to the Regional Reliability Council, the Transmission Operator, and NERC on request (30 business days). 	<p>III.C.M9 Standard</p> <p>Measurement</p>	<p>S5. Prime mover control (governors) shall operate with appropriate speed/load characteristics to regulate frequency.</p> <p>M9. Generator owners/operators shall provide the Region, the Transmission Operator, and NERC as requested (30 business days) with the characteristics of the generator's speed/load governing system. Boiler or nuclear reactor control shall be coordinated to maintain the capability of the generator to aid control of system frequency during an electric system disturbance. Non-functioning or blocked speed/load governor controls shall be reported to the Region, the Transmission Operator, and NERC on request (30 business days).</p>	
Section 9 Measures	<p>M9-1. The Generator Owner shall have documentation:</p> <ul style="list-style-type: none"> (a) Of the characteristics of the generator's speed/load governing system (b) That confirms the coordinate boiler or nuclear reactor control to maintain the capability of the generator to aid control of system frequency during an electric system disturbance. (c) Of non-functioning or blocked speed/load governor controls. <p>M9-2. The Generator Owner shall have evidence it reported non-functioning or blocked speed/load governor controls to the Regional Reliability Council, the Transmission Operator, and NERC on request (30 business days).</p>	<p>III.C.M9 Items to be measured</p>	<p>Documentation of the characteristics of the generator's speed/load governing system and notification of blocked speed/load governor controls.</p>	

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Section 9 Regional Differences	None identified		None identified	
Section 9 Compliance Monitoring Process	On request (30 business days). Regional Reliability Council	III.C.M9 Timeframe Compliance Monitoring Responsibility	On request (30 business days). Regions	
Section 9 Levels of Non Compliance	Level 1 - Information on the generator's speed/load governing system was provided but did not include all the requirements as defined above in Requirement R1. Level 2 - Not applicable. Level 3 - Not applicable. Level 4 - Information on the generator's speed/load governing system was not provided.	III.C.M9 Levels of Non-Compliance	Level 1 - Information on the generator's speed/load governing system was provided but did not include all the requirements as defined above in Measurement M9. Level 2 - Not applicable. Level 3 - Not applicable. Level 4 - Information on the generator's speed/load governing system was not provided.	

Section 10	Regional procedure on generator protection operations	III.C.M10 Brief Description	Regional procedure on generator protection operation	
Section 10 Applicability	Regional Reliability Council	III.C.M10 Applicable to	III.C.M10 Regions	
Section 10	R10-1. Each Regional Reliability Council shall have in place a procedure for the monitoring, review, analysis, and	III.C.M10 Standard	S6. All generation protection system misoperations shall	

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Requirements	<p>correction of generation protection system operations.</p> <p>The procedure shall require that misoperations be analyzed for cause and that corrective actions be implemented. The procedure shall also require that a record of such analysis and corrective actions be maintained and be provided to the Regional Reliability Council and NERC on request (five business days).</p> <p>The procedure shall include the following elements:</p> <ol style="list-style-type: none"> 1. Requirements for monitoring, analysis, and notification of all generation protective device misoperations. 2. List of the data reporting requirements (periodically and format). 3. Requirements for analysis and documentation of corrective action plans for misoperations. 4. Periodicity of review of the procedure by the Regional Reliability Council. 5. Identification of the Regional group responsible for the procedure and the process for Regional approval of the procedure. 6. Regional definition of misoperation. <p>R10-2 The Regional Reliability Council shall provide documentation of the procedure for the monitoring, review, analysis, and correction of generation protection system operations to NERC on request (five business</p>	III.C.M10 Measurements	<p>be analyzed for cause and corrective action.</p> <p>M10. Each Region shall have in place a procedure for the monitoring, review, analysis, and correction of generation protection system operations.</p> <p>The procedure shall require that misoperations be analyzed for cause and that corrective actions be implemented. (Each Region shall define misoperations.) The procedure shall also require that a record of such analysis and corrective actions be maintained and be provided to the Region and NERC on request (five business days).</p> <p>The Regional procedure shall include the following elements:</p> <ol style="list-style-type: none"> 1. Requirements for monitoring, analysis, and notification of all generation protective device misoperations. 2. List of the data reporting requirements (periodically and format). 3. Requirements for analysis and documentation of corrective action plans for misoperations. 4. Periodicity of review of the procedure by the Region. 5. Identification of the Regional group responsible for the procedure and the process for Regional approval of the procedure. 	

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	days).		6. Regional definition of misoperation.	
Section 10 Measures	M10-1. The Regional Reliability Council has documentation of the procedure for monitoring, review, analysis, and correction of all generator protection operations. M10-2. The Regional Reliability Council shall have evidence it provided documentation of its procedure for monitoring, review, analysis, and correction of generation protection system operations to NERC as requested (five business days).	III.C.M10 Items to be measured	Procedure for monitoring, review, analysis, and correction of all generator protection operations. .	
Section 10 Regional Differences	None identified		None identified	
Section 10 Compliance Monitoring Process	On request (five business days). NERC	III.C.M10 Timeframe Compliance Monitoring Responsibility	On request (five business days). NERC	
Section 10 Levels of Non Compliance	Level 1 - The Regional procedure does not address all the requirements as defined above in Requirement R1. Level 2 - Not applicable. Level 3 - Not applicable. Level 4 - The Regional procedure was not provided.	III.C.M10 Levels of Non-Compliance	Level 1 - The Regional procedure does not address all the requirements as defined above in Measurement M10. Level 2 - Not applicable. Level 3 - Not applicable. Level 4 - The Regional procedure was not provided.	

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Section 11	Analysis of misoperations of generator protection equipment	III.C.M11 Brief Description	Analysis of misoperations of generator protection equipment	
Applicability	Generator Owners	III.C.M11 Applicable to	Generation owner/operator	
Requirements	<p>R11-1. The Generator Operator shall:</p> <p>(a) Analyze protection system operations and report and maintain a record of all misoperations in accordance with the Regional Reliability Council procedures in Requirement III.C.S6.Section A.R1.</p> <p>(b) Take corrective actions to avoid future misoperations.</p> <p>R11-2. The Generator Operator shall provide documentation of the analysis and corrective actions to the Regional Reliability Council and NERC on request (30 business days).</p>	<p>III.C.M11 Standard</p> <p>III.C.M11 Measurements</p>	<p>S6. All generation protection system misoperations shall be analyzed for cause and corrective action.</p> <p>M11. Generator owners/operators shall analyze protection system operations and report and maintain a record of all misoperations in accordance with Regional procedures in Measurement III.C. S6, M10. Corrective actions shall be taken to avoid future misoperations.</p> <p>Documentation of the analysis and corrective actions shall be provided to the affected Regions and NERC on request (30 business days).</p>	<p>Comment: “affected” was removed. The original idea was that more than one Region could be affected by a misoperation. Perhaps this should be covered under disturbance reporting</p>
Section 11 Measures	<p>M11-1 The Generator Operator’s documentation of generator protection misoperations, analyses, and corrective actions includes all items specified in Reliability Standard 069-R11-1.</p> <p>M11-2. The Generator Operator shall have evidence it provided the Regional Reliability Council and NERC with documentation of the protective misoperations, analyses and corrective actions as specified in Reliability Standard 069-R11-2.</p>	<p>III.C.M11 Items to be measured</p>	Documentation of protection misoperations, analyses, and corrective actions.	
Section 11 Regional	None identified		None identified	

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Differences				
Section 11 Compliance Monitoring Process	On request (30 business days). Regional Reliability Council	III.C.M11 Timeframe Compliance Monitoring Responsibility	On request (30 business days). Regions	
Section 11 Levels of Non Compliance	Level 1 - Documentation of generator protection system misoperations was provided but does not address all identified misoperations or does not provide a record of corrective actions taken for all identified misoperations. Level 2 - Documentation of generator protection system misoperations was provided but was lacking one of these three elements: (a) a complete record of misoperations for the time and place requested, (b) an analysis of all misoperations, and (c) a record of corrective actions taken. Level 3 - Documentation was provided but was lacking two of these three elements: (a) a complete record of misoperations for the time and place requested; (b) an analysis of all misoperations; (c) a record of corrective actions taken. Level 4 - No documentation of generator protection system misoperations was provided	III.C.M11 Levels of Non- Compliance	Level 1 - Documentation of generator protection system misoperations was provided but does not address all identified misoperations or does not provide a record of corrective actions taken for all identified misoperations. Level 2 - Documentation of generator protection system misoperations was provided but was lacking one of these three elements: (a) a complete record of misoperations for the time and place requested, (b) an analysis of all misoperations, and (c) a record of corrective actions taken. Level 3 - Documentation was provided but was lacking two of these three elements: (a) a complete record of misoperations for the time and place requested; (b) an analysis of all misoperations; (c) a record of corrective actions taken. Level 4 - No documentation of generator protection system misoperations was provided	

Section 12	Maintenance and testing of generator protection systems	III.C.M12 Brief Description	Maintenance and testing of generator protection systems	
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Heading	New Language	Heading	Existing Document Language	Comments
Section 12 Applicability	Generator Operator	III.C.M12 Applicable to	III.C.M12 Generator owner/operator.	
Section 12 Requirements	<p>R12-1. Generator Operators shall have a generator protection system maintenance and testing program in place. This program shall include protection system identification, frequency of protection system testing, and frequency of protection system maintenance.</p> <p>R12-2. Documentation of the program and its implementation shall be provided to the appropriate Regional Reliability Council and NERC on request (30 business days).</p>	III.C.M12 Standards and Measurements	<p>S7. Generation protection system maintenance and testing programs shall be developed and implemented.</p> <p>M12. Generator owners/operators shall have a generator protection system maintenance and testing program in place. This program shall include protection system identification, frequency of protection system testing, and frequency of protection system maintenance.</p> <p>Documentation of the program and its implementation shall be provided to the appropriate Regions and NERC on request (30 business days).</p>	
Section 12 Measures	<p>M12-1. The Generator Operator 's generator protection system maintenance and testing program and its implementation includes all items specified in Reliability Standard 065-R12-1.</p> <p>M12-2. The Generator Operator shall have evidence it provided documentation of its generator protection system maintenance and testing program and its implementation to as specified in Reliability Standard 065-R12-2.</p>	III.C.M12 Items to be measured	Documentation and implementation of generator protection system maintenance and testing program.	
Section 12 Regional Differences	None identified		None identified	
Section 12 Compliance Monitoring	On request (30 business days).	III.C.M12 Timeframe	On request (30 business days).	

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
Process	Regional Reliability Council	Compliance Monitoring Responsibility	Regions	
Section 12 Levels of Non Compliance	<p>Level 1 - Documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule.</p> <p>Level 2 - Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule.</p> <p>Level 3 - Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule.</p> <p>Level 4 - No documentation of the maintenance and testing program or its implementation was provided.</p>	III.C.M12 Levels of Non-Compliance	<p>Level 1 - Documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule.</p> <p>Level 2 - Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule..</p> <p>Level 3 - Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule.</p> <p>Level 4 - No documentation of the maintenance and testing program or its implementation was provided.</p>	

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
ID Number	066	Compliance Templates III.B.M1 III.B.M2 III.B.M3	III. System Protection and Control B. Transmission Control Devices Measurements 1, 2 and 3	
Title	Transmission System Control Devices	Sections	III. System Protection and Control B. Transmission Control Devices	Use appropriate portions of Section
Purpose	To ensure that transmission control devices reliably coordinated with other control devices within a Region and, where appropriate, with neighboring Regions, they need be planned and designed to meet the system performance requirements as defined in Reliability Standard 051.	Standard for III.B	S1. Transmission control devices shall be planned and designed to meet the system performance requirements as defined in the I.A. Standards of the Transmission Systems and associated Table I. These devices shall be coordinated with other control devices within a Region and, where appropriate, with neighboring Regions.	Standard S1 was modified to reference the appropriate Version 0 standard
Effective Date	February 8, 2005	Approval Dates	I.B.M1, I.B.M2 and I.B.M3, proposed for Phase 4, NERC Engineering Committee approved July 14, 1998	
Standard Applicability	Transmission owners. (for Section 1, 2 and 3)	Applicability	Transmission Owners for I.B.M1 and I.B.M2 Transmission Owners or Operators for I.B.M3	
Section 1	Assessment of transmission control devices.	Brief Descriptions III.B.M1	Assessment of transmission control devices.	
Section 1 Applicability	Planning Authority and Transmission Planner.	III.B.M1 Applicable to	Transmission Owners	Incorporated Functional Model terminology

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Heading	New Language	Heading	Existing Document Language	Comments
Section 1 Requirements	<p>R1-1. When planning new or substantially modified transmission control devices, transmission owners shall evaluate the impact of such devices on the reliability of the interconnected transmission systems. The assessment shall include sufficient modeling of the details of the dynamic devices and encompass a variety of contingency system conditions</p> <p>The performance of new or modified transmission control devices shall meet the requirements of Standard 051.</p> <p>Evidence must be provided that the models used for the analysis adequately represent the response and operation of the transmission control devices.</p> <p>A list of contingencies and system conditions tested must be provided along with a commentary on the sufficiency of these tests for the evaluation of the transmission control devices.</p> <p>R1-2. The assessment results should be provided to the Regions and NERC on request (within 30 days)</p>	<p>Standard for III.B.M1</p> <p>III.B. M1 Measurement</p> <p>III.B.M1 Full (100%) Compliance Requirements</p>	<p>S1. Transmission control devices shall be planned and designed to meet the system performance requirements as defined in the I.A. Standards of the Transmission Systems and associated Table I. These devices shall be coordinated with other control devices within a Region and, where appropriate, with neighboring Regions.</p> <p>M1. When planning new or substantially modified transmission control devices, transmission owners shall evaluate the impact of such devices on the reliability of the interconnected transmission systems. The assessment shall include sufficient modeling of the details of the dynamic devices and encompass a variety of contingency system conditions. The assessment results shall be provided to the Regions and NERC on request.</p> <p>Full (100%) Compliance Requirements The performance of new or modified transmission control devices shall meet the requirements of Standard I.A. and its associated Table I. The analysis in support of this required performance may be included as part of the documentation for Standard I.A.</p> <p>Evidence must be provided that the models used for the analysis adequately represent the response and operation of the transmission control devices.</p> <p>A list of contingencies and system conditions tested must be provided along with a commentary on the sufficiency of these tests for the evaluation of the transmission control devices. The assessment results should be provided to the Regions and NERC on request (within 30 days).</p>	<p>The content of S1 is repeated and detailed more completely in the M1 measurement and therefore not used directly in translation.</p> <p>M1 wording was used as part of R1-1 except for the last sentence regarding “requests” which was used for R1-2</p> <p>Full (100%) Compliance Requirements is similar to M1 and was used for R1-1 except for: (1) the last sentence regarding “requests” which was used for R1-2 and (2) the sentence referring optional support documentation for Standard I.A which was removed.</p>

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Section 1 Measures	M1-1. Evidence that the Transmission Owner has assessed and provided such assessments of its transmission control devices in accordance with the requirements Reliability Standard 066-R1-1 and R1-2.	IIIBM1 Items to be Measured	Assessment of the reliability impact of transmission control devices.	Included with “Items to be measured” the requirement to provide the information on request
Section 1 Regional Differences	None identified	None	None identified	
Section 1 Compliance Monitoring Process	Each Regional Reliability Council shall monitor compliance.	IIIBM1 Compliance - Monitoring Responsibility Timeframe --	Regions. On request (within 30 days).	
Section 1 Levels of Non Compliance	Level 1 - Assessments of the reliability impact of transmission control devices were provided per R1-2, but were incomplete per R1-1. Level 2 - Assessments of the reliability impact of transmission control devices were not provided per R1-2, but were complete per R1-1 when submitted. Level 3 - Assessments of the reliability impact of transmission control devices were not provided per R1-2, and were incomplete per R1-1 when submitted. Level 4 - Assessments of the reliability impact of transmission control devices were not provided.	IIIBM1 Levels of non-compliance	Level 1 - Assessments of the reliability impact of transmission control devices were provided on schedule, but were incomplete in one or more areas. Level 2 - Assessments of the reliability impact of transmission control devices were not provided on schedule, but were complete when submitted. Level 3 - Assessments of the reliability impact of transmission control devices were not provided on schedule, and were incomplete in one or more areas when submitted. Level 4 - Assessments of the reliability impact of transmission control devices were not provided.	

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Section 2				
Section 2	Provision of models and data for control devices for use in system modeling.	Brief Descriptions III.B.M2	Provision of models and data for control devices for use in system modeling.	
Section 2 Applicability	Transmission owners	III.B.M2 Applicable to	Transmission owners	Incorporated Functional Model terminology
Section 2 Requirements	<p>R2-1. Transmission owners shall provide transmission control device models and data suitable for use in system modeling.</p> <p>Transmission owners shall provide preliminary models and data for transmission control devices to permit analysis of the potential impacts of these devices on system reliability prior to their installation.</p> <p>Validated models and data, based on commissioning test results, shall be provided after the in-service dates of the control devices so that the impacts of these devices on system security may be fully assessed and incorporated into operating security limits.</p> <p>R2-2. Validated transmission control device models and data</p>	<p>Standard for III.B.M2</p> <p>III.B.M2 Measurement</p> <p>III.B.M2 Full (100%) Compliance Requirements</p>	<p>S1. Transmission control devices shall be planned and designed to meet the system performance requirements as defined in the I.A. Standards of the Transmission Systems and associated Table I. These devices shall be coordinated with other control devices within a Region and, where appropriate, with neighboring Regions.</p> <p>M2. Transmission owners shall provide transmission control device models and data, suitable for use in system modeling, to the Regions and NERC on request. Preliminary data on these devices shall be provided prior to their in-service dates. Validated models and associated data shall be provided following installation and energization.</p> <p>Full (100%) Compliance Requirements</p> <p>Transmission owners shall provide transmission control device models and data suitable for use in system modeling. These models and data will be used in the assessments of the reliability of the transmission network under Standard I.A. Transmission owners shall provide</p>	<p>The content of S1 is repeated and detailed more completely in the M2 measurement and therefore not used directly in translation.</p> <p>The content of M2 is repeated and detailed more completely in the Full (100%) Compliance Requirements and therefore not used directly in translation.</p> <p>Full (100%) Compliance Requirements were used for R2-1 except for the last sentence regarding “requests”</p>

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	should be provided to the Regions and NERC on request (within 30 days).		<p>preliminary models and data for transmission control devices to permit analysis of the potential impacts of these devices on system reliability prior to their installation. Validated models and data, based on commissioning test results, shall be provided after the in-service dates of the control devices so that the impacts of these devices on system security may be fully assessed and incorporated into operating security limits.</p> <p>Validated transmission control device models and data should be provided to the Regions and NERC on request (within 30 days).</p>	which was used for R2-2.
Section 2 Measures	M2-1. Evidence that the Transmission Owner has provided transmission control device models and data in accordance with the requirements R2-1 and R2-2.	III.B.M2 Items to be Measured	Transmission control device models and data.	Included with “Items to be measured” the requirement to provide the information on request
Section 2 Regional Differences	None identified	None	None identified	
Section 2 Compliance Monitoring Process	<p>On request (within 30 days).</p> <p>Each Regional Reliability Council</p>	<p>III.B.M2 Timeframe</p> <p>Compliance Monitoring Responsibility</p>	<p>On request (within 30 days).</p> <p>Regions</p>	
Section 2 Levels of Non Compliance	<p>Level 1 - Control device models and data for use in system modeling were provided per R2-2, but were incomplete per R2-1.</p> <p>Level 2 - Control device models and data for use in system</p>	<p>III.B.M2 Levels of Non-</p>	Level 1 - Control device models and data for use in system modeling were provided on schedule, but were incomplete in one or more areas.	

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	<p>modeling were not provided per R2-2, but were complete per R2-1 when submitted.</p> <p>Level 3 - Control device models and data for use in system modeling were not provided per R2-2, and were incomplete per R2-1 when submitted.</p> <p>Level 4 - Control device models and data for use in system modeling were not provided.</p>	Compliance	<p>Level 2 - Control device models and data for use in system modeling were not provided on schedule, but were complete when submitted.</p> <p>Level 3 - Control device models and data for use in system modeling were not provided on schedule, and were incomplete in one or more areas when submitted.</p> <p>Level 4 - Control device models and data for use in system modeling were not provided.</p>	
Section 3	Periodic review of settings and operating strategies of control devices.	Brief Descriptions III.B.M3	Periodic review of settings and operating strategies of control devices.	
Section 3 Applicability	Transmission Owners	III.B.M3 Applicable to	Transmission Owners or Operators	Indicate primary responsibility
Section 3 Requirements	<p>R3-1. The Transmission Owner and Transmission Operator shall review the settings and operating strategies of transmission control devices whenever changes to the system are made or at least every five years to ensure that these control devices continue to perform their intended function.</p> <p>R3-2. The Transmission Owner and Transmission Operator shall</p>	<p>Standard for III.B.M3</p> <p>III.B.M3 Measurement</p>	<p>S1. Transmission control devices shall be planned and designed to meet the system performance requirements as defined in the I.A. Standards of the Transmission Systems and associated Table I. These devices shall be coordinated with other control devices within a Region and, where appropriate, with neighboring Regions.</p> <p>M3. The transmission owners or operators shall document and periodically (at least every five years or as required by changes in system conditions) review the settings and operating strategies of the control devices. Documentation shall be provided to the</p>	<p>The content of S1 is repeated and detailed more completely in the M3 measurement and therefore not used directly in translation.</p> <p>The content of M3 is repeated and detailed more completely in the Full (100%) Compliance Requirements and therefore not used</p>

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	provide documentation of its current settings and operating strategies to the Regions and NERC on request (within 30 days)	III.B.M3 Full (100%) Compliance Requirements	Regions and NERC on request. Full (100%) Compliance Requirements Transmission owners or operators shall review the settings and operating strategies of transmission control devices whenever changes to the system are made or at least every five years to ensure that these control devices continue to perform their intended function. Documentation of the current settings and operating strategies shall be provided to the Regions and NERC on request (within 30 days).	directly in translation. Full (100%) Compliance Requirements were used for R3-1 except for the last sentence regarding “documentation” which was used for R3-2.
Section 3 Measures	M3-1. The Transmission Owner shall have evidence that it reviewed the settings and operating strategies of transmission control devices in accordance with Reliability Standard 066- R3-1 and R3-2.	III.B.M3 Items to be Measured	Periodic review and validation of settings and operating strategies.	Included with “Items to be measured” the requirement to provide the information on request
Section 3 Regional Differences	None identified	None	None identified	
Section 3 Compliance Monitoring Process	When conditions change or at least every five years. Each Regional Reliability Council	III.B.M3 Timeframe Compliance Monitoring Responsibility	When conditions change or at least every five years. Regions.	
Section 3 Levels of Non Compliance	Level 1 - A review of control device settings and operating strategies was provided per R3-2, but was incomplete per R3-1. Level 2 - A review of control device settings and operating strategies was not provided per R3-2, but was complete per R3-1 when submitted.	III.B.M3 Levels of Non-Compliance	Level 1 - A review of control device settings and operating strategies was provided on schedule, but was incomplete in one or more areas. Level 2 - A review of control device settings and operating strategies was not provided on schedule, but was complete	

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	<p>Level 3 - A review of control device settings and operating strategies was not provided per R3-2, and was incomplete per R3-1 when submitted.</p> <p>Level 4 - A review of control device settings and operating strategies was not provided.</p>		<p>when submitted.</p> <p>Level 3 - A review of control device settings and operating strategies was not provided on schedule, and was incomplete in one or more areas when submitted.</p> <p>Level 4 - A review of control device settings and operating strategies was not provided.</p>	

Draft Version 0 Standard Language		Source Document		
Heading	New Language	Heading	Existing Document Language	Comments
Standard	067	Compliance Template III.D.M1 III.D.M2 III.D.M3 III.D.M4	III. System Protection and Control D. Under Frequency Load Shedding	
Title	Under Frequency Load Shedding (underfrequency load shedding)	Sections	III. System Protection and Control D. Under Frequency Load Shedding	
Purpose	Provide last resort system preservation measures by implementing an Under Frequency Load Shedding (underfrequency load shedding) Program requiring end users of electricity on the bulk electric system to drop loads to arrest declining system frequency during capacity shortages resulting from system islanding or other major system disturbances.			
Effective Date	February 8, 2005	Approval Dates	III.D.M1 - CTTF Revised Compliance Template, BOT Approved April 2, 2004 III.D.M2 - CTTF Revised Compliance Template, BOT Approved April 2, 2004 III.D.M3 - CTTF Revised Compliance Template, BOT Approved April 2, 2004 III.D.M4 - Approved by NERC Board of Trustees on October 16, 2001	
Standard Applicability	Section 1 - Regional Reliability Council Section 2 - Transmission Operator, Transmission Owner, Load-serving Entity, Distribution Provider, as required by the Regional Reliability Council to have an underfrequency load shedding	Applicability	M1 - Regional Reliability Councils M2 – Entities owning, operating, or required (by the Regions) to have an UFLS program.	

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	<p>program</p> <p>Section 3 - Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider, required by the Regional Reliability Council to have an underfrequency load shedding program</p> <p>Section 4 - Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider, required by the Regional Reliability Council to have an underfrequency load shedding program</p>		<p>M3 – Entities owning, operating, or required (by the Regions) to have an UFLS program.</p> <p>M4 - Entities owning, operating, or required (by the Regions) to have an UFLS program.</p>	
Section 1	Development and documentation of Regional Reliability Councils’ underfrequency load shedding (underfrequency load shedding) programs	III.D.M1 Brief Description	Development and documentation of Regional underfrequency load shedding (UFLS) programs coordinated within and among Regions.	
Section 1 Applicability	Regional Reliability Council	III.D.M1 Applicable to	Regional Reliability Councils	
Section 1 Requirements	R1-1. Each Regional Reliability Council shall develop,	III.D.M1 Standard III.D.M1	S1. A Regional UFLS program shall be planned and implemented in coordination with other UFLS programs, if any, within the Region and, where appropriate, with neighboring Regions. The Regional UFLS program shall be coordinated with generation control and protection systems, undervoltage and other load shedding programs, Regional load restoration programs, and transmission protection and control systems.	

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	<p>coordinate, and document an underfrequency load shedding Program, which shall include the following:</p> <ol style="list-style-type: none"> 1. Requirements for coordination of underfrequency load shedding programs within the subregions, Regional Reliability Council, and, where appropriate, among Regional Reliability Councils. 2. Design details shall include, but are not limited to: <ol style="list-style-type: none"> a. Frequency set points b. Size of corresponding load shedding blocks (% of connected loads) c. intentional and total tripping time delays d. generation protection e. tie tripping schemes f. islanding schemes g. automatic load restoration schemes h. any other schemes that are part of or impact the underfrequency load shedding programs 3. A Regional Reliability Council underfrequency load shedding program database. This database shall be updated as specified in the Regional Reliability Council Program (but at least every five years) and shall include sufficient information to model the underfrequency load shedding program in dynamic simulations of the interconnected transmission systems. 	Measure	<p>M1. Each Region shall develop, coordinate, and document a Regional UFLS program, which shall include the following:</p> <ol style="list-style-type: none"> 1. Requirements for coordination of UFLS programs within the subregions, Region, and, where appropriate, among Regions. 2. Design details shall include, but are not limited to: <ol style="list-style-type: none"> a. size of coordinated load shedding blocks (% of connected load) b. corresponding frequency set points c. intentional and total tripping time delays d. related generation protection e. tie tripping schemes f. islanding schemes g. automatic load restoration schemes h. any other schemes that are part of or impact the UFLS programs 3.) A Regional UFLS program database. This database shall be updated as specified in the Regional program (but at least every five years) and shall include sufficient information to model the UFLS program in dynamic simulations of the interconnected transmission systems. 4.) Technical assessment and documentation of 	<p>Design details 2 a and b are interchanged in the new draft since most regions use them in the order listed in the draft.</p>

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	<p>4. Technical assessment and documentation of the effectiveness of the design and implementation of the Regional underfrequency load shedding program. This technical assessment shall be conducted periodically and shall (at least every five years or as required by changes in system conditions) include, but not be limited to:</p> <ul style="list-style-type: none"> a. A review of the frequency set points and timing, and b. Dynamic simulation of possible disturbance that cause the region or portions of the region to experience the largest imbalance between demand (load) and generation. <p>R1-2. The Regional Reliability Council shall provide documentation of its underfrequency load shedding program and its database information to NERC on request (within 30 days).</p> <p>R1-3. The Regional Reliability Council shall provide documentation of the technical assessment of its underfrequency load shedding program to NERC on request (within 30 days).</p>		<p>the effectiveness of the design and implementation of the Regional UFLS program. This technical assessment shall be conducted periodically and shall (at least every five years or as required by changes in system conditions) include, but not be limited to:</p> <ul style="list-style-type: none"> a. A review of the frequency set points and timing, and b. Dynamic simulation of possible disturbance that cause the Region or portions of the Region to experience the largest imbalance between demand (load) and generation. <p>Documentation of each Region’s UFLS program and its database information shall be provided to NERC on request (within 30 days). Documentation of the technical assessment of the UFLS program shall also be provided to NERC on request (within 30 days).</p>	
Section 1 Measures	<p>M1-1 The Regional Reliability Council shall have documentation of the underfrequency load shedding Program and Current underfrequency load shedding database.</p> <p>M1-2 The Regional Reliability Council shall have evidence it provided documentation of its its underfrequency load shedding program and its database information to NERC as specified in Reliability Standard 067-R1-2.</p>	III.D.M1 Items to be Measured	The documentation and coordination of Regional UFLS programs.	

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	M1-3 The Regional Reliability Council shall have evidence it provided documentation of its technical assessment of its underfrequency load shedding program to NERC as specified in Reliability Standard 067-R1-3.			
Section 1 Regional Differences	None identified		None identified	
Section 1 Compliance Monitoring Process	On request (within 30 days) for the program, database, and results of technical assessments. NERC	III.D.M1 Timeframe III.D.M1 Compliance Monitoring Responsibility	On request (within 30 days) for the program, database, and results of technical assessments. NERC	
Section 1 Levels of Non Compliance	Level 1 — Documentation demonstrating the coordination of the Regional Reliability Council’s underfrequency load shedding program was incomplete in one of the elements in Reliability Standard 067-R1-1.. Level 2 — N/A Level 3 — N/A Level 4 — Documentation demonstrating the coordination of the Regional Reliability Council’s underfrequency load shedding program was incomplete in two or more requirements or documentation demonstrating the coordination of the Regional Reliability Council’s underfrequency load shedding program was not provided, or an assessment was not completed in the	III.D.M1 Levels of Non-compliance	Level 1 — Documentation demonstrating the coordination of the Regional UFLS program was incomplete in one of the requirements in Measure M1. Level 2 — N/A Level 3 — N/A Level 4 — Documentation demonstrating the coordination of the Regional UFLS program was incomplete in two or more requirements or documentation demonstrating the coordination of the Regional UFLS program was not provided, or an assessment was not completed in the last five years.	

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	last five years.			
Section 2	Assuring Consistency of entity underfrequency load shedding programs with Regional Reliability Council's underfrequency load shedding Program requirements.	III.D.M2 Brief Description	Assuring consistency of entity UFLS programs with Regional UFLS requirements.	
Section 2 Applicability	Transmission Operator, Transmission Owner, Load-serving Entity, Distribution Provider, as required by the Regional Reliability Council to have an underfrequency load shedding program	III.D.M2 Applicability	Entities owning, operating, or required (by the Regions) to have an UFLS program.	
Section 2 Requirements	R2-1. The Transmission Owner, Transmission Operator, Load-serving Entity, and Distribution Provider, that owns or operates an underfrequency load shedding program as required by the Regional Reliability Council shall ensure that their program is consistent with the Regional Reliability Council's underfrequency load shedding Program requirements. Such entities shall provide and annually update their underfrequency load shedding data as necessary for the RRC to maintain and update an	III.D.M2 Standard III.D.M2 Measurement	S1. A Regional UFLS program shall be planned and implemented in coordination with other UFLS programs, if any, within the Region and, where appropriate, with neighboring Regions. The Regional UFLS program shall be coordinated with generation control and protection systems, undervoltage and other load shedding programs, Regional load restoration programs, and transmission protection and control systems. M2. Those entities owning or operating an UFLS program shall ensure that their programs are consistent with Regional UFLS program requirements as specified in Measure III.D.M1. Such entities shall provide and annually update their UFLS data as necessary for the Region to maintain and update an UFLS program as specified in Measure III.D.M1.	Removed 'As specified in Measure III D M1' since that requirement specifies what the Program shall include, not the Program itself.

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	<p>underfrequency load shedding program database.</p> <p>R2-2 The Transmission Owner, Transmission Operator, Load-serving Entity, and Distribution Provider, that owns or operates an underfrequency load shedding program as required by the Regional Reliability Council shall provide its documentation of that program to the Regional Reliability Council on request (30 days).</p>		<p>The documentation of an entity’s UFLS program shall be provided to the Region on request (within 30 days).</p>	
Section 2 Measures		III.D.M2 Items to be Measured	Consistency of entity’s UFLS program with Regional UFLS requirements.	
Section 2 Regional Differences	None identified		None identified	
Section 2 Compliance Monitoring Process	<p>On request (within 30 days).</p> <p>Regional Reliability Council</p>	<p>III.D.M2 Timeframe</p> <p>III.D.M2 Compliance Monitoring Responsibility</p>	<p>On request (within 30 days).</p> <p>Regions.</p>	
Section 2 Levels of Non Compliance	<p>Level 1 — Evaluations of entity underfrequency load shedding programs for consistency with the Regional Reliability Council’s underfrequency load shedding Program were incomplete/inconsistent in one or more</p>	III.D.M2 Levels of Non-	<p>Level 1 — Evaluations of entity UFLS programs for consistency with the Regional UFLS program were incomplete/inconsistent in one or more requirements of Measure III.D.M1 but is consistent</p>	

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	<p>requirements of Reliability Standard 067-R1, but is consistent with the required load shed.</p> <p>Level 2 — The amount of load shedding is less than 95% of the regional requirements in any of the load steps.</p> <p>Level 3 — The amount of load shedding is less than 90% of the regional requirements in any of the load steps.</p> <p>Level 4 — The amount of load shedding is less than 85% of the regional requirements on any of the load steps, or evaluations of entity underfrequency load shedding programs for consistency with the Regional Reliability Council’s underfrequency load shedding program were not provided.</p>	compliance	<p>with the required load shed.</p> <p>Level 2 — The amount of load shedding is less than 95% of the regional requirements in any of the load steps.</p> <p>Level 3 — The amount of load shedding is less than 90% of the regional requirements in any of the load steps.</p> <p>Level 4 — The amount of load shedding is less than 85% of the regional requirements on any of the load steps, or evaluations of entity UFLS programs for consistency with the Regional UFLS program were not provided.</p>	
Section 3	Implementation and documentation of underfrequency load shedding equipment maintenance program.	III.D.M3 Brief Description	Implementation and documentation of UFLS equipment maintenance program.	
Section 3 Applicability	Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider, required by the Regional Reliability Council to have an underfrequency load shedding program	III.D.M3 Applicability	Entities owning, operating, or required (by the Regions) to have an UFLS program.	
Section 3 Requirements	R3-1. The Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider required by the Regional Reliability Council to have an underfrequency load shedding program shall have an underfrequency load shedding equipment maintenance and testing program in place. This program shall include underfrequency load shedding equipment identification, the schedule for	III.D.M3 Standard	S1. A Regional UFLS program shall be planned and implemented in coordination with other UFLS programs, if any, within the Region and, where appropriate, with neighboring Regions. The Regional UFLS program shall be coordinated with generation control and protection systems, undervoltage and other load shedding programs, Regional load	

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	<p>underfrequency load shedding equipment testing, and the schedule for underfrequency load shedding equipment maintenance.</p> <p>R3-2 The Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider required by the Regional Reliability Council to have an underfrequency load shedding program shall provide the results of implementation to the Regional Reliability Council(s) and NERC on request (within 30 days).</p>	III.D.M3 Measurement	<p>restoration programs, and transmission protection and control systems.</p> <p>M3. UFLS equipment owners shall have an UFLS equipment maintenance and testing program in place. This program shall include UFLS equipment identification, the schedule for UFLS equipment testing, and the schedule for UFLS equipment maintenance.</p> <p>These programs shall be maintained and documented, and the results of implementation shall be provided to the Regions and NERC on request (within 30 days).</p>	
Section 3 Measure	<p>M3-1 The Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider required by the Regional Reliability Council to have an underfrequency load shedding program shall have an underfrequency load shedding equipment maintenance and testing program in place that contains the elements specified in Reliability Standard 067-R3-1.</p> <p>M3-2 The Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider required by the Regional Reliability Council to have an underfrequency load shedding program shall have evidence it provided the results of the program's implementation to the Regional Reliability Council(s) and NERC on request (within 30 days).</p>	III.D.M3 Items to be Measured	Each entity's UFLS equipment maintenance program.	
Section 3 Regional Differences	None identified		None identified	

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Section 3 Compliance Monitoring Process	On request (within 30 days). Regional Reliability Council	III.D.M3 Timeframe III.D.M3 Compliance Monitoring Responsibility	On request (within 30 days). Regions.	
Section 3 Levels of Non Compliance	Level 1 — Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule. Level 2 — Complete documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule. Level 3 — Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule. Level 4 — Documentation of the maintenance and testing program, or its implementation was not provided.	III.D.M3 Levels of Non Compliance	Level 1 — Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule. Level 2 — Complete documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule. Level 3 — Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule. Level 4 — Documentation of the maintenance and testing program, or its implementation was not provided.	
Section 4	Analysis and Documentation of underfrequency load shedding performance following an underfrequency event	III.D.M4 Brief Description	Analysis and Documentation of UFLS program performance	Added “following an underfrequency event” for clarification.
Section 4 Applicability	Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider, required by the Regional Reliability Council to have an underfrequency load shedding	III.D.M4 Applicability	Entities owning, operating, or required (by the Regions) to have an UFLS program.	

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	program			
Section 4 Requirements	<p>R4-1. The Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider, required by the Regional Reliability Council to have an underfrequency load shedding program shall analyze and document its underfrequency load shedding program performance in accordance with Regional Reliability Council’s underfrequency load shedding Program, including the performance of underfrequency load shedding equipment and program effectiveness following system events resulting in system frequency excursions below the initializing set points of the underfrequency load shedding program. The analysis shall include, but not be limited to:</p> <ol style="list-style-type: none"> 1) A description of the event including initiating conditions 2) A review of the underfrequency load shedding set points and tripping times 3) A simulation of the event 4) A summary of the findings <p>R4-2. The Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider required by the Regional Reliability Council to have an underfrequency load shedding</p>	<p>III.D.M4 Standard</p> <p>III.D.M4 Measure</p>	<p>S1. A Regional UFLS program shall be planned and implemented in coordination with other UFLS programs, if any, within the Region and, where appropriate, with neighboring Regions. The Regional UFLS program shall be coordinated with generation control and protection systems, undervoltage and other load shedding programs, Regional load restoration programs, and transmission protection and control systems.</p> <p>M4. Those entities owning or operating UFLS programs shall analyze and document their UFLS program performance in accordance with Standard III.D. S1-S2, M1, including the performance of UFLS equipment and program effectiveness following system events resulting in system frequency excursions below the initializing set points of the UFLS program. The analysis shall include, but not be limited to:</p> <ol style="list-style-type: none"> 1) A description of the event including initiating conditions 2) A review of the UFLS set points and tripping times 3) A simulation of the event 4) A summary of the findings 	

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	program shall provide documentation of the analysis of its underfrequency load shedding program to the Regional Reliability Council(s) and NERC on request 90 days after the system event.		Documentation of the analysis shall be provided to the Regions and NERC on request 90 days after the system event.	
Section 4 Measures	<p>M4-1 The Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider required by the Regional Reliability Council to have an underfrequency load shedding program’s analysis and documentation of underfrequency load shedding program performance following an underfrequency event shall include all elements identified in Reliability Standard 067-R4-1.</p> <p>M4-2 The Transmission Owner, Transmission Operator, Load-serving Entity , Distribution Provider required by the Regional Reliability Council to have an underfrequency load shedding program shall have evidence it provided documentation of the analysis of its underfrequency load shedding program performance following an underfrequency event as specified in Reliability Standard 067-R4-1.</p>	III.D.M4 Items to be Measured	Analysis of UFLS program performance for underfrequency events below the UFLS set points.	
Section 4 Regional Differences	None identified		None identified	
Section 4 Compliance Monitoring Process	On request 90 days after the system event. Regional Reliability Council	III.D.M4 Timeframe III.D.M4 Compliance Monitoring Responsibility	On request 90 days after the system event. Regions.	
Section 4 Levels of Non	Level 1 - Analysis of underfrequency load shedding program performance following an actual underfrequency event below the	III.D.M4	Level 1 - Analysis of UFLS program performance following an actual underfrequency event below the UFLS set point(s)	

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Compliance	<p>underfrequency load shedding set point(s) was incomplete in one or more elements in Reliability Standard 067-R4-1.</p> <p>Level 2 - Not applicable.</p> <p>Level 3 - Not applicable</p> <p>Level 4 - Analysis of underfrequency load shedding program performance following an actual underfrequency event below the underfrequency load shedding set point(s) was not provided.</p>	Levels of Non Compliance	<p>was incomplete in one or more requirements of Measurement M4.</p> <p>Level 2 - Not applicable.</p> <p>Level 3 - Not applicable</p> <p>Level 4 - Analysis of UFLS program performance following an actual underfrequency event below the UFLS set point(s) was not provided.</p>	

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Standard	068	Compliance Templates III.E.M1 III.E.M2 III.E.M3 III.E.M4 III.E.M5	III. System Protection and Control E. Under Voltage Load Shedding	
Title	Undervoltage Load Shedding	Sections	III. System Protection and Control E. Under Voltage Load Shedding	
Purpose	Provide system preservation measures in an attempt to prevent system voltage collapse or voltage instability by implementing an Undervoltage Load Shedding program requiring end users of electricity on the bulk electric system to drop loads.			
Effective Date	February 8, 2005	Approval - Dates	III.E.M1 – October 9, 2004 III.E.M2 – October 9, 2004 III.E.M3 – April, 2004 III.E.M4 - April, 2004 III.E.M5 – October 9. 2004	
Standard Applicability	Section 1 – Load-serving Entity, Transmission Owner and Distribution Provider Section 2 – Regional Reliability Council Section 3 – Load-serving Entity, Transmission Owner, Transmission Operator and Distribution Provider that owns an under voltage load shedding system Section 4 – Load serving entity, Transmission Owner, Transmission Operator and Distribution provider that owns an under voltage load shedding system	Applicability	M1 – UVLS owners and operators. M2 – Regions M3 – UVLS owners and operators. M4 – UVLS owners and operators M5 - UVLS owners and operators.	

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	Section 5 - Load-serving Entity, Transmission Owner, Transmission Operator, Distribution Provider that owns or operates an undervoltage load shedding program			
Section 1	Undervoltage Load Shedding Program Documentation	III.E.M1 Brief Description	Undervoltage load shedding program documentation.	
Section 1 Applicability	The Responsible Entity may be any of the following: Load-serving Entity, Transmission Owner, Transmission Operator and Distribution Provider	III.E.M1 Applicability	UVLS owners and operators.	
Section 1 Requirements	R1-1. The Responsible Entity (Load-serving Entity, Transmission Owner, Transmission Operator and Distribution Provider) that owns or operates undervoltage loadshedding programs shall document their undervoltage loadshedding programs including descriptions of the following design details: a. size of customer demand (load) blocks (% of	III.E.M1 Standard III.E.M1 Measurement	S1. Automatic undervoltage load shedding (UVLS) programs shall be planned and implemented in coordination with other UVLS programs in the Region and, where appropriate, with neighboring Regions. S2. All UVLS programs shall be coordinated with generation control and protection systems, underfrequency load shedding programs, Regional load restoration programs, and transmission protection and control programs. M1. Those entities owning or operating UVLS programs shall document their UVLS programs including descriptions of the following design details: size of customer demand (load) blocks (% of connected load), corresponding voltage set points, relay and breaker operating times, intentional delays, related generation protection, islanding schemes, automatic load restoration schemes, or any other schemes that are part of or impact the UVLS programs.	

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	<p>connected load)</p> <p>b. corresponding voltage set points</p> <p>c. relay and breaker operating times</p> <p>d. intentional delays</p> <p>e. related generation protection</p> <p>f. islanding schemes</p> <p>g. automatic load restoration schemes</p> <p>h. any other schemes that are part of or impact the undervoltage loadshedding programs.</p> <p>R1-2. The Responsible Entity that owns or operates undervoltage loadshedding programs shall provide documentation of the undervoltage load shedding program to the appropriate Regional Reliability Council(s) and NERC on request (five business days).</p>		Documentation of the UVLS programs shall be provided to the appropriate Regions and NERC on request (five business days).	
Section 1 Measures	<p>M1-1. The Responsible Entity shall have documentation of its undervoltage load shedding program that includes all items specified in R1-1.</p> <p>M1-2. The Responsible Entity shall have evidence it provided the appropriate Regional Reliability Council(s) and NERC with documentation of its undervoltage load shedding program on request (five business days).</p>	III.E.M1 Items to be Measured		
Section 1 Regional Differences	None identified		None identified	
Section 1 Compliance Monitoring Process	<p>On request (five business days).</p> <p>Regional Reliability Council</p>	<p>III.E.M1 Timeframe</p> <p>III.E.M1 Compliance</p>	<p>On request (five business days).</p> <p>Regions</p>	

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		Monitoring Responsibility		
Section 1 Levels of Non Compliance	<p>Level 1 - Documentation of the undervoltage load shedding program was provided, but was incomplete.</p> <p>Level 2 - Not applicable.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - Documentation of the undervoltage load shedding program was not provided.</p>	III.E.M1 Levels of Non-compliance	<p>Level 1 - Documentation of the UVLS program was provided, but was incomplete.</p> <p>Level 2 - Not applicable.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - Documentation of the UVLS program was not provided.</p>	

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Section 2	Undervoltage load shedding program database.	III.E.M2 Brief Description	Undervoltage load shedding program database.	
Section 2 Applicability	Regional Reliability Council	III.E.M2 Applicability	Regions.	
Section 2 Requirements	<p>R2-1. The Regional Reliability Council shall maintain and annually update an undervoltage load shedding program database. This database shall include sufficient information to model the undervoltage load shedding program in dynamic simulations of the interconnected transmission systems, including the following items:</p> <ol style="list-style-type: none"> 1) Type of undervoltage load shedding equipment, 2) Voltage set point(s), 3) Time delay from initiation to trip signal, and 4) Amount of demand interrupted at peak or other specified level. <p>R2-2. The Regional Reliability Council shall update the database annually, and shall provide the current database to NERC on</p>	<p>III.E.M2 Standard</p> <p>III.E.M2 Measurement</p>	<p>S1. Automatic undervoltage load shedding (UVLS) programs shall be planned and implemented in coordination with other UVLS programs in the Region and, where appropriate, with neighboring Regions.</p> <p>M2. Each Region shall maintain and annually update an UVLS program database. This database shall include sufficient information to model the UVLS program in dynamic simulations of the interconnected transmission systems, including the following items:</p> <ol style="list-style-type: none"> 1) Type of UVLS equipment, 2) Voltage set point(s), 3) Time delay from initiation to trip signal, and 4) Amount of demand interrupted at peak or other specified level. <p>While the database shall be updated annually, the current database shall be provided to NERC on</p>	

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	request (within 30 business days).		request (within 30 business days).	
Section 2 Measures	<p>The Regional Reliability Council shall have an undervoltage load shedding program database that contains the items identified in Reliability Standard 068-R2-1.</p> <p>The Regional Reliability Council shall have evidence that it provided its current undervoltage load shedding program database to NERC as specified in Reliability Standard 068-R2-2.</p>	III.E.M2 Items to be Measured	UVLS program database.	
Section 2 Regional Differences	None Identified		None identified	
Section 2 Compliance Monitoring Process	<p>Database to be updated annually.</p> <p>Current database on request (30 business days).</p> <p>NERC</p>	<p>III.E.M2 Timeframe</p> <p>III.E.M2 Compliance Monitoring Responsibility</p>	<p>Database to be updated annually.</p> <p>Current database on request (30 business days).</p> <p>NERC</p>	
Section 2 Levels of Non-compliance	<p>Level 1 – An undervoltage load shedding program database was provided, but was incomplete.</p> <p>Level 2 - Not applicable.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 – An undervoltage load shedding program database was not provided.</p>	III.E.M2 Levels of Non-compliance	<p>Level 1 - A UVLS program database was provided, but was incomplete.</p> <p>Level 2 - Not applicable.</p> <p>Level 3 - Not applicable.</p> <p>Level 4 - A UVLS program database was not provided.</p>	

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Section 3	Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program	III.E.M3 Brief Description	Technical Assessment of the Design and Effectiveness of UVLS Program	
Section 3 Applicability	Load Serving Entity, Transmission Owner, Transmission Operator, and Distribution Provider	III.E.M3 Applicability	UVLS owners and operators.	
Section 3 Requirements	<p>R3-1. The Load-serving Entity, Transmission Owners, Transmission Operator, and Distribution Provider that owns or operates undervoltage load shedding programs shall periodically (at least every five years or as required by changes in system conditions) conduct and document a technical assessment of the effectiveness of their undervoltage load shedding programs.</p> <p>This technical assessment shall include, but is not limited to:</p> <ul style="list-style-type: none"> ▪ Coordination of the UVLS programs with other protection and control systems in the Region and with other Regions, as appropriate. ▪ Simulations that demonstrate that the UVLS programs performance is consistent with the Standard 51. ▪ A review of the voltage set points and timing. 	<p>III.E.M3 Standard</p> <p>III.E.M3 Measurement</p>	<p>S1. Automatic undervoltage load shedding (UVLS) programs shall be planned and implemented in coordination with other UVLS programs in the Region and, where appropriate, with neighboring Regions.</p> <p>M3. Those entities owning or operating UVLS programs shall periodically (at least every five years or as required by changes in system conditions) conduct and document a technical assessment of the effectiveness of their UVLS programs.</p> <p>This technical assessment shall include, but is not limited to:</p> <ul style="list-style-type: none"> ▪ Coordination of the UVLS programs with other protection and control systems in the Region and with other Regions, as appropriate. ▪ Simulations that demonstrate that the UVLS programs performance is consistent with the I.A Standards. ▪ A review of the voltage set points and timing. <p>Documentation of the current UVLS technical assessment</p>	

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	R3-2 The Load-serving Entity, Transmission Owners, Transmission Operator, and Distribution Provider that owns or operates undervoltage load shedding programs shall provide documentation of its current undervoltage load shedding program's technical assessment to the appropriate Regional Reliability Councils and NERC on request (30 days).		shall be provided to the appropriate Regions and NERC on request (30 days).	
Section 3 Measures	<p>M3-1. The Load-serving Entity, Transmission Owner, Transmission Operator, and Distribution Provider that owns or operates undervoltage load shedding programs shall include the elements identified in Reliability Standard 068-R3-1.</p> <p>M3-2. The Load-serving Entity, Transmission Owners, Transmission Operator, and Distribution Provider that owns or operates undervoltage load shedding programs shall have evidence it provided documentation of its current undervoltage load shedding program's technical assessment to the Regional Reliability Councils and NERC as specified in Reliability Standard 068-R3-2.</p>	III.E.M3 Items to be Measured	Technical assessment of the design and effectiveness of UVLS programs.	
Section 3 Regional Differences	None identified		None identified	
Section 3 Compliance Monitoring Process	<p>Technical assessments every five years or as required by system changes.</p> <p>Current technical assessment on request (30 days).</p> <p>Regional Reliability Councils. Each Region shall report</p>	<p>III.E.M3 Timeframe</p> <p>III.E.M3 Compliance</p>	<p>Technical assessments every five years or as required by system changes.</p> <p>Current technical assessment on request (30 days).</p> <p>Region. Each Region shall report compliance and violations</p>	

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	compliance and violations to NERC via the NERC Compliance Reporting process.	Monitoring Responsibility	to NERC via the NERC Compliance Reporting process.	
Section 3 Levels of Non Compliance	Level 1 — N/A Level 2 — N/A Level 3 — N/A Level 4 — A technical assessment of the undervoltage load shedding programs did not address one of the requirements listed in Reliability Standard 068-R2 or a technical assessment of the undervoltage load shedding programs was not provided.	III.E.M3 Levels of Non Compliance	Level 1 — N/A Level 2 — N/A Level 3 — N/A Level 4 — A technical assessment of the UVLS programs did not address one of the requirements listed in M3 above or a technical assessment of the UVLS programs was not provided.	
Section 4	Under voltage load shedding system maintenance and testing.	III.E.M4 Brief Description	Under voltage load shedding system maintenance and testing.	
Section 4 Applicability	Load serving Entity, Transmission Owner, Transmission Operator and Distribution provider that owns an under voltage load shedding system	III.E.M4 Applicability	UVLS owners and operators.	
Section 4 Requirements		III.E.M4 Standard	S1. Automatic undervoltage load shedding (UVLS) programs shall be planned and implemented in coordination with other UVLS programs in the Region and, where appropriate, with neighboring Regions.	

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	<p>R4-1. The Load-serving Entity, Transmission Owner, and Distribution Provider that owns an under voltage load shedding system shall have a system maintenance and testing program(s) in place. The program(s) shall include:</p> <p>a. Under voltage load shedding system identification shall include but is not limited to:</p> <ul style="list-style-type: none"> • relays • instrument transformers • communications systems, where appropriate • batteries <p>b. Documentation of maintenance and testing intervals and their basis</p> <p>c. Summary of testing procedure</p> <p>d. Schedule for system testing</p> <p>e. Schedule for system maintenance</p> <p>f. Date last tested/maintained</p> <p>R4-2. The Load-serving Entity, Transmission Owner, and Distribution Provider that owns an under voltage load shedding system shall provide documentation of the program and its implementation to the appropriate Regions and NERC on request (within 30 days).</p>	III.E.M4 Measurement	<p>M4. Under voltage load shedding system owners shall have a system maintenance and testing program(s) in place. The program(s) shall include:</p> <p>a. Under voltage load shedding system identification shall include but is not limited to:</p> <ul style="list-style-type: none"> ▪ relays ▪ instrument transformers ▪ communications systems, where appropriate ▪ batteries <p>b. Documentation of maintenance and testing intervals and their basis</p> <p>c. Summary of testing procedure</p> <p>d. Schedule for system testing</p> <p>e. Schedule for system maintenance</p> <p>f. Date last tested/maintained</p> <p>Documentation of the program and its implementation shall be provided to the appropriate Regions and NERC on request (within 30 days).</p>	
Section 4 Measures	M4-1. The Load-serving Entity, Transmission Owner, and Distribution Provider that owns an under voltage load shedding system shall have documentation that its undervoltage load shedding equipment maintenance program conforms with	III.E.M4 Items to be Measured	Each entity's UVLS equipment maintenance program.	

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	Standard 068-R4-1. M4-2. The Load-serving Entity, Transmission Owner, and Distribution Provider that owns an under voltage load shedding system shall have evidence it provided documentation of its undervoltage load shedding maintenance program and its implementation as specified in Standard 068-R4-2.			
Section 4 Regional Differences	None identified		None identified	
Section 4 Compliance Monitoring Process	On request (30 business days). Regional Reliability Council	III.E.M4 Timeframe III.E.M4 Compliance Monitoring Responsibility	On request (30 business days). Region	
Section 4 Levels of Non Compliance	Level 1 - Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule. Level 2 - Compliance documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule. Level 3 - Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule. Level 4 — Documentation of the maintenance and testing program, or its implementation, was not provided.		Level 1 - Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule. Level 2 - Compliance documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule. Level 3 - Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule. Level 4 — Documentation of the maintenance and testing program, or its implementation, was not provided	

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Section 5	Analysis and Documentation of Undervoltage Load Shedding Program Performance	III.E.M5 Brief Description	Analysis and Documentation of UVLS Program Performance	
Section 5 Applicability	Load-serving Entity, Transmission Owner, Transmission Operator, Distribution Provider that owns or operates an undervoltage load shedding program	III.E.M5 Applicability	UVLS owners and operators.	
Section 5 Requirements	<p>R5-1. The Load-serving Entity, Transmission Owner, and Distribution Provider that owns or operates an undervoltage load shedding program shall analyze and document all undervoltage load shedding operations, misoperations, and failures to operate. Documentation of the analysis shall include a review of the undervoltage load shedding set points and tripping times and a summary of the findings.</p> <p>R5-2. The Load-serving Entity, Transmission Owner, and Distribution Provider that owns or operates an undervoltage load shedding program shall provide documentation of its analysis of undervoltage load shedding operations, misoperations, and failures to operate, to the appropriate Regional Reliability Councils and NERC on request (30 business days).</p>	<p>III.E.M5 Standard</p> <p>III.E.M5 Measurement</p>	<p>S1. Automatic undervoltage load shedding (UVLS) programs shall be planned and implemented in coordination with other UVLS programs in the Region and, where appropriate, with neighboring Regions.</p> <p>M5. Those entities owning or operating an UVLS program shall analyze and document all UVLS operations, misoperations, and failures to operate. Documentation of the analysis shall include a review of the UVLS set points and tripping times and a summary of the findings. This documentation shall be provided to the appropriate Regions and NERC on request (30 business days).</p>	
Section 5 Measures	<p>M5-1. The Load-serving Entity, Transmission Owner, and Distribution Provider that owns or operates an undervoltage load shedding program shall have documentation to show that its analysis of undervoltage load shedding operations, misoperations and failures to operate as specified in Reliability Standard 069-R5-1.</p> <p>M5-2. The Load-serving Entity, Transmission Owner, and Distribution Provider that owns or operates an undervoltage load</p>	III.E.M5 Items to be Measured	Analysis of UVLS program performance.	

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	shedding program shall have evidence that it provided documentation of its analysis of undervoltage load shedding operations, misoperations, and failures to operate as specified in Reliability Standard 069-R5-2.			
Section 5 Regional Differences	None identified		None identified	
Section 5 Compliance Monitoring Process	On request (30 business days). Regional Reliability Council	III.E.M5 Timeframe III.E.M5 Compliance Monitoring Responsibility	On request (30 business days). Region	
Section 5 Levels of Non Compliance	Level 1 - An analysis of undervoltage load shedding operations, misoperations, and failures to operate was provided but was incomplete. Level 2 - Not applicable. Level 3 - Not applicable. Level 4 - An analysis of undervoltage load shedding program performance was not provided.	III.E.M5 Levels of Non-compliance	Level 1 - An analysis of UVLS operations, misoperations, and failures to operate was provided but was incomplete. Level 2 - Not applicable. Level 3 - Not applicable. Level 4 - An analysis of UVLS program performance was not provided.	

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Standard	069	Compliance Template III.F.M1 III.F.M2 III.F.M3 III.F.M4 III.F.M5 III.F.M6	III. System Protection and Control F. Special Protection Systems	
Title	Special Protection Systems	Section	III. System Protection and Control F. Special Protection Systems	Combined the six III.F Compliance Templates into one standard covering Special Protection Systems. Avoids duplication and multiple standards.
		Introduction III.F	Introduction A special protection system (SPS) or remedial action scheme (RAS) is designed to detect abnormal system conditions and take pre-planned, corrective action (other than the isolation of faulted elements) to provide acceptable system performance. SPS actions, include among others, changes in demand (e.g., load shedding), generation, or system configuration to maintain system stability, acceptable voltages, or acceptable facility loadings. The use of an SPS is an acceptable practice to meet the system performance requirements as defined under Categories A, B, or C of Table I of the I.A. Standards on Transmission Systems. Electric systems that rely on an SPS to meet the performance levels specified by the NERC	The introduction material should be moved to another document such as a technical guide. This information is important in that it defines a SPS and should not be lost.

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			<p>Planning Standards must ensure that the SPS is highly reliable.</p> <p>Examples of SPS misoperation include, but are not limited to, the following:</p> <ol style="list-style-type: none"> 1. The SPS does not operate as intended. 2. The SPS fails to operate when required. 3. The SPS operates when not required. 	
Purpose	To ensure that all Special Protection Systems are properly designed, meet performance requirements, and are coordinated with other protection systems. To ensure that maintenance and testing programs are developed and misoperations are analyzed and corrected.			The purpose was derived from Standards S1,S2,S3,S4,and S5
Effective Date	February 8, 2005	Approvals	III.A.M1- NERC BOT approved -- October 16, 2001 III.A.M2- NERC BOT approved -- October 16, 2001 III.A.M3 - NERC BOT approved -- October 16, 2001 III.A.M4 - NERC BOT approved -- October 16, 2001 III.A.M5 - NERC BOT approved -- October 16, 2001 III.A.M6 - CTTF Revised Compliance Template, NERC BOT Approved – April 2, 2004	
Standard Applicability	Section 1 – Regional Reliability Council Section 2 – Regional Reliability Council Section 3 – Regional Reliability Council Section 4 – Transmission Owner, Generator Owner, and	Applicability	M1 – Regions M2 – Regions M3 – Regions	

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	Distribution Providers that own a Special Protection System Section 5 – Transmission Owner, Generator Owner, and Distribution Providers that own a Special Protection System Section 6 – Transmission Owner, Generator Owner, and Distribution Providers that own a Special Protection System		M4 – SPS Owners M5 – SPS Owners M6 – SPS Owners	
Section 1	Special Protection System Procedure	III.F.M1 Brief Description	Establish and document Regional review procedures for special protection system (SPS) installations.	
Section 1 Applicability	Regional Reliability Council	III.F.M1 Applicability to	Regions	
Section 1 Requirements		III.F.M1 Standard	S1. An SPS shall be designed so that a single SPS component failure, when the SPS was intended to operate, does not prevent the interconnected transmission system from meeting the performance requirements defined under Categories A, B, or C of Table 1 of the I.A Standards on Transmission Systems. S2. The inadvertent operation of an SPS shall meet the same performance requirement (Category A, B, or C of Table I of the I.A Standard on Transmission Systems) as that required of the contingency for which it was designed, and shall not exceed	R1-1 restates M1

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	<p>R1-1. Each Regional Reliability Council with a Transmission Owner, Generator Owner, or Distribution Providers(s) that uses or is planning to use a Special Protection System shall have a documented Regional Reliability Council review procedure to ensure the Special Protection System complies with Regional Reliability Council criteria and NERC Reliability Standards. The Regional Reliability Council review procedure shall include:</p> <ol style="list-style-type: none"> 1) Description of the process for submitting a proposed Special Protection System for Regional Reliability Council review. 2) Requirements to provide data that describes design, operation, and modeling of a Special Protection System. 3) Requirements to demonstrate that the Special Protection System shall be designed so that a single Special Protection System component failure, when the Special Protection System was intended to operate, does not prevent the interconnected transmission system from meeting the performance requirements defined in sections 1,2,3 and 3 of 	<p>III.F.M1 Measure</p>	<p>Category C.</p> <p>S3. SPS installations shall be coordinated with other protection and control systems.</p> <p>S4. All SPS misoperations shall be analyzed for cause and corrective action.</p> <p>M1. Each Region whose members use or are planning to use an SPS shall have a documented Regional review procedure to ensure the SPS complies with Regional criteria and NERC Planning Standards . The Regional review procedure shall include:</p> <ol style="list-style-type: none"> 1) Description of the process for submitting a proposed SPS for Regional review. 2) Requirements to provide data that describes design, operation, and modeling of an SPS. 3) Requirements to demonstrate that the SPS design will meet above SPS Standards S1 and S2. 4) Requirements to demonstrate the proposed SPS will coordinate with other protection and control systems and applicable Regional emergency procedures. 5) Regional definition of misoperation. 6) Requirements for analysis and documentation of corrective action plans for all SPS misoperations. 7) Identification of the Regional group responsible for the Region’s review procedure and the process for Regional approval of the procedure. 	<p>Existing #3 was subdivided and instead of cross referencing existing Planning Standards, the language from S1 and S2 was copied into the new R1-1 item 3 and item 4.</p>

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	<p>Standard 051.</p> <p>4) Requirements to demonstrate that the inadvertent operation of a Special Protection System shall meet the same performance requirement (Section 1,2, and 3 of Reliability Standard 051) as that required of the contingency for which it was designed, and not exceed Section 3 (Reliability Standard 051)</p> <p>5) Requirements to demonstrate the proposed Special Protection System will coordinate with other protection and control systems and applicable Regional Reliability Council emergency procedures.</p> <p>6) Regional Reliability Council definition of misoperation.</p> <p>7) Requirements for analysis and documentation of corrective action plans for all Special Protection System misoperations.</p> <p>8) Identification of the Regional Reliability Council group responsible for the Regional Reliability Council's review procedure and the process for Regional Reliability Council approval of the procedure.</p> <p>9) Determination, as appropriate, of maintenance and testing requirements.</p> <p>R1-2. The Regional Reliability Council shall provide affected Regional Reliability Councils and NERC with documentation of the Regional Reliability Council's Special Protection System review procedure on request (within 30 days).</p>		<p>8) Determination, as appropriate, of maintenance and testing requirements.</p> <p>Documentation of the Regional SPS review procedure shall be provided to affected Regions and NERC, on request (within 30 days).</p>	<p>R1-2 restates the last paragraph of M1</p>

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Section 1 Measures	<p>M1-1. The Regional Reliability Council whose members use or are planning to use a Special Protection System shall have a documented Regional Reliability Council review procedure as defined in Reliability Standard 069-R1.</p> <p>M1-2. The Regional Reliability Council shall have evidence it provided affected Regional Reliability Councils and NERC with documentation of its Special Protection System review procedure on request (within 30 days).</p>	III.F.M1 Items to be Measured	Regional review procedure for assessing SPSs to ensure compliance with NERC Planning Standards and Regional criteria.	
Section 1 Regional Differences	Not Identified		Not Identified	
Section 1 Compliance Monitoring Process	<p>On request (within 30 days)</p> <p>NERC</p>	<p>III.F.M1 Timeframe</p> <p>III.F.M1 Compliance Monitoring Responsibility</p>	<p>On request (within 30 days)</p> <p>NERC</p>	
Section 1 Levels of Non Compliance	<p>Level 1 Documentation of the Regional Reliability Council's procedure is missing one of the items listed in Reliability Standard 069- R1-1.</p> <p>Level 2 Documentation of the Regional Reliability Council's procedure is missing two of the items listed in Reliability Standard 069-R1-1.</p> <p>Level 3 Documentation of the Regional Reliability Council's procedure is missing three of the items listed in Reliability</p>	III.F.M1 Levels of Non-Compliance	<p>Level 1 Documentation of the Regional procedure is missing one of the items listed in III.F. M1.</p> <p>Level 2 Documentation of the Regional procedure is missing two of the items listed in III.F. M1.</p> <p>Level 3 Documentation of the Regional procedure is missing three of the items listed in III.F. M1.</p> <p>Level 4 Documentation of the Regional procedure was not provided or is missing four or more of the items listed in</p>	

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	<p>Special Protection System database. The database shall include the following types of information:</p> <ol style="list-style-type: none"> 1) Design Objectives – Contingencies and system conditions for which the Special Protection System was designed, 2) Operation – The actions taken by the Special Protection System in response to disturbance conditions, and 3) Modeling – Information on detection logic or relay settings that control operation of the Special Protection System. <p>R2-2. The Regional Reliability Council shall provide to affected Regional Reliability Council(s) and NERC documentation of its database or the information therein on request (within 30 days).</p>		<p>M2. A Region that has a member with an SPS installed shall maintain an SPS database. The database shall include the following types of information:</p> <ol style="list-style-type: none"> 1. Design Objectives – Contingencies and system conditions for which the SPS was designed, 2. Operation – The actions taken by the SPS in response to disturbance conditions, and 3. Modeling – Information on detection logic or relay settings that control operation of the SPS. <p>Documentation of the Regional database or the information therein shall be provided to affected Regions and NERC, on request (within 30 days).</p>	model terminology
Section 2 Measures	<p>M2-1. The Regional Reliability Council that has a Transmission Owner, Generator Owner, or Distribution Providers with a Special Protection System installed, shall have a Special Protection System database as defined in Section 2 R1 of this Reliability Standard.</p> <p>M2-2. The Regional Reliability Council shall have evidence it provided documentation of its database or the information therein, to affected Regional Reliability Council(s) and NERC on request (within 30 days).</p>	III.F.M2 Items to be Measured	Regional database of SPS installations.	Suggested Measures for Requirement R2-1 and R2-2
Section 2 Regional Differences	Not Identified		Not Identified	

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Section 2 Compliance Monitoring Process	On request (within 30 days) NERC	III.F.M2 Timeframe III.F.M2 Compliance Monitoring Responsibility	On request (within 30 days) NERC	
Section 2 Levels of Non Compliance	Level 1 The Regional Reliability Council’s database is missing one of the items listed in Reliability Standard 069-R2-1. Level 2 The Regional Reliability Council’s database is missing two of the items listed in Reliability Standard 069-R2-1. Level 3 Not applicable. Level 4 The Regional Reliability Council’s database was not provided or is missing all of the elements listed in Reliability Standard 069-R2-1.	III.F.M2 Levels of Non- Compliance	Level 1 Regional database is missing one of the items listed in III.F. M2. Level 2 Regional database is missing two of the items listed in III.F. M2. Level 3 Not applicable. Level 4 Regional database was not provided or is missing all of the elements listed in III.F. M2.	Changed references to match the requirements in the new standard.
Section 3	Special Protection System Assessment	III.F.M3 Brief Description	System Assessment	
Section 3 Applicability	Regional Reliability Council	III.F.M3 Applicability to	Regions	
Section 3 Requirements		III.F.M3 Standard	S1. An SPS shall be designed so that a single SPS component failure, when the SPS was intended to operate, does not prevent the interconnected transmission system from meeting the performance requirements defined under Categories A, B, or C of	M3 was divided into three requirements R3-1, R3-2, and R3-3 for readability.

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Heading	New Language	Heading	Existing Document Language	Comments
	<p>R3-1. The Regional Reliability Council shall assess the operation, coordination, and effectiveness of all Special Protection Systems installed in its region at least once every five years for compliance with NERC Reliability Standards and Regional criteria.</p> <p>R3-2. The Regional Reliability Council shall provide either a summary report or a detailed report of its assessment of the operation, coordination, and effectiveness of all Special Protection Systems installed in its region to affected Reliability Authorities or NERC, on request (within 30 days).</p> <p>R3-3. The documentation of the Regional Reliability Council's Special Protection System assessment shall include the following elements:</p>	<p>III.F.M3 Measure</p>	<p>Table 1 of the I.A Standards on Transmission Systems.</p> <p>S2. The inadvertent operation of an SPS shall meet the same performance requirement (Category A, B, or C of Table I of the I.A Standard on Transmission Systems) as that required of the contingency for which it was designed, and shall not exceed Category C.</p> <p>S3. SPS installations shall be coordinated with other protection and control systems.</p> <p>M3. A Region shall assess the operation, coordination, and effectiveness of all SPSs installed in the Region at least once every five years for compliance with NERC Planning Standards and Regional criteria. The Regions shall provide either a summary report or a detailed report of this assessment to affected Regions or NERC, on request (within 30 days). The documentation of the Regional SPS assessment shall include the following elements:</p> <ol style="list-style-type: none"> 1) Identification of group conducting the assessment and the date the assessment was performed. 2) Study years, system conditions, and contingencies analyzed in the technical studies on which the assessment is based and when those technical studies were performed. 3) Identification of SPSs that were found not to 	

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	<ol style="list-style-type: none"> 1) Identification of group conducting the assessment and the date the assessment was performed. 2) Study years, system conditions, and contingencies analyzed in the technical studies on which the assessment is based and when those technical studies were performed. 3) Identification of Special Protection Systems that were found not to comply with NERC Standards and Regional Reliability Council criteria. 4) Discussion of any coordination problems found between a Special Protection System and other protection and control systems. 5) Provide corrective action plans for non-compliant Special Protection Systems. 		<p>comply with NERC Planning Standards and Regional criteria.</p> <ol style="list-style-type: none"> 4) Discussion of any coordination problems found between an SPS and other protection and control systems. 5) Provide corrective action plans for non-compliant SPSs. 	
Section 3 Measures	<p>M3-1. The Regional Reliability Council shall assess the operation, coordination, and effectiveness of all Special Protection Systems installed in its region at least once every five years for compliance with NERC Standards and Regional criteria.</p> <p>M3-2. The Regional Reliability Council shall provide either a summary report or a detailed report of this assessment to affected Regional Reliability Councils or NERC, on request (within 30 days).</p> <p>M3-3. The Regional Reliability Council's documentation of the Special Protection System assessment shall include all elements as defined in Section 3 of Reliability Standard 069-R3.</p>	III.F.M3 Items to be Measured	Result of Regional reviews for SPS compliance with NERC Planning Standards and Regional criteria.	Suggested Measures for Requirement R3-1, R3-2, and R3-3
Section 3 Regional Differences	Not Identified		Not Identified	

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Section 3 Compliance Monitoring Process	On request (within 30 days) NERC	III.F.M3 Timeframe III.F.M3 Compliance Monitoring Responsibility	On request (within 30 days) NERC	
Section 3 Levels of Non Compliance	<p>Level The summary (or detailed) Regional Reliability Council Special Protection System assessment is missing one of the items listed in Reliability Standard 069-R3-3.</p> <p>Level 2 The summary (or detailed) Regional Reliability Council Special Protection System assessment is missing two of the items listed in Reliability Standard 069-R3-3.</p> <p>Level 3 The Regional Reliability Council’s summary (or detailed) Regional Reliability Council Special Protection System assessment is missing three of the items listed in Reliability Standard 069-R3-3.</p> <p>Level 4 The Regional Reliability Council’s summary (or detailed) Regional Reliability Council Special Protection System assessment is missing more than three of the items listed in Reliability Standard 069-R3-3 or was not provided.</p>	III.F.M3 Levels of Non- Compliance	<p>Level 1 The summary (or detailed) Regional SPS assessment is missing one of the items listed in III.F. M3.</p> <p>Level 2 The summary (or detailed) Regional SPS assessment is missing two of the items listed in III.F. M3.</p> <p>Level 3 The summary (or detailed) Regional SPS assessment is missing three of the items listed in III.F. M3.</p> <p>Level 4 The summary (or detailed) Regional SPS assessment is missing more than three of the items listed in III.F. M3 or was not provided.</p>	Changed references to match the requirements in the new standard.
Section 4	Special Protection System Data and Documentation	III.F.M4 Brief Description	SPS Data and Documentation	
Section 4 Applicability	Transmission Owner, Generator Owner, and Distribution	III.F.M4 Applicability	SPS Owners	

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	Provider that owns a Special Protection System.	to		
Section 4 Requirements	<p>R4-1. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall maintain a list of and provide data for existing and proposed Special Protection Systems as defined in Reliability Standard 069-R2-1.</p> <p>R4-2. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall have evidence it reviewed new or functionally modified Special Protection Systems in accordance with the Regional Reliability Council's procedures as defined in Reliability Standard 069-R1-1 prior to being placed in service.</p>	<p>III.F.M4 Standard</p> <p>III.F.M4 Measure</p>	<p>S1. An SPS shall be designed so that a single SPS component failure, when the SPS was intended to operate, does not prevent the interconnected transmission system from meeting the performance requirements defined under Categories A, B, or C of Table 1 of the I.A Standards on Transmission Systems.</p> <p>S2. The inadvertent operation of an SPS shall meet the same performance requirement (Category A, B, or C of Table I of the I.A Standard on Transmission Systems) as that required of the contingency for which it was designed, and shall not exceed Category C.</p> <p>S3. SPS installations shall be coordinated with other protection and control systems.</p> <p>M4. SPS owners shall maintain a list of and provide data for existing and proposed SPSs as defined in Measurement III.F. S1-S3, M2. New or functionally modified SPSs shall be reviewed in accordance with the Regional procedures as defined in Measurement III.F. S1-S4, M1 prior to being placed in service.</p> <p>Documentation of SPS data and the results of studies that show compliance of new or functionally modified SPSs with NERC Planning Standards and Regional criteria shall be provided to affected Regions and NERC, on request (within</p>	<p>M4 was divided into two requirements R4-1 and R4-2 for readability</p> <p>R4-1 and R4-2, restate M4 incorporating functional model terminology</p> <p>R4-3 restates the last paragraph of M4 incorporating functional model terminology</p>

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	R4-3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall provide documentation of Special Protection System data and the results of studies that show compliance of new or functionally modified Special Protection Systems with NERC Standards and Regional Reliability Council criteria to affected Regional Reliability Councils and NERC, on request (within 30 days).		30 days).	
Section 4 Measures	<p>M4-1. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall maintain a list of and provide data for existing and proposed Special Protection Systems as defined in Reliability Standard 069-R2-1.</p> <p>M4-2. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall have evidence it reviewed new or functionally modified Special Protection Systems in accordance with the Regional Reliability Council's procedures as defined in Reliability Standard 069-R1-1 prior to being placed in service.</p> <p>M4-3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall have evidence it provided documentation of Special Protection System data and the results of studies that show compliance of new or functionally modified Special Protection Systems with NERC Standards and Regional Reliability Council criteria to affected Regional Reliability Councils and NERC, on request (within 30 days).</p>	<p>III.F.M4</p> <p>Items to be Measured</p>	SPS data and results of studies that show SPS compliance with NERC Planning Standards and Regional criteria.	
Section 4	Not Identified		Not Identified	

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Regional Differences				
Section 4 Compliance Monitoring Process	On request (within 30 days) Regional Reliability Council	III.F.M4 Timeframe III.F.M4 Compliance Monitoring Responsibility	On request (within 30 days) Regions	
Section 4 Levels of Non Compliance	Level 1 - Special Protection System provided Special Protection System data, but was incomplete according to the Regional Reliability Council Special Protection System database Level 2 - Special Protection System provided results of studies that show compliance of new or functionally modified Special Protection Systems with the NERC Planning Standards and Regional Reliability Council criteria, but were incomplete according to the Regional Reliability Council procedures for Reliability Standard 069-R1-1. Level 3 - Not applicable. Level 4 - No Special Protection System data was provided in accordance with Regional Reliability Council Special Protection System database requirements for Standard 069-R1-1 , or the results of studies that show compliance of new or functionally modified Special Protection Systems with the NERC Reliability Standards and Regional Reliability Council criteria were not provided in accordance with Regional Reliability Council procedures for Reliability Standard 069-R1-1.	III.F.M4 Levels of Non-Compliance	Level 1 - SPS data was provided, but was incomplete according to the Regional SPS database Level 2 - Results of studies that show compliance of new or functionally modified SPSs with the NERC Planning Standards and Regional criteria were provided, but were incomplete according to the Regional procedures for III.F. M1. Level 3 - Not applicable. Level 4 - No SPS data was provided in accordance with Regional SPS database requirements for III.F. M2, or the results of studies that show compliance of new or functionally modified SPSs with the NERC Planning Standards and Regional criteria were not provided in accordance with Regional procedures for III.F. M1.	Changed references to match the requirements in the new standard.

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Section 5	Special Protection System Misoperations	III.F.M5 Brief Description	Special Protection System Misoperations	
Section 5 Applicability	Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System	III.F.M5 Applicability to	SPS Owners	
Section 5 Requirements	<p>R5-1. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall analyze its Special Protection System operations and maintain a record of all misoperations in accordance with Regional Reliability Council procedures in Reliability Standard 069- R1-1.</p> <p>R5-2. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall take corrective actions to avoid future misoperations.</p> <p>R5-3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall provide documentation of the misoperation analyses and the corrective action plans to the affected Regional Reliability Council and NERC, on request (within 90 days).</p>	<p>III.F.M5 Standard</p> <p>III.F.M5 Measure</p>	<p>S4. All SPS misoperations shall be analyzed for cause and corrective action.</p> <p>M5. SPS owners shall analyze SPS operations and maintain a record of all misoperations in accordance with Regional procedures in Measurement III.F. S1-S4, M1. Corrective actions shall be taken to avoid future misoperations.</p> <p>Documentation of the misoperation analyses and the corrective action plans shall be provided to the affected Regions and NERC, on request (within 90 days).</p>	<p>M5 was divided into two requirements R5-1 and R5-2 for readability</p> <p>R5-1 and R5-2, restate M5 incorporating functional model terminology</p> <p>R5-3 restates the last paragraph of M5 incorporating functional model terminology</p>
Section 5 Measures	M5-1. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall have evidence it analyzed Special Protection System operations and maintains a record of	III.F.M5 Items to be Measured	Documentation of protection system misoperations, analyses, and corrective actions.	Suggested Measures for Requirement R5-1, R5-2, and R5-3

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	<p>all misoperations in accordance with Regional Reliability Council procedures in Reliability Standard 069-R5-1.</p> <p>M5-2. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall have evidence it took corrective actions to avoid future misoperations.</p> <p>M5-3. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall have evidence it provided documentation of the misoperation analyses and the corrective action plans to the affected Regional Reliability Council and NERC, on request (within 90 days).</p>			
Section 5 Regional Differences	Not Identified		Not Identified	
Section 5 Compliance Monitoring Process	<p>On request (within 90 days of the incident or on request (within 30 days) if requested more than 90 days after the incident)</p> <p>Regional Reliability Council</p>	<p>III.F.M5 Timeframe</p> <p>III.F.M5 Compliance Monitoring Responsibility</p>	<p>On request (within 90 days of the incident or on request (within 30 days) if requested more than 90 days after the incident)</p> <p>Regions</p>	
Section 5 Levels of Non Compliance	<p>Level 1 Documentation of Special Protection System misoperations is complete but documentation of corrective actions taken for all identified Special Protection System misoperations is incomplete.</p> <p>Level 2 Documentation of corrective actions taken for Special Protection System misoperations is complete but documentation</p>	<p>III.F.M5 Levels of Non- Compliance</p>	<p>Level 1 Documentation of SPS misoperations is complete but documentation of corrective actions taken for all identified SPS misoperations is incomplete.</p> <p>Level 2 Documentation of corrective actions taken for SPS misoperations is complete but documentation of SPS misoperations is incomplete.</p>	

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	<p>of Special Protection System misoperations is incomplete.</p> <p>Level 3 - Documentation of Special Protection System misoperations and corrective actions is incomplete.</p> <p>Level 4 - No documentation of Special Protection System misoperations or corrective actions.</p>		<p>Level 3 Documentation of SPS misoperations and corrective actions is incomplete.</p> <p>Level 4 No documentation of SPS misoperations or corrective actions was provided.</p>	
Section 6	Special Protection System Maintenance and Testing	III.F.M6 Brief Description	Special Protection System Maintenance and Testing	
Section 6 Applicability	Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System	III.F.M6 Applicability to	Special Protection System owners whose special protection systems support the reliability of the bulk power electric system.	
Section 6 Requirements	<p>R6-1. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall have a system maintenance and testing program(s) in place. The program(s) shall include:</p> <p style="margin-left: 40px;">a. Special Protection System identification shall include but is not limited to:</p> <ul style="list-style-type: none"> ▪ relays ▪ instrument transformers ▪ communications systems, where appropriate ▪ batteries <p style="margin-left: 40px;">b. Documentation of maintenance and testing intervals and their basis</p>	III.F.M6 Measure	<p>S5 Special protection system maintenance and testing programs shall be developed and implemented.</p> <p>M6. Special Protection System owners shall have a system maintenance and testing program(s) in place. The program(s) shall include:</p> <p style="margin-left: 40px;">a. Special Protection System identification shall include but is not limited to:</p> <ul style="list-style-type: none"> ▪ relays ▪ instrument transformers ▪ communications systems, where appropriate ▪ batteries <p style="margin-left: 40px;">b. Documentation of maintenance and testing</p>	R6-1 restates Measure M6 incorporating functional model terminology

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Heading	New Language	Heading	Existing Document Language	Comments
	<ul style="list-style-type: none"> c. Summary of testing procedure d. Schedule for system testing e. Schedule for system maintenance f. Date last tested/maintained <p>R6-2. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall provide documentation of the program and its implementation to the appropriate Regional Reliability Councils and NERC on request (within 30 days).</p>		<p>intervals and their basis</p> <ul style="list-style-type: none"> c. Summary of testing procedure d. Schedule for system testing e. Schedule for system maintenance f. Date last tested/maintained <p>Documentation of the program and its implementation shall be provided to the appropriate Regions and NERC on request (within 30 days).</p>	R6-2 restates the last paragraph of M6
Section 6 Measures	<p>M6-1. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall have a system maintenance and testing program(s) in place that includes all items in Reliability Standard 069-R6-1.</p> <p>M6-2. The Transmission Owner, Generator Owner, and Distribution Provider that owns a Special Protection System shall have evidence it provided documentation of the program and its implementation to the appropriate Regional Reliability Councils and NERC on request (within 30 days).</p>	III.F.M6 Items to be Measured	Documentation of the SPS maintenance and testing program.	Suggested Measures for Requirement R6-1, R6-2, and R6-3
Section 6 Regional Differences	Not Identified		Not Identified	
Section 6 Compliance Monitoring Process	<p>On request (within 30 days)</p> <p>Regional Reliability Council. Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting process.</p>	III.F.M6 Timeline III.F.M6 Compliance Monitoring Responsibility	<p>On request (within 30 days)</p> <p>Regional Reliability Councils. Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting process.</p>	

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Heading	New Language	Heading	Existing Document Language	Comments
Section 6 Levels of Non Compliance	<p>Level 1 - Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule.</p> <p>Level 2 - Complete documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule.</p> <p>Level 3 - Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule.</p> <p>Level 4 - Documentation of the maintenance and testing program, or its implementation, was not provided.</p>	III.F.M6 Levels of Non- Compliance	<p>Level 1 — Documentation of the maintenance and testing program was incomplete, but records indicate implementation was on schedule.</p> <p>Level 2 — Complete documentation of the maintenance and testing program was provided, but records indicate that implementation was not on schedule.</p> <p>Level 3 — Documentation of the maintenance and testing program was incomplete, and records indicate implementation was not on schedule.</p> <p>Level 4 — Documentation of the maintenance and testing program, or its implementation, was not provided.</p>	

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Heading	New Language	Heading	Existing Document Language	Comments
Standard	070	Compliance Templates IV.A. M1 IV.A. M2 IV.A. M3 IV.A. M4	IV. System Restoration A. System Blackstart Capability	
Title	System Blackstart Capability	Section	IV. System Restoration A. System Blackstart Capability	
Purpose	A system blackstart capability plan is necessary to ensure that the quantity and location of system blackstart generators are sufficient and that they can perform their expected functions as specified in overall coordinated regional system restoration plans.	Introduction	<p>Following the complete loss of system generation (blackout), it will be necessary to establish initial generation that can supply a source of electric power to other system generation and begin system restoration. These initiating generators are referred to as system blackstart generators. They must be able to self-start without any source of off-site electric power and maintain adequate voltage and frequency while energizing isolated transmission facilities and auxiliary loads of other generators. Generators that can safely reject load down to their auxiliary load are another form of blackstart generator that can aid system restoration.</p> <p>From a planning perspective, a system blackstart capability plan is necessary to ensure that the quantity and location of system blackstart generators are sufficient and that they can perform their expected functions as specified in overall coordinated Regional system restoration plans.</p>	Purpose was taken from the second paragraph of the Introduction to the associated Compliance Templates
Effective Date	February 8, 2005	Approval Dates	IV.A.M1 CTF Revised Compliance Template, NERC BOT Approved – April 2, 2004 IV.A.M2 Approved for field testing in Phase III October 9, 2000 IV.A.M3 Approved for field testing in Phase III - October	

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			9, 2000 IV.A.M4 CTTF Revised Compliance Template, NERC BOT Approved – April 2, 2004	
Standard Applicability	Section 1 - Regional Reliability Council Section 2 - Transmission Operators Section 3 - Transmission Operators Section 4 – Generation Owners or Generator Operators	Standard Applicable to	IV.A. M1 - Regional Reliability Councils IV.A. M2 - Transmission Operators IV.A. M3 - Transmission Operators IV.A. M4 – Operators or owners of blackstart generating units	Applicability may apply to both Generator Owners and Generator Operators in some instances. This issue needs clarification in the Functional Model.
Section 1	Establish, maintain, and document a regional blackstart capability plan.	IV.A.M1 Brief Description	Establish, maintain, and document a Regional blackstart capability plan	
Section 1 Applicability	Regional Reliability Council	IV.A.M1 Applicable to	Regional Reliability Councils	
Section 1 Requirements	R1-1. Each Regional Reliability Council shall establish and maintain a system blackstart capability plan, as part of an overall coordinated regional system restoration plan, that shall include requirements for verification through analysis how system blackstart generating units shall perform their	IV.A.M1 Standard IV.A.M1 Measure	S1. A coordinated system blackstart capability plan shall be established, maintained, and verified through analysis indicating how system blackstart generating units will perform their intended functions as required in system restoration plans. Such blackstart capability plans shall include coordination within and among Regions as appropriate. M1. Each Region shall establish and maintain a system blackstart capability plan, as part of an overall coordinated Regional system restoration plan, that	The requirements of the first sentence of S1 are also included in the requirements of the first paragraph in M1. The requirements of second sentence of S1 are not included in M1 and, therefore, this sentence is added to Requirement R1-1

¹ A unit cannot be considered a blackstart unit unless it has met the regional blackstart requirements. It is expected that if a unit fails a test, that unit will be fixed and retested within a timeframe established by the Regional Reliability Council in accordance with the regional Blackstart Plan or that unit will no longer be considered blackstart.

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	<p>intended functions and shall be sufficient to meet system restoration plan expectations.</p> <p>The Regional Reliability Council shall coordinate with and among other Regional Reliability Councils as appropriate in the development of its blackstart capability plan(s).as appropriate.</p> <p>The blackstart capability plan shall include:</p> <ol style="list-style-type: none"> 1 A requirement to have a database that contains all blackstart generators¹ designated for use in a Restoration Plan within the respective areas. This database shall be updated on an annual basis. The database shall include the name, location, MW capacity, type of unit, latest date of test, and starting method. 2 A requirement to demonstrate that blackstart units perform their intended functions as required in the Reliability Authority’s system restoration plan. This requirement can be met either through simulation or testing. The blackstart plan must consider the availability of designated blackstart plan units and initial transmission switching requirements. 3 Blackstart unit testing requirements including, but not limited to: <ul style="list-style-type: none"> ▪ Testing frequency (minimum of one third of the units each year). ▪ Type of test required, including the requirement to start when isolated from the system ▪ Minimum duration of tests 		<p>shall include requirements for verification through analysis how system blackstart generating units shall perform their intended functions and shall be sufficient to meet system restoration plan expectations.</p> <p>The blackstart capability plan shall include:</p> <ol style="list-style-type: none"> 1. A requirement to have a database that contains all blackstart generators designated for use in a Restoration Plan within the respective areas and a requirement to update the database on an annual basis. The database shall include the name, location, MW capacity, type of unit, latest date of test, and starting method. 2. A requirement to demonstrate that blackstart units perform their intended functions as required in the Regional system restoration plan through simulation or testing. The blackstart plan must consider the availability of designated blackstart plan units and initial transmission switching requirements. 3. Blackstart unit testing requirements including, but not limited to: <ul style="list-style-type: none"> ▪ Testing frequency (minimum of one third of the units each year). ▪ Type of test required, including the requirement to start when isolated from the 	<p>R1-1 number 3 (blackstart unit testing requirements) needs clarification in Version 1.</p>

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	<p>4 A requirement to review and update the regional blackstart capability plan at least every five years</p> <p>R1-2. The Regional Reliability Council shall provide documentation of its system blackstart capability plans to NERC within 30 business days of a request.</p>		<p>system</p> <ul style="list-style-type: none"> ▪ Minimum duration of tests <p>4. A requirement to review and update the Regional blackstart capability plan at least every five years.</p> <p>Documentation of system blackstart capability plans shall be provided to NERC on request (30 days).</p>	R1-2 changed “days” to “business days”
Section 1 Measures	<p>M1 The Regional Reliability Council ’s blackstart capability plan shall include all four of the requirements in Reliability Standard 070-R1-1.</p> <p>M2 – The Regional Reliability Council shall have evidence it provided its blackstart capability plan in accordance with Reliability Standard 070-R1-2.</p>	IV.A.M1 Items to be Measured	A Regional plan for blackstart capability.	
Section 1 Regional Differences	None identified.		None identified.	
Section 1 Compliance Monitoring Process	<p>Current regional blackstart capability plan: on request (30 days)</p> <p>NERC</p>	<p>Timeframe</p> <p>Compliance Monitoring Responsibility</p>	<p>Current Regional blackstart capability plan: on request (30 days)</p> <p>NERC</p>	
Section 1 Levels of Non Compliance	<p>Level 1 — N/A</p> <p>Level 2 — The Regional Reliability Council’s blackstart generating unit capability plan was incomplete in one</p>	IV.A.M1 Levels of Non-Compliance	<p>Level 1 — N/A</p> <p>Level 2 — The Region’s blackstart generating unit capability plan was incomplete in one of the four</p>	

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	<p>of the four requirements defined above in Reliability Standard 070-R1-1.</p> <p>Level 3 — N/A</p> <p>Level 4 — The Regional Reliability Council’s blackstart generating unit capability plan was not provided (Reliability Standard 070-R2-1), or was incomplete in two or more of the four requirements defined above in Reliability Standard 070-R1-1.</p>		<p>requirements defined above in Measure M1</p> <p>Level 3 — N/A</p> <p>Level 4 — The Region’s blackstart generating unit capability plan was not provided, or incomplete in two or more of the four requirements defined above in Measure M1.</p>	

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Section 2	Establish, maintain, and document a regional blackstart capability plan.	IV.A.M2 Brief Description	Establish, maintain, and document a Regional blackstart capability plan.	
Section 2 Applicability	Transmission Operator	IV.A.M2 Applicable to	Transmission Operators	
Section 2 Requirements	<p>R2-1. Each Transmission Operator shall verify that the number, size, and location of system blackstart generating units are sufficient to meet regional restoration plan expectations. The Transmission Operator of each system shall demonstrate, through simulation or testing, that blackstart generating unit(s) in its area can perform their intended functions as required in the regional restoration plan. (Section 1 of this reliability standard) Such simulation or testing shall be performed at least every five years.</p> <p>R2-2. Each Transmission Operator shall provide documentation of its most current simulations or tests to the Regional Reliability Councils and NERC on request (within 30 business days).</p>	<p>IV.A.M2 Standard</p> <p>IV.A.M2 Measure</p>	<p>S1. A coordinated system blackstart capability plan shall be established, maintained, and verified through analysis indicating how system blackstart generating units will perform their intended functions as required in system restoration plans. Such blackstart capability plans shall include coordination within and among Regions as appropriate.</p> <p>M2. Each transmission operator shall verify that the number, size, and location of system blackstart generating units are sufficient to meet Regional restoration plan expectations. The transmission operator of each system shall demonstrate, through simulation or testing, that its blackstart generating unit(s) can perform their intended functions as required in the Regional restoration plan (Standard IV.A. S1). Such simulation or testing shall be performed at least every five years.</p> <p>Documentation of the most current simulations or tests shall be provided to the Regions and NERC on request (30</p>	<p>R2-2 Added language to specify what entity is responsible for this requirement.</p>

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			business days).	
Section 2 Measures	<p>M2-1. The Transmission Operator shall provide documentation that the blackstart units in its area are sufficient to meet the requirements of Standard 070-R2-1.</p> <p>M2-2. The Transmission Owner shall have evidence it provided its test results in accordance with Standard 070-R2-2.</p>	IV.A.M2 Items to be Measured	Simulation or test results to demonstrate that blackstart generating unit(s) can perform their intended functions in system restoration.	Without the addition of M2-2, the levels of non-compliance can't be linked to the measures. The Levels of non-compliance assess both the test results as well as whether the results were provided.
Section 2 Regional Differences	None identified.		None identified.	
Section 2 Compliance Section 2 Monitoring Process	<p>Simulation or testing of blackstart capability units: Every five years.</p> <p>Documentation of the most current simulations or tests: on request (30 business days)</p> <p>Regional Reliability Council</p>	IV.A.M2 Timeframe Compliance Monitoring Responsibility	<p>Simulation or testing of blackstart capability units: Every five years.</p> <p>Documentation of the most current simulations or tests: on request (30 business days)</p> <p>Regions</p>	
Section 2 Levels of Non Compliance	<p>Level 1 — N/A</p> <p>Level 2 — N/A</p> <p>Level 3 — N/A</p> <p>Level 4 — The Transmission Operator's simulation or test results demonstrating that blackstart generating units can perform their intended functions were not provided, or the results were not compliant with the regional restoration plan.</p>	IV.A.M2 Levels of Non-Compliance	<p>Level 1 — N/A</p> <p>Level 2 — N/A</p> <p>Level 3 — N/A</p> <p>Level 4 — The transmission operator's simulation or test results demonstrating that blackstart generating units can perform their intended functions were not provided, or the results were not compliant with the Regional restoration plan.</p>	

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Section 3	Diagram the number, size, and location of system blackstart generating units and the initial transmission switching requirements.	IV.A.M3 Brief Description	Diagram the number, size, and location of system blackstart generating units and the initial transmission switching requirements.	
Section 3 Applicability	Transmission Operator	IV.A.M3 Applicable to	Transmission Operators	
Section 3 Requirements	<p>R3-1. Each Transmission Operator² shall have on file diagrams showing the location of each blackstart generating unit that is part of the regional blackstart capability plan (Reliability Standard 070-R1-1). The diagrams shall be reviewed and updated annually or when system changes occur. Where applicable, primary and secondary cranking paths associated with each blackstart generating unit and the units to be restarted shall be identified on the diagrams.</p> <p>R3-2. The Transmission Operator shall provide current diagrams to the Regional Reliability Council and NERC on request (30 business days).</p>	<p>IV.A.M3 Standard</p> <p>IV.A.M3 Measure</p>	<p>S1. A coordinated system blackstart capability plan shall be established, maintained, and verified through analysis indicating how system blackstart generating units will perform their intended functions as required in system restoration plans. Such blackstart capability plans shall include coordination within and among Regions as appropriate.</p> <p>M3. Each transmission operator shall have on file diagrams showing the location of each blackstart generating unit that is part of the Regional blackstart capability plan (Standard IV.A. S1, M1). The diagrams shall be reviewed and updated annually or when system changes occur. Where applicable, primary and secondary cranking paths associated with each blackstart generating unit and the units to be restarted shall be identified on the diagrams. The current diagrams shall be provided to the Region and NERC on request (30 business days).</p> <p>Several transmission operators or the entire Region</p>	

² Several transmission operators or the entire Region may elect to jointly develop the diagrams to improve coordination.

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			may elect to jointly develop the diagrams to improve coordination.	
Section 3 Measures	M3-1. The Transmission Operator shall have evidence it provided the diagrams specified in Reliability Standard 070-R3-1 as specified in Reliability Standard 070-R3-2.	IV.A.M3 Items to be Measured	Diagram of the number, size, and location of system blackstart generating units and the initial transmission switching requirements.	
Section 3 Regional Differences	None identified.		None identified.	
Section 3 Compliance Monitoring Process	Update of diagrams showing blackstart generating units: annually or when system changes occur Current diagrams: on request (30 business days). Regional Reliability Council	IV.A.M3 Timeframe Compliance Monitoring Responsibility	Update of diagrams showing blackstart generating units: annually or when system changes occur. Current diagrams: on request (30 business days). Region	
Section 3 Levels of Non Compliance	Level 1 — N/A Level 2 — N/A Level 3 — N/A Level 4 — The Transmission Operator’s diagrams of the number, size, and location of system blackstart generating units and the initial transmission switching requirements were not provided, or the diagrams were not compliant with the Regional Reliability Council’s restoration plan.	IV.A.M3 Levels of Non-Compliance	Level 1 — N/A Level 2 — N/A Level 3 — N/A Level 4 — The transmission operator’s diagrams of the number, size, and location of system blackstart generating units and the initial transmission switching requirements were not provided, or the diagrams were not compliant with the Regional restoration plan.	
Section 4	Documentation of blackstart generating unit test results.	Brief Description	Documentation of blackstart generating unit test results.	
Section 4	Generator Owner or Generator Operator	IV.A.M4	Generator Owners or Operators	

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Applicability		Applicable to		
Section 4 Requirements	<p>R4-1. The Generator Operator of each blackstart generating unit shall test the startup and operation of each system blackstart generating unit identified in the blackstart capability plan as required in the regional Blackstart Plan (Reliability Standard 070-R1-1). Testing records shall include the dates of the tests, the duration of the tests, and an indication of whether the tests met regional Blackstart Plan requirements.</p> <p>R4-2. The Generator Owner or Generator Operator shall provide documentation of the test results of the startup and operation of each blackstart generating unit to the Regional Reliability Councils and upon request to NERC.</p>	<p>IV.A.M4 Standard</p> <p>IV.A.M4 Measure</p>	<p>S2. Each blackstart generating unit shall be tested to verify that it can be started and operated without being connected to the system.</p> <p>M4. The blackstart generating unit owner or operator shall test the startup and operation of each system blackstart generating unit identified in the blackstart capability plan as required in the regional Blackstart Plan (Standard IV.A. S1, M1). Testing records shall include the dates of the tests, the duration of the tests, and an indication of whether the tests met regional Blackstart Plan requirements. A unit cannot be considered a blackstart unit unless it has met the regional blackstart requirements. It is expected that if a unit fails a test, that unit will be fixed and retested within a timeframe established by the Region in accordance with the regional Blackstart Plan or that unit will no longer be considered blackstart.</p> <p>Documentation of the test results of the startup and operation of each blackstart generating unit shall be provided to the Region and upon request to NERC.</p>	<p>Last two sentences of M4 have been moved to a footnote to Requirement R1-1.</p>
Section 4 Measures	M4-1. The Generator Operator shall have evidence it provided the test results specified in Reliability Standard 070-R4-1 as specified in Reliability Standard 070-R4-2.	IV.A.M4 Items to be Measured	Test results of the startup and operation of blackstart generating units.	
Section 4 Regional Differences	None identified.		None identified.	
Section 4	Current test results: to the Regional Reliability Council and	IV.A.M4	Current test results: to the Region and upon request to	Added "business" days

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Compliance Monitoring Process	upon request to NERC (30 days) Regional Reliability Council.	Timeframe Compliance Monitoring Responsibility	NERC (30 days). Region	
Section 4 Levels of Non Compliance	Level 1 - Startup and operation testing of each blackstart generating unit was performed, but the documentation was incomplete. Level 2 - Not applicable. Level 3 -- Startup and operation testing of a blackstart generating unit was only partially performed. Level 4 - Startup and operation testing of each blackstart generating unit was not performed	IV.A.M4 Levels of Non-Compliance	Level 1 - Startup and operation testing of each blackstart generating unit was performed but documentation was incomplete. Level 2 - Not applicable. Level 3 - Startup and operation testing of blackstart generating unit was only partially performed. Level 4 - Startup and operation testing of each blackstart generating unit was not performed	

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Standard	071	Compliance Templates IV.B. M1 IV.B. M2 IV.B. M3 IV.B. M4	IV. System Restoration B. Automatic Restoration of Load	
Title	Automatic Restoration of Load	Section:	IV. System Restoration B. Automatic Restoration of Load	
Purpose	To ensure that automatic load restoration programs are designed to avoid recreating electric system underfrequencies or undervoltages, overloading transmission facilities, or delaying the restoration of system facilities and interconnection tie lines to neighboring systems.		S1. Automatic load restoration programs shall be coordinated and in compliance with Regional load restoration programs. These automatic load restoration programs shall be designed to avoid recreating electric system underfrequencies or undervoltages, overloading transmission facilities, or delaying the restoration of system facilities and interconnection tie lines to neighboring systems.	Purpose was paraphrased from the second sentence of Standard S1
Effective Date	February 8, 2005	Approval Dates	IV.B.M1-M4 Approved for field testing in Phase III October 9, 2000	
Standard Applicability	Section 1 - Regional Reliability Council Section 2 – Responsible Entity may be any of the following: Transmission Owner, Transmission Operator, Distribution Provider, or Load Serving Entity owning or operating automatic load restoration programs Section 3 - Responsible Entity may be any of the following: Transmission Owner, Transmission Operator, Distribution Provider, or Load Serving Entity owning or operating automatic load restoration programs	Applicable to IV.B. M1 IV.B. M2 IV.B. M3	Section 1 – Regions Section 2 - Entities owning or operating automatic load restoration programs Section 3 - Entities owning or operating automatic load restoration programs	Used Functional Model defined term Responsible Entity as defined for each section under Applicability

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	Section 4 - Responsible Entity may be any of the following: Transmission Owner, Transmission Operator, Distribution Provider, or Load Serving Entity owning or operating automatic load restoration programs	IV.B. M4	Section 4 - Entities owning or operating automatic load restoration programs	
Section 1	Documentation of Regional load restoration policies and programs.	IV.B.M1 Brief Description	Documentation of Regional load restoration policies and programs.	
Section 1 Applicability	Regional Reliability Council	IV.B.M1 Applicable to	Regions	
Section 1 Requirements	R1-1. A Regional Reliability Council that has a member with an automatic load restoration system shall have a documented load restoration policy and program which includes: <ul style="list-style-type: none"> a. A description of how load restoration is coordinated with underfrequency and undervoltage load shedding programs within the Regional Reliability Council and, where appropriate, among Regional Reliability 	IV.B.M1 Standard IV.B.M1 Measure	S1. Automatic load restoration programs shall be coordinated and in compliance with Regional load restoration programs. These automatic load restoration programs shall be designed to avoid recreating electric system underfrequencies or undervoltages, overloading transmission facilities, or delaying the restoration of system facilities and interconnection tie lines to neighboring systems. M1. A Region that has a member with an automatic load restoration system shall have a documented load restoration policy and program which include: <ul style="list-style-type: none"> a. A description of how load restoration is coordinated with underfrequency and undervoltage load shedding programs within the Region and, where appropriate, among Regions. b. Automatic load restoration design details 	Existing Standard S1 is covered in Requirement R2-1 in this section and by Requirement 3-1 in Section 3.

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	<p>Councils.</p> <p>b. Automatic load restoration design details including acceptable size of coordinated load restoration blocks (% of connected load), corresponding frequency or voltage set points, and operating sequence (including relay and breaker operating times and intentional delays).</p> <p>c. Requirements for entities owning and operating automatic load restoration systems to provide on an annual basis current data for a Regional Reliability Council database to allow modeling the automatic load restoration programs in dynamic simulations of the interconnected transmission systems.</p> <p>d. The maintenance and annual update of an automatic load restoration program database. This database shall include information to model the automatic load restoration programs in dynamic simulations of the interconnected transmission systems.</p> <p>R1-2. The Regional Reliability Council’s policies and programs shall conform with applicable NERC Standards and shall require programs to be designed to avoid recreating electric system underfrequencies or undervoltages, overloading transmission facilities, or delaying the restoration of system facilities and interconnection tie lines to neighboring systems.</p>		<p>including acceptable size of coordinated load restoration blocks (% of connected load), corresponding frequency or voltage set points, and operating sequence (including relay and breaker operating times and intentional delays).</p> <p>c. Requirements for entities owning and operating automatic load restoration systems to provide on an annual basis current data for a Regional database to allow modeling the automatic load restoration programs in dynamic simulations of the interconnected transmission systems.</p> <p>d. The maintenance and annual update of an automatic load restoration program database. This database shall include information to model the automatic load restoration programs in dynamic simulations of the interconnected transmission systems.</p> <p>The Regional policies and programs shall conform with applicable NERC Standards and shall require programs to be designed to avoid recreating electric system underfrequencies or undervoltages, overloading transmission facilities, or delaying the restoration of system facilities and interconnection tie lines to neighboring systems.</p>	

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	R1-3. The Regional Reliability Council shall provide documentation of its load restoration policy and program and a current Regional Reliability Council load restoration database to other Regional Reliability Councils and NERC within five business days of a request.		Documentation of the Regional load restoration policy and program and a current Regional load restoration database shall be provided to other Regions and NERC on request (five business days).	
Section 1 Measures	M1-1. The Regional Reliability Council has a load restoration policy and program that meets the requirements of Reliability Standard 071-R1-1 and Standard 071-R1-2 and shall have evidence the program has been provided as specified in Reliability Standard 071-R1-3.	IV.B.M1 Items to be Measured	Documentation of Regional load restoration policy and program, and an updated Regional load restoration database.	
Section 1 Regional Differences	None identified		None identified	
Section 1 Compliance Monitoring Process	Updated Regional load restoration database: annually. Documentation of Regional policy and current database: on request (five business days). NERC	IV.B.M1 Timeframe Compliance Monitoring Responsibility	Updated Regional load restoration database: annually. Documentation of Regional policy and current database: on request (five business days). NERC	
Section 1 Levels of Non Compliance	Level 1 — Documentation of the Regional Reliability Council’s load restoration policy and program was provided, but the Regional Reliability Council’s load restoration database was not updated (Reliability Standard 071-R1-1 number 4). Level 2 — N/A		Level 1 — Documentation of the Regional load restoration policy and program was provided, but the Regional load restoration database was not updated. Level 2 — N/A	

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	<p>Level 3 — Documentation of the Regional Reliability Council’s load restoration policy and program was provided, but was incomplete in one or more elements in Reliability Standard 071-R1-1 and Standard 071-R1-2 as defined above in Reliability Standard 071-M1-1.</p> <p>Level 4 — Documentation of the Regional Reliability Council’s load restoration policy and program was not provided.</p>		<p>Level 3 — Documentation of the Regional load restoration policy and program was provided, but was incomplete in one or more elements as defined above in Measurement M1.</p> <p>Level 4 — Documentation of the Regional load restoration policy and program was not provided.</p>	
Section 2	Documentation of automatic load restoration programs.	IV.B.M2 Brief Description	Documentation of automatic load restoration programs.	
Section 2 Applicability	Responsible Entity may be any of the following: Transmission Owner, Transmission Operator, Distribution Provider, or Load Serving Entity owning or operating automatic load restoration programs.	IV.B.M2 Applicable to	Entities owning or operating automatic load restoration programs	
Section 2 Requirements	<p>R2-1. The Responsible Entity shall have a policy and programs and documentation that demonstrates conformance with the Regional Reliability Council’s load restoration policy and program requirements in Reliability Standard 071-R1-1 and 071-R1-2.</p> <p>R2-2. The Responsible Entity’s documentation of its policy and program and its conformance to the Regional Reliability Council’s load restoration policy and program shall be provided to the Regional Reliability Council and NERC within five business days of a request.</p>	IV.B.M2 Measure	<p>M2. Regional members owning or operating an automatic load restoration system shall have a policy, and programs and documentation that demonstrate conformance with the Regional load restoration policy and program of Measurement IV.B. S1, M1.</p> <p>Documentation of each Regional member’s policy and program and its conformance to the Regional load restoration policy and program shall be provided to the Region and NERC on request (five business days).</p>	

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Section 2 Measure	M2-1. The Responsible Entity shall provide documentation that its load restoration policy and program meets Reliability Standard 071-R2-1 and shall have evidence the documentation was provided as specified in Reliability Standard 071-R2-2.	IV.B.M2 Items to be Measured	Documentation of Regional member’s load restoration policy and programs and their conformance with the Regional load restoration policy and program as defined in IV.B. S1, M1, including coordination and data requirements.	
Section 2 Regional Differences	None identified		None identified	
Section 2 Compliance Monitoring Process	On request (five business days). Regional Reliability Council	IV.A.M2 Timeframe Compliance Monitoring Responsibility	On request (five business days). Regions	
Section 2 Levels of Non Compliance	Level 1 — Documentation of the Responsible Entity’s automatic load restoration policy and programs was provided, but the required data was not current. Level 2 — Documentation of the Responsible Entity’s automatic load restoration policy and programs was provided, but coordination as required in the Regional Reliability Council’s policy and program (Reliability Standard 071-R1-1 elements a-d) was not provided or was incomplete Level 3 — Documentation of the Responsible Entity’s automatic load restoration policy and programs was provided, but was incomplete in one of the areas required by the Regional Reliability Council’s load restoration policy and program (Reliability Standard 071-R1-1 elements a-d).	IV.B.M2 Levels of Non-Compliance	Level 1 — Documentation of the Regional member’s automatic load restoration policy and programs was provided, but the required data was not current. Level 2 — Documentation of the Regional member’s automatic load restoration policy and programs was provided, but coordination as required in the Regional policy and program (IV.B. S1, M1) was not provided or was incomplete. Level 3 — Documentation of the Regional member’s automatic load restoration policy and programs was provided, but was incomplete in one of the areas required by the Regional load restoration policy and program (IV.B. S1, M1).	Added references to the specific elements requirements being addressed. Added references to the specific elements of the requirements being addressed.

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	Level 4 — Documentation of the Responsible Entity’s automatic load restoration policy and programs was not provided, or was provided but was missing two or more areas required by the Regional Reliability Council’s load restoration policy and program (Standard 071-R1-1 elements a-d), or does not conform with the Regional Reliability Council’s load restoration policy and program (Standard 071-R1-2).		Level 4 — Documentation of the Regional member’s automatic load restoration policy and programs was not provided, or was provided but was missing two or more areas required by the Regional load restoration policy and program, or does not conform with the Regional load restoration policy and program (IV.B. S1, M1).	Added references to the specific elements requirements being addressed.
Section 3	Assessment of the effectiveness of automatic load restoration programs.	IV.B.M3 Brief Description	Assessment of the effectiveness of automatic load restoration programs.	
Section 3 Applicability	Responsible Entity may be any of the following: Transmission Owner, Transmission Operator, Distribution Provider, or Load Serving Entity owning or operating automatic load restoration programs.	IV.B.M3 Applicable to	Entities owning or operating automatic load restoration programs	
Section 3 Requirements	<p>R3-1. The Responsible Entity shall demonstrate through simulation that the design and implementation of its programs do not cause electric system underfrequencies or undervoltages, the overloading of transmission facilities, or delay in the restoration of facilities and interconnection tie lines to neighboring systems.</p> <p>R3-2. The Responsible Entity shall make its documentation of the results of the simulation of the automatic load restoration programs available to the appropriate (affected) Regional Reliability Councils and NERC</p>	IV.B.M3 Measure	<p>M3. Those entities owning or operating an automatic load restoration program shall demonstrate through simulation that the design and implementation of their programs do not cause electric system underfrequencies or undervoltages, the overloading of transmission facilities, or delay in the restoration of facilities and interconnection tie lines to neighboring systems.</p> <p>Documentation of the results of the simulation of the automatic load restoration programs shall be available to the appropriate (affected) Regions and NERC on request (30 business days).</p>	

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	within 30 business days of a request.			
Section 3 Measures	M3-1. The Responsible Entity shall provide documentation that simulations demonstrate that the design and implementation of the automatic load restoration programs meets Reliability Standard 071-R3-1 and shall have evidence the documentation was made available as specified in Reliability Standard 071-R3-2.	IV.B.M3 Items to be Measured	Documentation of the simulations demonstrating that the design and implementation of the automatic load restoration programs do not cause the system impacts as described in above Measurement M3.	
Section 3 Regional Differences	None identified		None identified	
Section 3 Compliance Monitoring Process	On request (30 business days). Regional Reliability Councils	IV.A.M3 Timeframe Compliance Monitoring Responsibility	On request (30 business days). Regions	
Section 3 Levels of Non Compliance	Level 1 — N/A Level 2 — N/A Level 3 — N/A Level 4 — Documentation of the simulations of the design and implementation of the Responsible Entity’s automatic load restoration program was not provided, or the automatic load restoration program was not operated in conformance with the Regional Reliability Council’s load restoration policy and program (Reliability Standard 071-R1-1 and Standard 071-R1-2) or the requirements of	IV.B.M3 Levels of Non-Compliance	Level 1 — N/A Level 2 — N/A Level 3 — N/A Level 4 — Documentation of the simulations of the design and implementation of the entity’s automatic load restoration program was not provided, or the entity’s automatic load restoration program was not operated in conformance with the Region’s load restoration policy and program or the requirements of the above Measurement M3.	

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	Reliability Standard 071-R3-1.			
Section 4	Automatic load restoration equipment maintenance requirements.	IV.B.M4 Brief Description	Automatic load restoration equipment maintenance requirements.	
Section 4 Applicability	Responsible Entity may be any of the following: Transmission Owner, Transmission Operator, Distribution Provider, or Load Serving Entity owning or operating automatic load restoration programs	IV.B.M4 Applicable to	Entities owning or operating automatic load restoration programs	
Section 4 Requirements	R4-1. The Responsible Entity shall document and implement a maintenance program that ensures accurate and reliable operation of the automatic load restoration relays. R4-2. The Responsible Entity shall provide its documentation of the implementation of the maintenance program to the appropriate (affected) Regional Reliability Councils and NERC within 30 business days of a request.	IV.B.M4 Measure	M4. Those entities owning or operating automatic load restoration programs shall document and implement a maintenance program that ensures accurate and reliable operation of the automatic load restoration relays. Documentation of the implementation of the maintenance program shall be provided to the appropriate (affected) Regions and NERC on request (30 business days).	
Section 4 Measures	M4-1. The Responsible Entity's documentation of its implementation of the maintenance program includes all elements identified in Reliability Standard 071-R4-1 and the Responsible Entity has evidence that it provided this documentation as specified in Reliability Standard 071-R4-2.	IV.B.M4 Items to be Measured	Documentation of the maintenance program and its implementation.	
Section 4 Regional Differences	None identified		None identified	
Section 4 Compliance Monitoring	On request (30 business days).	IV.A.M4 Timeframe	On request (30 business days).	

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Process	Regions	Compliance Monitoring Responsibility	Regions	
Section 4 Levels of Non Compliance	<p>Level 1 - The Responsible Entity's documentation of the implementation of the automatic load restoration maintenance program was complete, but the maintenance program documentation was incomplete.</p> <p>Level 2 - Not applicable.</p> <p>Level 3 - The Responsible Entity's documentation of the maintenance program and its implementation for the automatic load restoration system was not available, but maintenance is being performed.</p> <p>Level 4 - The Responsible Entity's documentation of the maintenance program and its implementation for the automatic load restoration system was not available, and maintenance was not being performed.</p>	IV.B.M4 Levels of Non-Compliance	<p>Level 1 - Documentation of the implementation of the automatic load restoration maintenance program was complete, but the maintenance program documentation was incomplete.</p> <p>Level 2 - Not applicable.</p> <p>Level 3 - Documentation of the maintenance program and its implementation for the automatic load restoration system was not available, but maintenance is being performed.</p> <p>Level 4 - Documentation of the maintenance program and its implementation for the automatic load restoration system was not available, and maintenance was not being performed.</p>	Version 1 needs to address better levels of non-compliance

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Heading	New Language	Heading	Existing Document Language	Comments
Standard	072	(No Number Exists)	Vegetation Management Program	The Vegetation Management Program standard was introduced with the revised standards produced by the CTFB and approved by the NERC Board of Trustees on April 2, 2004. It was not given a number in the format of the original Planning Standards.
Title	Vegetation Management Program	(No Number Exists)	Vegetation Management Program	
Purpose	To ensure that transmission owners have a vegetation management program to prevent transmission line contact with vegetation, and to ensure that certain vegetation-related outages are reported to the appropriate	(No Purpose Exists)	None.	Language paraphrased from the Requirements of the Standard. See below, Section 1.
Effective Date	February 8, 2005	Approved by NERC BOT	April 2, 2004	
Standard Applicability	Transmission Owners	Applicable to	Transmission Owners.	
Section 1	Vegetation Management program for Transmission Owner	Brief Description	Vegetation Management program for Transmission Owners	
Section 1 Applicability	Transmission Owners	Applicable to	Transmission Owners	Same as "Applicable To," above
Section 1 Requirements	R1-1. Each transmission owner shall have a vegetation management program to prevent transmission line contact with vegetation. The vegetation management program shall include the following three elements: <ol style="list-style-type: none"> 1. Inspection requirements 2. Trimming clearances 3. Annual work plan 	Requirements	1. Each transmission owner shall have a vegetation management program to prevent transmission line contact with vegetation. The vegetation management program shall include the following elements: <ul style="list-style-type: none"> • Inspection requirements • Trimming clearances • Annual work plan 	Clarified the three sub-requirements of Requirement One by converting bullets to numbers.

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	R1-2. Each Transmission Owner shall report to its Regional Reliability Council all vegetation-related outages on transmission circuits 200 kV and higher and any other lower voltage lines designated by the Regional Reliability Council to be critical to the reliability of the electric system.		2. Each transmission owner shall report to its Regional Reliability Council all vegetation-related outages on transmission circuits 200 kV and higher and any other lower voltage lines designated by the RRC to be critical to the reliability of the electric system.	
Section 1 Measures	<p>M1-1. The Transmission Owner’s vegetation management program documentation contains the following elements:</p> <ol style="list-style-type: none"> 1. Inspection requirements 2. Trimming clearances 3. Annual work plan <p>M1-2. The Transmission Owner shall have evidence it performs vegetation program maintenance in the annual work plan according to the requirements and procedures contained in the program.</p> <p>M1-3. The Transmission Owner shall have evidence it reported all vegetation-related transmission line trips on lines of 200kV or higher and any other lower voltage lines designated by the Regional Reliability Council to be critical to the reliability of the electric system</p>	Items to be Measured	<p>1. The vegetation management program documentation contains the following elements:</p> <p style="padding-left: 40px;">Inspection requirements Trimming clearances Annual work plan</p> <p>2. The transmission owner performs vegetation program maintenance in the annual work plan according to the requirements and procedures contained in the program.</p> <p>3. All vegetation-related transmission line trips on lines of 200kV or higher and any other lower voltage lines designated by the Regional Reliability Council to be critical to the reliability of the electric system are reported.</p>	Clarified the three sub-measurements of Measurement One by converting bullets to numbers.
Section 1 Regional Differences	None identified.		None identified.	
Section 1 Compliance Monitoring Process	<p><u>Reporting Requirements</u></p> <p>Self-certification</p> <p>The Transmission Owner annually self-certifies that it has performed vegetation program maintenance in the annual work plan according to</p>	Reporting Requirements	<p><u>Reporting Requirements</u></p> <p>Self-certification</p> <p>The transmission owner annually self-certifies that it has performed vegetation program maintenance in the annual work plan according</p>	The Vegetation Management Program standard contained a significant amount of information not captured in the other existing Planning Standards. All of this extra information best fit into the

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	<p>the requirements and procedures contained in the program.</p> <p>Periodic Reporting</p> <p>Transmission Owners shall report vegetation-related line outages on transmission circuits 200 kV or higher and any other lower voltage lines designated by the Regional Reliability Council to be critical to the reliability of the electric system, to the Region for a calendar month by the 20th of the following month. The Region shall report quarterly results to NERC.</p> <p>All outages shall be reported where the cause of the outage is the line faulting due to contact with vegetation, except:</p> <ul style="list-style-type: none"> • Multiple outages on an individual line, if caused by the same vegetation, shall be reported as one outage regardless of the actual number of outages within a 24-hour period. • A single trip followed by a successful automatic reclose within a 24-hour period shall not be a reportable outage. <p><u>Reporting Period</u></p> <p>Three-year Audit</p> <p>The Compliance Monitor will conduct an on-site review every three years. The Vegetation Management Program will be reviewed and assessed.</p> <p>Self-Certification</p> <p>The Transmission Owner annually submits a self-certification that it has performed all vegetation management maintenance in the annual work plan during the past calendar year that is described in the Vegetation</p>	Reporting Period	<p>to the requirements and procedures contained in the program.</p> <p>Periodic Reporting</p> <p>Transmission owners shall report vegetation-related line outages on transmission circuits 200 kV or higher and any other lower voltage lines designated by the Regional Reliability Council to be critical to the reliability of the electric system, to the Region for a calendar month by the 20th of the following month. The Region shall report quarterly results to NERC.</p> <p>All outages shall be reported where the cause of the outage is the line faulting due to contact with vegetation, except:</p> <ul style="list-style-type: none"> • Multiple outages on an individual line, if caused by the same vegetation, shall be reported as one outage regardless of the actual number of outages within a 24-hour period. • A single trip followed by a successful automatic reclose within a 24-hour period shall not be a reportable outage. <p><u>Reporting Period</u></p> <p>Three-year Audit</p> <p>The Compliance Monitor will conduct an on-site review every three years. The Vegetation Management Program will be reviewed and assessed.</p> <p>Self-Certification</p> <p>The Transmission Owner annually submits a self-certification that it has performed all vegetation management maintenance in the annual work plan during the past calendar year that is described in</p>	Compliance Monitoring Process section of the new standard.

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	<p>Management Program.</p> <p>Periodic Reporting</p> <p>All vegetation-related transmission line trips on lines of 200kV or higher and any other lower voltage lines designated by the Regional Reliability Council to be critical to the reliability of the electric system will be reported to the region on a monthly basis by the 20th of the following month. The Region shall report quarterly results to NERC by the last business day of January, April, July, and October.</p> <p><u>Compliance Reset Period</u> One calendar quarter</p> <p><u>Compliance Monitoring Responsibility</u> Regional Reliability Council. Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting process.</p>		<p>the Vegetation Management Program.</p> <p>Periodic Reporting</p> <p>All vegetation-related transmission line trips on lines of 200kV or higher and any other lower voltage lines designated by the Regional Reliability Council to be critical to the reliability of the electric system will be reported to the region on a monthly basis by the 20th of the following month. The Region shall report quarterly results to NERC by the last business day of January, April, July, and October.</p> <p><u>Compliance Reset Period</u> One calendar quarter</p> <p><u>Compliance Monitoring Responsibility</u> Regional Reliability Councils. Each Region shall report compliance and violations to NERC via the NERC Compliance Reporting process.</p>	
Section 1 Levels of Non Compliance	<p>The Transmission Owner is in Full Compliance if the following Requirements are met:</p> <p>Three-year Audit The vegetation management program is fully documented and contains all three elements listed in Measurement M1-1of this Reliability Standard.</p> <p>Self-Certification The transmission owner performed all maintenance as described in the annual work plan.</p> <p>Periodic Reporting All vegetation-related transmission line outages of 200kV or higher and any other lower voltage lines designated by the Regional Reliability Council to be critical to the reliability of</p>	Full Compliance Requirements	<p>Three-year Audit The vegetation management program is fully documented and contains all three elements listed in Requirement 1 of items to be measured.</p> <p>Self-Certification The transmission owner performed all maintenance as described in the annual work plan.</p> <p>Periodic Reporting All vegetation-related transmission line outages of 200kV or higher and any other lower voltage lines designated by the Regional Reliability Council to be critical to the reliability of the electric system are reported during a calendar quarter.</p>	“Levels of Non-Compliance” were not specified in the current Standard. The current Standard only identified Compliant or Non-Compliant.

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	<p>the electric system are reported during a calendar quarter.</p> <p>The transmission owner is non-compliant if:</p> <ul style="list-style-type: none"> • Vegetation-related outages occurred and were not reported during a one-month period • The Vegetation Management Plan is found to be not complete • The transmission owner did not perform necessary maintenance described in the annual work plan as reported via self-certification. 	Non-Compliance	<p>The transmission owner is non-compliant if:</p> <ul style="list-style-type: none"> • Vegetation-related outages occurred and were not reported during a one-month period • The Vegetation Management Plan is found to be not complete • The transmission owner did not perform necessary maintenance described in the annual work plan as reported via self-certification. 	