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TRANS Standard Programs and Processes				
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Responsible Executive Organization: Transmission & Power Supply				
Approved by: James R. Dalrymple, Senior Vice President, Date Date				

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Revision Log

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
0000	03-31-2014	All	ED-SPP-30.044 has been superseded by TRANS-SPP-30.044
		Page 6	Communications between TVA BA and TVAM
		Page 6,13	CBM backout process
		Page 11,19	Balancing Authority Checklist for CBM Usage
0001	03-31-2015	All	Various reference acronyms explained
		Page 3,8,12	Changed "Procedure" to "Process"
		Page 5	Updated organization name of Senior VP
		Page 6,8	Removed note box from section 3.1.7 and 3.1.11
		Page 7	Spelled out acronyms for MLGW and NES
		Page 8	Removed repetitive statement of role
		Page 9,10,11	Reordered for easier reading of process flow
		Page 12	Changed "provide" to "approve"
			Reworded paragraph for easier reading
		Page 12,13,20	Removed "firm" ATC reference to include all ATC
		Page 12,20	Removed LSE's TSP from statement
			Removed Alabama Power Company
		Page 13	Added e-Tag as a section and reworded for clarity
			Added reference for Appendix B
		Page 14	Included Georgia Power in the for the creation of
			e-Tags when using CBM
			Clarified wording for terminating CBM usage
			Corrected reference 3.2.5 to 3.2.6
		Page 15	Added "TVA" to the Power Trading function
		Page 19	CBM values updated to reflect latest approval
0002	03-31-2016	All	SPP Validation. Annual Review.
		Page 5,6,7,8	Added references for GOES.
		Page 19	Updated current CBM values.

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Revision Log

Revision or Change Number	Effective Date	Affected Page Numbers	Description of Revision/Change
0003	03-31-2017	All	SPP Validation. Annual Review.
		Page 20	Updated current CBM values.
		Page 13, 21	Removed "Customer interruptible demands have been interrupted in accordance with applicable contracts" per update to TOPS-BA-SPP-30.310 R4 Operating Reserves.
		Page 23	Updated CBM Form Attachment
0004	03-31-2018	All	SPP Validation. Annual Review.
		Page 7	Removed Participant Scheduling Specialist role from the procedure.

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1.0 PURPOSE

This document describes the process by which TVA's Transmission Operations & Power Supply and Transmission Engineering organizations:

- A. Ensure TVA retains sufficient transmission capacity to enable power to be imported to replace any generation resources that may not be available as planned to serve the native/network load on the TVA system during a capacity emergency.
- B. Accept requests for Capacity Benefit Margin (CBM) amounts, determine if those amounts are deliverable on the TVA transmission system, and communicate the results of the analysis.
- C. Preserve transmission capacity as CBM to be used by Load-Serving Entities (LSEs) only in times of emergency generation deficiencies.
- D. Allow the LSE or Balancing Authority (BA) to use transmission capacity set aside as CBM, including the manner in which the Transmission Service Provider (TSP) will manage situations where the requested use of CBM exceeds the amount of CBM available.

2.0 SCOPE

This document is applicable to the NERC functional entities within TVA that perform the functions of LSE, Resource Planner (RP), TSP, Transmission Planner (TP), and BA. This document is to be compliant with the applicable MOD standards, specifically MOD-004-1. (R.1)

Review Cadence: Procedure review required annually from the procedure effective date.

3.0 PROCESS

3.1 Roles and Responsibilities

3.1.1 <u>Executive Owner</u>

The Senior Vice President of Transmission & Power Supply is the owner and approval authority for this procedure. Approval of this SPP is indicated by the Executive Owner's signature on the cover page. The Senior VP is responsible for governance of this procedure.

3.1.2 Balancing Authority (BA)

- A. The Balancing Authority is responsible for execution and support of this procedure.
- B. Performs the function of the LSE pertaining to requirements related to the establishment and requested use of CBM for TVA.
- C. Shall submit a CBM request at least annually.

3.1.3 Balancing Authority (BA) System Operator

- A. Notifies the Reliability Coordinator System Operator (RCSO) that the LSE has declared a Generation Shortage and requests implementation of an Energy Emergency Alert Level 2 (EEA Level 2), indicating the anticipated length of time CBM will be required.
- B. When in an EEA Level 2 and reestablishing operating reserves, Senior BA System Operator authorizes the use of CBM by the Power Trading representative if power is available to purchase but Available Transfer Capacity (ATC) is not available.
- C. Normally, for TVA reliable operations, real-time ramping is limited to no less than a 10minute ramp. However, when reviewing an Arranged Interchange using CBM, the TVA BA and TSP shall waive, within the bounds of reliable operation, any real-time timing and ramping requirements. **[MOD-004-1 R11]**
- D. Each hour after CBM has been authorized for use, the amount of CBM in use and the duration of the CBM usage will be discussed with the Power Trading representative.
- E. Coordinates a plan to terminate CBM usage with the Transmission & Interchange Services System Operator (TISO) and the Power Trading representative.

3.1.4 <u>Power Trading</u>

- A. Power Trading is responsible for support of this procedure.
- B. Utilizes CBM as authorized by the Senior BA System Operator.

3.1.5 Load-Serving Entity (LSE)

- A. BA performs the function of the LSE pertaining to requirements related to the establishment and requested use of CBM at TVA.
- B. Requests at least annually the amount of transmission capacity needed to be set aside as CBM.

3.1.6 <u>Transmission Service Provider (TSP)</u>

The Transmission Specialist, the Transmission & Interchange Services System Operator (TISO), and Reliability Analysis (RA) are responsible for performing the functions of the TSP at TVA.

3.1.7 <u>Transmission & Interchange Services System Operator (TISO)</u>

- A. The TISO is responsible for execution and support of this procedure.
- B. Takes steps as necessary to ensure there is sufficient ATC to be used for CBM, including curtailment of non-firm schedules on a particular path.
- C. Verifies an EEA Level 2 or higher has been implemented in the BA area of the "energy deficient entity." [MOD-004-1 R10, R12.2]
- D. Verifies the load of the "energy deficient entity" is located within the TVA TSP area. [MOD-004-1 R12.3]

3.1.7 <u>Transmission & Interchange Services System Operator (TISO)</u> (continued)

- E. Normally, for TVA reliable operations, real-time ramping is limited to no less than a 10minute ramp. However, when reviewing an Arranged Interchange using CBM, the TVA BA and TSP shall waive, within the bounds of reliable operation, any real-time timing and ramping requirements. **[MOD-004-1 R11]**
- F. Approves the interchange transaction for the use of CBM.
- G. Manages situations where the requested use of CBM exceeds the amount of CBM available. [MOD-004-1 R1.3]
- H. Posts an after-the-fact disclosure of the use of CBM on the Open Access Same-Time Information System (OASIS).
- I. Documents in system operator's log evidence of posting.
- J. Senior TISO shall update Transaction Serial Numbers (TSNs) with up-to-date values as provided by the Transmission Specialist, post updated CBMID to OASIS, and post notification of change(s) to OASIS prior to effective date.

3.1.8 <u>Transmission Planner (TP)</u>

- A. The TP is responsible for support of this procedure.
- B. At least every 13 months, establishes the deliverability of the requested CBM for each ATC Path to be used in planning during each of the full calendar years two through ten following the current year (the year in which the TP is establishing the CBM values).
 [MOD-004-1 R6] The deliverability study must include monitoring TVA, Memphis Light, Gas, & Water (MLGW), and Nashville Electric Service (NES) facilities for limits.
- C. Archives supporting data, such as models and studies, for determining CBM deliverability and how the CBM is allocated on ATC Paths.
- D. Communicates the results of the deliverability study to the Transmission Specialist.
- E. Allocates the approved CBM across transmission paths when evaluating transfer capability.

3.1.9 <u>Reliability Analysis (RA)</u>

- A. RA is responsible for oversight, execution, and support of this procedure.
- B. Maintains the CBMID document and updates it annually.
- C. At least every 13 months, establishes the deliverability of the requested CBM for each ATC Path to be used for Available Flowgate Capability (AFC) calculations during the 18 full calendar months (months 2-19) following the current month (the month in which RA is establishing the CBM values). [MOD-004-1 R5] The deliverability study must include monitoring TVA, MLGW, and NES facilities for limits.

3.1.9 <u>Reliability Analysis (RA)</u> (continued)

- D. Archives supporting data, such as models and studies, for determining CBM deliverability and how the CBM is allocated on specific Flowgates.
- E. Communicates the results of the deliverability study to the Transmission Specialist.
- F. Allocates the approved CBM on Flowgates for use in the transfer capability calculation process (AFC/ATC calculations).

3.1.10 <u>Transmission Specialist</u>

The role of Transmission Specialist is performed by Stakeholder Services and Contracts.

- A. The Transmission Specialist is responsible for support of this procedure.
- B. Responsible for receiving requests for CBM.
- C. Coordinates the evaluation of the requests with RA and TVA TP.
- D. Communicates with MLGW and NES, when a CBM deliverability study has been conducted, and will verify with the respective entity any potential limits that were identified.
- E. Communicates the results to the requesting entity(s) within the required time periods for the TVA TSP and the TVA TP.
- F. Manages the approved CBM values and communicates those values to RA, TVA TP, MLGW TP, and NES TP after they have been confirmed by the requester.
- G. Notifies the Senior TISO of approved values by interface to be updated in TSNs.

3.1.11 <u>Reliability Coordinator System Operator (RCSO)</u>

Implements an EEA Level 2 or higher as requested.

3.2 **Program Elements**

3.2.1 CBMID Content Summary

TVA is a registered TSP that maintains CBM. This CBMID includes the following information:

- A. The process through which a LSE or a RP within the TVA BA Area may ensure that its need for transmission capacity to be set aside as CBM will be reviewed and accommodated by the TVA TSP to the extent that the transmission capacity is available (CBM Request Process).
- B. The procedure and assumptions for establishing CBM for each ATC Path or Flowgate (Establishing the Deliverability of CBM for Each ATC Path or Flowgate).

3.2.1 <u>CBMID Content Summary</u> (continued)

- C. The procedure for a LSE or BA to use transmission capacity set aside as CBM, including the manner in which the TSP will manage situations where the requested use of CBM exceeds the amount of CBM available (CBM Usage Process).
- D. The process for how entities request supporting data of the CBM deliverability study (Supporting Data Requests).
- E. The coordination and notification of internal and external entities with respect to the CBMID document (Coordination and Notification).

3.2.2 CBM Request Process [MOD-004-1 R1.1]

- A. TVA BA shall submit a CBM request at least annually.
- B. LSEs or RPs within the TVA BA Area may request transmission capacity be set aside as CBM. TVA's RA and TP will review these requests in order to determine if the transmission capacity is available.

NOTE

Capacity Benefit Margin (CBM) Request Form found on TVA's OASIS site should be used for requesting CBM and may be filled out and submitted electronically.

- C. The request form should be sent to the email address *transmissionspecialist@tva.gov* with the subject, "CBM Request." Attachment 1 *Capacity Benefit Margin (CBM) Request Form is an example of the form (not controlled by this document).*
 - 1. The Transmission Specialist will acknowledge the receipt of a request by sending an email to the requester with the date of receipt and proposed date of response due.
 - 2. The request will be evaluated and a response will be communicated by the Transmission Planner through coordination by the Transmission Specialist to the requesting entity within 30 days of receiving the request.
 - 3. The response will include the amount of CBM to be allocated and the import paths on which it will be set aside. **[MOD-004 R7, R8]**
- D. The requested values to be set aside as CBM should be determined using the study methods outlined in MOD-004-1, should reflect resource adequacy requirements for loads within the TVA TSP area, and should identify expected import path(s) or source region(s). Appendix A, Generation Capacity Impact Requirement (GCIR), describes TVA's current methodology for determining its need for transmission capacity to be set aside as CBM.

3.2.3 <u>Establishing the Deliverability of CBM for each ATC Path or Flowgate</u> [MOD-004-1 R1.2]

A. Short-Term Horizon (Next hour to 18 months) - Reliability Analysis (RA)

3.2.3 <u>Establishing the Deliverability of CBM for each ATC Path or Flowgate</u> [MOD-004-1 R1.2] (continued)

- 1. Evaluation of Request
 - a. The Transmission Specialist will notify RA that a CBM study has been requested and will forward all of the required information in order to complete the study.
 - b. RA will evaluate the requested paths and determine if there is sufficient ATC in order to approve the request.
 - (1) The study will include monitoring TVA, MLGW, and NES facilities.
 - (2) If there is insufficient ATC for a specific path, RA will suggest at least one alternate path on which the CBM request could be approved.
 - c. The Transmission Specialist will notify the requester of the results of the study.
 - d. The requester will then confirm or withdraw the request.
 - e. The Transmission Specialist will then notify RA of the approved CBM values confirmed by the requester.
- 2. Establishment of Values

CBM will be set aside on each Flowgate as a MW value. These values will be based on the expected import paths or source regions provided by the LSE or RP and the distribution factors associated with those paths or regions. **[MOD-004-1 R5.2]**

- a. CBM is requested on a Path.
- b. The request is evaluated on a Path-by-Path basis and granted if sufficient Path ATC exists.
- c. Approved Path CBM requests will be converted to a megawatt impact on the flowgate based on Path Transfer Distribution Factors on the flowgate monitored element.
- d. Total CBM for a flowgate will be the sum of positive megawatt impacts of all approved Paths requested.
- 3. Required Periodic Review
 - a. At least every 13 months, RA shall recalculate the CBM values for each Flowgate to be used for the ATC and AFC calculations in the short-term horizon. [MOD-004-1 R5]
 - b. These values will be a reflection of the studies performed by the LSE or RP and should include any resource adequacy requirements for loads within the TVA TSP area. [MOD-004-1 R5.1]

3.2.3 <u>Establishing the Deliverability of CBM for each ATC Path or Flowgate</u> [MOD-004-1 R1.2] (continued)

B. Long-Term Horizon (One Year or Greater) - Transmission Planner (TP)

- 1. Evaluation of Request
 - a. The Transmission Specialist will notify the TP that a CBM study has been requested and will forward all of the required information in order to complete the study.
 - b. The TP will evaluate the requested paths and determine if there is sufficient ATC to approve the request.
 - (1) The study will include monitoring TVA, MLGW, and NES facilities.
 - (2) If there is insufficient ATC for a specific path, the TP will suggest at least one alternate path on which the CBM request could be approved.
 - c. The Transmission Specialist will notify the requester of the results of the study.
 - d. The requester will then confirm the request, withdraw the request, or (if an insufficient path was identified) notify the Transmission Specialist if it is requesting a facilities study (within 15 days) to determine the full scope of upgrades required to receive the full amount of the requested CBM on the desired path.
 - e. The Transmission Specialist will notify the TP of the approved CBM values confirmed by the requester.
- 2. Establishment of Values

CBM will be set aside based on the expected import paths or source regions provided by the LSE or RP. [MOD-004-1 R6.2]

- a. CBM is requested on a Path.
- b. The request is evaluated on a Path-by-Path basis and granted if sufficient Path ATC exists.
- c. Approved Path CBM requests will be accounted for based on the expected import paths or source regions when evaluating transfer capability.
- 3. Required Periodic Review
 - a. At least every 13 months, the TP shall establish a CBM value for each ATC Path to be used in planning during each of the full calendar years two through ten following the current year (the year in which the TP is establishing CBM values). **[MOD-004-1 R6]**

3.2.3 <u>Establishing the Deliverability of CBM for each ATC Path or Flowgate</u> [MOD-004-1 R1.2] (continued)

b. These values will be a reflection of the studies performed by the LSE or RP and should include any resource adequacy requirements for loads within the TVA TSP area. [MOD-004-1 R6.1]

3.2.4 CBM Usage Process [MOD-004-1 R1.3]

NOTES

NERC USAGE REQUIREMENTS

The TSP that maintains CBM shall approve, within the bounds of reliable operation, any arranged interchange using CBM that is submitted by an "energy deficient entity" under an EEA Level 2 if:

- 1) CBM is available.
- 2) EEA Level 2 is declared within the BA Area of the "energy deficient entity."
- 3) Load of the "energy deficient entity" is located within the TSP's area.

NOTES

- 1) When not being used, TVA makes CBM available on a non-firm basis to all transmission customers by posting it on OASIS as non-firm ATC. If CBM is needed for native/network load, those non-firm reservations on the path will be subject to curtailment following existing procedures.
- 2) CBM may be used to re-establish Operating Reserves.
- 3) BA Checklist see Appendix C, Balancing Authority Checklist for CBM Usage.
 - A. When resources are projected to be insufficient to serve TVA's native load customers and network customers (herein called a "Generation Shortage"), CBM can be used to import power by TVA for its native load customers and by Georgia Power Company as LSEs for their network load in the TVA BA Area on a firm basis to ensure the continued reliability of service to such loads during the conditions indicated below:

The use of CBM is allowed when the following steps have been taken or the following conditions exist:

- 1. All non-firm sales have been terminated for the applicable LSE.
- 2. TVA BA or LSE has requested the RCSO to declare an EEA level 2 or higher.
- 3. An EEA Level 2 or higher has been implemented within the BA Area of the "energy deficient entity." [MOD-004-1 R10, R12.2]
- 4. TVA TSP is experiencing Transmission Constraints relative to imports of energy on its transmission system.

3.2.4 CBM Usage Process [MOD-004-1 R1.3] (continued)

- 5. There is insufficient posted ATC on the interface over which power may be obtained to address the Generation Shortage.
- 6. The load of the "energy deficient entity" is located within the TVA TSP area. [MOD-004-1 R12.3]
- B. To use the CBM (provided the above conditions are met):
 - 1. LSE experiencing a Generation Shortage shall notify the TVA BA System Operator that it has declared a Generation Shortage and that there is insufficient posted ATC on the interface over which power may be obtained to address the Generation Shortage.
 - 2. TVA BA System Operator shall notify the TVA RCSO that the LSE has declared a Generation Shortage and request implementation of an EEA Level 2 or 3 (as appropriate). The TVA BA System Operator shall notify the TVA TISO that there is insufficient posted ATC on the interface over which power may be obtained to address the Generation Shortage.
 - 3. TVA TISO will ensure that the CBM is available and will make any necessary curtailments of non-firm schedules to provide the ATC on the CBM path. If the requested use of CBM exceeds the amount of CBM available, the TISO will accept requests on a first-come, first-served basis up to the approved amount of CBM set aside on each import path. [MOD-004-1 R12.1]

NOTE

Timing and Ramping Requirements

When reviewing an arranged interchange using CBM, all BAs and TSPs shall waive, within the bounds of reliable operation, any real-time timing and ramping requirements. [MOD-004 R11]

4. An e-Tag will be created by the Power Trading representative for a normal power purchase or by the BA System Operator for an Emergency Power Purchase. If the Power Trading representative is able to purchase power through normal channels, but is authorized to use CBM, the TSN will be the same as for an Emergency Power Purchase.

NOTE

The Emergency Power Purchase Templates found in OATI webTrans have the TSN for approved CBM identified on the template. See Appendix B, Approved MW Amounts Set Aside for CBM Usage & Associated Transaction Serial Numbers (TSNs).

> a. If power is available for purchase outside the Emergency Power Purchase Agreement and no ATC is available or a transmission constraint prevents imports, then the Senior BA System Operator will authorize the Power Trading representative to purchase available power via the CBM path(s).

3.2.4 CBM Usage Process [MOD-004-1 R1.3] (continued)

- (1) The Power Trading representative shall submit an e-Tag using the appropriate TSN for approved CBM.
- (2) The Power Trader should communicate each hour with the BA the amount and duration of CBM used.
- b. If power is not available for purchase on the power market, then the BA System Operator shall submit an e-Tag using the appropriate TSN for approved CBM. (Reference TOPS-SPP-30.051 R0 Energy Emergency Assistance)
- 5. If Georgia Power has requested use of CBM and the Senior BA has approved, then Georgia Power shall submit an e-Tag using the appropriate TSN for the approved CBM.
- 6. TVA TISO approves the request.
- 7. **Continue** to Records section for required records and documentation requirements.
- C. Terminating the use of CBM

Use of CBM should be discontinued as soon as possible, while maintaining reliable operations, and within contractual power purchase agreements by one of the following:

- 1. Tags using CBM should be replaced with Tags using transmission (NN-6, FN-7, etc.) acquired through normal processes as soon as possible.
- 2. In situations where Transmission Service (ATC) is not available to replace the CBM:
 - a. If the energy deal can be terminated without significant impact to the BA and there is no Firm financial commitment, tags should be adjusted at first opportunity.
 - b. Energy deals purchased with minimum run-time, Firm commitment to purchase (LD), or transactions, which if discontinued, could impact reliability or reserves may continue the use of CBM as scheduled. No increase to duration or MW amount shall be accepted.

3.2.5 Supporting Data Requests

Any entity listed in section 3.2.6A (below) can request to receive supporting data for determining CBM. Within 30 days of receiving a request [MOD-004-1 R9.1, R9.2], RA and the TP will provide (subject to confidentiality and security requirements) copies of the applicable supporting data, including any models, used for determining CBM or allocating CBM over each ATC Path or Flowgate. [MOD-004-1 R9] Requests must be made to the email address *transmissionspecialist@tva.gov* with the subject, "CBM Supporting Data Request."

3.2.6 Coordination and Notification [MOD-004-1 R2]

A. Notification of New/Revised CBMID

- 1. TVA shall notify the following entities that notice has been posted on TVA's OASIS before implementing a new or revised CBMID:
 - a. Transmission Operators in TVA TSP Area and adjacent areas.
 - b. TSPs in the TVA TSP Area and adjacent areas.
 - c. Reliability Coordinators in TVA TSP Area and adjacent areas.
 - d. TPs in the TVA TSP Area and adjacent areas.
 - e. RPs in the TVA TSP Area and adjacent areas.
 - f. Planning Coordinators in the TVA TSP Area and adjacent areas.
 - g. LSEs in the TVA TSP Area.
 - h. TVA BA.
 - i. TVA Power Trading

B. CBMID Posting

TVA shall make the current CBMID available to all the above entities by posting the current document on TVA's OASIS prior to the effective date of any change. **[MOD-004-1 R2]**

4.0 RECORDS

4.1 QA Records

None

4.2 Non-QA Records

- A. RA and the TP will archive copies of the applicable supporting data, including any models, used for determining CBM or allocating CBM over each ATC Path or Flowgate. Archives will be kept for 4 years.
- B. TISO shall post on OASIS within 15 calendar days of use an after-the-fact disclosure that energy was scheduled using CBM (for purposes other than making CBM available on a non-firm basis). The posting shall include circumstances, duration, and amount of CBM used.
- C. TISO will document in the system operator's log the energy scheduled using CBM (for purposes other than making CBM available on a non-firm basis). The documentation shall include time of posting on OASIS, circumstances, duration, and amount of CBM used. CBM usage must also be documented in accordance with the procedure, Energy Emergency Assistance for Power System Operation.

4.2 Non-QA Records (continued)

- D. System operator logs shall be maintained for no less than 4 years.
- E. Completed *Capacity Benefit Margin (CBM) Request Forms* shall be maintained by the Transmission Specialist for no less than 4 years.

5.0 **DEFINITIONS**

Available Flowgate Capability (AFC) - A measure of the flow capability remaining on a Flowgate for further commercial activity over and above already committed uses.

Available Transfer Capability (ATC) Path - Any combination of Point of Receipt and Point of Delivery for which ATC is calculated, as well as any posted path.

Capacity Benefit Margin (CBM) - The amount of firm transmission transfer capability preserved by TVA for Load-Serving Entities (LSEs), whose loads are located on TVA's system, to enable access by the LSEs to generation from interconnected systems to meet generation reliability requirements. Preservation of CBM for an LSE allows that entity to reduce its installed generation capacity below that which may otherwise have been necessary without interconnections to meet its generation reliability requirements. The transmission transfer capability preserved as CBM is intended to be used by the LSE only in times of emergency generation deficiencies.

Flowgate - A mathematical construct, comprised of one or more monitored transmission facilities and optionally one or more contingency facilities, used to analyze the impact of power flows upon the Bulk Electric System.

Appendix A (Page 1 of 2)

Generation Capacity Import Requirement (GCIR)

CURRENT METHODOLOGY

The current methodology for calculating GCIR is a deterministic risk analysis study **[MOD-004-1 R3]**. TVA's definition of a deterministic risk methodology is based on the *Transmission Capability Margins and Their Use in ATC Determination - White Paper* that was approved by the NERC Adequacy Committee on July 14, 1999 and endorsed by the SERC Reliability Corporation in January 2010 for use within the SERC region. The NERC white paper states, "Deterministic methods typically are centered on maintaining a specified reserve or capacity margin, or may be based upon surviving the loss of the largest generating unit." **[MOD-004-1 R3.1]**

Current TVA methodology for calculating CBM is based on the following factors:

- Loss of the largest generating unit. (i.e. prospective Most Severe Single Contingency (MSSC))
- Regulating reserves. (< 5 minute response)
- TVA spinning reserves. (approximately 25% of the MSSC)

NOTE

CBM FORMULA

CBM =(*Reserve Margin*) = Largest unit interconnected to TVA Transmission + Regulating Reserves + Spinning Reserves

Parameter	Amount (MW)
Largest Interconnected Unit: Cumberland Fossil Unit 1	1347 MW
Regulating Reserves	200 MW
TVA Spinning Reserves	340 MW

CBM = 1347 MW + 200 MW + 340 MW

CBM = 1887 MW (rounded to 1900 MW)

CBM = 1900 MW

Appendix A (Page 2 of 2)

- In looking at extreme weather situations, there have been periods when many of the adjoining areas have had almost no surplus generating capacity to sell into TVA. Accessibility to generation in adjoining areas may also be limited by transmission constraints. In cases where most of the surrounding areas are experiencing simultaneous heat or cold waves or transmission constraints, power purchases from other areas may be limited.
- Total CBM is allocated as requested on TVA's interfaces according to historical knowledge of generation purchases, interface contract path limits, and historical First Contingency Incremental Transfer Capability volatility.
- TVA conducts analysis to update the CBM values every year. The values are reviewed prior to every peak season or as required by conditions on the transmission system. CBM values will be adjusted on an as-needed basis.

Appendix B (Page 1 of 1)

Approved MW Amounts Set Aside for CBM Usage & Associated Transaction Serial Numbers (TSNs)

CBM values are for use only with the approval of the Senior BA System Operator to supply native/network load during a declared EEA Level 2 or higher.

The values below are the approved CBM amounts for both the short-term and long-term horizons.

Import Path	<u>Approved Amount</u> (MWs)	<u>TSN # (for CBM</u> <u>Usage)</u>
AECI	50	227
PJM	500	228
CPLW	50	229
MISO.N	400	230
MISO.S	100	233
DUK	50	234
LGEE	200	236
SOCO	500	237
SMT	50	238

Appendix C (Page 1 of 1)

Balancing Authority Checklist for CBM Usage

CBM Transmission Service Numbers (TSN) are for use only with the approval of the Senior BA System Operator to supply native/network load during a declared EEA Level 2 or higher.

During the conditions indicated below, CBM can be used to import power by TVA for its native load customers and by Georgia Power Company as LSEs for their network load in the TVA BA Area. During conditions when resources are projected to be insufficient to serve TVA's native load customers and network customers (herein called a "Generation Shortage"), CBM may be used to import power on a firm basis to ensure the continued reliability of service to such loads.

CBM may be used to re-establish Operating Reserves.

The use of CBM is allowed when the following steps have been taken or the following conditions exist.

Action Checklist (Prior to Utilizing CBM)	Initials	
All non-firm sales have been terminated for the applicable LSE		
TVA BA or LSE has requested the RCSO to declare an EEA level 2 or higher		
An EEA Level 2 or higher has been implemented within the BA Area of the "energy deficient entity." [MOD-004-1 R10, R12.2]		
TVA TSP is experiencing Transmission Constraints relative to imports of energy on its transmission system		
There is insufficient posted ATC on the interface over which power may be obtained to address the Generation Shortage		
The load of the "energy deficient entity" is located within the TVA TSP area. [MOD-004-1 R12.3]		
Hourly Communications		
Shall provide hourly communication with RCSO on EEA status and situation updates		
Should communicate hourly with Real-Time Power Trader to assess CBM usage and future system requirements		
Signature Date		

Attachment 1 (Page 1 of 1)

Capacity Benefit Margin (CBM) Request Form

IVA	Tennessee Valley Authority Capacity Benefit Margin (CBM) Request Form			
Network Cu	istomer li	nformation		
Company Nan	ne			
Representativ	ve Name			
Title				
Business Add	ress			
Telephone				
E-mail				
CBM Set As	ide Study	Request		
Start Date & T	ĩme			
Stop Date & T	ïme			
Total CBM Re	quested			
Additional Co	mments			
CBM Set As	ide Requ	est Amounts/Paths	S	
Import Path	Reques	ted CBM Amount	Requested CBM Amount	Approved CBM Amount
	(Duefe	(MW)	(MW) (Carandam: Drafananaa)	(MW)
AFCI	Prete	rred Allocation)	(Secondary Preference)	(Filled Out by ISP only)
CRIW				
DUK				
FFI				
LGEE				
MISO.N				
MISO.S				
PJM				
SOCO				
SMT				
Submission of CBM Request Form				
Requests for	CBM Set As	ides should be emaile	d to TransmissionSpecialist@tva	a.gov 30 days prior to the start
of the set asid	le. The sub	ject of the email shou	Id be "CBM Request".	
The requeste	d values fo	r CBM should be deter	rmined using the study methods	outlined in MOD-004 and
should reflect resource adequacy requirements for loads within the TVA TSP area.				
Please email <u>TransmissionSpecialist@tva.gov</u> if you have any questions or comments on the CBM form or				
Approval (filled out 0., 700, web)				
Approval (F	nea Out By	risP only		
Approved By	(TSP-Reliab	vility Analysis Manage	r):	
Date:	-			

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Source Notes (Page 1 of 1)

Requirements Statement	Source Document	Implementing Statement
Scope: This document is to be compliant with the applicable MOD standards, specifically MOD-004-1.	NERC Standard Requirement MOD-004-1	(R.1)