Capacity Benefit Margin Implementation Document (CBMID)

Duke Energy Florida (DEF)

Effective: 4/09/2015

This document is intended to include or reference all applicable documentation that demonstrates DEF’s compliance with NERC standard MOD-004 for CBMID documentation. Duke Energy is the sole Transmission Operator and Transmission Provider for the Duke Energy Balancing Authority Area.

R1. The Transmission Service Provider that maintains CBM shall prepare and keep current a “Capacity Benefit Margin Implementation Document” (CBMID) that includes, at a minimum, the following information:

R1.1. The process through which a Load-Serving Entity within a Balancing Authority Area associated with the Transmission Service Provider, or the Resource Planner associated with that Balancing Authority Area, may ensure that its need for Transmission capacity to be set aside as CBM will be reviewed and accommodated by the Transmission Service Provider to the extent Transmission capacity is available.

The Transmission Service Provider does not maintain a CBM at this time, however the LSE’s or Resource Planners may formally request CBM on particular interfaces by letter or via email. The Transmission Service Provider will evaluate the request and respond to the LSE within 31 days or by a mutually agreed time.

R1.2. The procedure and assumptions for establishing CBM for each Available Transfer Capability (ATC) Path or Flowgate

The LSE will need to justify through acceptable study methods (listed below in R3 and R4) the need for Transmission Capacity to be set aside as CBM. As an example, DEF’s Resource Planning group performs its resource adequacy analysis and incorporates both deterministic and probabilistic methods in its assessment of generation reliability. This assessment is accomplished by system reliability analyses which are typically based on a dual planning criteria of a minimum peak period reserve margin of 20% (DEF applies this to both summer and winter peaks) and a maximum loss-of-load probability (LOLP) of 0.1 day per year. Both of these criteria are commonly used throughout the utility industry. Historically, two types of methodologies, deterministic and probabilistic, have been employed in system reliability analysis. The calculation of excess firm capacity at the annual system peaks (reserve margin) is the most common method, and this relatively simple deterministic calculation can be performed on a spreadsheet. It provides an indication of the adequacy of a generating system’s capacity resources compared to its
native load during peak periods. However, deterministic methods do not take into account probabilistic-related elements such as the impact of individual unit failures. For example: two 50 MW units which can be counted on to run 90% of the time are more valuable in regard to utility system reliability than is one 100 MW unit which can also be counted on to run 90% of the time. Probabilistic methods also recognize the value of being part of an interconnected system with access to multiple capacity sources. For this reason, probabilistic methodologies have been used to provide an additional perspective on the generation resource adequacy of a generating system. There are a number of probabilistic methods that are being used to perform system reliability analyses. Of these, the most widely used is loss–of-load probability or LOLP. Simply stated, LOLP is an index of how well a generating system may be able to meet its demand (i.e., a measure of how often load may exceed available resources). In contrast to reserve margin, the calculation of LOLP looks at the daily peak demands for each year, while taking into consideration such probabilistic events as the unavailability of individual generators due to scheduled maintenance or forced outages. LOLP is expressed in units of the “number of times per year” that the system demand could not be served. The standard for LOLP accepted throughout the industry is a maximum of 0.1 day per year. This analysis requires a more complicated calculation methodology than does the reserve margin analysis. LOLP analyses are typically carried out using computer software models such as the Tie Line Assistance and Generation Reliability (TIGER) program used by DEF.

The result of this step of resource planning is a projection of how many MW of resources are needed to meet both reserve margin and LOLP criteria, and thus maintain system reliability. DEF’s Resource Planning has not submitted any requests for CBM to date.

Establishing of CBM

DEF currently has zero CBM reserved on each of its interfaces (OASIS posted paths). DEF’s CBM on each interface if it existed is currently established through the transmission provider ATC/OASIS functions within DEF.

Since DEF does not calculate a CBM component to meet any resource adequacy reliability requirement; CBM on each of DEF’s paths where DEF is the POD is 0 and does not affect ATC calculations.

R1.3. The procedure for a Load-Serving Entity or Balancing Authority to use Transmission capacity set aside as CBM, including the manner in which the Transmission Service Provider will manage situations where the requested use of CBM exceeds the amount of CBM available.
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Usage of CBM will require the following conditions

- Declared NERC Energy Emergency Alert (EEA) 2 or higher.
- Interruption of all non-firm sales
- Implementation of Load Management
- Interruption of Customer interruptible demands
- Must be in generation deficient situation
- Transmission constraints are existing preventing import of power to serve load.

If CBM requested exceeded the available CBM, DEF would accommodate additional CBM during the emergency conditions that required usage of CBM within the bounds of reliable operation.

R2. The Transmission Service Provider that maintains CBM shall make available its current CBMID to the Transmission Operators, Transmission Service Providers, Reliability Coordinators, Transmission Planners, Resource Planners, and Planning Coordinators that are within or adjacent to the Transmission Service Provider’s area, and to the Load Serving Entities and Balancing Authorities within the Transmission Service Provider’s area, and notify those entities of any changes to the CBMID prior to the effective date of the change.

DEF makes available its current CBMID to the identified entities and notifies those entities of any changes to the CBMID prior to the effective date of the change.

R3. Each Load-Serving Entity determining the need for Transmission capacity to be set aside as CBM for imports into a Balancing Authority Area shall determine that need by:

R3.1. Using one or more of the following to determine the GCIR:

- Loss of Load Expectation (LOLE) studies
- Loss of Load Probability (LOLP) studies
- Deterministic risk-analysis studies
- Reserve margin or resource adequacy requirements established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities

R3.2. Identifying expected import path(s) or source region(s).
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DEF does not currently have established CBM components to meet any resource adequacy reliability requirement.

R4. Each Resource Planner determining the need for Transmission capacity to be set aside as CBM for imports into a Balancing Authority Area shall determine that need by:

R4.1. Using one or more of the following to determine the GCIR: 3

- Loss of Load Expectation (LOLE) studies
- Loss of Load Probability (LOLP) studies
- Deterministic risk-analysis studies
- Reserve margin or resource adequacy requirements established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities

R4.2. Identifying expected import path(s) or source region(s).

DEF does not currently have established CBM components to meet any resource adequacy reliability requirement.

R5. At least every 13 months, the Transmission Service Provider that maintains CBM shall establish a CBM value for each ATC Path or Flowgate to be used for ATC or Available Flowgate Capability (AFC) calculations during the 13 full calendar months (months 2-14) following the current month (the month in which the Transmission Service Provider is establishing the CBM values). This value shall:

R5.1. Reflect consideration of each of the following if available:

- Any studies (as described in R3.1) performed by Load-Serving Entities for loads within the Transmission Service Provider’s area
- Any studies (as described in R4.1) performed by Resource Planners for loads within the Transmission Service Provider’s area
- Any reserve margin or resource adequacy requirements for loads within the Transmission Service Provider’s area established by other entities, such as municipalities, state commissions, regional transmission organizations,
R5.2. Be allocated as follows:

- For ATC Paths, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners
- For Flowgates, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners and the distribution factors associated with those paths or regions, as determined by the Transmission Service Provider

DEF does not currently have established CBM components to meet any resource adequacy reliability requirement.

R6. At least every 13 months, the Transmission Planner shall establish a CBM value for each ATC Path or Flowgate to be used in planning during each of the full calendar years two through ten following the current year (the year in which the Transmission Planner is establishing the CBM values). This value shall:

R6.1. Reflect consideration of each of the following if available:

- Any studies (as described in R3.1) performed by Load-Serving Entities for loads within the Transmission Planner’s area
- Any studies (as described in R4.1) performed by Resource Planners for loads within the Transmission Planner’s area
- Any reserve margin or resource adequacy requirements for loads within the Transmission Planner’s area established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities

R6.2. Be allocated as follows:

- For ATC Paths, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners
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- For Flowgates, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners and the distribution factors associated with those paths or regions, as determined by the Transmission Planner.

DEF does not currently have established CBM components to meet any resource adequacy reliability requirement.

R7. Less than 31 calendar days after the establishment of CBM, the Transmission Service Provider that maintains CBM shall notify all the Load-Serving Entities and Resource Planners that determined they had a need for CBM on the Transmission Service Provider’s system of the amount of CBM set aside.

DEF does not currently have any LSE’s or Resource Planner who have determined they have a need for CBM.

R8. Less than 31 calendar days after the establishment of CBM, the Transmission Planner shall notify all the Load-Serving Entities and Resource Planners that determined they had a need for CBM on the system being planned by the Transmission Planner of the amount of CBM set aside.

DEF does not currently have any LSE’s or Resource Planner who have determined they have a need for CBM.

R9. The Transmission Service Provider that maintains CBM and the Transmission Planner shall each 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 to the following:

R9.1. Each of its associated Transmission Operators within 30 calendar days of their making a request for the data.

R9.2. To any Transmission Service Provider, Reliability Coordinator, Transmission Planner, Resource Planner, or Planning Coordinator within 30 calendar days of their making a request for the data.
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DEF does not currently have any established CBM component to meet any resource adequacy reliability requirement and thus has no study data to provide.

R10. The Load-Serving Entity or Balancing Authority shall request to import energy over firm Transfer Capability set aside as CBM only when experiencing a declared NERC Energy Emergency Alert (EEA) 2 or higher.

Usage of CBM by LSE or BA requires an EEA 2 or higher to be occurring.

R11. When reviewing an Arranged Interchange using CBM, all Balancing Authorities and Transmission Service Providers shall waive, within the bounds of reliable operation, any Real-time timing and ramping requirements.

DEF does not use CBM at this time. DEF would waive these requirements under the emergency conditions that required usage of CBM within the bounds of reliable operation.

R12. The Transmission Service Provider 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 2 if:

R12.1. The CBM is available

R12.2. The EEA 2 is declared within the Balancing Authority Area of the “energy deficient entity,” and

R12.3. The Load of the “energy deficient entity” is located within the Transmission Service Provider’s area.

DEF does not use CBM at this time. If CBM were using the future, DEF would approve arranged interchange under the emergency conditions that required usage of CBM within the bounds of reliable operation.
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<td>CBMID Implementation</td>
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<tr>
<td>1</td>
<td>1/20/2013</td>
<td>General Clarifications and minor format changes</td>
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<td>2</td>
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