

Look Ahead Generation Commitment for the BC-PEPCO Area	OM#	032	Rev#	11
	Effective:	05/03/2024		
	Revise/Review By:	12/01/2024		

1. PURPOSE / INTENT

In 2012, imports into and through the Baltimore and PEPCO areas are potentially limited based on thermal overload, low voltage or voltage collapse. Operating flexibility in this area is further limited by certain steam units with long minimum down time and long start-up time, which may adversely impact reliability. In order to posture the system to control potential SOL exceedances, generation may need to be committed in advance to mitigate the risk of losing major transmission and/or generation facilities in the area. This procedure defines the steps to ensure adequate generation is available to ensure reliability of the area is maintained without shedding load.

Note: This procedure is intended for Look Ahead (3-Day, 2-Day and Day Ahead) studies. If a major Baltimore/PEPCO facility trips in real time, perform another N-2 study in all relevant Look Ahead studies including the peak case study for the current operating day. If the N-2 study shows a need for additional Baltimore/PEPCO steam generation resources, they may be committed as required and logged as “OPD” and linked to the constraint identified in the N-2 study.

2. PROCEDURE

The Procedure for calling generation on-line in the Baltimore and PEPCO area is a two-fold process consisting of the following steps performed in all Look Ahead (3-Day, 2-Day, and Day Ahead) studies:

- 1.) Double Contingency (N-2) Control
- 2.) Study TLC Limit Control

1.) Double Contingency (N-2) Control

PJM will run sensitivity studies using the list of double contingencies shown in [Appendix A](#) in all Look Ahead studies. Here are the steps to perform the N-2 study:

- a. Set up the base case following the normal process to control actual and N-1 constraints.
 - i. Thermal constraints should be controlled between 95% and 100% prior to running N-2 analysis, to simulate expected binding control in RT. [Consistent with PJM Manual 12: Attachment B: Transmission Constraint Control Guidelines]
- b. Apply the N-2 contingencies by activating all contingencies from SA Group 18 (BCP DBLS) in SA Group 1 or 21 (SA SPEC) in study mode. Evaluate the study results for the following violations in Baltimore and PEPCO area:
 - i. Non-converged contingency indicating voltage collapse
 - ii. Post-Contingency Low Voltages below the Load Dump (LD) limit
 - iii. Post-Contingency Thermal Overloads that exceed 115% the Load Dump (LD) limit
- c. If the N-2 contingency study indicates any of the above violations (b.i, b.ii, or b.iii), evaluate the following actions to study if the N-2 violations can be mitigated:
 - i. Online steam generation in the Baltimore and PEPCO area should be studied at EcoMax, provided they are raise helps.

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- ii. Dispatch Combustion Turbines (CT) within the Baltimore/PEPCO/DOM area with a Time To Start (TTS) of 30 minutes or less. Up to 75% of available CTs can be committed in the study provided they meet the TTS criteria.
- iii. Reduce generation in the northern Mid-Atlantic (PL, ME, PE, JC, PS, AE, DPL, UGI) by an equal amount of MW as was brought online in the previous step.
- iv. Study pre-identified post-contingency switching options to alleviate N-2 (see Table 1). If a switching solution exists and is effective, the TO must agree that the proposed switching is acceptable should the first contingency occur. Document the switching solution in the study notes on the Daily Transmission Log.

Table 1. Pre-Identified Switching Solutions

Constraint	Switching
Graceton – Safe Harbor 230kV	Open Graceton ‘2303’ and ‘2313’ 230kV CBs

- v. For voltage exceedances and non-convergences, an additional study must be performed by performing an N-1-1 study. Follow the steps below to perform the study.
 - Outage one of the facilities associated with the violating double contingency
 - For example: [REDACTED]
 - Run Power Flow in study
 - Run Security Analysis (N-1) in study without screening for the double contingencies listed in [Appendix A](#).
- vi. If re-dispatch or switching is not sufficient to mitigate the N-2 or N-1-1 violations, commit off-line steam units per step 4.
- vii. After the generation adjustments are made, the N-2 contingency list should be rerun to ensure no violations from [1.b](#) are observed in any of the Look Ahead analyses.

2.) Study TLC Limit Control

The BC-PEPCO Interface is a defined cut-set of lines surrounding the Baltimore and PEPCO area that is monitored and controlled for in the PJM Real Time Transfer Limit Calculator (TLC) as defined in the PJM Manual 3 and PJM Manual 37.

- a. Consistent with all TLC Interfaces, PJM will monitor the BC-PEPCO Interface in all Look Ahead studies. Generation will be committed to ensure flows remain within the TLC limits (refer to step 4.).

NOTE: The double contingencies in Appendix A are not screened in Look Ahead TLC studies or Real Time TLC analysis.

3.) Coordination Among All Look Ahead (3-Day, 2-Day, and Day Ahead) Studies

Due to the long minimum down times and long startup times, close coordination is necessary across all Look Ahead study horizons to ensure:

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- a. Additional steam units can be called to come on-line when needed.
- b. On-line units being released and then unable to be on-line when needed after factoring in the respective minimum down time and startup time.

4.) Generation Commitment and Coordination with the Day-Ahead Market Operator

If any of the above analyses shows a generation deficiency in the Baltimore and PEPCO area, additional steam units shall be committed as required to alleviate the deficiency. The commitment should be made in economic order with full consideration of unit parameters such as start-up time, min down time, unit limitations, and min run time. Resources that are limited by environmental restrictions shall utilized as a last resort to maintain an N-1 reliability. The Reliability Engineers will communicate the need of running additional steam units to the Day-Ahead Market Operator, including units committed prior to the Day-Ahead Market run.

In some cases, the need for additional steam units is marginal or heavily impacted by RTO scale economic generation commitment. In these cases, the commitment of additional steam units may wait until after the Day-Ahead Market has cleared and the 2-pass analysis has been evaluated, if not limited by unit parameters (e.g. start-up time) or other reliability factors.

Units committed outside of the Day-Ahead Market should be logged as “OPD” for the most limiting constraint (actual, N-1, N-2) and added to the DA transmission log. Units should be committed for only their min run time.

3. REFERENCES

PJM Manual 3:
<https://www.pjm.com/~media/documents/manuals/m03.ashx>

PJM Manual 37:
<https://www.pjm.com/-/media/documents/manuals/m37.ashx>

4. ASSOCIATED APPLICATIONS

Applications that may be impacted by any revisions to this Operating Memo should be noted within this section.

IEP Procedure ID:	n/a	Event Name:	
Note:			

SCADA/EMS:	n/a	Display:	
Note:			

System Impacts:	n/a	Title:	
Note:			

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5. REVISION HISTORY

Rev. #	Date	Author	Description
0	8/10/16	[REDACTED]	OM Creation
1	6/29/17	[REDACTED]	Annual review, added TTS, updated study process and Appendix A, added Appendix B
2	6/29/18	[REDACTED]	Annual review, no changes
3	7/9/18	[REDACTED]	Added language which discusses using Dominion generation as a raise help and using Mid-Atlantic generation as lower help.
4	10/7/19	[REDACTED]	Annual review, no changes
5	11/13/19	[REDACTED]	Revamped procedure to better align with how N-2 study is performed. OM-wide formatting updates. Added language to DA section about commitment during 2-pass. Added switching solutions table. Updated Appendix A list.
6	10/19/20	[REDACTED]	Annual review. No changes
7	10/18/21	[REDACTED]	Annual review. No changes
8	10/03/22	[REDACTED]	Annual review, updated Appendix A and Appendix B
9	11/29/22	[REDACTED]	Updated section 2.c to reflect amount of CTs that can be committed in the study to clear overloads from 50% to 75%.
10	12/01/23	[REDACTED]	Annual review. Administrative updates.
11	05/03/24	[REDACTED]	Updated to describe handling unit limitations.

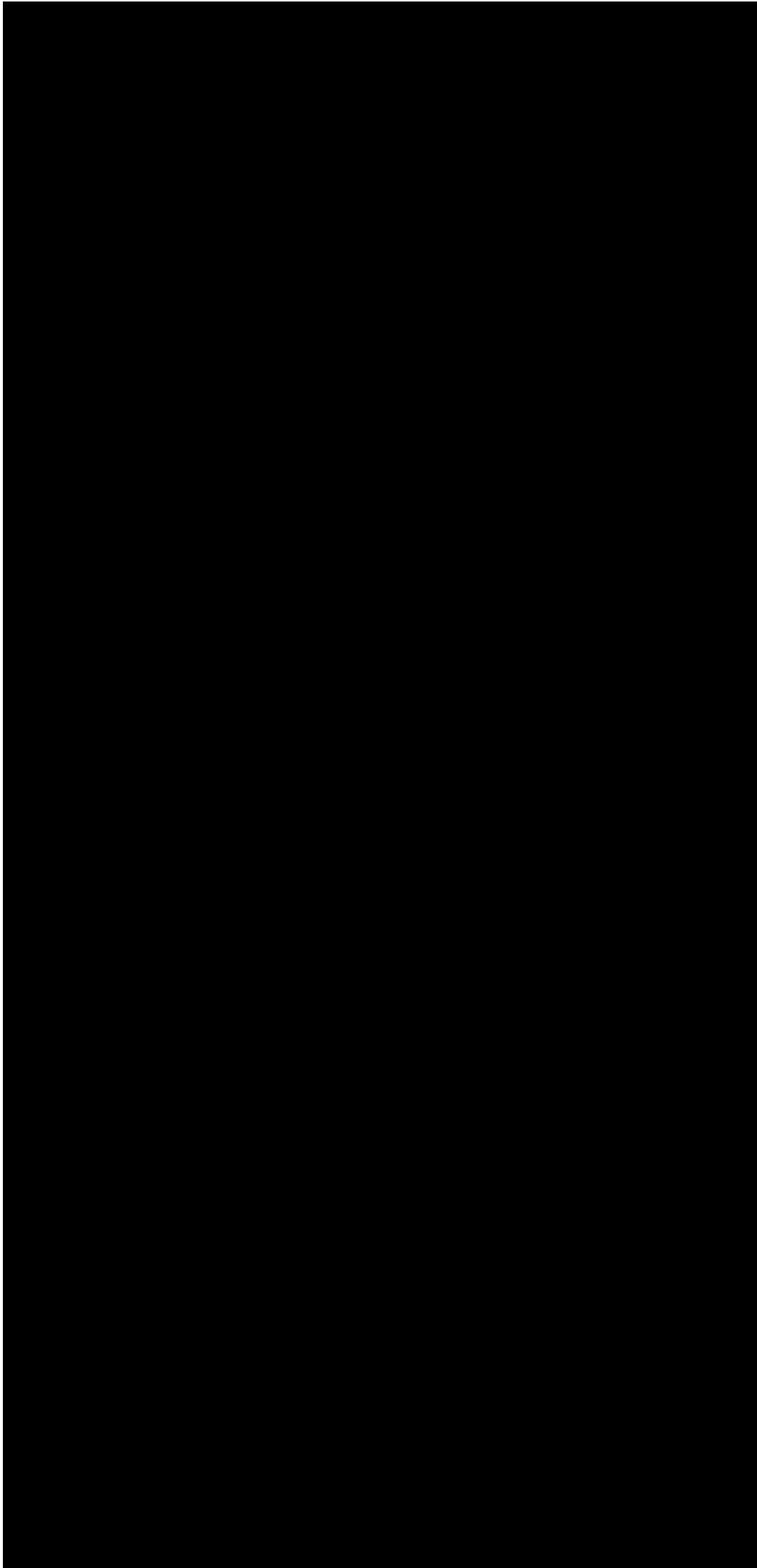
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Appendix A: Double Contingencies for use in the Look Ahead Studies

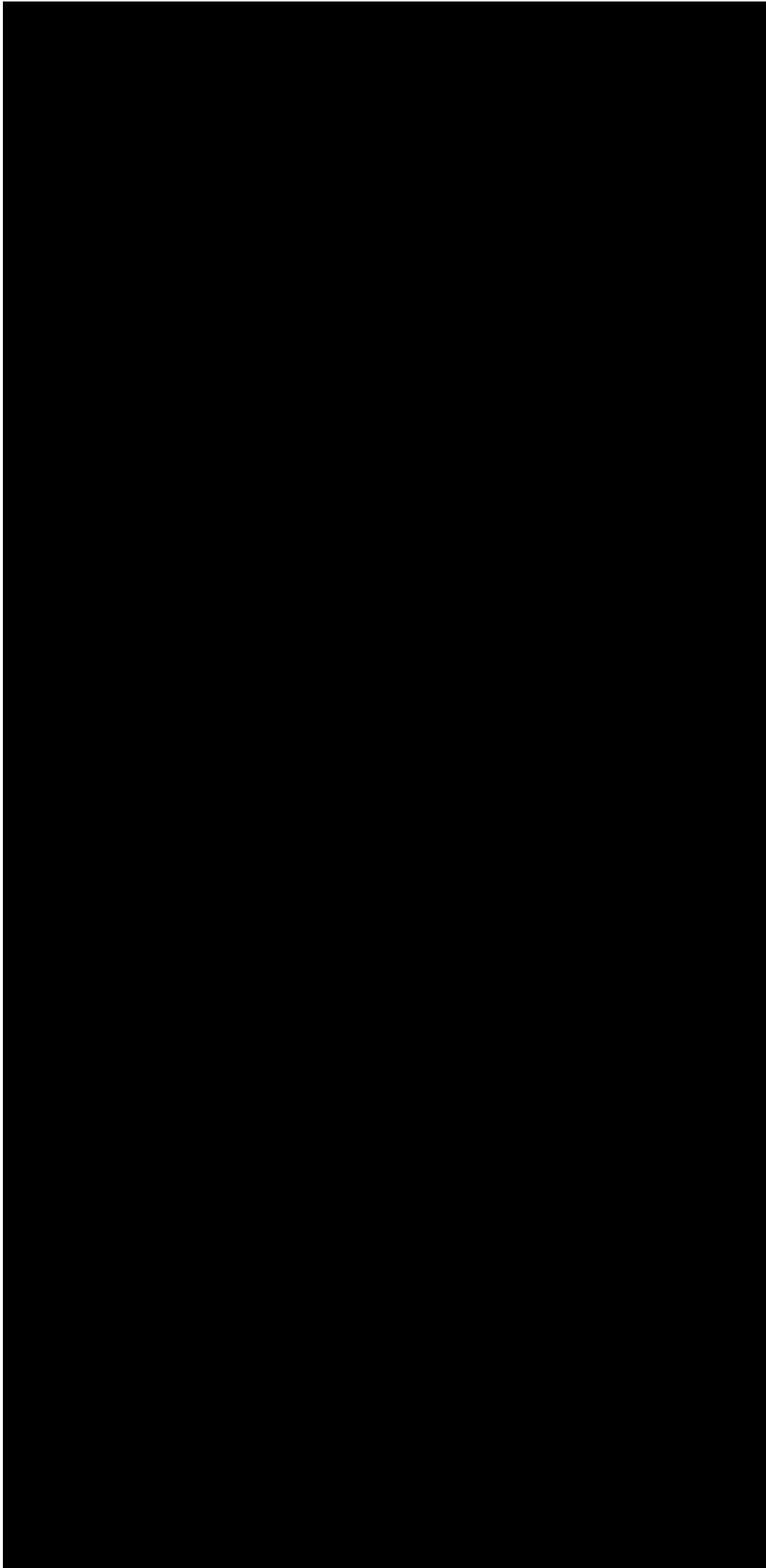
(Note: Contingencies are 500 kV and 230 kV lines and steam/nuclear units as indicated by SA Group 18)

Seq	Contingency Title

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Appendix B: Unit Parameters

This provides unit parameters for steam units within the BC/PEPCO area on their PLS schedules.

Note: Informational only - check DMT for current parameters.

Unit	Eco Max	TTS (hrs)	Min Run (hrs)	Min Down (hrs)	Env Limited