Black Hills Colorado Electric

2012 Local Transmission Plan

Study Scope

1. **Background**

As specified in Attachment K to the Black Hills Colorado Transmission (BHCT) Open Access Transmission Tariff (OATT), the Transmission Provider (TP) will develop a Local Transmission Plan (“LTP”) on an annual basis to ensure the transmission system is designed to reliably accommodate resource and load growth as well as transmission service obligations. The LTP study will utilize an open and coordinated process involving input from stakeholders consistent with the principles, practices, policy, and procedures set forth in the Attachment K.

The Transmission Provider will evaluate the transmission system performance with forecasted network and native loads as well as planned system additions and upgrades. When possible, system performance criteria violations found during the study will be corrected through the use of Remedial Action Schemes, operating procedures, or transmission facility additions, and additional study work will be performed as necessary. These identified solutions will then be summarized in the BHCT LTP. Additional information on the LTP process can be found on the BHCT OASIS website (<http://www.oatioasis.com/BHCT>) within the “Transmission Planning” folder.

1. **Base Case Scenarios**

The LTP will focus on 2017 for the near-term study period, including both peak and off-peak demand scenarios. 2022 was chosen for the peak and off-peak far-term study periods. The study years were selected based on several factors including base case availability, in-service dates of planned system upgrades, and previously completed planning studies as well as regional study efforts under the Colorado Coordinated Planning Group. All generation and transmission system upgrades currently under construction or submitted for regulatory review will be included in the base case scenarios. Proposed projects may be included in the base case upon agreement of both the TP and TCPC. Descriptions of any changes made to a starting case to create a base case scenario will be documented.

WECC-approved base cases, updated as part of the 2012 CCPG Compliance Study, will be used to develop the study cases when possible, unless the TP and members of the TCPC agree to an alternate starting case. Table 1 includes the proposed study cases and their respective starting case. These study cases are subject to change based on availability of base cases. The TCPC will be consulted regarding any proposed changes to the cases in Table 1.

**Table 1: LTP Study Case**s

|  |  |  |  |
| --- | --- | --- | --- |
| **Near-Term Study Case** | **Starting Case** | **Far-Term Study Case** | **Starting Case** |
| 2017 Heavy Summer | CCPG 2017HS | 2022 Heavy Winter | WECC 2022HW1 |
| 2016-17 Light Winter | CCPG 2017LW | 2022 Light Summer | WECC 2022LS1 |

1. **Uncertainty Scenarios**

An uncertainty scenario may be created for each of the base case scenarios in Table 1 based on stakeholder input. Uncertainty scenarios provide an opportunity to evaluate generation and transmission projects submitted for consideration but not included in the base case, as well as demand response resources and alternative load and/or resource profiles. Uncertainty scenarios are often used to validate the need and required implementation timeline for projects that may be in the Transmission Providers 10-Year Plan.

1. **Power Flow Simulations**

For each base case and uncertainty scenario identified above power flow simulations will be run to evaluate system performance under NERC TPL Standard Category A-C events and worst case Category D events. Black Hills’ generation may be dispatched as deemed appropriate to mitigate performance criteria violations for base case simulations.

A voltage stability assessment will be performed for the study area to demonstrate sufficient voltage stability margin exists. The voltage stability analysis will be performed for the 2017 heavy summer scenario to reflect worst-case conditions in the near-term planning horizon.

The study will monitor the performance of the BHCE and surrounding transmission system in the Western Interconnection roughly bounded by the Walsenburg, San Luis Valley, Poncha, Lamar, and Midway substations.

1. **Dynamic Simulations**

Dynamic simulations will be run on base case scenarios to evaluate system performance under NERC TPL Standard Category A and worst-case Category B, C and D events based upon the results of the power flow simulations and engineering judgment.

1. **Study Timeline**
   1. Q2 2012 – Compile base case updates from neighbor utilities and load/resource data from transmission customers.
   2. Q3 2012 – Perform simulations and develop solutions to mitigate performance violations and validate currently planned projects.
   3. Q4 2012 – Draft and finalize the Local Transmission Plan.

Quarterly stakeholder meetings will be held at each of the above milestones to provide the opportunity for meaningful stakeholder participation in the transmission planning process.