BASELINE INTEGRATION RTEP REPORT

Ohio Valley Electric Corporation (OVEC)

For the 2018-2022 Period

Transmission Planning

October 2017

INTRODUCTION

In order to establish a starting point for development of Regional Transmission Expansion Plans and determine cost responsibility for expansion facilities, a 'baseline' analysis of system adequacy and security is necessary. The purpose of this analysis is threefold:

- To identify areas where the system, as planned, is not in compliance with the applicable reliability standards (for purposes of this report, "applicable reliability standards" will be defined as NERC, RFC, OVEC and PJM Reliability Planning Criteria). The baseline system is analyzed using the same criteria and analysis methods that are used for assessing the impact of proposed new generation projects. This will ensure that the need for system enhancement of the baseline system and enhancements due to generation projects are determined in a consistent and equitable manner.
- To bring those areas into compliance, develop and recommend facility expansion plans, including cost estimates and estimated in-service dates.
- To establish what will be included as baseline costs in the allocation of the costs of expansion for those generation projects proposing to connect to the PJM system.

The system as planned is tested for its compliance with applicable reliability standards and PJM design standards to accommodate the forecast demand, committed resources, and commitments for firm transmission services for a specified time frame. Areas not in compliance with the standards are identified and enhancement plans are developed to achieve compliance.

This 'baseline' analysis and the resulting expansion plans served as the base system for the generator deliverability studies that were conducted for all generation that had an executed Interconnection Agreement with OVEC as of July 1, 2017.

In addition to the PJM Generator Deliverability test, Winter Deliverability, Light Load Deliverability analysis and baseline thermal and voltage analysis (including N-1-1) were completed for the OVEC system on a 2017 RTEP case.

The next RTEP Baseline report (2018 RTEP) and analysis, will include a continued review of all applicable NERC, PJM, RFC, and OVEC planning criteria. During 2018, the OVEC system and resulting studies will be reviewed at the Transmission Expansion Advisory Committee (TEAC) meetings and included within the PJM RTEP Baseline Report which will also include results for the existing PJM system.

OBJECTIVE AND SCOPE

The objectives of this study were as follows:

- To identify areas where the system as planned for the period 2018 through 2022 would not be in compliance with applicable reliability criteria.
- To develop and recommend preliminary facility expansion plans, including cost estimates and estimated in service dates, to bring those areas into compliance.
- To establish what will be included as baseline expansion costs for the allocation of the costs of expansion for future OVEC generation projects.

The scope of this study included analysis for the period 2018 through 2022 to determine compliance with the PJM Deliverability requirements, Base Case Analysis requirements, Short Circuit Requirements, Stability requirements, Winter Deliverability requirement, and Light load requirements.

KEY FINDINGS

Power Flow Result:

The OVEC system was found to be non-compliant with applicable reliability criteria without additional system upgrades.

1. In 2018, the Dearborn – Clifty 345KV line is overloaded for the loss of the Jefferson – Greentown 765kV line fault with a stuck breaker at the Jefferson 765kV. The solution is to perform a LIDAR clearance study on the Clifty Creek - Dearborn 345 kV line. The estimated cost is $0.168M. The projected IS date is 06/01/2018. The PJM RTEP baseline tracking identification number is B2943 and will be presented to the PJM Board for inclusion in the RTEP after the OVEC integration is complete.

Short Circuit Simulation Result:

No Short Circuit issue identified.

Dynamic System Stability Result:

No Stability issue identified.

Voltage Study:

No Voltage issue identified.

ATTACHMENT A – GENERATOR DELIVERABILITY RESULTS

PSSE NAME	ID	Unit Commercial Name	Capacity Injection Rights (MWs)	Resource Type	Result
06CLIFTY	1	CLIFTYAEP345 KV UN1	198	Capacity Resource	Deliverable
06CLIFTY	2	CLIFTYAEP345 KV UN2	198	Capacity Resource	Deliverable
06CLIFTY	3	CLIFTYAEP345 KV UN3	198	Capacity Resource	Deliverable
06CLIFTY	4	CLIFTYAEP345 KV UN4	198	Capacity Resource	Deliverable
06CLIFTY	5	CLIFTYAEP345 KV UN5	198	Capacity Resource	Deliverable
06CLIFTY	6	CLIFTYAEP345 KV UN6	198	Capacity Resource	Deliverable
06KYGER	1	KYGERAEP345 KV UN1	197	Capacity Resource	Deliverable
06KYGER	2	KYGERAEP345 KV UN2	196	Capacity Resource	Deliverable
06KYGER	3	KYGERAEP345 KV UN3	196	Capacity Resource	Deliverable
06KYGER	4	KYGERAEP345 KV UN4	196	Capacity Resource	Deliverable
06KYGER	5	KYGERAEP345 KV UN5	196	Capacity Resource	Deliverable

REVISION HISTORY

10/26/2017 – Initial OVEC Baseline Integration Report Issued