



Transmission Strategy and Planning

**CAPACITY BENEFIT MARGIN (CBM)
METHODOLOGY**

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Revision History

Date	Description
September 10, 2008	Initial document

Purpose

This document describes the methodology used in the calculation of CBM and the application of CBM in the calculation of Available Flowgate Capability (AFC) used in the process of approving transmission service requests.

Overview

E.ON U.S. (E.ON) uses an AFC methodology for calculation of Available Transfer Capability (ATC). AFC values for firm transmission are decremented by CBM and TRM to accommodate reasonable uncertainties in system conditions and provide operating flexibility to ensure secure operation of the interconnected network. TRM is used to reserve transmission capacity in the operating horizon and in the planning horizon for uncertainty in system conditions modeled in the AFC calculation and for automatic reserve sharing (ARS). CBM is used to reserve transmission capacity in the operating horizon (beyond 1 hr) and in the planning horizon to enable access to generation from interconnected systems in times of emergency generation deficiencies. Discrete CBM and TRM values in MWs are determined for each flowgate.

NERC Definitions

Capacity Benefit Margin (CBM) - The amount of firm transmission transfer capability preserved by the transmission provider for Load-Serving Entities (LSEs), whose loads are located on that Transmission Service Provider'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 generating capacity below what 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.

Transmission Reliability Margin (TRM) - The amount of transmission transfer capability necessary to provide reasonable assurance that the interconnected transmission network will be secure. TRM accounts for the inherent uncertainty in system conditions and the need for operating flexibility to ensure reliable system operation as system conditions change.

LSE CBM Determination

The method that each LSE uses to derive its generation reliability requirements for requesting CBM must be documented and consistent with its generation planning criteria. A CBM request is considered consistent with the planning criteria if the same components that comprise the CBM are also addressed in the planning criteria. The methodology used to determine CBM does not have to involve the same mechanics, as the planning process, but the same uncertainties must be considered and any simplifying assumptions must be explained.

CBM should be recalculated as conditions change and reviewed on an annual basis to determine if recalculation is necessary.

All Designated Resources of the LSE, including those not directly connected to the E.ON transmission system, will be considered in the LSE's determination of CBM requirement.

The LSE will identify the expected source regions and the amount of the CBM amount to be received from each region. The sum of CBM values allocated to all expected source regions shall not exceed the generation reliability requirement.

The LSE's inclusion or exclusion of loads including interruptible demands and buy-through contracts should be consistent with the **CBM Use Procedure** (described below).

CBM Value Evaluation

E.ON will evaluate CBM values for each Flowgate used for AFC calculations during the second quarter of each year (following the first quarter update of the SERC OASIS base cases). E.ON may also reevaluate CBM values for the following reasons:

- Changes in the amount or source region of CBM required by the Load-Serving Entities or Resource Planners.
- Changes in the list of Flowgates.

E.ON simulates a transfer analysis from the source region(s) specified by the Load-Serving Entities and Resource Planners to the Designated Resources within the E.ON Balancing Authority Area using the SERC OASIS base cases (the same cases used by the RC in the AFC calculation process) and the Flowgates (monitored and contingent elements). CBM values will be calculated for the Flowgates where the monitored facility is owned by or an interconnection to E.ON.

Generation directly connected to E.ON's transmission system that is not designated to serve load will not be included in the CBM value determination because they could be committed on another system.

E.ON compares the CBM with the ARS component of TRM for the Flowgate. If the ARS component is greater, no CBM will be preserved on the Flowgate. If the ARS component is less, the incremental amount of CBM that is needed above the ARS component will be preserved on the Flowgate.

The revised CBM values will be incorporated into the E.ON Flowgate Definition file and sent to the RC for inclusion into the AFC calculation process. The RC coordinates revisions to the E.ON Flowgate Definition file with the ITO, MISO, PJM and other Balancing Authorities within the TVA Reliability Coordination area. The CBM values are posted on the LGEE OASIS by the ITO.

CBM Use Procedure

Load Serving Entities on the E.ON system requesting the use of Capacity Benefit Margin must complete the following steps:

1. Verify that all non-firm sales have been terminated.
2. Implement capacity and energy emergency plan as appropriate to reduce risk to the interconnected system.
3. Communicate current and future system conditions to the LGEE Reliability

Coordinator (TVA) and the ITO.

4. Verify that Direct-Control Load Management has been implemented.
5. Perform all actions necessary including bringing on all available generation, postponing equipment maintenance, scheduling interchange purchases in advance and preparing to reduce firm load.
6. Obtain available capacity and energy as required from available resources within the LGEE control area.
7. Interrupt interruptible loads and exports.
8. Declare an Energy emergency through the Reliability Coordinator.
9. Issue public appeals as time permits to reduce customer usage.
10. Implement voltage reduction procedures as appropriate.

Once these steps have been completed, the LSE must request from the ITO the CBM available for import to serve the load for the applicable time period. The LSE must provide to the ITO a description of the circumstances that caused the energy emergency that resulted in the request to utilize CBM.

The ITO Operator will identify to the LSE the paths upon which CBM may be scheduled and the amounts available for the time period of the emergency.

CBM may be scheduled in one hour increments for as long as is necessary for the LSE to exit the energy emergency.

To utilize the CBM available, the LSE must submit a schedule for CBM service for the hour of the energy emergency. The schedule submitted may not exceed the CBM available for the path and period specified.

Prior to approving the CBM schedule, the ITO Operator will confirm with the Reliability Coordinator that an energy emergency has been declared and that there is not adequate transmission capacity available to import sufficient energy into the LGEE control area to relieve the emergency.

CBM may be used to reestablish Operating Reserves.

The LSE utilizing the CBM must submit an accompanying reservation through the LGEE OASIS site within 24 hours of the use.

The ITO will post the circumstances, duration and amount of CBM used on the LGEE OASIS within 15 calendar days after the use of CBM for and Energy Emergency.