

Appendix J:
CCPG Stakeholder Process
Comments & Responses to
the CCPG
San Luis Valley Studies

**(For Stakeholder Comments, Requests for Clarification, Reliability Studies,
 Alternative Evaluation, and other General Feedback)**

Provide the information in the yellow boxes. If the information is unavailable or unknown, please indicate.

Requester Information:	
Date:	13-Jan-15
Requester:	Frank McElvain
Address:	685 East Middlefield Road
State & Zip:	Mountain View, CA 94043-4045
Requester Contact:	Phone: 650 694 5096
	Title: Senior Manager, Consulting
Phone Number:	Cell: 408 239 7825
Email:	frank.mcelvain@siemens.com

General Information:	
Study or Project Name:	San Luis Valley Joint Study Task Force
New Study or Alternative:	SLV to Second Source (Walsenburg, Poncha, Montrose, Pagosa)
Narrative Description:	The San Luis Valley Joint Study Task Force has been created with the primary objective of identifying potential alternatives that address the San Luis valley transmission system deficiencies, which include poor reliability, restrictions on load growth, aging infrastructure, and limited generation export capability. The SLV can be viewed as being served by two transmission lines which are routed through a common corridor from the north. In order to increase reliability, possible alternatives which utilize a different corridor or direction of service would prevent one event (fire, etc.) from necessitating load shedding, or loss of the entire SLV load for an extended period of time. As such, evaluation of a line to Walsenburg, Poncha, Montrose, or Pagosa seem like sources that could be leveraged to accomplish this goal.
Study Horizon Date:	
Geographic Footprint Impacted:	San Luis Valley, Colorado
Load and Resource Modeling:	Heavy Load, Shoulder season off-peak load, high renewable output
Transmission Modeling	These alternatives could utilize either 115 kV or 230 kV construction. However, it was identified that loss of the present 230 kV line can result in reduced load serving capability. This could imply that it is more likely a 230 kV solution would be necessary to remove the need for load shedding.
Suggested Participants (TP's, LSE's, Work Groups)	Tri-State Generation and Transmission, Public Service Company of Colorado (Xcel)
Policy Issues to be Addressed (SB100, RES, FERC, NERC, etc)	NERC Transmission Criteria
Other Factors to be Considered:	
Type (Powerflow or Stability):	Powerflow

Return To:	
CCPG Chair:	Wes Wingen
In care of:	Black Hills Corporation
Address:	PO Box 1400
City, State, Zip:	Rapid City, SD 57709-1400
Phone:	605-721-2268
Email:	wes.wingen@blackhillscorp.com

All study requests received from stakeholders will be reviewed and evaluated to determine the appropriate process for addressing. This planning process does not replace the System Impact Study process. Specific requests for transmission service or generation interconnection will continue to be studied pursuant to existing OATT processes.

**(For Stakeholder Comments, Requests for Clarification, Reliability Studies,
 Alternative Evaluation, and other General Feedback)**

Provide the information in the yellow boxes. If the information is unavailable or unknown, please indicate.

Requester Information:	
Date:	13-Jan-15
Requester:	Interwest Energy Alliance, Sarah Cottrell Propst, Executive Director
Address:	P.O. Box 8526
State & Zip:	Santa Fe, New Mexico 87504-8526
Requester Contact:	Lisa Tormoen Hickey, Esq.
Title:	Attorney on behalf of IEA
Phone Number:	719-471-9231
Email:	lisahickey@coloradolawyers.net

General Information:	
Study or Project Name:	San Luis Valley Joint Study Task Force
New Study or Alternative:	1) Upgrade lines to Poncha to 230 kV, (including potential for 230 kV Double Circuit) 2) New 230 kV line east to Comanche Substation 3) Upgrade 69 kV line to highest possible rating 4) Analyze locations/need for new substation(s) to accommodate modeling described below to export 500MW to 700MW of new solar
Narrative Description:	Interwest requests all four studies outlined above. Upgrades are appropriate and necessary for reliability to replace infrastructure, accommodate load growth and to remove limits on exports of renewable energy from the San Luis Valley. Expansion of the existing lines and expansion to the north and east are critical. In addition to new lines, the utilities should begin analysis of siting new substations along these rights of way. 1) Upgrade the 69 kV/115 kV+B42V line should be upgraded to 230 kV circuit on double-circuit capable structures. This would enable adding a 230 kV circuit in the n+B1 ear term with the potential for a second line (double circuit) in the future. 2) New 230 kV line east to Walsenburg (Comanche Substation) to provide looped service to the SLV. 3) Upgrade 69 kV conductor/line to be upgraded to the highest possible rating (~ 100 mVa). The third study is intended to be an alternative study in case the conversation to 115 kV would be too costly, considering all factors including approvals and siting. The alternative study #3 would provide information about opportunities to make the most effective use of existing infrastructure.
Study Horizon Date:	2018
Geographic Footprint Impacted:	San Luis Valley, Colorado, Front Range
Load and Resource Modeling:	Assume load increase 1.5%. Assume an additional 500 MW to 700 MW of utility-scale solar coming out of the San Luis Valley.
Transmission Modeling	
Suggested Participants: (TP's, LSE's, Work Groups)	Tri-State Generation and Transmission, Public Service Company of Colorado (Xcel)
Policy Issues to be Addressed: (SB100, RES, FERC, NERC, etc)	SB-100, Renewable Energy Standard, including increases in overall goals prior to 2013; ES, NERC Transmission Criteria, the Clean Power Plan.
Other Factors to be Considered:	Increased demand for renewables, including utility-scale solar energy, by Xcel Energy, Black Hills Energy, rural coops and municipalities before 2030, over and above the existing Renewable Energy Standard. In addition, several utilities have expressed a desire for additional utility-scale renewables, including solar energy, to serve voluntary demand from their customers. Additional capacity to transmit solar energy from the San Luis Valley can service this demand and reduce costs overall, providing additional hedging benefits against fuel price increases and volatility. Adding more utility-scale solar energy mixed with increasing amounts of wind energy can provide more complementary variable energy generation with diverse resource types and locations. These additions will promote energy security, low costs and stable prices for all Colorado ratepayers.
Type (Powerflow or Stability):	Powerflow

Return To:	
CCPG Chair:	Wes Wingen
In care of:	Black Hills Corporation
Address:	PO Box 1400
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All study requests received from stakeholders will be reviewed and evaluated to determine the appropriate process for addressing. This planning process does not replace the System Impact Study process. Specific requests for transmission service or generation interconnection will continue to be studied pursuant to existing OATT processes.

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January 19, 2015

San Luis Valley Joint Study Task Force
Jonathan Fidrych
James Nguyen
jfidrych@tristategt.org
james.nguyen@xcelenergy.com

Re: Study Requests for SLV Task Force

Dear Jon and James,

Thank you for extending the time period for stakeholder input into the SLV Task Force process. We submit this CCPG Comment Form with study requests on behalf of the Interwest Energy Alliance, a Colorado nonprofit trade association representing the leading utility-scale solar and wind developers working in the West. Interwest appreciates this opportunity to provide input related to transmission development which could serve Colorado ratepayers by increasing capacity for utility-scale solar energy in the San Luis Valley. This increased energy development in the Valley would promote economic development and jobs while reducing greenhouse gas emissions.

As you see, Interwest supports the recommendations already provided by other participants. I will join the conference calls when feasible to provide further input and answer any questions.

Thank you,

Very Truly Yours,

ALPERN MYERS STUART, LLC



By: Lisa Tormoen Hickey

Enclosure
cc: Sarah Cottrell Propst, Executive Director

COLORADO WORKING LANDSCAPES
COMMUNITY PROSPERITY THROUGH RENEWABLE ENERGY

Via email

TO: James Nguyen, Xcel Energy
Jonathan Fidrych, Tri-State
FROM: John Covert
DATE: February 4, 2015
SUBJECT: Initial Comments concerning Poncha to SLV Transmission Planning

I am pleased with the CCPG decision to form the SLV Transmission Joint Task Force to perform a joint Xcel Energy-Tri-State study to "...evaluate the overall electric system in San Luis Valley to ensure reliability, load growth, and generation." Your leadership in preparing planning scenarios for Task Force consideration is appreciated.

Since 2003, Colorado Working Landscapes has supported energy policies that enhance rural economic development. It is within this context that I ask you to consider incorporating the following assumptions into your planning.

1. That distributed generation, demand response, storage, and energy efficiency measures will reduce the need for 100MW of transfer capacity over the next 20 years.
2. That proposed transmission and distribution infrastructure improvements will a) encourage utility-scale solar projects to be sited beyond Alamosa and Saguache Counties and b) facilitate DSM and other community-based technologies.

As you know, SB-100 Transmission Plans filed with the PUC shall, among other things, "Consider how transmission can be provided to encourage local ownership of renewable energy facilities, whether through renewable energy cooperatives as provided in section 7-56-210, C.R.S., or otherwise;"

Consistent with the above statutory requirement, we believe that distributed generation, demand response, storage, and energy efficiency measures could reduce the need for transmission capacity by 100MW over the course of 20 years. The 100MW number is somewhat arbitrary as is the amount of solar generation that may be exported out of the Valley. Nonetheless, citing these hard-number assumptions is an important component of the planning process.

I was pleased to learn that significant upgrades to PSCo's distribution grid in the Valley are being planned in conjunction with transmission improvements. From 2008 through 2012, Colorado Working Landscapes worked with agricultural producers and the SLV Rural Electric Cooperative to assess current and projected opportunities for distributed generation. With financial support from the Colorado

Department of Agriculture we hired Wendling Consulting, LLC to examine the distribution grid as part of our SLV AgEnergy Project. His site visit to each substation confirmed the need for significant upgrades to PSCo's distribution system. I look forward to gaining an understanding of the improvements being contemplated.

For your information, I have attached a 2012 Resolution adopted by the Rio Grande Board of County Commissioners "promoting local, state, and utility collaboration to advance community-based energy development in the San Luis Valley". Adopted at the request of agricultural producers, this resolution is clear evidence of local support for the recommendations contained herein.

I appreciate the opportunity to participate in your important work and look forward to future Task Force meetings.

John Covert
720-273-9755

cc: Warren Wendling, P.E

Exhibit JAC-1
Docket No. 11A-833E

A Resolution promoting local, state, and utility collaboration to advance
community-based energy development within the San Luis Valley

Rio Grande Board of County Commissioners
February 1, 2012

201200413715
Filed for Record in
RIO GRANDE
CINDY HILL, RECORDER
02-01-2012 At 04:01 PM.
RESOLUTION .00
OR Book 558 Page 712 - 703
Instrument Book Page
201200413715 OR 558 702

Resolution #2012-03

A Resolution Promoting Local, State, and Utility collaboration to advance
community-based energy development within the San Luis Valley

WHEREAS, San Luis Valley leaders, like many Colorado communities, are seeking greater choice in determining how its electric load is served;

WHEREAS, community-based energy development, including efficiency measures, will help keep energy dollars in the Valley and thereby promote economic development;

WHEREAS, agricultural, conservational and governmental leaders in the Valley are seeking system reliability improvements, energy efficiency measures and viable business models for community-based energy development;

WHEREAS, Section 7-56-210(1), C.R.S. reads: "It is the policy of this state to encourage local ownership of renewable energy generation facilities to improve the financial stability of rural communities";

WHEREAS, existing state incentives for community-based projects have proven ineffective; and

WHEREAS, the San Luis Valley is a designated Generation Development Area to facilitate State and utility planning for solar development;

NOW THEREFORE BE IT RESOLVED that the Hickenlooper Administration, electric utilities, and the Public Utilities Commission collaborate with SLY leaders to accomplish the following objectives:

1. Meet reliability standards for pumped irrigation loads in the Valley,
2. Adopt incentives that make community-based energy development economically viable,
3. Support development of an efficient delivery system for community-based energy projects,
4. Incorporate a significant level of community-based energy development into the next Energy Resource Plan, and
5. Establish transparent communication with undersigned supporters and stakeholders.

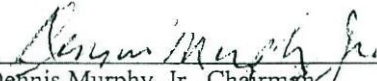
BE IT FURTHER RESOLVED THAT copies of this resolution be delivered to Governor Hickenlooper, the Colorado Public Utilities Commission, Xcel Energy, the Tri-State Generation and Transmission Association and the Colorado Harvesting Energy Network.

The foregoing Resolution was offered by Commissioner Shriver, seconded by Commissioner Davie, and passed on vote of the Board of County Commissioners, Rio Grande County, at a meeting of said Board on the 1st day of February, 2012.

Instru11e11t Book fCT.g.e
201200413715 OR 558 703

BOARD OF COUNTY COMMISSIONERS

RIO GRANDE COUNTY, COLORADO


Dennis Murphy, Jr., Chairman


Doug Davie, Commissioner


Karla Shriver, Commissioner

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January 15, 2016

Jonathan Fidrych, P.C.
Tri State Generation and Transmission Association, Inc.
jfidrych@tristategt.org

Re: San Luis Valley Transmission Planning study draft report

Dear Jonathan,

On behalf of the Interwest Energy Alliance I submit these comments related to the draft report. We appreciate the Committee's hard work. The study notes that "Previous studies have identified performance issues with the SLV transmission, which include reliability concerns, and limited capability for load service and resource export capability. In addition, there has been a growing concern for the integrity of the aging transmission infrastructure in the area." The first phase addresses reliability and load serving capacity within the Valley. The second phase will address potential export capability and transfer capability.

Reliability is apparently an ongoing issue. Recent data would be appropriate, so the scope of the need and commensurate ability to address that need are addressed adequately by the Study. It appears that 230 kV is required "at a minimum" to resolve reliability issues. The study should specify which reliability issues and in which areas (if not all) of the areas identified as having reliability issues will be resolved by the 230 kV line. It would be helpful to more fully analyze and discuss the additional benefits, reduced reliability issues, from greater expansion.

Interwest questions whether the ability of storage to add additional value to capacity upgrades, or to defer additional transmission or distribution investments while contributing to increased reliability were adequately studied. That is, it is not clear that storage facilities are well represented when they are studied as part of load forecast or load sensitivity studies. There is a growing body of research related to the flexibility, peak-shaving and reliability benefits provided by new storage technologies at the grid level which should be studied in more detail, on a stand-alone basis or in combination with other upgrades, as part of a sensitivity for the analysis. See, e.g., information from the Energy Storage Association, available at: <http://energystorage.org/energy-storage/energy-storage-benefits/benefit-categories/grid-infrastructure-benefits>; or the DOE Grid Energy Storage white paper, Dec. 2013, available at: <http://energy.gov/oe/downloads/grid-energy-storage-december-2013>;

ALPERN, MYERS, STUART, LLC

January 27, 2016
Page 2 of 2

Interwest is unsure whether the Study should better explain the potential value of efforts including a generation tripping scheme (GTS) or remedial action scheme (RAS), as a temporary solution to improve reliability and increase export capability until a new line is built. These ideas and the background are more fully discussed in OCC's comments on the study dated January 15, 2016, and Interwest concurs with those comments to the extent that additional measures should be more fully reviewed, and more expansive RAS could enable greater export capability. Time is of the essence, in that federal tax incentives, the need to implement the Clean Power Plan, and other public policy measures warrant near-term attention to the export potential of renewable resources in the Valley. TriState G&T, PSCo and Black Hills will all need additional renewables and will issue solicitations for them with projects to be online prior to 2020. The low cost of renewables in the more diverse geographic areas with the Valley will provide savings to ratepayers, which will partially offset the costs of new transmission upgrades. These measures should receive more attention in the second phase of the Study, and it is likely that greater expansion of the transmission system in the Valley will be warranted to support increased solar and wind generation to be transmitted out of the Valley as soon as it can be permitted and built.

Additional sensitivities should have been included in the Study, including greater solar penetration, consistent with Interwest's initial comments (January 19, 2015), with sensitivities for up to 700 MW of new generation. Interwest supports OCC's requested sensitivity levels ranging from 150 MW to 575 MW in the alternative. Generally, a new double-circuit 230 kV line seems to deserve more consideration to improve aging infrastructure as well as to increase transfer capability and improve reliability in the longer run.

It appears that the Study attempts to take only minimal measures to resolve only the near-term urgent reliability issues. Interwest urges the Committee to look more long term, and the help support critical analysis and planning for 10 to 20 years down the road. The population of the San Luis Valley deserve a reliable, robust electricity supply so they can have predictable serve necessary to improve their economic development prospects. In addition, they are sitting on valuable natural resources in the form of vast solar energy supplies which lie dormant, and will continue to do so in part because of constrained transmission planning. Interwest requests that the Study be revised to add the sensitivities and additional analysis described herein.

Thank you for your work and the opportunity to provide comments.

Very Truly Yours,
Alpern Myers Stuart LLC



By: Lisa Tormoen Hickey

cc: Sarah Cottrell Propst



January 29, 2016

Chris Neil
Colorado Office of Consumer Council (OCC)
1560 Broadway, Suite 200
Denver, CO 80202

Lisa Tormoen Hickey
On Behalf of: Interwest Energy Alliance
Alpern, Myers, Stuart, LLC.
14 North Sierra Madre Street, Suite A
Colorado Springs, CO 80903-3311

Re. Comments to the San Luis Valley Subcommittee Phase I Transmission Study report.

Dear Stakeholders

The Colorado Coordinated Planning Group (CCPG) San Luis Valley Subcommittee (Subcommittee) submits the following in response to your January 15, 2016 comments on the *San Luis Valley Subcommittee Phase I Transmission Study* report. Both the Colorado Office of Consumer Counsel (OCC) and Interwest Energy Alliance (IEA) provided comments in response to a request for stakeholders to review a draft of the report. Many of the OCC's and IEA's comments are similar. For efficiency, the Subcommittee has combined the similar comments and has collectively addressed them. Unique comments are addressed separately.

Before addressing your comments we felt it would be beneficial to clarify the purpose of the CCPG. The CCPG is fundamentally a transmission planning forum. As stated in its Charter, it is a collective body whose goal is to "assure a high degree of reliability in the joint planning, development, and operation of the high voltage transmission system in the Rocky Mountain Region." It is an open and transparent technical forum to complete reliability assessments, develop joint business opportunities, and accomplish coordinated transmission planning under the single-system concept. While the CCPG is many things, it is not a decision making body. Nor is it a venue to deliberate how transmission network customers classify the generation resources in their portfolio. The CCPG will not address generation interconnection or transmission service requests as these are Tariff defined processes that are appropriately handled through each individual company. Further, the study work conducted within the

CPCG is not intended to be a substitute for the work required by an individual Transmission Owner to implement a specific transmission project.

With regard to the San Luis Valley, the relevant Transmission Owners may utilize the Phase I Study, together with the results of subsequent individual studies related to other aspects of possible transmission alternatives, to serve as a basis for a future comparison of viable transmission alternatives relative to other non-transmission alternatives. The comparative evaluation of transmission and non-transmission alternatives is beyond the scope of the Phase I study, but may be considered in future analysis or in conjunction with an application for a certificate of public convenience and necessity, as appropriate.

As you know, the Subcommittee was formed to evaluate transmission alternatives that could address four issues: 1) poor reliability; 2) inadequate load growth capability; 3) insufficient export capability; and 4) aging infrastructure. As poor reliability was deemed the most critical issue, the Subcommittee agreed to divide the study work into two phases. Phase I would focus on reliability, load serving, and aging infrastructure. Phase II will focus on export capability.

Comments common to OCC and IEA:

Both the OCC and IEA requested that historical data be incorporated into the study so that the scope of the system need is addressed adequately. In response, the Subcommittee has supplemented the report with data showing system performance during an outage that occurred on May 28th, 2015.

Nevertheless, historical data is not a primary basis for determining the scope of a transmission system need when wide spread outages are involved. The North American Electricity Reliability Corporation (NERC) has established mandatory and enforceable reliability standards in accordance with Section 215 of the Federal Power Act. Regarding the San Luis Valley, NERC's standards do not allow a transmission plan to include Non-Consequential Load Loss (load shedding) to mitigate single contingencies of transmission lines, particularly if the load shedding exceeds 75 MW. Transmission Planners are required to develop Corrective Action Plans to mitigate such issues. At present, the San Luis Valley requires 85 MW of load shedding to prevent system-wide voltage collapse in the event of a 230 kV line outage during peak demand. When triggered, this load shedding scheme would result in blackouts to the rural parts of Rio Grande, San Luis Valley, Conejos, and Costilla counties. Regardless of NERC standards, this approach is not in keeping with a transmission provider's core mission to provide affordable, high quality, reliable service to our customers. In other words, even though widespread outages are not a frequent occurrence, historically, our responsibility to fix the problem is not diminished.

The OCC and IEA recognized that the Phase I Study also discovered some load serving limitations in the underlying distribution system and wanted more clarity on the relationship between the transmission and distribution system concerns. The distribution system limitations exist independent of the larger Bulk Electric System issues. The Subcommittee wanted to make sure these issues were noted, but identifying fixes to them was not an objective of the Phase I Study. Thus, the distribution system issues were not analyzed in detail.

The OCC and IEA wanted more analysis and consideration of cross tripping schemes that would enable more renewable generation to be connected to the San Luis Valley transmission system until a new line is built. As discussed earlier, the primary objective of the Phase I Study was to determine transmission solutions that mitigate the existing potential for wide-spread outages in the region. The viability and design of generator tripping or remedial action schemes are part of generator interconnection studies, which are not performed by the CCPG.

The OCC and IEA wanted more analysis of greater solar generation penetration levels, with sensitivity analysis for up to 700 MW of new generation. As discussed before, the focus of this study was to collectively solve the risk for wide-spread blackouts in the San Luis Valley. The Phase I Study did include a cursory evaluation of export capability to provide some preliminary information to the stakeholders, but this topic will be more fully analyzed in the Phase II Study.

The OCC and IEA expressed concern that the Subcommittee gave insufficient consideration of non-transmission alternatives, in particular generation and energy storage. Unfortunately, the CCPG is an improper venue for this. The CCPG is not intended to be the forum through which utilities consider non-transmission solutions. The respective utilities may later rely, in part, on a CCPG study for 890 purposes, but the CCPG is not a substitute for the work required by an individual Transmission Owner to implement a specific transmission project. The CCPG's expertise is in developing transmission solutions to Bulk Electric System issues. While each company must comparatively consider non-transmission solutions, these types of considerations will be handled in their respective FERC 890 outreach efforts.

Comments unique to OCC:

The OCC asserts that "It is not apparent that PSCo and TriState have embrace and implemented" the FERC 890 requirement to comparatively consider non-transmission alternatives. The OCC's allegation is unfounded and wrong. The CCPG is not intended to be the utilities' 890 compliance forum. The companies have embraced FERC 890 principles as demonstrated by their related outreach efforts.

The OCC asked that Table 18 in the report be clarified with regards to each alternative's impact on aging infrastructure. The Subcommittee appreciates this comment and has clarified the report.

The OCC comments that costs are not discussed in the report and should be addressed. The Subcommittee would like to remind the OCC that the CCPG is not a decision making body. The individual companies will include costs in their decision making process, but the initial construction cost of an alternative is not the only factor that will be considered. The Subcommittee is intended to be a forum to collectively evaluate stakeholder proposed alternatives that meet the needs of the SLV transmission system. Developing engineering cost estimates for each proposed alternative would be time-consuming, unnecessary, sometimes anecdotal (particularly for non-transmission alternatives), and would not add value at this stage of the project development. The companies will describe their cost considerations more appropriately in their CPCN processes.

The studied winter load levels were not clearly described in the report. The Subcommittee appreciates this feedback and has clarified the report.

The OCC provided feedback that the labels for alternatives throughout the report were non-descriptive. The Subcommittee appreciates this feedback and has clarified the report.

The OCC was unclear on the basis for the selection of the load serving ranges. The Subcommittee's goal was to neither over nor under state an alternative's potential load serving capability. The lower winter limit was selected to be more conservative. The upper winter limit was not selected because the Subcommittee felt it was not reasonable to assume the distribution upgrades necessary to achieve the winter upper limit would be implemented as this area is not winter peaking and the upgrades wouldn't be necessary. The upper summer limit was selected presuming that the necessary distribution system improvements would be made in the event loads grew that much, on the other hand.

The OCC questions the difference between the Total Transfer Capability (TTC) determined in this study and the export capability determined in the Proceeding No. 09A-325E studies. The Subcommittee was not involved in the studies that went into Proceeding No. 09A-325E and cannot discuss how they were performed. The TTC in this study was determined as described in the methodology section of the report and in a manner generally consistent with NERC Standard MOD-029. The term "export capability" is sometimes used more loosely than TTC. It is possible that the Proceeding No. 09A-325E studies netted SLV load with generation and called that "export capability."

Comments unique to IEA:

IEA commented that the study should have more fully analyzed the potential additional benefits from greater expansion. The Subcommittee would like to point out that the Phase I Study was primarily a reliability evaluation. Accordingly, it did not delve into potential non-reliability benefits from greater expansion (i.e. higher voltage or double circuit). Several of the alternatives studied met the reliability criteria, therefore, from a reliability standpoint it was not necessary to consider alternatives involving greater expansion that would go above and beyond the identified reliability need. It is conceivable that when export capability is more deeply considered in the Phase II study, there could be a new alternative that involves a larger project that not only meets the reliability needs, but also provides greater export capability in a manner that the "over-build" could be reasonably justified.

IEA advised that the Subcommittee "look more long term, and the help support critical analysis and planning for 10 to 20 years down the road." The Subcommittee would like to respond that given current transmission planning realities, the study is consistent with a 10 year planning horizon. Planning for a 20 year horizon is beyond even what the PUC requires at this time. That doesn't mean that such long term issues aren't considered; the Subcommittee just can't make definite plans for such an uncertain point in the future, especially given the Clean Power Plan and other possible developments.

The Subcommittee would like to thank the OCC and IEA for your active participation in this process. We have included many of your recommended changes to the report and consider it final.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Pink". The signature is stylized with a large loop at the beginning and a horizontal stroke at the end.

Chris Pink
Representative, San Luis Valley Subcommittee
(303) 254-3336
Email: cpink@tristategt.org

CC: San Luis Valley Subcommittee, Blane Taylor, Betty Mirzayi

OCC Comments on San Luis Valley Subcommittee Phase I Study

1. Introduction

The San Luis Valley (SLV) Subcommittee was formed to evaluate the transmission system in and around the San Luis Valley (Valley) and “develop system alternatives that would improve the transmission system between the SLV and Poncha substations (Poncha).”

The Office of Consumer Counsel (OCC) submits these comments as requested in the draft of the Phase I Transmission Study (Study) dated December 16, 2015, prepared by the SLV Subcommittee of the Colorado Coordinated Planning Group (CCPG). “Phase I” of the Study focused on resolving transmission reliability issues and transmission lines to increase load serving capacity within the San Luis Valley, with some preliminary analysis to gain a relative understanding of potential export capability. Export potential will be the focus of Phase II of the SLV Study.

In preparing these comments, the OCC reviewed documents, testimony and decisions issued in Consolidated Proceeding Nos. 09A-324E and 09A-325E (Proceeding No. 09A-325E) in which TriState and PSCo sought a CPCN to construct the San Luis Valley-Calumet-Comanche transmission project in the Valley. Because of arguments raised in those proceedings and addressed in Commission decisions, the OCC recommends that more information be provided in the Study to address the concerns raised by intervening parties and how the issues raised are being addressed in the Study or are no longer relevant to the Study.

2. Reliability

Page 2 of the Study discusses the reliability need for additional transmission. The data in the 09A-325E proceedings showed that from 1993-1998, TriState reported one outage and from May 2000 through May 2007, 13 outages were reported for which OCC calculated an average of approximately six minutes per year.¹ It would be helpful if the Study provided an update to the historical data in order to support the contention from the modeling studies that the reliability concern is significant enough to justify the cost of constructing a new 230 kV line given the data provided in 09A-325E proceedings.

¹ See Ex. 36, JRD-13 (James R. Dauphinais) admitted in Proceeding No. 09A-325E

Another of OCC's concerns with the Study is that the 230 kV line appears to address reliability issues primarily near the SLV substation. The maps that the SLV Subcommittee presented at the CCPG meetings show that there are also reliability issues in the southern and eastern parts of the Valley. It would be helpful if reliability issues in these areas were addressed in the Study. If the transmission proposals will not improve the reliability in these outlying areas, that should be explained in the Study.

3. Export Capability and Use of a Remedial Action Scheme

Page 3 of the Study states, "The existing transmission in the SLV region also limits the amount of generation that can be exported out of the Valley." Export capability is examined in the Study, but the Study does not address the use of a "generation tripping scheme" or a remedial action scheme (RAS). A generation tripping scheme could allow for 525 MW of generation to be accommodated until such time as new transmission facilities are in service, according to the information presented in Proceeding No. 09A-325E.² If implemented in the Valley, the effect of a generation tripping scheme would be to turn down generation on those rare occasions when the existing San Luis Valley - Poncha 230kV line is out.

Paragraph 85 of Decision C11-0288 issued in Proceeding No. 09A-325E Trinchera argued that, "...the additional 525 MW of new generation [could] be added by implementing a Remedial Action Scheme (RAS) to curtail generation during peak loads;..." This potential 525 MW of additional generation in the Valley that can be exported through the use of a RAS was not addressed in the Study and should be.

As stated in the Trinchera Statement of Position filed in Proceeding No. 09A-325E,³ the RAS could be used as a bridge or temporary solution in order to accommodate additional renewable generation in the Valley until a new transmission line is built. This may allow TriState and PSCo to take advantage of the recent extension of the federal production tax credit (PTC) and 30% investment tax credit (ITC) of 30%. The PTC and 30% ITC were recently extended for five years by Congress but with declining levels in the later years. Both TriState and PSCo are likely to issue solicitations for new generation in Phase II of their electric resource plans (ERPs) in

² See Ex. 33 at 31:9-23 (James R. Dauphinais) admitted in Proceeding No. 09A-325E.

³ Trinchera SOP, Proceeding No. 09A-325E, filed Feb. 25, 2010, page 40-41.

2016 or 2017 with projects needing to be online by 2017 or 2018 in order to qualify for the full amount of the PTC or 30% ITC. Any new transmission facilities installed in the Valley will likely not be available for projects bid into this round of solicitations and, therefore, unlikely to qualify for the full tax credits. However, if the RAS is employed, TriState and PSCo may be able to obtain renewable projects that will be able to qualify for the full amount of the PTC and 30% ITC.

Both TriState and PSCo are likely to acquire significant amounts of renewable resources in these solicitations in order to help meet the State's Renewable Energy Standard, to comply with the Environmental Protection Agency's (EPA) Clean Power Plan and because the renewable resources are cost effective due, in part, to the taking advantage of the tax incentives. Thus, the use of the RAS in the Valley should be an important component in the next round of solicitations.

Some may argue that the generation resources acquired using the RAS should not be considered "firm" resources until a new transmission line was built. The argument appears to be that this capacity would not be considered firm because the loss of a single line could result in the loss of this capacity due to curtailment under the RAS. However, "Firm" capacity does not mean that generation is available 100% of the time or that it always must be available at the time of system peak demand. Coal-fired units such as PSCo's largest unit, Comanche 3, generally have forced outage rates (FOR) or the more representative, equivalent forced outage rates (EFOR) in the range of 5% to 10%⁴. This would mean that there could be forced outage of service for about 26,000 to 52,000 minutes per year⁵ compared to the minimal amount of outages for the SLV 230 kV transmission line discussed above from 1993-2007. Moreover, Comanche 3 was out of service during the time of system peak demand in 2013, which also resulted in the need for PSCo

⁴ National outage data are available in the Generating Unit Availability Data System (GADS) at <http://www.nerc.com/pa/RAPA/gads/Pages/Reports.aspx>. FOR and EFOR data for PSCo's units was provided in Confidential Attachment OCC 3-29.A1 in Proceeding No. 14A-0660E.

⁵ 5% equals $0.05 * 8,760 \text{ hours per year} * 60 \text{ minutes per hour} = 26,280 \text{ minutes}$. 10% equals $0.10 * 8,760 \text{ hours per year} * 60 \text{ minutes per hour} = 52,560 \text{ minutes}$. Technically, the FOR/EFOR calculations should exclude the time that the plant is not available for planned outages and the time that the plant is not needed to be on line, but this provides a simple order of magnitude comparison.

to provide about 250 MW of backup power to the unit's minority owners.⁶ Nevertheless, generation from Comanche 3 is considered firm capacity.

The reliance on a single power line is also not a justification for rejecting the use of the RAS or claiming that the capacity would not be firm. There are a number of existing power plants that are connected though a single line. A recent example was discussed in the testimony filed in the South Weld Electric Project (SWEP) proceeding which stated that one reason for the SWEP project was because the 272 MW J.M. Shafer plant was connected to the system by a single line: "Presently, the entire station relies on a single tie line to the Fort Lupton Substation and would be isolated for an outage of that tie line."⁷ A quick glance at the Denver transmission map⁸ shows that the Blue Spruce and Knutson plants are connected to the system with a single line, and the state transmission map⁹ shows that the Fruita unit is on a single line. Nevertheless, generation from a power plant which relies upon a single power is considered firm capacity.

Further, an emphasis on firm peak capacity is misplaced. *Energy* production from these renewable resources is important. One purpose of renewable generators is to displace conventional energy production and its associated emissions.

The value of 525 MW of additional capacity may need to be updated or modified based on the amount of capacity that can be transmitted beyond the Poncha substation. In this transmission export analysis, it may be appropriate to reduce generation at conventional generators in order to accommodate the renewable resources out of the Valley. This may be appropriate where the purpose is to reduce emissions, but this approach may also have an impact on the firm capacity rating (or lack thereof) for the renewable resources. If an existing conventional generator must be backed down in order to export the Valley's renewable energy and the conventional generator already represents firm capacity, then the new renewable resource may not represent firm capacity.

Nevertheless, renewable generation that uses a RAS may be firm capacity and may be more reliable than conventional generating units, especially considering that the RAS is a temporary

⁶ 2014 Xcel Energy Annual Report and Form 10-K, page 15 of Form 10-K.

⁷ Direct Testimony and Exhibits of Mark H. Stout, Proceeding No. 14A-0896E, filed August 26, 2014, p. 10.

⁸ Exhibit DPK-2, Proceeding No. 14A-0287E, filed March 28, 2014.

⁹ Exhibit DPK-1, Proceeding No. 14A-0287E, filed March 28, 2014.

bridge until the new transmission line is built. Thus, such criticisms do warrant rejecting the use of the RAS.

The additional 525 MW of capacity from the RAS, or the modified version of it, should be included in the PSCo's upcoming ERP that is due to be filed on February 29, 2016. The solar community should also be directly notified of this change in order for it to prepare for the Phase II solicitations. If additional renewable resources were added through the use of the RAS, it would also provide more justification for a new transmission line. The line would be justified based for both reliability reasons and to support the addition of renewable resources that had already been added.

4. Non-Transmission Alternatives

The Study should also have a section addressing non-transmission alternatives in order to comply with FERC Order 890 requirements. This omission is emphasized in these comments because there has also not been any indication that non-transmission alternatives were adequately considered in the Northeast Colorado transmission studies. It is not apparent that PSCo and TriState have embraced and implemented this new FERC requirement.

While non-transmission alternatives are mentioned in the Study, these alternatives must be more adequately studied and addressed in a separate section of the Study. The draft report states on page 5, "As for distributed generation, demand response, storage, and energy efficiency measures, they are considered as part of the load forecast or load sensitivity studies." This brief comment does suggest to the OCC that these measures were adequately considered.

The Study also includes in section 9.10 "Sensitivity C" on page 16 which addresses a non-transmission alternative of adding 50 MW of generation. This sensitivity case could also be included in the separate section addressing non-transmission alternatives of the Study with more of an explanation as to why it was deemed insufficient.

Generation alternatives are not adequately examined, however. For example, what about generation sensitivity cases with 75 MW, 100 MW or 150 MW of capacity? How much generation is required to prevent voltage collapse? Some level of generation in the Valley would appear to prevent voltage collapse. It appears that generation may be a viable alternative to

building new transmission lines for reliability purposes. PSCo's 2015 update to its ERP stated that it expects to require approximately 1,000 MW of incremental resources.¹⁰ Locating 75 MW or 100 MW to 150 MW out of this 1,000 MW of incremental resources should be addressed and considered.

The key non-transmission alternatives that should be evaluated, however, are cases with varying amounts of utility-scale solar in the Valley. Alternative cases should be examined with solar capacity ranging from roughly 150 MW to 575 MW. The Study should examine how the transmission system will respond with different levels of solar generation and determine whether solar capacity may be able to prevent voltage collapse.

Changes are being developed in invertors. Because of anticipated short term improvements in invertors, will advanced inverter functionality resolve some of the reliability issues in the Valley? Should the development of advanced invertors be considered given the amount of solar that could be developed in the Valley? Could the use of advanced invertors mitigate or delay the need for expensive transmission lines and avoid a costly mistake?

It may be necessary for this Study to be updated after the 2016/2017 round of ERP Phase II solicitations in order to determine how projected new generation impacts the transmission system, if generation in the Valley is selected.

5. Other Issues

Page 4 of the Study identifies aging infrastructure as an issue. As an observation, Table 18 on page 24 identifies whether aging infrastructure has been addressed in each alternative.

Sometimes the answer in Table 18 is not clear. Table 18 shows a "Yes" for Alternative 2 indicating that the 115 kV line has been rebuilt, but does not acknowledge that the 69 kV line has not been rebuilt. Similarly, Alternative 6 rebuilds the 69 kV line but not the 115 kV line.

In addition, the old transmission lines may need to be rebuilt regardless of what is done to add a new transmission line. That is, Alternative 3 with a new 230 kV line may not be the real solution because the old lines are not rebuilt. Rather, the real solution may have to be Alternative 5 or 6 which is to build the new 230 kV line and also rebuild the 69 kV or 115 kV line. The Study

¹⁰ 2015 Annual Progress Report to the 2011 Electric Resource Plan, filed October 30, 2015, page 4.

needs to be clearer about whether the old lines will need to be rebuilt, and if so, then to examine possible alternatives after this initial assumption.

Related to the Study, costs are not discussed and should be addressed. For example, if the new 230 kV line is a \$20 million project, that requires one level of consideration. But if this new line has a cost of \$60 million, then another level of review is appropriate. Costs need to be provided in the Study. Further, the need to rebuild the old lines may also impact the cost of the alternatives. If an old line must be rebuilt regardless of the need for a new line, then this becomes a fixed cost. The additional cost of converting the line from for 69 kV or 115 kV to 230 kV would be less.

The winter load needs to be reviewed or supported. Page 7 states, “Further, all contingency analysis assumed a SLV area load of 150 MW for heavy loading and 45 MW for light loading for the selected base cases.” This suggests that the 2020 *Heavy Winter* case assumes a load of 150 MW. The winter cases are those that demonstrate most of the reliability problems in Tables 3-16, and the winter case is used for the export projection in Section 10.3. The use of 150 MW of load in the winter case is not consistent with the information that is presented in the Study. Figure 2 on page 6 shows a winter load that is lower than 150 MW. If there are data that demonstrate that 150 MW for winter load is reasonable, then those data need to be provided in the Study. Otherwise, the winter analyses should be rerun with a valid value for winter load that is based on available data.

The study would be clearer if a title of the alternatives identified on page 3 were repeated rather than just listed the title as Alternative 1, 2, etc. For example, the title on the bottom of page 17 could state, “Rebuilding the SLV-Poncha 69 kV line to 115 kV, Alternative 1, ...” and the title to Alternative 2 could state, “Rebuild San Luis Valley – Poncha 115 kV to 230 kV, Alternative 2....” The reader would not have to flip back to page 3 to see which alternative was being addressed.

Regarding the addition of a new 230 kV line, Alternative 3, on page 23 states, “Alternative 3 has a load serving range of 130-280 MW for the winter case and 155-180 MW for the summer case. Taking the lowest winter and highest summer limit would result in a combined load serving range of 130-180 MW. Assuming these distribution system deficiencies are addressed, this

alternative would mitigate the need for UVLS [under voltage load shedding].” Why is the highest summer limit selected? The conservative approach would seem to be to use the lowest winter and the lowest summer limits, which would result in a combined load serving range of 130-155 MW for this alternative. This would barely meet recent loads much less allow much room for load growth.

Page 23 also states the ULVS would be needed for Alternatives 4 and 5. The Alternative 4 discussion states, “Based on this analysis, it is likely that UVLS would be needed whenever load levels exceed 140 MW due to underlying 69 kV distribution system deficiencies.” It appears that ULVS was excluded without factual justification. Please explain? Is this statement for Alternative 4 the same for Alternative 3?

Page 24 states, “With that knowledge, the TTC [total transfer capability] for the base case has been determined to be 94.5 MW.” The export capability in Proceeding No. 09A-325E was determined to be 185 MW (firm - without the RAS). What is the reason for this difference? Does this difference impact the TTC discussed for the alternative cases?

6. Conclusion

The Study’s conclusion on page 26 states that another 230 kV line is needed. Tables 7 and 8 for the Alternative 3 with a new 230 kV line show that this alternative only resolves the worst of the reliability issues in the SLV. The OCC believes that there are more reliability issues that should be addressed and resolved. The aging infrastructure issues have also not adequately been addressed. More supporting data demonstrating historical reliability and the winter loads need to be provided. The use of a temporary RAS should be examined as a temporary bridge to allow greater amounts of generation to be added prior to when the new transmission line goes into service. Greater amounts of generation and particularly solar generation should also be studied. A separate section of the report discussing non-transmission alternatives should be included. The Study may need to be updated after the next round of capacity solicitations. Finally, the Study needs to include estimated transmission line project costs in order to provide an appropriate frame of reference for evaluating and selecting proposed alternatives.