

Black Hills Colorado Electric

2013 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”) through cooperation with the Transmission Coordination and Planning Committee (“TCPC”), 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. Additional information on the LTP process can be found on the BHCT website (<http://www.oatioasis.com/BHCT>) within the “Transmission Planning” folder.

The 2013 LTP study has been modified from the previous year’s process in that the requirements of Colorado Senate Bill 07-100 will be included in the study scope. The SB-100 analysis will be performed as an uncertainty scenario described further in Section 3.

2. Base Case Scenarios

The LTP will focus on 2018 for the near-term peak and off-peak scenarios. 2023-24 was chosen for the far-term study period. The study years were selected based on several factors including base case availability, planned system upgrades, and previously completed planning studies. 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.

The LTP study scenarios will be created using cases recently compiled through regional planning studies. This is done to ensure the cases have undergone peer review and reflect current transmission system plans. The 2023 light winter case will be created from an updated version of an approved WECC base case used in the 2012 LTP study. Table 1 includes the proposed study cases and their respective starting case.

Table 1: LTP Study Cases

Near Term LTP Study Case	Starting Case	Far Term LTP Study Case	Starting Case
2018 Heavy Summer	CCPG_2017HS Case	2024 Heavy Summer	CCPG 2023HS Case
2018 Light Autumn	CCPG_2017LA Case	2023 Light Winter	2012 TCPC 2022HW case

3. Uncertainty Scenarios

Uncertainty scenarios may be created for any of the base case scenarios in Table 1 as deemed appropriate by the TCPC 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. The current LTP process will incorporate an uncertainty scenario designed to meet the requirements of Colorado Senate Bill 07-100.

On March 27, 2007, Colorado Senate Bill 07-100 (SB-100) became effective. The purpose of the bill was to ensure that Colorado utilities “continually evaluate the adequacy of electric transmission facilities throughout the state” and “promptly and efficiently improve such infrastructure as required to meet the state’s existing and future energy needs.” The bill specifically requires each Colorado electric utility that is subject to rate regulation by the Colorado Public Utilities Commission (Commission) to perform the following on or before October 31 of each odd-numbered year:

- (a) Designate Energy Resource Zones;
- (b) Develop plans for the construction or expansion of transmission facilities necessary to deliver electric power consistent with the timing of the development of beneficial energy resources located in or near such zones.
- (c) Consider how transmission can be provided to encourage local ownership of renewable facilities, whether through renewable energy cooperatives as provided in 7-56-210,C.R.S., or otherwise; and
- (d) Submit proposed plans, designations, and applications for Certificates of Public Convenience and Necessity to the Commission for simultaneous review. The requirement for a Certificate of Public Convenience and Necessity (CPCN) for a particular transmission project is at the discretion of the Commission.

The Transmission Provider will perform power flow analysis to evaluate the transmission system performance with forecasted network and native loads as well as planned system additions and upgrades. For 2013, Black Hills has selected ‘Zone 5’ as shown in Figure 1 as the preferred ERZ to evaluate for future resource delivery potential. Zone 5 contains infrastructure that was completed by Black Hills as part of past SB-100 efforts. There have also been projects recently identified in the Ten Year Transmission Plans of neighboring utilities that may offer the opportunity for joint participation, and Black Hills feels that these opportunities should be evaluated through this SB-100 analysis. Additional information on the SB-100 study process can be found on the BHCT website at <http://www.blackhillscorp.com/sb100.htm>.

4. 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 will be dispatched as deemed appropriate to mitigate performance criteria violations for base case simulations. The 2018 Light Autumn load scenario will implement a ‘high renewable’ generation dispatch.

The SB-100 part of the analysis will be performed with increasing resource injections from the identified ERZ (Zone 5). Transmission system upgrades will be identified as necessary to mitigate any reliability criteria violations. The critical resource injection levels, along with any identified transmission system upgrades will then be summarized in the study report. Applications for a CPCN will be filed with the Commission as appropriate based on the results of the analysis. The SB-100 analysis will be completed for the 2018HS and 2018LA scenarios.

The study will monitor the performance of the transmission system in the Western Interconnection roughly bounded by the Walsenburg, San Luis Valley, Poncha, Lamar, and Midway substations. Figure 1 shows the general location of BHCE 115 kV transmission system as well as the approximate location of the PSCo Energy Resource Zones for the SB-100 Uncertainty Scenario.

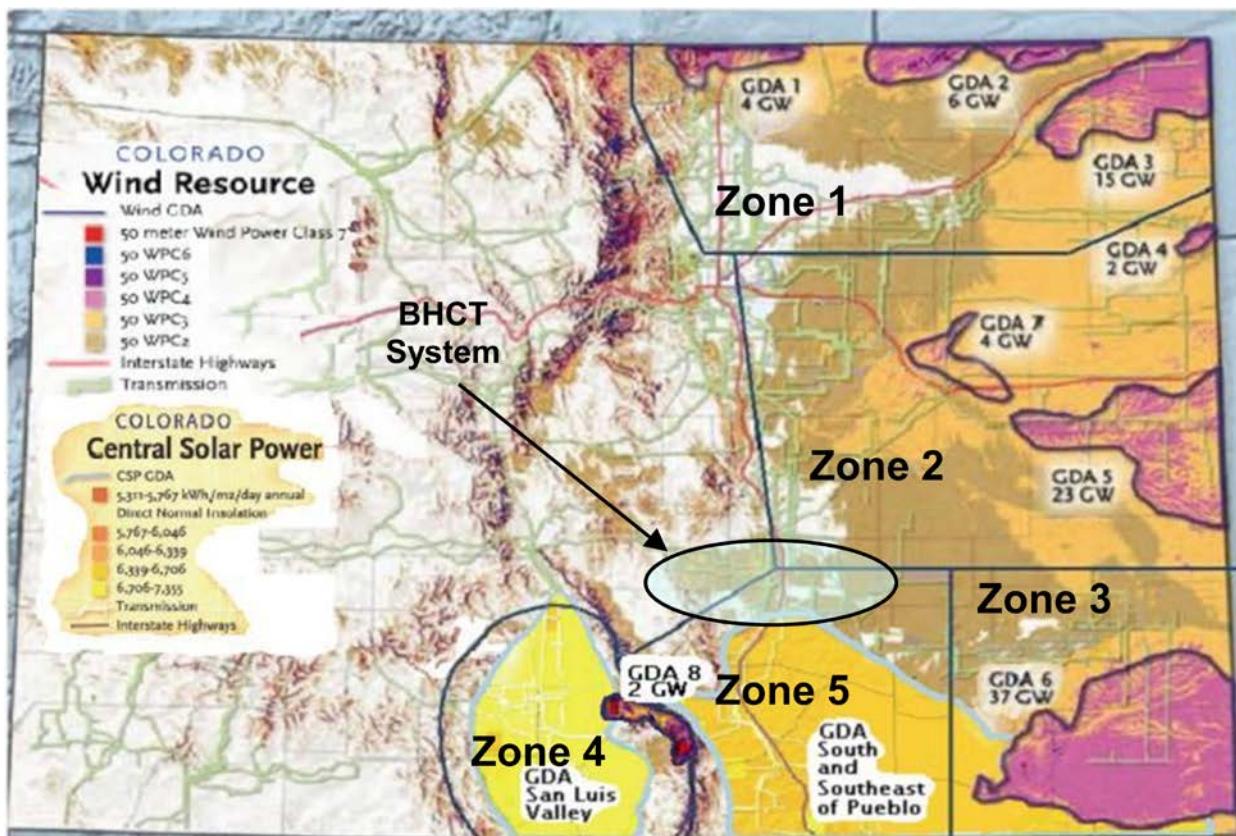


Figure 1: BHCE 115 kV Transmission System and PSCo Energy Resource Zones

5. Dynamic Simulations

Dynamic or transient stability simulations will be performed on 2018HS and 2018LA base case scenarios to evaluate system response under NERC TPL Standard Category A and worst-case Category B, C and D events based upon the results of the power flow simulations. Dynamic simulations may be performed on the 2024HS scenario as dictated by the results of the 2018 analyses. Transient stability simulations will not be performed for the SB-100 uncertainty scenario.

6. Additional Analyses or Project Alternatives

Analyses in addition to those mentioned within this study scope may be performed as necessary to address reliability requirements or meet other needs as deemed necessary by the TCPC.

Requests for additional studies or scenarios, as well as suggestions for project alternatives, should be submitted to the Colorado Coordinated Planning Group using the official form provided at http://www.westconnect.com/filestorage/ccpg_request_form.xls. The request will be evaluated by the CCPG and directed to the appropriate group for consideration.

For questions regarding this study scope or the study process, please contact me:

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