

**Standard Development Roadmap**

*This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.*

**Development Steps Completed:**

1. SAC authorized posting TTC/ATC/AFC SAR development June 20, 2005.
2. SAC authorized the SAR to be development as a standard on February 14, 2006.
3. SC appointed a Standard Drafting Team on March 17, 2006.
4. SDT posted first draft for comment from May 25–June 25, 2007
5. SDT posted second draft for comment from October 31–December 14, 2007.

**Description of Current Draft:**

This is the third and final draft of the proposed standard posted for stakeholder comments. This draft includes the modifications with consideration of stakeholder comments and applicable FERC directives from FERC Order 693, Oder 890, and Order 890-A.

**Future Development Plan:**

<b>Anticipated Actions</b>	<b>Anticipated Date</b>
1. First ballot of standard.	March 7, 2008
2. Respond to comments.	April 22, 2008
3. Recirculation ballot.	April 22, 2008
4. 30-day posting before board adoption.	March 7, 2008
5. Board adoption.	May 5, 2008

**Definitions of Terms Used in Standard**

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

**Generation Capability Import Requirement (GCIR):** The amount of generation capability from external sources requested by a Load-Serving Entity (LSE) (or group of LSEs with an aggregated need for Capacity Benefit Margin) to meet its generation reliability or resource adequacy requirements as an alternative to internal resources.

**Capacity Benefit Margin Implementation Document (CBMID):** A document that describes the implementation of a Capacity Benefit Margin methodology.

**Planned Resource Sharing Group (PRSG):** A group of Load-Serving Entities who have agreed to jointly meet their resource adequacy requirements.

## A. Introduction

1. **Title:** Capacity Benefit Margin
2. **Number:** MOD-004-1
3. **Purpose:** To promote the consistent and reliable calculation, verification, preservation, and use of Capacity Benefit Margin (CBM) to support analysis and system operations.
4. **Applicability:**
  - 4.1. **Functional Entity:**
    - 4.1.1 Load-Serving Entity.
    - 4.1.2 Planned Resource Sharing Group.
    - 4.1.3 Transmission Service Providers that maintain CBM.
    - 4.1.4 Balancing Authority.
    - 4.1.5 Transmission Planners, when their associated Transmission Service Provider has elected to maintain CBM.
5. **Facility Limitations/Specifications:**
  - 5.1. None.
6. **Effective Date:** First day of the first calendar quarter that is twelve months beyond the date that this standard is approved by applicable regulatory authorities, or in those jurisdictions where regulatory approval is not required, the standard become effective on the first day of the first calendar quarter that is twelve months beyond the date this standard is approved by the NERC Board of Trustees.

## B. Requirements

- R1. The Transmission Service Provider shall prepare and keep current a “Capacity Benefit Margin Implementation Document” (CBMID) that includes, at a minimum, the following information: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning, Long-term Planning]*
  - R1.1. Its procedure for a Load-Serving Entity or Planned Resource Sharing Group within a Balancing Authority associated with the Transmission Service Provider to request the Generation Capability Import Requirement (GCIR) including the disposition and handling of deficient requests.
  - R1.2. Its procedure and assumptions for setting CBM for each ATC Path or Flowgate based on Load-Serving Entity or Planned Resource Sharing Group GCIR.
  - R1.3. Its procedure to request the use of Transfer Capability set aside as CBM.
  - R1.4. A statement of whether the Transmission Service Provider allows ATC or AFC to be less than zero due to CBM.
- R2. The Transmission Service Provider shall make available its CBMID and any changes to the CBMID to the Transmission Operators, Transmission Service Providers, Reliability Coordinators, Transmission Planners, and Planning Coordinators that are within or

adjacent to the Transmission Service Provider's area prior to the effective date of a change. *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*

- R3.** A Load-Serving Entity or Planned Resource Sharing Group that wants Transfer Capability to be set aside in the form of CBM shall: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning, Long-term Planning]*
- R3.1.** Submit an annual GCIR request to the Transmission Service Provider and Transmission Planner per the specifications in the CBMID that includes:
- R3.1.1.** The GCIR, specifying:
- 3.1.1.1. A monthly GCIR value for each month for the next 24 months. If monthly values are not a requirement as per the applicable reserve margin and resource adequacy requirements documented in R3.1.2, a yearly GCIR value for the current and following year will be sufficient .
  - 3.1.1.2. An annual GCIR value for each subsequent year for each Balancing Authority or Posted Path not to exceed 10 years into the future.
  - 3.1.1.3. The location of the load served by the GCIR (e.g., Balancing Authority, zones, markets ...).
  - 3.1.1.4. Assumed external resources (e.g., Balancing Authority(ies), specific generators, markets ...) from which generation supporting each GCIR value of 3.1.1.1 and 3.1.1.2 will be supplied or the specific ATC Paths to be used for import of the generation supporting the GCIR.
- R3.1.2.** Identification of all applicable reserve margin and resource adequacy requirements, and the entity(ies) responsible for establishing them, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities.
- 3.1.2.1. The process and periodicity of calculating or recalculating GCIR if the entities specified in R3.1.2 require calculating GCIR on a frequency different than specified in R3.1.1
- R3.1.3.** A summary of the results of resource studies performed to determine the amount of the request, not to include confidential information.
- R3.1.4.** All resource studies (and supporting information) performed to determine the amount of the request.
- R3.2.** Every thirty-one calendar days, each Load Serving Entity or Planned Resource Sharing Group shall adjust its GCIR request, if necessary per 3.1.1 or 3.1.2.1, to reflect any incremental increase or decrease in required GCIR by either simple adjustment or through recalculation. .

- R3.3.** Base the request provided per R3.1 on studies conducted in accordance with verifiable historical, state, regional transmission organization or regional entity criteria.
- R4.** Within fourteen calendar days of receiving a request or change to a GCIR request that meets the requirements defined in R3.1, the Transmission Service Provider shall set the CBM for the next 13 months requested as described in R3.1 as follows: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
  - R4.1.** Determine the amount of CBM (for use in R4.2) for each request by using one of the following:
    - R4.1.1.** For the Area Interchange Methodology and the Rated System Path Methodology, using the requested Generation Capability Import Requirement for the appropriate ATC Path(s)
    - R4.1.2.** For the Flowgate Methodology, determining the significant impacts of each request on each Flowgate
      - 4.1.2.1. Determine impacts of a request by multiplying the requested GCIR by the Distribution Factor for the import relative to the Flowgate or model the GCIR explicitly in the AFC model per R3.1.1.3 and R3.1.1.4.
  - R4.2.** For the Area Interchange Methodology and the Rated System Path Methodology, set CBM for each ATC Path equal to the sum of all requests such that all requests can be met simultaneously or all firm ATC has been allocated to CBM as follows:
    - R4.2.1.** If the situation exists where there is insufficient capability on the ATC Path to satisfy the sum of all GCIR requests and the Transmission Service Provider, per R1.4, does not allow ATC to be less than zero, then the Transmission Service Provider shall set the CBM such that the monthly ATCs equal zero
    - R4.2.2.** If the situation exists where there is insufficient capability on the ATC Path to satisfy the sum of all GCIR requests and the Transmission Service Provider, per R1.4, allows the ATC to be less than zero, then the Transmission Service Provider shall set the CBM equal to the sum of the requested GCIR for that ATC Path.
  - R4.3.** For the Flowgate Methodology set CBM for each Flowgate equal to the sum of all requests on that Flowgate such that all requests can be met simultaneously or all firm ATC has been allocated to CBM as follows:
    - R4.3.1.** If the situation exists where there is insufficient Flowgate AFC to satisfy the sum of all GCIR requests and the Transmission Service Provider, per R1.4, does not allow the Flowgate AFC to be less than zero, then the Transmission Service Provider shall set the CBM such that the monthly Flowgate AFCs equal zero
    - R4.3.2.** If the situation exists where there is insufficient Flowgate AFC to satisfy the sum of all GCIR requests and the Transmission Service

Provider, per R1.4, allows the Flowgate AFC to be less than zero, then the Transmission Service Provider shall set the CBM equal to the sum of the requested GCIR for that Flowgate.

- R5.** Within sixty calendar days of receiving a request or change to a GCIR request that meets the requirements defined in R3.1, the Transmission Planner shall: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R5.1.** As per R3.1.1.3 and R3.1.1.4, model the GCIR explicitly in the ATC/AFC model or use the CBM calculated using requirements R4.1 through R4.3 for all years requested beyond 13 months not to exceed 10 years
- R5.2.** If so requested, provide the Transmission Service Provider with the following:
- R5.2.1.** The total amount of CBM for each ATC Path or Flowgate on the Transmission Service Provider's system in each of the years specified in the original CBM request not to exceed 10 years.
- R5.2.2.** If less than the sum of all requests was established as the CBM for any period, for each ATC Path or Flowgate, a list of the values of each GCIR used to set the CBM for each of the years specified in the original request not to exceed 10 years.
- R6.** Within seven calendar days of the determination of CBM as described in R4 or R5, the Transmission Service Provider shall provide each Load-Serving Entity or Planned Resource Sharing Group that requested CBM and the Balancing Authority hosting its (their) load with a report that includes: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R6.1.** The total amount of CBM for each ATC Path or Flowgate on the Transmission Service Provider's system in each of the months or years specified in the original request.
- R6.2.** If less than the sum of all requests was established as the CBM for any period:
- For each ATC Path or Flowgate, a list of the values of each GCIR used to set the CBM for each of the months and years specified in the original request
  - The option to pursue alternatives, including expansion, with the Transmission Service Provider.
- R7.** The Transmission Service Provider and Transmission Planner shall each provide copies of the supporting data, including any models, used for allocating CBM over each ATC Path or Flowgate to the following: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning, Long-term Planning*]
- R7.1.** Each of its associated Transmission Operators within thirty calendar days of their making a request for the data.
- R7.2.** To any Transmission Service Provider, Reliability Coordinator, Transmission Planner, or Planning Coordinator within thirty calendar days of their making a request for the data.

- R8.** The Load-Serving Entity or Balancing Authority that wants to schedule energy over firm Transfer Capability set aside as CBM shall submit an Arranged Interchange, and shall not request to schedule energy over firm Transfer Capability set aside as CBM unless experiencing a declared NERC Energy Emergency Alert (EEA) 2 or higher. *[Violation Risk Factor: Lower] [Time Horizon: Same-day Operations]*
- R9.** When reviewing an Arranged Interchange using CBM, the Balancing Authority and Transmission Service Provider shall waive, within the bounds of reliable operation, any real-time timing and ramping requirements. *[Violation Risk Factor: Lower] [Time Horizon: Same-day Operations]*
- R10.** The Transmission Service Provider shall approve any Arranged Interchange using CBM that is submitted by an Energy Deficient Entity<sup>1</sup> under an EEA2 if the CBM is available. *[Violation Risk Factor: Medium] [Time Horizon: Same-day Operations]*

**C. Measures**

- M1.** Each Transmission Service Provider shall produce its CBMID evidencing inclusion of all information specified in R1. (R1)
- M2.** Each Transmission Service Provider shall have evidence (such as dated logs and data, copies of dated electronic messages, or other equivalent evidence) to show that prior to the effective date of a change to its CBMID, it made the CBMID available to the Transmission Operators, Transmission Service Providers, Reliability Coordinators, Transmission Planners, and Planning Coordinators specified in R2. (R2)
- M3.** Each Load-Serving Entity or Planned Resource Sharing Group that wants CBM shall provide a copy of its GCIR request with the supporting information specified in R3.1 to show that it is compliant with R3.1. (R3)
- M4.** Each Load-Serving Entity or Planned Resource Sharing Group that requests changes to its GCIR as per R3.2 shall provide dated copies of its updated GCIR along with studies or documentation of the changes that support its request; such as Transmission Service Requests, generator outage reports, and load-forecast changes that affect its resource adequacy requirements documented in R3.1.2. (R3).
- M5.** Each Load-Serving Entity or Planned Resource Sharing Group that wants CBM shall provide evidence (such as studies, historical data, copies of state or regional transmission organization reliability criteria, regional generation reliability criteria or other equivalent evidence) that it has based its GCIR request on verifiable historical, state, regional transmission organization, or regional generation reliability criteria in accordance with R3.3. (R3)
- M6.** Each Transmission Service Provider shall provide evidence including copies of GCIR requests and requests for GCIR changes and other evidence such as copies of the actual computations to set CBM, or other equivalent evidence to show that CBM for the months requested as described in R3.1.1 has been established using the process described in R4. (R4)

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<sup>1</sup> See Attachment 1-EOP-002-0 for definition.

- M7.** Each Transmission Planner shall provide evidence including copies of GCIR requests and requests for GCIR changes and other evidence (such as written documentation of studies and supporting study models that model base load flow, copies of actual computations to set CBM, or other equivalent evidence) to show that the GCIR has been used to either model GCIR or calculate as per the process described in R5. (R5)
- M8.** Each Transmission Service Provider shall provide copies of the reports sent to Load-Serving Entities and Balancing Authorities along with other evidence (such as logs and data, copies of electronic messages, or other equivalent evidence) to show that within seven calendar days of the determination of CBM, a report meeting the requirements described in R6 was provided as specified. (R6).
- M9.** Each Transmission Service Provider and Transmission Planner shall each provide evidence including copies of dated requests for data supporting the calculation of CBM along with other evidences such as copies of electronic messages or other evidence to show that it provided the required entities with copies of the supporting data, including any models, used for allocating CBM as specified in R7. (R7)
- M10.** Each Load-Serving Entity that scheduled energy over firm Transfer Capability set aside as CBM shall provide evidence (such as logs, copies of tag data, or other data from its Reliability Coordinator) that at the time they requested the schedule using CBM, they were in an EEA2. (R8)
- M11.** Each Balancing Authority and Transmission Service Provider shall provide evidence (such as operating logs and tag data) that it waived real-time timing and ramping requirements when approving an Arranged Interchange using CBM (R9)
- M12.** Each Transmission Service Provider shall provide evidence including copies of CBM values along with other evidence (such as tags, reports, and supporting data) to show that it approved any Arranged Interchange using CBM for any Energy Deficient Entity<sup>2</sup> where the total CBM available was greater than the amount of CBM requested in the Arranged Interchange. (R10)

## **D. Compliance**

### **1. Compliance Monitoring Process**

#### **1.1. Compliance Enforcement Authority (CEA)**

Regional Entity.

#### **1.2. Compliance Monitoring Period and Reset Time Frame**

Not applicable.

#### **1.3. Data Retention**

- The Transmission Service Provider shall maintain its current, in force CBMID and any prior versions of the CBMID that were in force since the last compliance audit to show compliance with R1.

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<sup>2</sup> See Attachment 1-EOP-002-0 for definition.

- The Transmission Service Provider shall maintain evidence to show compliance with R2, R4, R6, R7 and R10 for the most recent three calendar years plus the current year.
- The Load-Serving Entity and Planned Resource Sharing Group shall each maintain evidence to show compliance with R3, and R8 for the most recent three calendar years plus the current year.
- The Transmission Planner shall maintain evidence to show compliance with R5 and R7 for three calendar years.
- The Balancing Authority shall maintain evidence to show compliance with R9 for three calendar years.
- If an entity is found non-compliant, it shall keep information related to the non-compliance until found compliant.
- The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

**1.4. Compliance Monitoring and Enforcement Processes:**

The following processes may be used:

- Compliance Audits
- Self-Certifications
- Spot Checking
- Compliance Violation Investigations
- Self-Reporting
- Complaints

**1.5. Additional Compliance Information**

**None.**

2. Violation Severity Levels

R #	Lower VSL	Moderate	High VSL	Severe VSL
R1.	The Transmission Service Provider has a CBMID that does not incorporate changes that have been made within the last three months.	<p>The Transmission Service Provider has a CBMID that does not incorporate changes that have been made more than three, but not more than six, months ago.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Transmission Service Provider's CBMID does not address one of the sub requirements.</p>	<p>The Transmission Service Provider has CBMID that does not incorporate changes that have been made more than six, but not more than twelve, months ago.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Transmission Service Provider's CBMID does not address two of the sub requirements.</p>	<p>The Transmission Service Provider has a CBMID that does not incorporate changes that have been made more than twelve months ago.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Transmission Service Provider does not have a CBMID;</p> <p style="text-align: center;"><b>OR</b></p> <p>The Transmission Service Provider's CBMID does not address three or more of the sub requirements.</p>
R2.	The Transmission Service Provider makes available the CBMID and any changes to the CBMID to the Transmission Operator, Transmission Service Provider, Reliability Coordinator, Transmission Planner, and Planning Coordinator 14 or more calendar days but not more than 30 calendar days after a change was made.	The Transmission Service Provider makes available the CBMID and any changes to the CBMID to the Transmission Operator, Transmission Service Provider, Reliability Coordinator, Transmission Planner, and Planning Coordinator 30 or more calendar days but not more than 60 calendar days after a change was made.	The Transmission Service Provider makes available the CBMID and any changes to the CBMID to the Transmission Operator, Transmission Service Provider, Reliability Coordinator, Transmission Planner, and Planning Coordinator 60 or more calendar days but not more than 90 calendar days after a change was made.	The Transmission Service Provider makes available the CBMID and any changes to the CBMID to the Transmission Operator, Transmission Service Provider, Reliability Coordinator, Transmission Planner, and Planning Coordinator more than 90 calendar days after a change was made.

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R #	Lower VSL	Moderate	High VSL	Severe VSL
R3.	<p>The Load Serving Entity or Planned Reserve Sharing Group did not update its request for CBM, or indicate that no update was needed, as described in R3.2.</p>	<p>The Load Serving Entity or Planned Reserve Sharing Group desiring CBM did not submit the information required by any one of the following: R3.1.2, R3.1.3, or R3.1.4.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Load Serving Entity or Planned Reserve Sharing Group did not update its request for CBM, or indicate that no update was needed, as described in R3.2, and their Generation Capability Import Requirement had changed by more than 20MW or 10%, whichever is smaller, and not more than 30MW or 20%, whichever is smaller.</p>	<p>The Load Serving Entity or Planned Reserve Sharing Group desiring CBM did not submit the information two or more of the following: R3.1.2, R3.1.3, or R3.1.4.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Load Serving Entity or Planned Reserve Sharing Group did not update its request for CBM, or indicate that no update was needed, as described in R3.2, and their Generation Capability Import Requirement had changed by more than 30MW or 20%, whichever is smaller, and not more than 40MW or 30%, whichever is smaller.</p>	<p>The Load Serving Entity or Planned Reserve Sharing Group desiring CBM did not include one or more of the items specified in R3.1.1 in its request.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Load Serving Entity or Planned Reserve Sharing Group desiring CBM did not submit any of the information described in R3.1.2, R3.1.3, or R3.1.4.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Load Serving Entity or Planned Reserve Sharing Group did not update its request for CBM, or indicate that no update was needed, as described in R3.2, and their Generation Capability Import Requirement had changed by more than 40MW or 30%, whichever is smaller.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Load Serving Entity or Planned Reserve Sharing Group requested GCIR greater than its needs for imports to meet reserve margin or resource adequacy requirements (not to include the incremental power flows from reserve sharing requirements), and the additional GCIR</p>

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R #	Lower VSL	Moderate	High VSL	Severe VSL
				requested was more than 10MW in excess of the needed amount.

**Standard MOD-004-1 — Capacity Benefit Margin**

R #	Lower VSL	Moderate	High VSL	Severe VSL
R4.	N/A	N/A	<p>The Transmission Service Provider set CBM for the months requested as described in R4 more than 14, but not more than 30 calendar days after receiving a request for CBM.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Transmission Service Provider did not follow the process described in R4.</p>	<p>The Transmission Service Provider set CBM for the months requested as described in R4 more than 30 calendar days after receiving a request for CBM.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Transmission Service Provider did not follow the process described in R4 and the resource adequacy requirements of one or more Load Serving Entities requesting CBM were not met.</p>
R5.	N/A	N/A	<p>The Transmission Planner set CBM for the years requested as described in R5 more than 60, but not more than 120, calendar days after receiving a request for CBM.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Transmission Planner did not follow the process described in R5.</p>	<p>The Transmission Planner set CBM for the years requested as described in R5 more than 120 calendar days after receiving a request for CBM.</p> <p style="text-align: center;"><b>OR</b></p> <p>The Transmission Planner did not follow the process described in R5, and the resource adequacy requirements of one or more Load Serving Entities requesting CBM were not met.</p>
R6.	The Transmission Service Provider provided the report to the requesting entities in more than 7 calendars days but not more than 9 calendar days of determining the CBM	The Transmission Service Provider provided the report to the requesting entities in 9 or more calendar days but not more than 14 calendar days of determining CBM	The Transmission Service Provider provided the report to the requesting entities in 14 or more calendar days but not more than 22 calendar days of determining CBM	The Transmission Service Provider provided the report to the requesting entities 22 or more calendar days after determining CBM or did not provide the report.

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<b>R #</b>	<b>Lower VSL</b>	<b>Moderate</b>	<b>High VSL</b>	<b>Severe VSL</b>
R7.	The Transmission Service Provider or Transmission Planner did not provide a requester specified in R5 with the supporting data, including models, used to allocate CBM in more than seven, but not more than fourteen, days after the submission of the request.	The Transmission Service Provider or Transmission Planner did not provide a requester specified in R5 with the supporting data, including models, used to allocate CBM in more than fourteen, but not more than thirty, days after the submission of the request.	The Transmission Service Provider or Transmission Planner did not provide a requester specified in R5 with the supporting data, including models, used to allocate CBM in more than thirty, but not more than sixty, days after the submission of the request.	The Transmission Service Provider or Transmission Planner did not provide a requester specified in R5 with the supporting data, including models, used to allocate CBM more than sixty days after the submission of the request.
R8.	N/A	N/A	N/A	A Load Serving Entity requested to schedule energy over CBM while not in an EEA2
R9.	N/A	N/A	N/A	A Balancing Authority or Transmission Service Provider denied an Arranged Interchange using CBM based on timing or ramping requirements.
R10.	N/A	N/A	N/A	The Transmission Service Provider failed to approve an Arranged interchange for CBM submitted by an Energy Deficient Entity under an EEA2 when CBM was available.”