

# **OHIO VALLEY ELECTRIC CORPORATION - 2013 FILING**

## **FERC FORM 715 - ANNUAL TRANSMISSION PLANNING AND EVALUATION REPORT**

### **PART 6 -- EVALUATION OF TRANSMISSION SYSTEM PERFORMANCE**

Because of the highly developed nature of the OVEC/IKEC system and its location within the interconnected network, its performance can be significantly influenced by external as well as internal factors. OVEC/IKEC serves as a vital link in the interconnected system. Power transactions on the interconnected network or system developments within neighboring utility systems can have a significant impact on OVEC/IKEC system performance. Since such external factors cannot always be forecasted with a high degree of certainty, OVEC/IKEC system performance can only be assessed with some degree of uncertainty.

The DOE load served by the OVEC/IKEC transmission system is currently at a low level and is not being supplied by OVEC generation. While the reduction of the DOE load has not presented any previously unknown constraints on the OVEC/IKEC transmission system, in conjunction with increasing loads in the adjacent areas of the Sponsors systems it has increased loadings on several AEP, OVEC and Duke 345/138 kV transformers that are or were connected to the OVEC 345 kV network. Heavy flows on these 345/138 kV transformers have been a concern. These concerns have largely been addressed by improvements made by Duke at Buffington (2005) and Pierce (2008-2009); by OVEC/IKEC at Clifty Creek (2006); and by AEP at Marquis (2007-2009).

Results of recently completed studies, including the RFC 2011 summer study performed in 2009, have identified possible concerns about the performance of facilities in the vicinity of the LGEE interfaces with OVEC and Duke. OVEC facilities involved include the Clifty Creek [OVEC] – Trimble County [LGEE] 345 kV tieline, and the Clifty Creek [OVEC] – Northside [LGEE] 138 kV tieline. The limiting equipment on these ties is owned by LGEE, as are the facilities identified as the critical contingencies. Study results were forwarded by RFC to LGEE. A recommendation was made that the involved parties initiate a joint study of these interfaces. LGEE and Duke, via the Midwest ISO MTEP process, have been evaluating several options to reinforce this area. The 2011 MTEP included a project to create a new 345 kV tie from Speed [Duke] to Paddys West [LGEE]. In the 2012 MTEP, this proposed project has been refined to establish a new station that will connect the [DEM-HE] Speed-Ramsey 345 kV tieline with the [LGEE] Paddys West-Northside 345 kV line. The expected in-service date is 12/31/2013.

To address system performance concerns associated with pending generation retirements in the area, AEP(PJM) has reported plans to re-terminate the existing Kyger-Tristate 345 kV [OVEC]-[AEP] tieline at the [AEP]Sporn station, restoring a second path parallel to the existing Kyger-Sporn 345 kV tie. In conjunction with other planned reinforcements, this is expected to alleviate the heavy loadings that have previously been experienced on the Kyger-Sporn circuit. This project is projected to be in-service by 6/1/2016.

At the request of the DOE, the DOE-owned X533 station was permanently de-energized on November 1, 2008. Prior to its shutdown, the X533 station was part of one of the two corridors integrating the OVEC/IKEC generating plants to the west (Clifty Creek) and east (Kyger Creek) as well as integrating the OVEC/IKEC transmission system with several OVEC/IKEC Sponsors. To restore these integrating functions, the circuits formerly emanating from the X533 station have been reconfigured to create circuits (1 each) directly connecting Kyger Creek to Marquis (AEP/CCD) and Pierce.

In addition to the concerns of exceeding the thermal capabilities of equipment discussed above, past studies have indicated the need to assess the capabilities of circuit breakers to interrupt fault currents should further system developments occur in the vicinity of the Kyger Creek 345 kV station. Replacement of the affected circuit breakers at Kyger Creek is in progress, and is expected to be completed in 2013.

The areas of concern described above are those identified in the most recent performance appraisals conducted, based on the best available knowledge of interconnected system development, and expected operating conditions. The results of appraisals assuming different system conditions can be considerably different.

## APPENDIX A

### External Documents that Relate to OVEC/IKEC's Transmission Planning Criteria and Assessment Practices

1. NERC "Reliability Standards" \*
2. NERC "Transfer Capability – A Reference Document" \*

\* NERC website: [www.nerc.com](http://www.nerc.com)

APPENDIX B

OVEC/IKEC STABILITY DISTURBANCE TESTING CRITERIA

PREFault CONDITION

DISTURBANCE

All Transmission Facilities in Service

- A. A permanent SLG fault with 1 $\phi$  breaker failure. Fault cleared by backup breakers.
- B. A permanent 3 $\phi$  fault with unsuccessful HSR, if applicable. Fault cleared by primary breakers.
- C. 3 $\phi$  line opening without fault.

One Transmission Facility Out of Service

- D. A permanent 3 $\phi$  fault with unsuccessful HSR, if applicable. Fault cleared by primary breakers.
- E. 3 $\phi$  line opening without fault.

Two Transmission Facilities Out of Service

- F. A temporary 3 $\phi$  fault with successful HSR, if applicable.
- G. 3 $\phi$  line opening without fault.