COLORADO COORDINATED PLANNING GROUP

SAN LUIS VALLEY SUBCOMMITTEE

***Phase II**: Transmission Study*
Export Capability

February 2, 2017
(Accepted by CCPG on February 16, 2017)

Studies Performed by:
San Luis Valley Subcommittee

Table of Content

Executive Summary

New high-voltage transmission must be built in the south-central region of Colorado to increase electric system reliability and customer load-serving capability, and to accommodate the development of potential generation resources. The south-central region of Colorado includes the San Luis Valley (SLV) transmission system, the SLV to Poncha Springs (Poncha) transmission system, and the transmission system north and east of Poncha that connects to load-serving areas. Tri-State Generation and Transmission (Tri-State) and Public Service Company of Colorado (Public Service) agreed to jointly study the transmission issues in the south-central region of Colorado and facilitated this study effort through the SLV Subcommittee, under the purview of the Colorado Coordinated Planning Group (CCPG). The SLV Subcommittee divided the study work into two phases described below.

The Phase 1 study focused on developing transmission alternatives that would improve the transmission system between the SLV and Poncha. The Phase 1 study focused more on resolving the reliability issues in the SLV, with potential generation export capability a secondary goal. The Phase 1 study concluded that, at a minimum, an additional 230kV line is needed to meet minimum system reliability criteria. This study determined that an additional 230kV line would improve export capability by approximately 300 MW.

The Phase 2 study focused was on how best to leverage the additional 230kV line for increased generation export capability from SLV to Denver Metro. The study area was expanded to include the transmission system to the north and east of Poncha. The study evaluated several alternatives, but focused primarily on new transmission from Poncha to either Midway or Malta.

The study concluded that for either of those alternatives, the export capability could be increased by approximately another 200 MW.

The export capability can be described by the Total Transfer Capability (TTC) out of Poncha. Table 1 below lists the TTC of the transmission system out of Poncha under the various conditions studied. TTC is defined as the amount of electric power that can be moved or transferred reliably from one area to another area of the interconnected transmission systems by way of all transmission lines (or paths) between those areas under specified system conditions. For the purposes of this study, the specified system conditions are those that meet NERC TPL-001-4 criteria both prior to and after a contingency.

Table 1: Total Transfer Capability of Export out of Poncha Substation

	2026 WestConnect Heavy Summer (MW)	2026 WECC Light Spring (MW)
Existing System	104	125
Benchmark New SLV – Poncha 230kV	426	493
Alternative 1 (North) New Poncha – Malta 230kV	617	663
Alternative 2 (East) New Poncha – W.Canon – Midway 230kV	617	973

Cost estimates

Below are indicative level cost estimates for the alternatives evaluated in this study. The cost estimates are in 2016 dollars with escalation and contingencies applied and are based upon typical construction costs for previously performed similar construction, however they have no specified level of accuracy. These estimated costs include all applicable labor and overheads associated with siting support, engineering, design, and construction of these new facilities.

Table 2. Indicative level cost estimates for Network Upgrades for Phase 1 and Phase 2

Element	Description	Cost Est. (Millions)
SLV – Poncha 230kV #2 Line[1] (Phase 1)	Construct a new 62-mile, 230kV single circuit overhead transmission line. Convert 9 miles of 69 kV to 230 kV. New 115/69 kV substation. Poncha substation additions. San Luis Valley substation additions.	**$75M**
Alternative 1: Poncha – Malta 230kV (Phase 2)	Construct approximately 52 miles of new single circuit 230kV OH transmission line. Will require new easements/ROW. New line terminations and associated equipment at Poncha and Malta Substations.	**$100M**
Alternative 2: Poncha – W.Canon – Midway 230kV (Phase 2)	Construct approximately 88 miles of new single circuit 230kV and 115kV OH transmission line. Will require new easements/ROW. New line terminations and associated equipment at Poncha, West Canon and Midway Substations.	**$170M**

[1] More comprehensive cost estimates are included for the SLV – Poncha 230 kV #2 Line as this element is further along in its development process.

I. Study Objective

As with Phase 1, there were four main objectives identified by the SLV Subcommittee. These are:

1. Improve reliability
2. Increase load serving capability
3. Increase generation export capability
4. Allow for improvements to aging infrastructure

Since Phase 1 addressed objectives 1, 2, and 4, the purpose of Phase 2 was to determine the relative increase in export capability for a select set of transmission alternatives proposed by stakeholders through the open stakeholder process. This was done by measuring what is referred to as Total Transfer Capability (TTC) of the existing system and the increment gained by the transmission alternatives.

II. Stakeholder Process and Input

As with Phase 1, the Phase 2 study was conducted through the SLV Subcommittee of the CCPG. A kickoff meeting for Phase 2 was held in the summer of 2016, and participation has been open to all interested stakeholders. Meetings have been held regularly after the kick off meeting, generally on a monthly basis. At the kickoff meeting, the group reviewed the study plan and identified two transmission alternatives to be studied: 1) a new 230kV line from Poncha – Malta Substation; and 2) a new 230kV line from Poncha – West Canon – Midway Substation.

The transmission alternatives were added to the study plan, which was then approved to by the SLV Subcommittee in August of 2016. Public Service and Tri-State facilitated the study effort, conducted studies, and presented results. In the September SLV Subcommittee meeting, a representative from the Office of Consumer Council asked for a sensitivity study to be performed that would model the retirement of Craig unit #1. At the same meeting, a representative from Black Hills asked for a sensitivity study to be performed with their planned West Canon – West Station project in-service. The SLV Subcommittee members agreed that these sensitivities would be reasonable to include in the study. All studied alternatives and sensitivity requests are documented in this report.

All meeting materials will be posted on the Westconnect web site, under the SLV Subcommittee of CCPG[2] at the end of the study phase.

III. Background

Power is transferred to and from the SLV by two primary transmission lines: the Poncha – SLV 230kV line, which is jointly owned between Tri-State and Public Service, and the Poncha – Sargent – SLV 115kV line owned by Public Service. There is also a 69kV line between Poncha and the SLV, but it is primarily used for local load serving purposes. The 69kV line is normally operated open at Mirage Junction, rather than as a continuous delivery transmission line due to the thermal rating of the conductor. Previous studies have shown that outages on either the 115kV line or the

[2] http://regplanning.westconnect.com/ccpg_san_luis_valley_sc.htm

230kV line can cause unacceptably large amounts of power to flow onto the 69kV line if it is operated as a continuous line.

Phase 1 of the SLV transmission study, completed in early 2016, evaluated seven different transmission alternatives and three sensitivities of non-transmission alternatives to improve reliability in the area and meet the key objectives of the Subcommittee. The Phase 1 study concluded that a new 230 kV line from SLV to Poncha would meet the objectives. In Phase 2 of the SLV study, the group utilized and built on top of the conclusion reached in Phase 1. This phase examined in greater detail the potential generation export capability from the SLV to regions beyond Poncha Substation.

The existing transmission in the SLV region limits the amount of generation that can be exported from the region. The SLV region has been identified as an area with good potential for solar energy generation and has been designated by Public Service to be an Energy Resource Zone as defined by Colorado Senate Bill 07-100 (SB100). SB100 was passed by the Colorado legislature in 2007. The bill requires regulated utilities in the state to 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, and to submit applications for certificates of public convenience and necessity for those plans. However, due to the same transmission constraints that limit the ability to serve load, there are also limits to how much power can be transported from SLV to Poncha, and beyond.

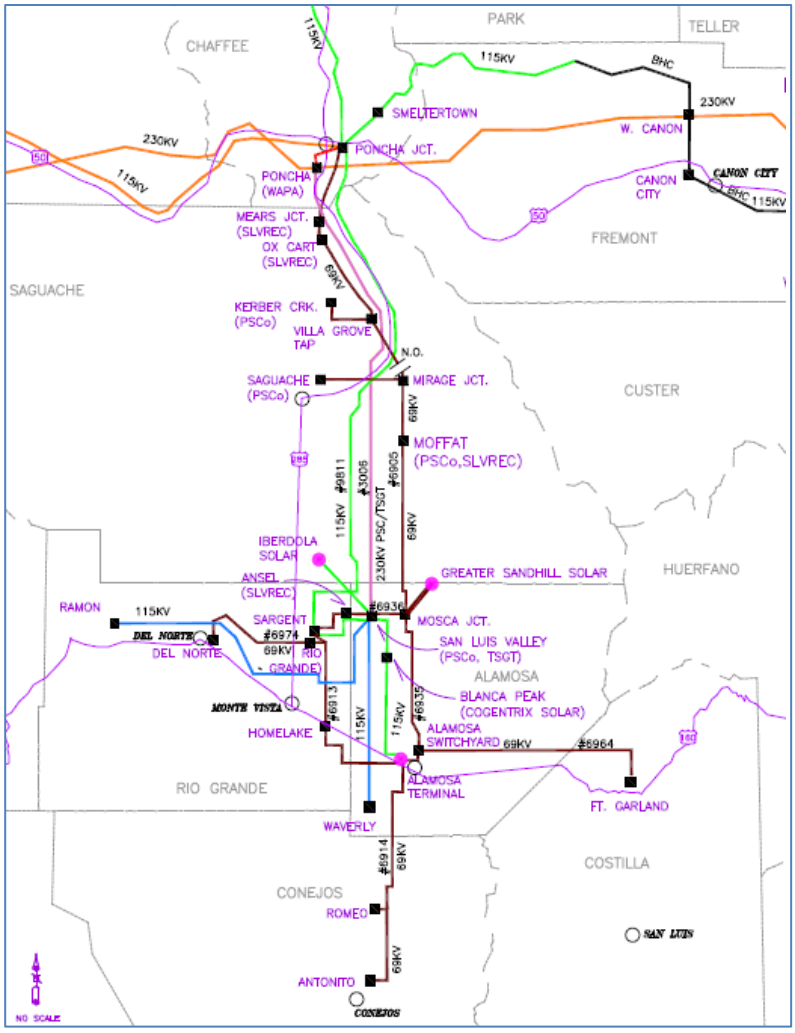


Figure 1. Area map of SLV

IV. Methodology

This study included power flow analyses of the current, or base transmission system and two alternatives to determine the incremental transfer capability from Poncha. TTC is defined as the amount of electric power that can be moved or transferred reliably from one area to another area of the interconnected transmission systems by way of all transmission lines (or paths) between those areas under specified system conditions. For the purposes of this study, the specified system conditions are those that meet NERC TPL-001-4 criteria both prior to and after a contingency. Refer to Table 3 for list of transmission lines used in the TTC calculation. Note that these lines slightly differ from those measured in the SLV Phase I study, but the results are consistent. Facility loadings and voltages were monitored within the study area consistent with NERC and WECC standards. System performance should meet NERC criteria as specified in TPL-001-4 under both system normal conditions (all lines in service) and for outage, or contingency conditions (element(s) out of service). Contingency analyses will focus on the loss of a single element (N-1).

Table 3. Transmission Lines Used in the TTC Calculation

Monitored Lines	Voltage (kV)	In (-), Out (+)
Poncha - Curecanti	230	+
Poncha - MidwayBR	230	+
Poncha - Malta	115	+
Poncha - Smeltertown	115	+
Poncha - Gunnison	115	+

For each loading scenario, a benchmark analysis was performed in order to compare alternatives to benchmark conditions. There were two case scenarios selected and agreed to by the SLV Subcommittee: 2026 Westconnect Heavy Summer and 2026 Light Spring WECC approved cases. Once the benchmark cases were developed, a steady state power flow analysis was conducted for the two transmission alternatives developed by the SLV Subcommittee within the identified study area.

The sensitivity analyses included variations of the TOT 5 level, inclusion of a Black Hills' project, and the retirement of Craig 1.

A. Case Development

The first benchmark study model was derived from the Westconnect 2026 Heavy Summer case which has been reviewed and approved by members of the CCPG. The second benchmark study model was derived from the WECC approved 2026 Light Spring.

2026 Heavy Summer Westconnect D2 Case (PSS/E v33.6.0 Software Format)

- File name: 160614-26HS-WC-D2-PSSE.sav

2026 Light Spring WECC Approved (PSS/E v33.6.0 Software Format)

- File name: 26LSp1Sap.sav

B. System Topology Changes

No modification to the Topology in the benchmark cases studied.

C. Generation Modeling

No modifications were made to how generation in the power flow cases was modeled. The existing solar generation in the SLV was kept at a constant output level of 78 MW, which is approximately 60% of the nameplate rating of the existing solar generation in SLV. To model new generation, a generator was added to the San Luis 230kV bus in order to perform the Transfer Capability Study. The generation value under the Steady State Analysis Summary section represents the additional generation on top of the existing solar in the area. This method is consistent with how NERC Standard MOD-029a is performed and was agreed by the SLV Subcommittee. In order to stress transmission paths could deliver the SLV generation to the Denver Metro area, generation at Ft. St. Vrain unit 2-6, Cherokee unit 4-7, Spindle unit 1-2, and Spruce unit 1-2 were offset by the amount of additional generation added within the SLV.

At the time of this study, announcement of the retirement of Craig Unit 1 had not been made; therefore Craig Unit 1 was included in the benchmark case model. Sensitivity studies were

conducted later to determine the impact of the retirement of this unit and are discussed in the Sensitivity Analysis section.

For the heavy summer benchmark case, the power flows across the transfer paths known as TOT 3 and TOT 5 were 583 MW and 355 MW, respectively. TOT 3 is the transmission path that carries power between Wyoming and Colorado. TOT 5 is the transmission path that carries power from the Western Slope of Colorado to the Front Range. The benchmark flows are typical, and represent general north to south flow for TOT 3, and west to east for TOT 5.

A detailed list of the generation in the study region (powerflow areas 70 and 73) can be found in Appendix E.

D. Load Modeling

No modifications were made to the loads that were modeled in the benchmark cases. Refer to Appendix F for a list of the loads in the SLV.

E. Line Ratings

Emergency ratings were utilized for the Colorado Springs Utilities lines (CSU) around the Briargate and Cottonwood area. Per CSU's direction emergency ratings were used for their lines to mitigate (if needed) any thermal constraints arising from N-1 events.

F. Export Capability

Export capability was measured in terms of TTC. For this study, the TTC was defined as the sum of the flows on the transmission lines emanating from Poncha to the west, north and east. Note, the transfer capability analysis in the SLV Phase I study only focused on the transmission system between SLV and Poncha, and thus the TTCs in this study are slightly different.

G. Criteria

As a general rule, the following system parameters were monitored during the study and are tabulated in this report as needed:

1. All buses, lines, and transformers with base voltages equal to or greater than 69kV in the Colorado power flow Areas 70 and 73 were monitored in all study cases.
2. Post contingency element loadings were only tabulated when an element rating was exceeded and the loading increase was at least 1% from the normal system loading. Specifically, if an element was overloaded in the normal condition and increased no more than 1% in the outage condition, the overload was not reported.
3. Voltages were monitored per NERC /WECC criteria of 0.9 – 1.1 p.u. Deviation was monitored based on WECC criteria of 0.8 p.u. Low/High voltages were not required to be below/above 0.9/1.1 and have a deviation of 8% or greater.

The SLV Subcommittee adhered to the following criteria for these load flow studies:

- **Category P0 – System Normal**
  "N-0" System Performance Under Normal (No Contingency) Conditions
  NERC Standard TPL-001-4

Voltage:	0.95 to 1.05 per unit
Line Loading:	100 percent of continuous rating
Transformer Loading:	100% of highest 65 °C rating

  Manual or automatic system adjustments such as shunt capacitor or reactor switching, generator scheduling, or LTC tap adjustment are allowed. Area interchanges and phase shifter adjustments are allowed.

- **Category P1 – Loss of generator, line, or transformer (Forced Outage)**
  "N-1" System Performance Following Loss of a Single Element
  NERC Standard TPL-001-4

Voltage:	0.90 to 1.10 per unit
Line Loading:	100 percent of continuous rating.

  Manual system adjustments such as generation dispatch will not be allowed. Area interchange adjustments will not be allowed. Adjustments of shunt capacitors or reactors, phase shifting transformers and load tap changing (LTC) transformers will not be allowed.

- **Category P2 – P7 – Multiple contingency outages**
  Multiple contingency outages – Refer to the NERC contingency table in Reliability Standard
  NERC Standard TPL-001-4

Voltage:	0.90 to 1.10 per unit
Line Loading:	100 percent of continuous rating.

  Manual system adjustments such as generation dispatch will not be allowed. Area interchange adjustments will not be allowed. Adjustments of shunt capacitors or reactors, phase shifting transformers and load tap changing (LTC) transformers will not be allowed.

H. Steady State Power Flow

The benchmark and alternative studies focused on the North American Electric Reliability Corporation (NERC) Category P0 (system intact, N-0) and NERC Category P1 (single contingency, N-1) performance.

A list of the contingency file, subsystem file, and monitor file can be found in Appendix C.

Studies monitored loading and voltages on elements within Area 70 and 73, consistent with NERC, WECC standards and criteria as outlined in the study methodology.

For all contingency analyses the following solution parameters were selected:

- Tap Adjustment - Lock Taps
- Area Interchange Control - Off
- Switched Shunt Adjustments - Lock All
- Adjust DC taps
- Solution Engine - Full Newton-Raphson

All studies were performed through the SLV Subcommittee of the CCPG with Public Service and Tri-State acting as the study facilitators. Steady state power flow and voltage analysis was performed using Siemen's PSS/E v33.6.0 software.

V. Studies

A. Benchmark

The power flow analyses (steady state with single contingency) were performed on two benchmark cases to determine the benchmark TTC: 2026 Heavy Summer and 2026 Light Spring. The loads and generation levels in the SLV are shown below for the two benchmark cases.

Table 4. Loads and Generations for Benchmark Cases

	SLV Loads (MW)	SLV Gen (MW)
2026HS	134	78
2026LSp	56	83

B. Alternatives

In order to deliver generation from the SLV to the Front Range, there are a limited number of reasonable paths for new transmission to be developed. As a result, the SLV Subcommittee limited the potential transmission alternatives to study.

C. Alternatives Considered but Not Modeled

Below are some transmission alternatives that were considered by the SLV Subcommittee, but not evaluated through the technical study process.

West Alternative:

Due to the geography of the region, there are only three potential transmission paths for delivering power out of Poncha. These are paths that could utilize existing transmission corridors, and the transmission corridors run west, north and east. The north and east alternatives were considered for study and are described in subsequent sections. The option of going to the west from Poncha was eliminated, since it would not result in a direct path to the Front Range load area, where most of the PSCo and Tri-State loads are located. As a result, this would not be a beneficial or cost effective alternative.

Combined Northern Alternative (Alt-1) and Eastern Alternative (Alt-2)

At the stakeholder meeting in September, a third alternative was proposed to be studied by a member of the group. The third alternative is the combination of alternative 1 and alternative 2: a single 230kV circuit from Poncha – Malta Substation and a single 230kV circuit from Poncha – West Canon – Midway Substation. The limitations found in the alternative 1 and alternative 2 were outside of the area of study, therefore, the group did not believe that alternative 3 was a reasonable option for this phase.

D. Studied Alternatives

Alternatives were developed and agreed to by the SLV Subcommittee based on the existing transmission and the natural flow of power from SLV to the Denver Metro area. Table 5 below lists the developed transmission alternatives that were studied:

Table 5. Study Alternatives List

Case Label	Alt. No.	Description
Pre-BM	0	Existing System
BM	0	Benchmark case (with new SLV – Poncha 230kV)
Alt-1	1	Poncha - Malta 230kV line
Alt-2	2	Poncha - W.Canon - MidwayPS 230kV line
Alt-1A	1	Poncha - Malta 230kV line and W.Canon - W.Station 115kV line
Alt-2A	2	Poncha - W.Canon - MidwayPS 230kV line and W.Canon - W.Station 115kV line

Alternative 1: Approximately 52 miles of new single circuit 230kV overhead transmission line from Poncha to Malta Substation.

Alternative 2: Approximately 88 miles of new single circuit 230kV overhead transmission line from Poncha to West Canon to Midway Substation.

Refer to Appendix A for drawings depicting the two alternatives.

E. Benchmark and Selected Alternatives Analysis

Steady state power flow analyses were conducted for the developed benchmark case and for select transmission system alternatives developed and agreed to by the SLV Subcommittee within the identified study area.

F. Steady State Analysis Summary

The study was to determine the TTC of the benchmark scenario and each of the alternatives. In order to determine the TTC, a generator was added to the SLV 230kV to serve as a source and the generation was sank to the Denver area generators at various locations such as Ft. St. Vrain, Spindle, and Spruce. During the single contingency simulation, the added generator at SLV 230kV was increased until a thermal limit at any transmission facility was reached. The outage facility was then put back into service, and the summation of flow on all five monitored lines was taken to be considered for the TTC.

2026 Heavy Summer Case

1) Pre-Benchmark case (existing system)

In order to understand the significance of the benchmark value and how much TTC a new Poncha – SLV 230kV line can provide, a pre-benchmark (pre-BM) study was performed. Using the same methodology to calculate the TTC, the TTC for the pre-BM of the 2026HS is 104 MW and 125 MW for the 2026LSp. The limiting element for the two cases was found to be the 115kV line between Poncha – SLV, which is paralleling the existing 230kV line. Adding an additional 230kV line, as found in Phase 1, will have many benefits and one of which is increasing the TTC up to Poncha. The new 230kV line will shift the limiting element from inside the SLV to outside of the SLV. Note that the values in this study are consistent, but differ slightly from the values listed in the Phase I study due to differences in where the values were measured.

2) Benchmark case

In Phase 2 study, the benchmark case assumed a new Poncha – SLV 230kV line was built. Below are three injection levels for the benchmark case. Note that the added generation column is the amount of generation added on top of the existing generation in the case (78 MW).

The first apparent limit found was due to a breaker current transformer (CT), line trap, and relays (also known as terminal equipment) at the Poncha substation. This is shown in Table 6-8 below, with the limiting element being the Poncha – Smeltertown 115kV line. Replacing or adjusting this equipment would increase the line rating to 120 MVA. As terminal equipment upgrades have relatively minor costs, it was assumed that they could be upgraded for the purposes of this study. Therefore, the 320 MW level was considered a "soft limit", and the SLV generation was increased beyond that level.

The next limiting conditions occurred at around 500 MW of added generation which yielded 426 MW of TTC. As seen in Tables 7 & 8, there were three issues identified at the 500 MW level. These were the outage of PonchaBR-W.Canon 230kV overloads the Ray Lewis-Buena Vista 115kV line, outage of SLV-Sargent 115kV overloads the Alamosa 115/69kV bank, and outage of Curecanti-Lost Canyon 230kV overloads the Curecanti-South Canal 115kV line.

Table 6. Limiting Element: Poncha – Smelter town 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
BM	320	252	Poncha-Smeltertown 115kV	PonchaBR-W.Canon 230kV	100%	60*

- Derated due to Breaker CT at Poncha Junction. Replacing Breaker CT, Line Trap, and Relays at Poncha Junction will increase the line rating to 600 Amps (120 MVA).

Table 7. Limiting Element: Ray Lewis – Buena Vista 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
BM	500	426	Ray Lewis-Buena Vista 115kV	PonchaBR-W.Canon 230kV	101%	115*

- Conductor rating @ 90 degree F, highest historical average for July at Poncha Springs

Table 8. Limiting Element: Alamosa 115/69kV Transformer

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
BM	500	426	Alamosa 115/69 kV Bank #1	SLV-Sargent 115 kV	100%	25*
BM	500	426	Curecanti-South Canal 115 kV	Curecanti-Lost Canyon 230 kV	100%	137

- The current transformer rating of Alamosa 115/69 kV is 25 MVA. There is a plan to replace this bank with an 84 MVA bank by end of 2016.

The Ray Lewis – Buena Vista and Curecanti – South Canal 115 kV line loadings were considered to be limiting conditions. Therefore, the highest TTC for the benchmark was 426 MW.

3) Alternative 1: New Poncha – Malta 230kV line

The same process of determining system limitations was performed for each transmission alternative. Apparent "soft limits" were found for these simulations such as the breaker CT at Poncha Junction and 25 MW rating of Alamosa 115/69kV transformer. The hard limit in this case is the Curecanti – South Canal 115kV line rated at 137 MVA. These are shown in Tables 9-11.

Table 9. Limiting Element: Poncha – Smeltertown 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-1	400	329	Poncha-Smeltertown 115kV	PonchaBR-W.Canon 230kV	100%	60*

- De-rated due to Breaker CT at Poncha Junction. Replacing Breaker CT, Line Trap, and Relays at Poncha Junction will increase the line rating to 600 Amps (120 MVA).

Table 10. Limiting Element: Alamosa 115/69kV Transformer

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-1	550	474	Alamosa 115/69kV Bank #1	SLV-Sargent 115kV	100%	25*

- The current transformer rating of Alamosa 115/69kV is 25 MVA. There is a plan to replace this bank with an 84 MVA bank by end of 2016.

Table 11. Limiting Element: Ray Lewis – Buena Vista 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-1	700	617	Ray Lewis-Buena Vista 115kV	PonchaBR-Malta 230kV	100%	115*
Alt-1	700	617	Curecanti-South Canal 115kV	Curecanti-Lost Canyon 230kV	100%	137

- Conductor rating @ 90 degree F, highest historical average for July at Poncha Springs

The Ray Lewis – Buena Vista and Curecanti – South Canal 115 kV line loadings were considered to be limiting conditions. Therefore, the highest generation level for the Poncha – Malta alternative was 700 MW, which corresponded to a 617 MW TTC.

4) Alternative 2: New Poncha – W.Canon - MidwayPS 230kV line

Adding the new Poncha – W.Canon - Midway 230kV line increases the added generation to 700 MW, which yields 617 MW of TTC. Similar soft limit was found for these simulations such as 25 MW rating of Alamosa 115/69kV transformer. For the east alternative, overloads in the Colorado Springs Utilities (CSU) system were observed around the Briargate and Cottonwood areas. Per CSU's comments during one of the stakeholder's meeting, emergency line rating can be used to mitigate line overload for CSU's system under single contingency. Another acceptable operating practice is to open up the Monument – Palmer Lake 115kV line to mitigate the overload around that area. The hard limit in this case is also the Curecanti – South Canal 115kV line with the rating of 137 MVA.

Table 12. Limiting Element: Alamosa 115/69kV Transformer

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-2	350	280	Alamosa 115/69kV Bank #1	SLV-Sargent 115kV	100%	25*

- The current transformer rating of Alamosa 115/69kV is 25 MVA. There is a plan to replace this bank with an 84 MVA bank by end of 2016.

Table 13. Limiting Element: BRIARGATE S – CTTNWD S 115 kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-2	600	522	BRIARGATE S-CTTNWD S 115kV	CTTNWD N-KETTLECK S 115kV	100%	150

- CSU's emergency rating for this line is 192 MVA. Per CSU's direction, using e-rating for CSU line under single contingency is acceptable.

Table 14. Limiting Element: Curecanti – South Canal 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-2	700	617	Curecanti-South Canal 115kV	Curecanti-Lost Canyon 230kV	101%	137

2026 Light Spring Case, 56 MW of Load, 83 MW of Gen

Similar studies were done for the 2026 Light Spring case with lower loading condition. When the load is lower, particularly in the SLV area, the export capability will be higher due to the single outlet coming out of the valley.

1) Benchmark case with Black Hills' Project

Table 15. Limiting Element: Poncha – Smelter town 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
BM-A	275	287	Poncha-Smeltertown 115kV	PonchaBR-W.Canon 230kV	100%	60*

- De-rated due to Breaker CT at Poncha Junction. Replacing Breaker CT, Line Trap, and Relays at Poncha Junction will increase the line rating to 600 Amps (120 MVA).

Table 16. Limiting Element: Ray Lewis – Buena Vista 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
BM-A	450	448	Ray Lewis-Buena Vista 115 kV	PonchaBR-W.Canon 230 kV	100%	115*

- Conductor rating @ 90 degree F, highest historical average for July at Poncha Springs

Table 17. Limiting Element: W.Canon 230/115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
BM-A	500	493	W.Canon 230/115kV	W.Canon-MidwayBR 230kV	99%	100

Table 18. Limiting Element: Curecanti-S.Canal 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
BM-A	850	787	Curecanti-S.Canal 115kV	Curecanti-Lost Canyon 230kV	100%	137

2) Alternative 1A: New Poncha – Malta 230kV line

Table 19. Limiting Element: Poncha – Smeltertown 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt1-A	380	398	Poncha-Smeltertown 115kV	PonchaBR-W.Canon 230kV	100%	60*

- De-rated due to Breaker CT at Poncha Junction. Replacing Breaker CT, Line Trap, and Relays at Poncha Junction will increase the line rating to 600 Amps (120 MVA).

Table 20. Limiting Element: Ray Lewis – Buena Vista 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-1A	660	663	Ray Lewis-Buena Vista 115kV	PonchaBR-Malta 230kV	100%	115*

- Conductor rating @ 90 degree F, highest historical average for July at Poncha Springs

Table 21. Limiting Element: Curecanti-S.Canal 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-1A	1000	973	Curecanti-South Canal 115kV	Curecanti-Lost Canyon 230kV	98%	137

3) Alternative 2A: Poncha – W.Canon - MidwayPS 230kV and W.Canon – W.Station 115kV line

Table 22. Limiting Element: Curecanti – South Canal 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-2A	1000	973	Curecanti-South Canal 115kV	Curecanti-Lost Canyon 230kV	100%	137

The Ray Lewis – Buena Vista and Curecanti – South Canal 115 kV line loadings were considered to be limiting conditions for the 2026 Light Spring case. Therefore, the highest generation level for the both alternatives was 1000 MW, which corresponded to a 973 MW TTC.

VI. Sensitivity Analyses

As mentioned previously, additional sensitivity analyses were conducted at the suggestions of participants of the SLV Subcommittee to better understand the impact they would have on the transmission system. The sensitivities were performed using the benchmark case and the alternatives of the 2026 Heavy Summer.

A. List of Sensitivity Analyses

The list below describes the sensitivities that were developed and agreed to be studied by the SLV Subcommittee.

1. Alternative 1A case with Craig unit 1 Retirement Analysis
2. Benchmark case with Black Hills' West Canon – West Station 115kV line (BM-A)
3. Alternative 1 case with Black Hills' West Canon – West Station 115kV line (Alt-1A)
4. Alternative 2 case with Black Hills' West Canon – West Station 115kV line (Alt-2A)
5. Stressed TOT 5 Analysis

The sensitivity analysis was conducted in the same manner as the steady state power flow using the same methodology and criteria.

B. Sensitivity Analyses Results

1) Craig Unit 1 Retirement Analysis

In September 2016, an announcement was made that Craig Unit 1 would be shut down by 2025. Because this date was prior to the study case date, a member of the SLV Subcommittee requested a sensitivity analysis of the Craig Unit 1 retirement.

The analysis for the Craig Unit 1 retirement sensitivity explored a single generation dispatch scenario and used the Alternative 2A 700 MW power flow case as a benchmark.

A contingency analysis was performed for each of the additional sensitivities, and the results were compared in a side-by-side analysis with the Benchmark case and the Craig Unit 1 retirement sensitivity.

From these results the SLV Subcommittee concluded that there was no significant impact due to the retirement of Craig Unit 1 to the study areas and the transfer capability of the two alternatives.

The Craig Unit 1 Retirement Analysis can be found in Appendix G.

2) Impact of the Black Hills West Canon – West Station Project

Black Hills has plans to construct a 115kV transmission line between West Canon and West Station to increase system reliability around the area and serve new load at North Canyon Substation by 2019. This project changes the transmission topology of the path between Poncha and the Front Range, and therefore has the potential to impact the Transfer Capability. Since Black Hills has indicated this is a "planned" project, this would normally be included in the benchmark models. However, since the project was not included in the benchmark, the group agreed to evaluate the project as sensitivity. This sensitivity study was performed for both the heavy summer and the light spring cases.

The study results, shown in Tables 23-28 below, indicated that there was no significant impact to the Total Transfer Capability values due to the Black Hills project. However, the models used for these studies showed minimal power flow on the West Canon – West Station 115kV line. This may be due to the dispatch used in order to increase flows from west to east. Based on Black Hills studies, the benefits of the project is primarily demonstrated under system conditions where power is dispatched from east to west to reliably serve loads around the Canyon City area.

2026 Heavy Summer Case

a) Benchmark A

Table 23. Limiting Element: Ray Lewis – Buena Vista 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
BM-A	500	426	Ray Lewis-Buena Vista115kV	PonchaBR-W.Canon 230kV	101%	115*

- Conductor rating @ 90 degree F, highest historical average for July at Poncha Springs

Table 24. Limiting Element: Alamosa 115/69kV Transformer)

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
BM-A	500	426	Alamosa 115/69kV Bank #1	SLV-Sargent 115kV	100%	25*
BM-A	500	426	Curecanti-South Canal 115kV	Curecanti-Lost Canyon 230kV	100%	137

- The current transformer rating of Alamosa 115/69kV is 25 MVA. There is a plan to replace this bank with an 84 MVA bank by end of 2016.

b) Alternative 1A

Table 25. Limiting Element: Alamosa 115/69 kV Transformer

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-1A	550	474	Alamosa 115/69kV Bank #1	SLV-Sargent 115kV	100%	25*

- The current transformer rating of Alamosa 115/69kV is 25 MVA. There is a plan to replace this bank with an 84 MVA bank by end of 2016.

Table 26. Limiting Element: Ray Lewis – Buena Vista 115 kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-1A	700	617	Ray Lewis-Buena Vista 115 kV	PonchaBR-Malta 230 kV	100%	115*
Alt-1A	700	617	Curecanti-South Canal 115kV	Curecanti-Lost Canyon 230kV	100%	137

- Conductor rating @ 90 degree F, highest historical average for July at Poncha Springs

c) Alternative 2A

Table 27. Limiting Element: BRIARGATE S – CTTNWD S 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-2A	600	522	BRIARGATE S-CTTNWD S 115kV	CTTNWD N-KETTLECK S 115kV	99%	150

- Colorado Springs Utilities line; can be operated up to Emergency Rating of 192 MVA under N-1 contingency. This overload will longer be valid.
- An operating practice would be opening up Palmer – Monument 115 kV which will reduce the flow by 10%.

Table 28. Limiting Element: Curecanti – South Canal 115kV

Case	Added Gen	TTC (MW)	Limiting Element	Contingency	% Load	Element Rating (MVA)
Alt-2A	700	617	Curecanti-South Canal 115 kV	Curecanti-Lost Canyon 230 kV	101%	137
Alt-2A	700	617	BRIARGATE S-CTTNWD S 115 kV	CTTNWD N-KETTLECK S 115 kV	101%	150

3) Stressed TOT 5 Analysis

WECC Path 39 (TOT 5) is a set of lines that delineating the separation between Eastern and Western Colorado across the Rocky Mountain Divide with defined transfer limit of 1680 MW west to east. This corridor enables the transmission of remote generation located in Western Colorado to loads located along the Front Range.

TOT 5 consists of eight transmission lines:

- North Park – Terry Ranch Road 230 kV
- Craig – Ault 345 kV
- Hayden – Gorepass 230 kV
- Hayden – Gorepass 138 kV
- N. Gunnison – Poncha 115kV
- Curecanti – Poncha 230 kV
- Basalt – Malta 230 kV
- Hopkins – Malta 230 kV

As TOT 5 is only defined in the west to east direction, it was the only direction of flow studied and was stressed by increasing generation in the north and south parts of Western Colorado, utilization of the Shiprock and Waterflow Phase Shifting Transformers and reducing generation along the Front Range. Three levels of stressing on TOT 5 beyond the original base case were evaluated: 1000 MW, 1100 MW, and 1200 MW. Inter-Area transfers were preserved within the study footprint.

Tables outlining the case, amount of generation added, limiting element and limiting contingency, percent loading on the element, and element rating can be found in Appendix H.

From the tables, in Appendix H, it was concluded that an increase in west to east transfers across TOT 5 results in a decrease in the ability to export generation from SLV to the Denver Metro Area dependent on the Phase 2 Alternative modeled. Due to the limited number of TOT 5 stress levels modeled, a specific relationship between TOT 5 level and SLV generation is not identified. This sensitivity was solely intended to highlight that a relationship exists and is dependent on the type of generation and the location of the interconnection request which is to be evaluated separately through the interconnection study process.

VII. Conclusion

The purpose of these Phase 2 studies was to determine the transfer capability of the existing system and transmission alternatives beyond Poncha Substation using a comparative analysis approach. The comparative analysis approach provides an incremental value of each alternative based on the benchmark case. The TTC values in this report are only valid under the set of conditions and assumptions made for this study.

Phase 2 indicates that the existing TTC of the SLV area is approximately 104 MW with the limiting element being the 115kV line between Poncha – SLV paralleling the 230kV Poncha – SLV line. Adding an additional 230kV line between Poncha – SLV could increase the TTC to approximately 426 MW, for an increase of about 300 MW.

Alternative 1, which would implement a new 230 kV line from Poncha to Malta would increase the TTC to 617 MW, which provides an increment of about 190 MW.

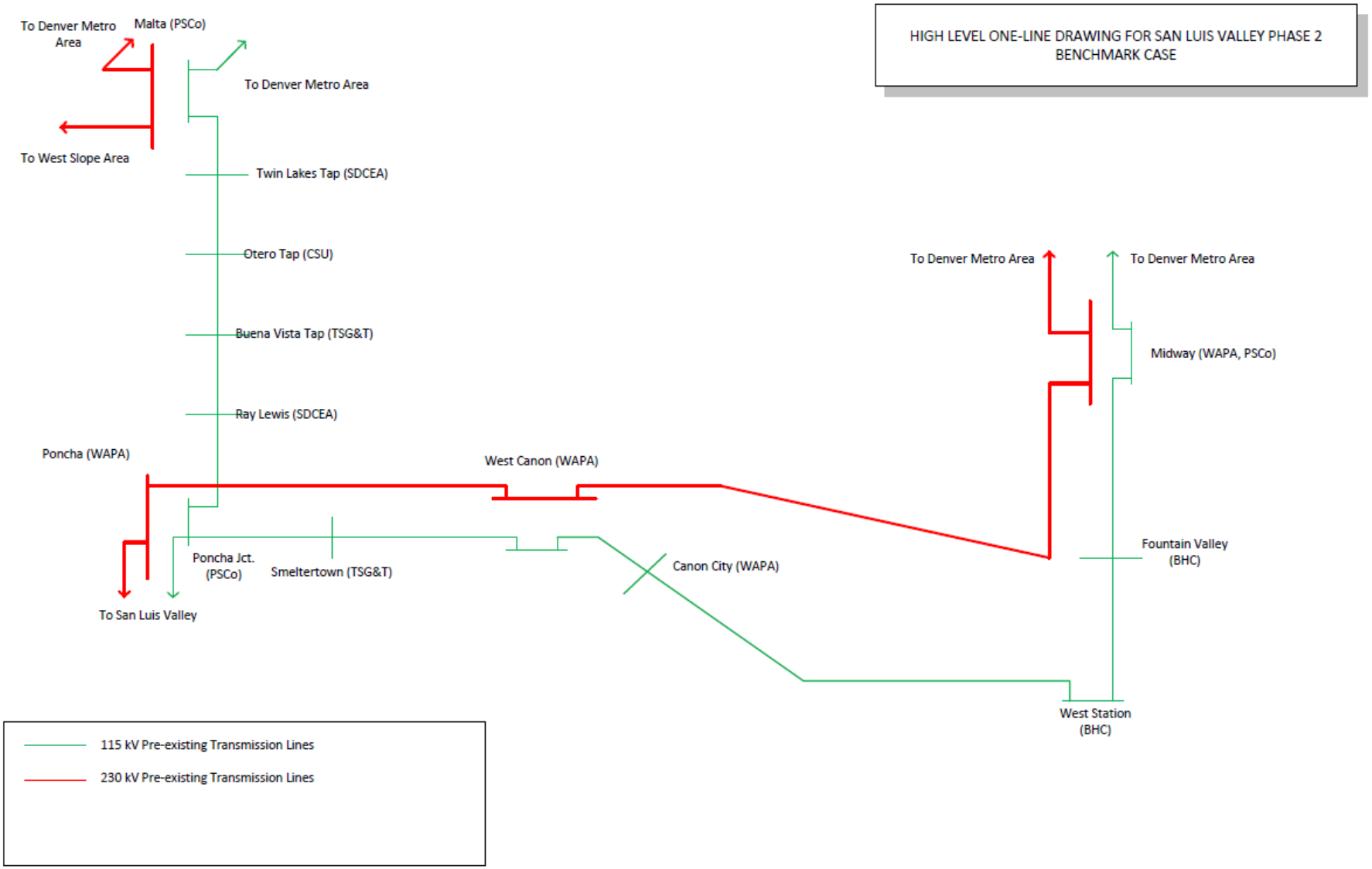
Alternative 2, which would implement a new 230 kV line from Poncha to Midway would increase the TTC to 617 MW, which provides an increment of about 190 MW.

Both alternative 1 and 2 assumed the additional 230kV line between Poncha – SLV is built. Also, both alternatives yield identical increment of TTC.

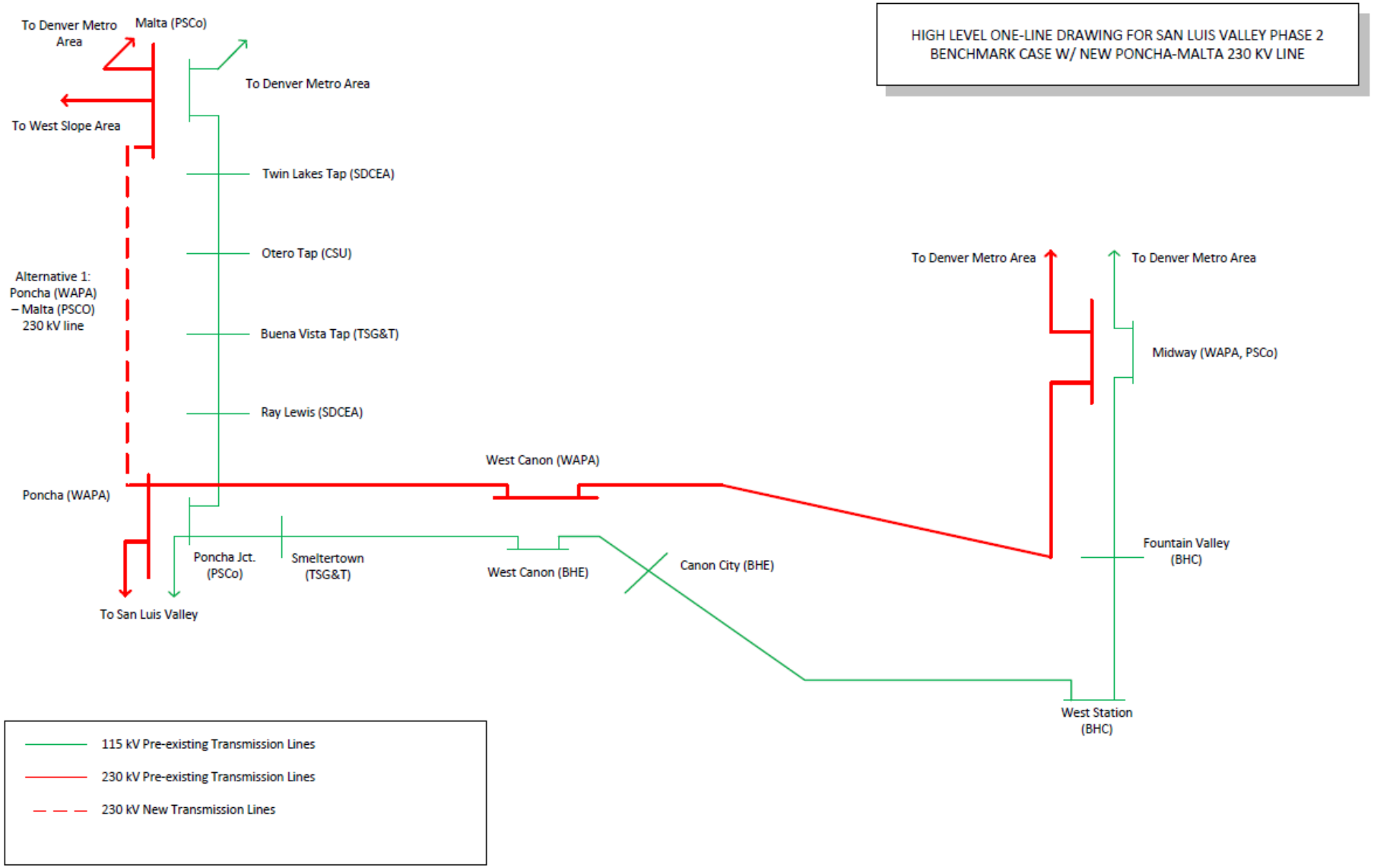
On February 16, 2017, the CCPG agreed that this report met the objectives of the scope, and the results were technically adequate and accurate.

APPENDIX A: Simple Drawings of Benchmark and Alternatives

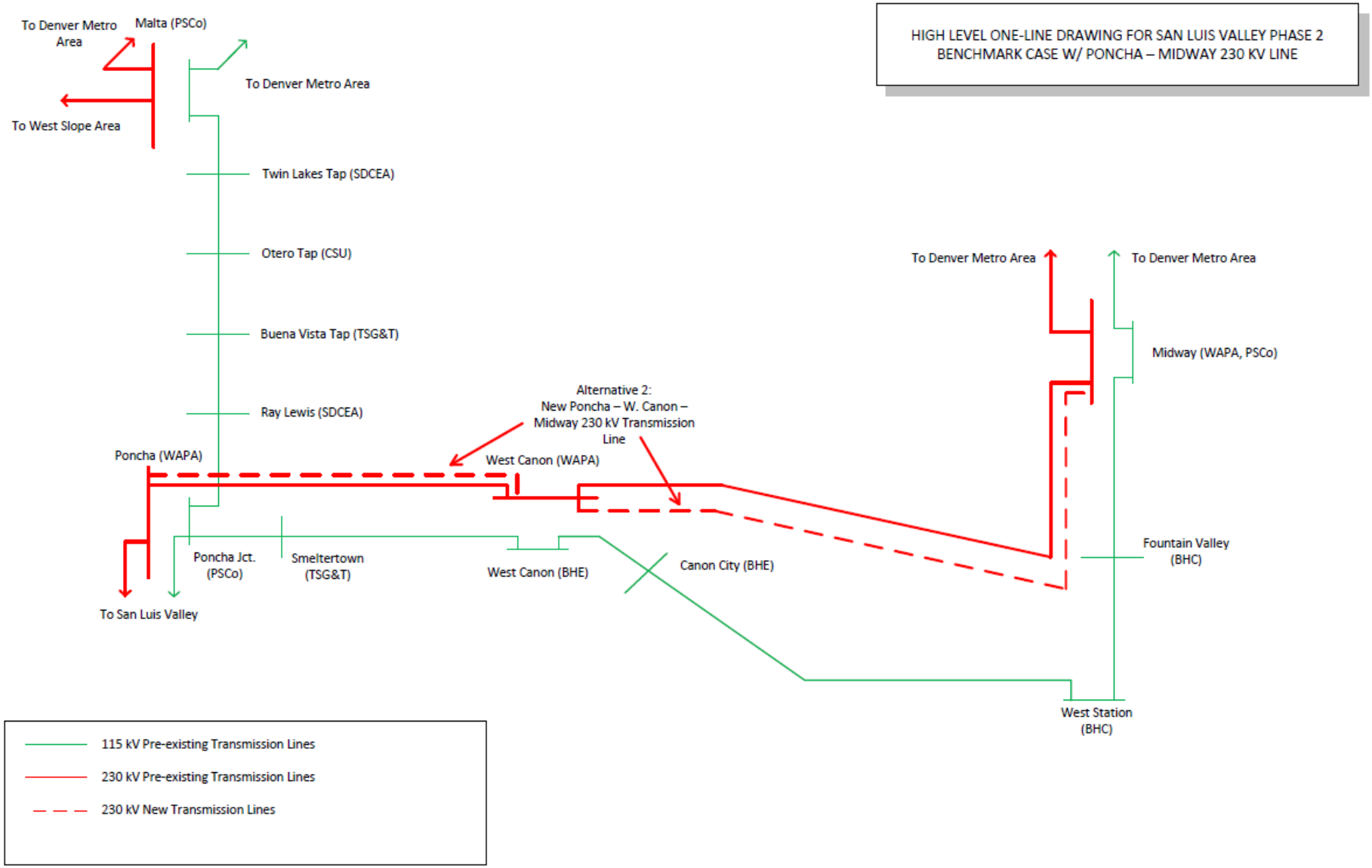
Benchmark Case



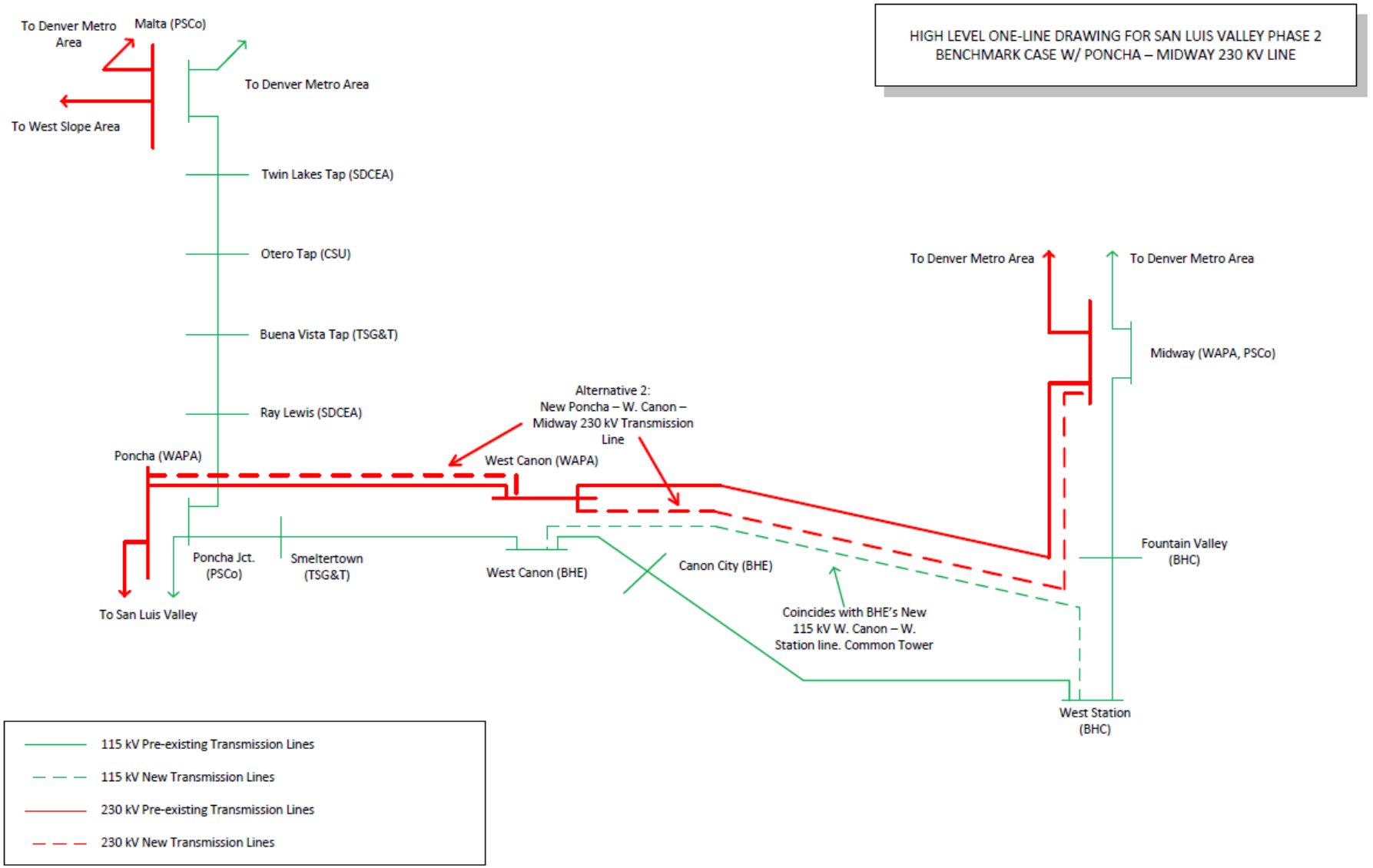
Alternative 1



Alternative 2

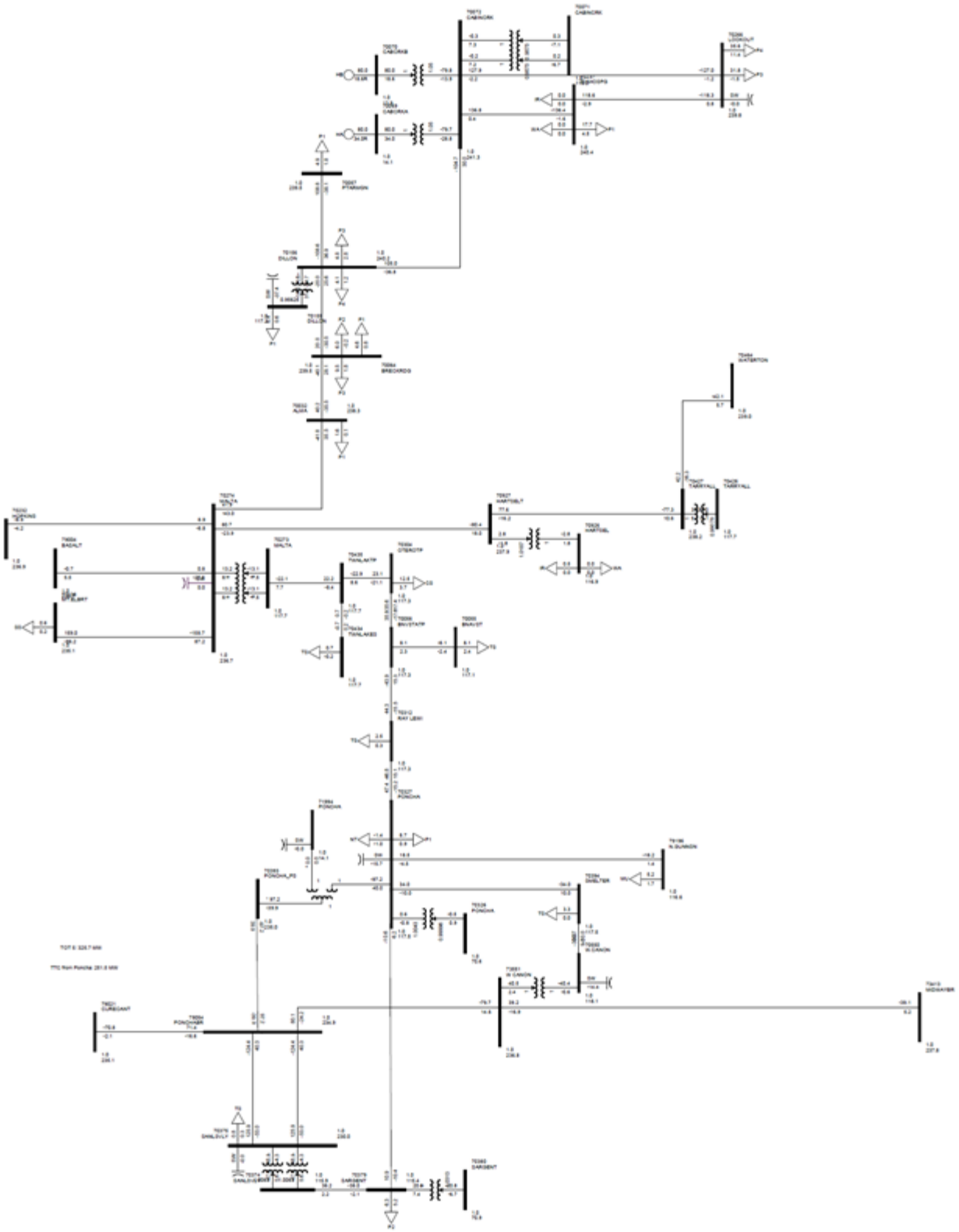


Alternative 2 with Black Hills W.Canon – W.Station 115kV Project

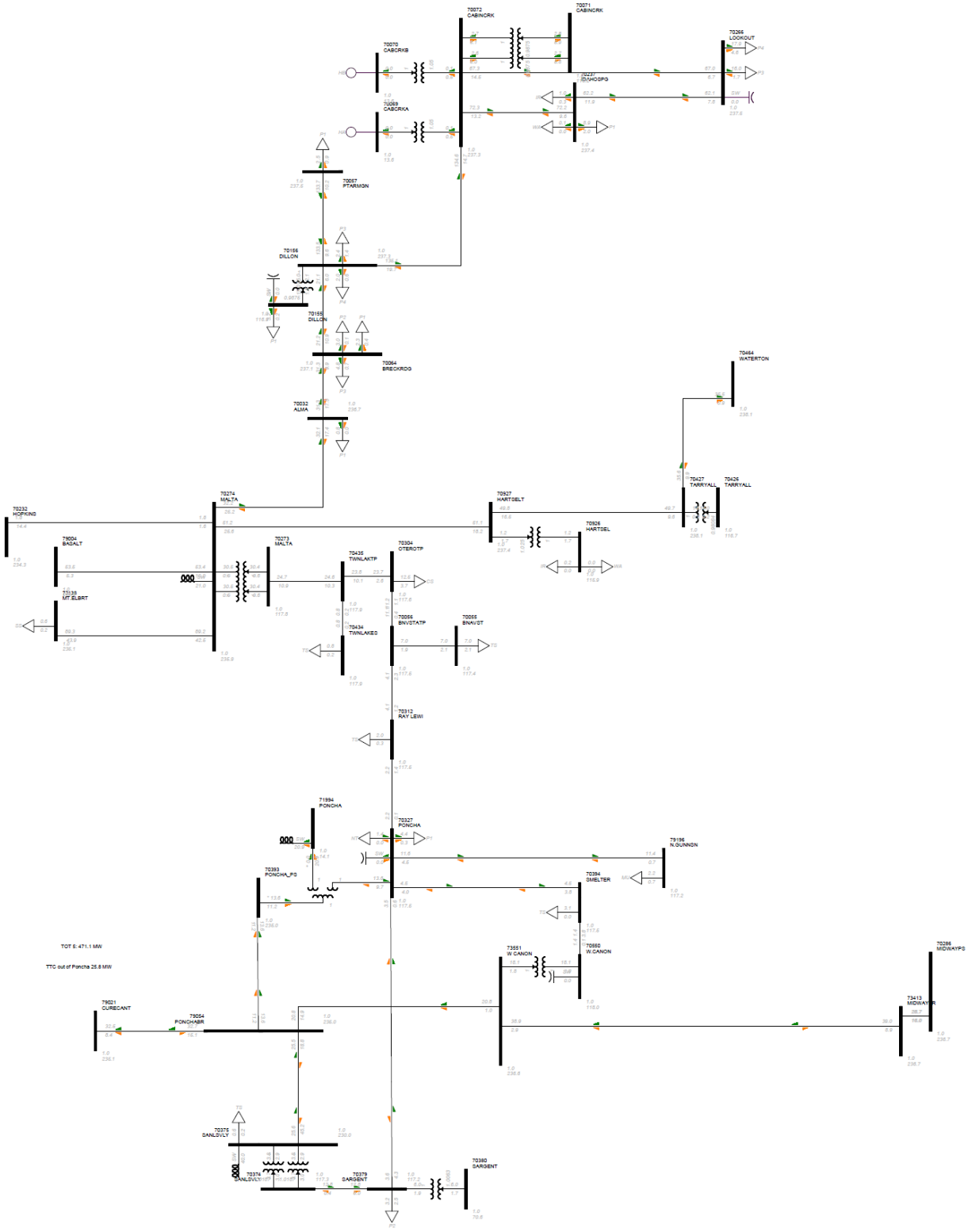


APPENDIX B: PSS/E Slider Files for 2026HS and 2026LSp

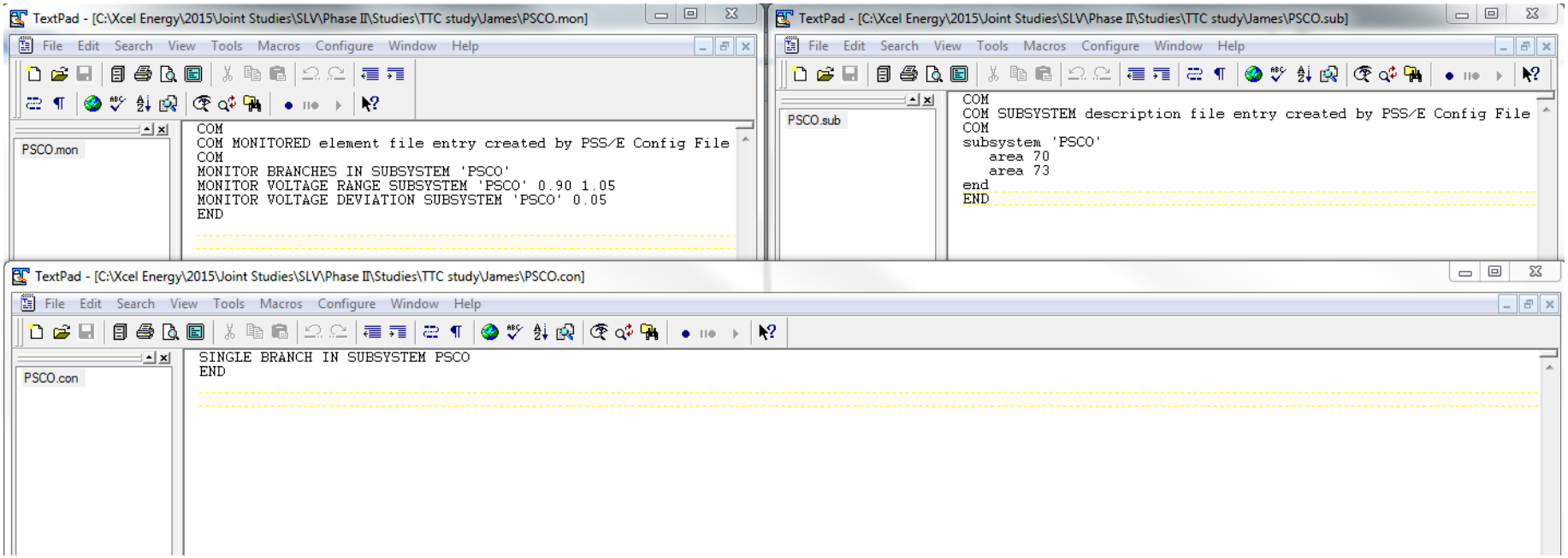
2026 Heavy Summer PSS/E Slider Diagram



2026 Light Spring PSS/E Slider Diagram



APPENDIX C: PSS/E Steady State Automation Files



APPENDIX D: PSS/E Change Files for Alternatives and Sensitivity

PSS/E code for adding Poncha – Malta 230kV

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RDCH
1
0 / END OF BUS DATA, BEGIN LOAD DATA
0 / END OF LOAD DATA, BEGING FIXED BUS SHUNT DATA
0 / END OF FIXED BUS SHUNT DATA, BEGIN GENERATOR DATA
0 / END OF GENERATOR DATA, BEGIN BRANCH DATA
79054, 70274, '1', 0.007475651, 0.064772342, 0.180600851, 576.576,576, 0.0, 0.0, 0.0, 0.0, 1, 1, 52.0, 65, 1.00 /Poncha to Malta 230kV
0 / END OF BRANCH DATA, BEGIN TRANSFORMER DATA
0 / END OF TRANSFORMER DATA, BEGIN AREA DATA
0 / END OF AREA DATA, BEGIN TWO-TERMINAL DC DATA
0 / END OF TWO-TERMINAL DC DATA, BEGIN VSC DC LINE DATA
0 / END OF VSC DC LINE DATA, BEGIN IMPEDANCE CORRECTION DATA
0 / END OF IMPEDANCE CORRECTION DATA, BEGIN MULTI-TERMINAL DC DATA
0 / END OF MULTI-TERMINAL DC DATA, BEGIN MULTI-SECTION LINE DATA
0 / END OF MULTI-SECTION LINE DATA, BEGIN ZONE DATA
0 / END OF ZONE DATA, BEGIN INTER-AREA TRANSFER DATA
0 / END OF INTER-AREA TRANSFER DATA, BEGIN OWNER DATA
0 / END OF OWNER DATA, BEGIN FACTS DEVICE DATA
0 / END OF FACTS DEVICE DATA, BEGIN SWITCHED SHUNT DATA
0 / END OF SWITCHED SHUNT DATA, BEGIN GNE DATA
0 / END OF GNE DATA, BEGIN INDUCTION MACHINE DATA
0 / END OF INDUCTION MACHINE DATA


/Notes:
/       End of Data

ECHO
@END
```

PSS/E code for adding Poncha – W.Canon 230kV

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RDCH
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0 / END OF BUS DATA, BEGIN LOAD DATA
0 / END OF LOAD DATA, BEGING FIXED BUS SHUNT DATA
0 / END OF FIXED BUS SHUNT DATA, BEGIN GENERATOR DATA
0 / END OF GENERATOR DATA, BEGIN BRANCH DATA
79054,73551,'2', 0.006471536, 0.051500722, 0.178546399, 1115.0, 1115.0, 1115.0, 0.0, 0.0, 0.0, 0.0, 1, 1, 46.2, 65, 1.00 /Poncha to W.Canon 230kV
0 / END OF BRANCH DATA, BEGIN TRANSFORMER DATA
0 / END OF TRANSFORMER DATA, BEGIN AREA DATA
0 / END OF AREA DATA, BEGIN TWO-TERMINAL DC DATA
0 / END OF TWO-TERMINAL DC DATA, BEGIN VSC DC LINE DATA
0 / END OF VSC DC LINE DATA, BEGIN IMPEDANCE CORRECTION DATA
0 / END OF IMPEDANCE CORRECTION DATA, BEGIN MULTI-TERMINAL DC DATA
0 / END OF MULTI-TERMINAL DC DATA, BEGIN MULTI-SECTION LINE DATA
0 / END OF MULTI-SECTION LINE DATA, BEGIN ZONE DATA
0 / END OF ZONE DATA, BEGIN INTER-AREA TRANSFER DATA
0 / END OF INTER-AREA TRANSFER DATA, BEGIN OWNER DATA
0 / END OF OWNER DATA, BEGIN FACTS DEVICE DATA
0 / END OF FACTS DEVICE DATA, BEGIN SWITCHED SHUNT DATA
0 / END OF SWITCHED SHUNT DATA, BEGIN GNE DATA
0 / END OF GNE DATA, BEGIN INDUCTION MACHINE DATA
0 / END OF INDUCTION MACHINE DATA


/Notes:
/       End of Data

ECHO
@END
```

PSS/E code for adding Poncha – W.Canon 230kV

```
RDCH
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0 / END OF FIXED BUS SHUNT DATA, BEGIN GENERATOR DATA
0 / END OF GENERATOR DATA, BEGIN BRANCH DATA
73551,70286,'1', 0.005883215, 0.046818837, 0.167928214, 1115.0, 1115.0, 1115.0, 0.0, 0.0, 0.0, 0.0, 1, 1, 46, 65, 1.00 /W.Canon - MidwayBR 230kV
0 / END OF BRANCH DATA, BEGIN TRANSFORMER DATA
0 / END OF TRANSFORMER DATA, BEGIN AREA DATA
0 / END OF AREA DATA, BEGIN TWO-TERMINAL DC DATA
0 / END OF TWO-TERMINAL DC DATA, BEGIN VSC DC LINE DATA
0 / END OF VSC DC LINE DATA, BEGIN IMPEDANCE CORRECTION DATA
0 / END OF IMPEDANCE CORRECTION DATA, BEGIN MULTI-TERMINAL DC DATA
0 / END OF MULTI-TERMINAL DC DATA, BEGIN MULTI-SECTION LINE DATA
0 / END OF MULTI-SECTION LINE DATA, BEGIN ZONE DATA
0 / END OF ZONE DATA, BEGIN INTER-AREA TRANSFER DATA
0 / END OF INTER-AREA TRANSFER DATA, BEGIN OWNER DATA
0 / END OF OWNER DATA, BEGIN FACTS DEVICE DATA
0 / END OF FACTS DEVICE DATA, BEGIN SWITCHED SHUNT DATA
0 / END OF SWITCHED SHUNT DATA, BEGIN GNE DATA
0 / END OF GNE DATA, BEGIN INDUCTION MACHINE DATA
0 / END OF INDUCTION MACHINE DATA


/Notes:
/       End of Data

ECHO
@END
```

PSS/E code for adding W.Canon – W.Station 115kV

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0 / END OF LOAD DATA, BEGING FIXED BUS SHUNT DATA
0 / END OF FIXED BUS SHUNT DATA, BEGIN GENERATOR DATA
0 / END OF GENERATOR DATA, BEGIN BRANCH DATA
70550,70456,'1', 0.024613, 0.249682, 0.0306421, 279.0, 279.0, 279.0, 0.0, 0.0, 0.0, 0.0, 1, 1, 42, 65, 1.00 /W.Canon - W.Station 115kV
0 / END OF BRANCH DATA, BEGIN TRANSFORMER DATA
0 / END OF TRANSFORMER DATA, BEGIN AREA DATA
0 / END OF AREA DATA, BEGIN TWO-TERMINAL DC DATA
0 / END OF TWO-TERMINAL DC DATA, BEGIN VSC DC LINE DATA
0 / END OF VSC DC LINE DATA, BEGIN IMPEDANCE CORRECTION DATA
0 / END OF IMPEDANCE CORRECTION DATA, BEGIN MULTI-TERMINAL DC DATA
0 / END OF MULTI-TERMINAL DC DATA, BEGIN MULTI-SECTION LINE DATA
0 / END OF MULTI-SECTION LINE DATA, BEGIN ZONE DATA
0 / END OF ZONE DATA, BEGIN INTER-AREA TRANSFER DATA
0 / END OF INTER-AREA TRANSFER DATA, BEGIN OWNER DATA
0 / END OF OWNER DATA, BEGIN FACTS DEVICE DATA
0 / END OF FACTS DEVICE DATA, BEGIN SWITCHED SHUNT DATA
0 / END OF SWITCHED SHUNT DATA, BEGIN GNE DATA
0 / END OF GNE DATA, BEGIN INDUCTION MACHINE DATA
0 / END OF INDUCTION MACHINE DATA


/Notes:
/       End of Data

ECHO
@END
```

APPENDIX E: Benchmark Cases Generation Tables

2026 Heavy Summer Generation Table

Bus Number	Bus Name	Id	Area Num	Area Name	Zone Num	In Service	PGen (MW)	PMax (MW)	PMin (MW)
1	SLVGEN 13.200	1	70	PSCOLORADO	710	1	320	1000	0
70069	CABCRKA 13.800	HA	70	PSCOLORADO	705	1	80	162	-4
70070	CABCRKB 13.800	HB	70	PSCOLORADO	705	1	80	162	-4
70104	CHEROK2 15.500	SC	70	PSCOLORADO	700	1	0	0	0
70106	CHEROK4 22.000	G4	70	PSCOLORADO	700	1	365	383	150
70119	COMAN_1 24.000	C1	70	PSCOLORADO	704	1	350	360	200
70120	COMAN_2 24.000	C2	70	PSCOLORADO	704	1	19.0174	365	200
70145	CHEROKEE5 18.000	G5	70	PSCOLORADO	700	1	150	224	0
70146	CHEROKEE6 18.000	G6	70	PSCOLORADO	700	1	150	224	0
70147	CHEROKEE7 18.000	G7	70	PSCOLORADO	700	1	220	224	0
70180	FRUITA 13.800	G1	70	PSCOLORADO	708	1	15	17	5
70188	FTLUP1-2 13.800	G1	70	PSCOLORADO	706	0	50	50	10
70188	FTLUP1-2 13.800	G2	70	PSCOLORADO	706	0	50	50	10
70310	PAWNEE 22.000	C1	70	PSCOLORADO	706	0	505	530	300
70314	MANCHEF1 16.000	G1	70	PSCOLORADO	706	1	140	140	45
70315	MANCHEF2 16.000	G2	70	PSCOLORADO	706	1	140	140	45
70334	PUB_DSLS 4.1600	G1	70	PSCOLORADO	712	1	10	25	0
70344	R.F.DSLS 4.1600	G1	70	PSCOLORADO	712	1	10	10	0
70350	RAWHIDE 24.000	C1	70	PSCOLORADO	706	1	300	304	45
70351	RAWHIDEA 13.800	GA	70	PSCOLORADO	706	1	50	70	40
70385	SHOSHA&B 4.0000	H1	70	PSCOLORADO	708	1	7	7	5
70385	SHOSHA&B 4.0000	H2	70	PSCOLORADO	708	1	7	8	5
70406	ST.VR_2 18.000	G2	70	PSCOLORADO	706	1	100	130	45
70407	ST.VR_3 18.000	G3	70	PSCOLORADO	706	1	100	130	45
70408	ST.VR_4 18.000	G4	70	PSCOLORADO	706	1	100	130	45

70409	ST.VRAIN 22.000	G1	70	PSCOLORADO	706	1	320	342	35
70485	ALMSACT1 13.800	G1	70	PSCOLORADO	710	0	16	17	5
70486	ALMSACT2 13.800	G2	70	PSCOLORADO	710	0	18	19	5
70487	JMSHAFR4 13.800	G4	70	PSCOLORADO	706	1	34.8	34.4	23
70487	JMSHAFR4 13.800	G5	70	PSCOLORADO	706	1	33	33.4	23
70490	JMSHAFR3 13.800	G3	70	PSCOLORADO	706	1	36.1	35.4	22
70490	JMSHAFR3 13.800	ST	70	PSCOLORADO	706	1	50	50.7	24
70493	JMSHAFR2 13.800	ST	70	PSCOLORADO	706	1	50.7	50.7	24
70495	JMSHAFR1 13.800	G1	70	PSCOLORADO	706	1	35.8	35.4	23
70495	JMSHAFR1 13.800	G2	70	PSCOLORADO	706	1	35	35.4	23
70498	QF_BCP2T 13.800	G3	70	PSCOLORADO	706	1	31.1	30.4	17
70498	QF_BCP2T 13.800	ST	70	PSCOLORADO	706	1	36	36.7	17
70499	QF_B4-4T 13.800	G4	70	PSCOLORADO	706	1	24	24	7
70499	QF_B4-4T 13.800	G5	70	PSCOLORADO	706	1	23	24	7
70500	QF_CPP1T 13.800	G1	70	PSCOLORADO	706	1	23	24	10
70500	QF_CPP1T 13.800	G2	70	PSCOLORADO	706	1	23	24	10
70501	QF_CPP3T 13.800	ST	70	PSCOLORADO	706	1	26	27	10
70548	APT_DSLS 4.1600	G1	70	PSCOLORADO	712	1	10	10	0
70553	ARAP5&6 13.800	G5	70	PSCOLORADO	700	1	36	37	17
70553	ARAP5&6 13.800	G6	70	PSCOLORADO	700	1	36	37	17
70554	ARAP7 13.800	G7	70	PSCOLORADO	700	1	44	45	17
70556	QF_B4D4T 12.500	ST	70	PSCOLORADO	706	1	50	70	17
70557	VALMNT7 13.800	G7	70	PSCOLORADO	703	1	36	37	17
70558	VALMNT8 13.800	G8	70	PSCOLORADO	703	1	36	37	17
70560	LAMAR_DC 230.00	DC	70	PSCOLORADO	712	0	101	210	-210
70561	RAWHIDEF 18.000	GF	70	PSCOLORADO	706	1	125	138	50
70562	SPRUCE1 18.000	G1	70	PSCOLORADO	700	1	100	140	50
70563	SPRUCE2 18.000	G2	70	PSCOLORADO	700	1	100	140	50
70564	RAWHIDE_PV 34.500	PV	70	PSCOLORADO	706	1	7	32.7	0
70565	KNUTSON1 13.800	G1	70	PSCOLORADO	700	1	51.8	64.5	40
70566	KNUTSON2 13.800	G2	70	PSCOLORADO	700	1	51.9	64.5	40

70567	RAWHIDED 13.800	GD	70	PSCOLORADO	706	1	50	70	40
70568	RAWHIDEB 13.800	GB	70	PSCOLORADO	706	1	50	70	40
70569	RAWHIDEC 13.800	GC	70	PSCOLORADO	706	1	50	70	40
70577	FTNVL1&2 13.800	G1	70	PSCOLORADO	704	0	0	40	17
70577	FTNVL1&2 13.800	G2	70	PSCOLORADO	704	0	0	40	17
70578	FTNVL3&4 13.800	G3	70	PSCOLORADO	704	0	0	40	17
70578	FTNVL3&4 13.800	G4	70	PSCOLORADO	704	0	0	40	17
70579	FTNVL5&6 13.800	G5	70	PSCOLORADO	704	0	0	40	17
70579	FTNVL5&6 13.800	G6	70	PSCOLORADO	704	0	0	40	17
70580	PLNENDG1 13.800	G0	70	PSCOLORADO	700	1	4.8	5.5	1.7
70580	PLNENDG1 13.800	G1	70	PSCOLORADO	700	1	4.8	5.5	1.7
70580	PLNENDG1 13.800	G2	70	PSCOLORADO	700	1	4.8	5.5	1.7
70580	PLNENDG1 13.800	G3	70	PSCOLORADO	700	1	4.8	5.5	1.7
70580	PLNENDG1 13.800	G4	70	PSCOLORADO	700	1	4.8	5.5	1.7
70580	PLNENDG1 13.800	G5	70	PSCOLORADO	700	1	4.8	5.5	1.7
70580	PLNENDG1 13.800	G6	70	PSCOLORADO	700	1	4.8	5.5	1.7
70580	PLNENDG1 13.800	G7	70	PSCOLORADO	700	1	4.8	5.5	1.7
70580	PLNENDG1 13.800	G8	70	PSCOLORADO	700	1	4.8	5.5	1.7
70580	PLNENDG1 13.800	G9	70	PSCOLORADO	700	1	4.8	5.5	1.7
70585	PLNENDG3 13.800	G1	70	PSCOLORADO	700	1	7.2	8.4	0
70585	PLNENDG3 13.800	G2	70	PSCOLORADO	700	1	7.2	8.4	0
70585	PLNENDG3 13.800	G3	70	PSCOLORADO	700	1	7.2	8.4	0
70585	PLNENDG3 13.800	G4	70	PSCOLORADO	700	1	7.2	8.4	0
70585	PLNENDG3 13.800	G5	70	PSCOLORADO	700	1	7.2	8.4	0
70585	PLNENDG3 13.800	G6	70	PSCOLORADO	700	1	7.2	8.4	0
70585	PLNENDG3 13.800	G7	70	PSCOLORADO	700	1	7.2	8.4	0
70586	PLNENDG4 13.800	G1	70	PSCOLORADO	700	1	7.2	8.4	0
70586	PLNENDG4 13.800	G2	70	PSCOLORADO	700	1	7.2	8.4	0
70586	PLNENDG4 13.800	G3	70	PSCOLORADO	700	1	7.2	8.4	0
70586	PLNENDG4 13.800	G4	70	PSCOLORADO	700	1	7.2	8.4	0
70586	PLNENDG4 13.800	G5	70	PSCOLORADO	700	1	7.2	8.4	0

70586	PLNENDG4 13.800	G6	70	PSCOLORADO	700	1	7.2	8.4	0
70586	PLNENDG4 13.800	G7	70	PSCOLORADO	700	1	7.2	8.4	0
70587	PLNENDG2 13.800	G0	70	PSCOLORADO	700	1	4.8	5.5	1.7
70587	PLNENDG2 13.800	G1	70	PSCOLORADO	700	1	4.8	5.5	1.7
70587	PLNENDG2 13.800	G2	70	PSCOLORADO	700	1	4.8	5.5	1.7
70587	PLNENDG2 13.800	G3	70	PSCOLORADO	700	1	4.8	5.5	1.7
70587	PLNENDG2 13.800	G4	70	PSCOLORADO	700	1	4.8	5.5	1.7
70587	PLNENDG2 13.800	G5	70	PSCOLORADO	700	1	4.8	5.5	1.7
70587	PLNENDG2 13.800	G6	70	PSCOLORADO	700	1	4.8	5.5	1.7
70587	PLNENDG2 13.800	G7	70	PSCOLORADO	700	1	4.8	5.5	1.7
70587	PLNENDG2 13.800	G8	70	PSCOLORADO	700	1	4.8	5.5	1.7
70587	PLNENDG2 13.800	G9	70	PSCOLORADO	700	1	4.8	5.5	1.7
70588	RMEC1 15.000	G1	70	PSCOLORADO	700	1	100	150	5
70589	RMEC2 15.000	G2	70	PSCOLORADO	700	1	100	150	6
70591	RMEC3 23.000	G3	70	PSCOLORADO	700	1	322	322	17
70593	SPNDLE1 18.000	G1	70	PSCOLORADO	703	1	100	134	0
70594	SPNDLE2 18.000	G2	70	PSCOLORADO	703	1	100	134	0
70622	MIS_SITE 34.500	W1	70	PSCOLORADO	700	1	52.5	250	0
70635	LIMON1_W 34.500	W1	70	PSCOLORADO	700	1	42.2	201	0
70636	LIMON2_W 34.500	W2	70	PSCOLORADO	700	1	42.2	201	0
70637	LIMON3_W 34.500	W3	70	PSCOLORADO	700	1	42.2	201	0
70665	JKFUL_W1 0.6900	W1	70	PSCOLORADO	757	1	26.06	124.1	0
70666	JKFUL_W2 0.6900	W2	70	PSCOLORADO	757	1	26.42	125.8	0
70701	CO_GRN_E 34.500	W1	70	PSCOLORADO	712	1	17	81	10
70702	CO_GRN_W 34.500	W2	70	PSCOLORADO	712	1	17	81	10
70703	TWNBUTTE 34.500	W1	70	PSCOLORADO	712	1	15.8	75	0
70710	PTZLOGN1 34.500	W1	70	PSCOLORADO	706	1	42.2	201	0
70712	PTZLOGN2 34.500	W2	70	PSCOLORADO	706	1	25.2	120	0
70713	PTZLOGN3 34.500	W3	70	PSCOLORADO	706	1	16.7	79.5	0
70714	PTZLOGN4 34.500	W4	70	PSCOLORADO	706	1	36.8	175	0
70721	SPRNGCAN 34.500	W1	70	PSCOLORADO	706	1	12.6	60	0

70723	RDGCREST 34.500	W1	70	PSCOLORADO	752	1	6.3	29.7	0
70724	SPRINGCAN 34.500	W1	70	PSCOLORADO	706	1	12.6	60	0
70777	COMAN_3 27.000	C3	70	PSCOLORADO	704	1	805	805	200
70823	CEDARCK_1A 34.500	W2	70	PSCOLORADO	706	1	46.2	220	0
70824	CEDARCK_1B 34.500	W3	70	PSCOLORADO	706	1	16.8	80	0
70825	CEDARCK_2A 34.500	W1	70	PSCOLORADO	706	1	31.5	150	0
70826	CEDARCK_2B 34.500	W2	70	PSCOLORADO	706	1	21.5	100	0
70931	G-SANDHIL_PV34.500	S1	70	PSCOLORADO	710	1	10.4	16	0
70932	SOLAR_GE 34.500	S2	70	PSCOLORADO	710	1	19.5	30	0
70933	COGENTRIX_PV34.500	S3	70	PSCOLORADO	710	1	19.5	30	0
70934	COMAN_PV 34.500	S1	70	PSCOLORADO	704	1	78	120	0
70935	SUNPOWER 34.500	S1	70	PSCOLORADO	710	1	28.6	52	0
70950	ST.VR_5 18.000	G5	70	PSCOLORADO	706	1	100	150	35
70951	ST.VR_6 18.000	G6	70	PSCOLORADO	706	1	100	150	35
70953	PAWNCT_PLAN 22.000	C2	70	PSCOLORADO	706	1	500	530	300
71001	BAC_MSA GEN113.800	G1	70	PSCOLORADO	712	1	90	90.6	0
71002	BAC_MSA GEN213.800	G1	70	PSCOLORADO	712	1	90	90.6	0
71003	BAC_MSA GEN313.800	G1	70	PSCOLORADO	712	1	40	40	0
71003	BAC_MSA GEN313.800	G2	70	PSCOLORADO	712	1	40	40	0
71003	BAC_MSA GEN313.800	S1	70	PSCOLORADO	712	1	24	24.8	0
71004	BAC_MSA GEN413.800	G1	70	PSCOLORADO	712	1	40	40	0
71004	BAC_MSA GEN413.800	G2	70	PSCOLORADO	712	1	40	40	0
71004	BAC_MSA GEN413.800	S1	70	PSCOLORADO	712	1	24	24.8	0
71005	BAC_MSA	G1	70	PSCOLORADO	712	1	40	40	0

	GEN513.800								
71009	BUSCHRWTG1 0.7000	G1	70	PSCOLORADO	712	1	6	28.8	0
71012	BUSCHRWTG2 0.6900	G2	70	PSCOLORADO	712	1	6	28.8	0
71015	BUSCHRWTG3 0.6900	G3	70	PSCOLORADO	712	1	6	28.8	0
71016	RTLSNKWNDLO 0.7000	G1	70	PSCOLORADO	712	1	13	60	0
72000	TBII_GEN 0.6900	W	70	PSCOLORADO	712	1	17.2	76	11.4
72013	SI_GEN 0.6000	1	70	PSCOLORADO	704	1	10.3	30.2	0
72500	SPR GEN3 21.000	1	73	WAPA R.M.	790	1	452	452	165
72501	TSGT_G1 18.000	G1	73	WAPA R.M.	752	1	120	120	50
72502	TSGT_G2 18.000	G2	73	WAPA R.M.	752	1	55.88	120	50
72503	TSGT_G3 18.000	G3	73	WAPA R.M.	752	1	64.5	120	50
72514	TSGT_G4 18.000	G4	73	WAPA R.M.	752	1	64.5	120	50
72515	TSGT_G5 18.000	G5	73	WAPA R.M.	752	0	0	120	50
72703	CRSL_GEN 0.7000	W	73	WAPA R.M.	752	1	30.6	149.6	0
72714	KC_GEN 0.6900	G1	73	WAPA R.M.	752	1	12.2	51.2	2.4
72742	RIDGEWAY 4.2000	1	73	WAPA R.M.	791	1	7	7.2	0
72742	RIDGEWAY 4.2000	2	73	WAPA R.M.	791	1	0.8	0.8	0
73054	ELBERT-1 11.500	1	73	WAPA R.M.	755	1	80	105.26	0
73129	MBPP-1 24.000	1	73	WAPA R.M.	753	1	268.4689	605	0
73130	MBPP-2 24.000	1	73	WAPA R.M.	753	1	375	605	0
73181	SIDNEYDC 230.00	1	73	WAPA R.M.	756	1	196	200	-200
73226	YELLO1-2 13.800	1	73	WAPA R.M.	750	1	50	65.789	0
73226	YELLO1-2 13.800	2	73	WAPA R.M.	750	1	50	65.789	0
73227	YELLO3-4 13.800	3	73	WAPA R.M.	750	1	50	65.789	0
73227	YELLO3-4 13.800	4	73	WAPA R.M.	750	1	50	65.789	0
73289	RCCT1 13.800	1	73	WAPA R.M.	751	1	17	17	0
73291	RCCT2 13.800	2	73	WAPA R.M.	751	1	17	17	0
73292	RCCT3 13.800	3	73	WAPA R.M.	751	1	17	17	0
73293	RCCT4 13.800	4	73	WAPA R.M.	751	1	17	17	0
73299	BIGTHOMP 4.2000	1	73	WAPA R.M.	754	1	3	4.5	0

73302	BRLNGTN1 13.800	1	73	WAPA R.M.	752	1	50.4	50.4	25
73303	BRLNGTN2 13.800	1	73	WAPA R.M.	752	1	50.4	50.4	25
73306	ESTES1 6.9000	1	73	WAPA R.M.	754	1	12	19.167	0
73307	ESTES2 6.9000	1	73	WAPA R.M.	754	1	12	19.167	0
73308	ESTES3 6.9000	1	73	WAPA R.M.	754	1	12	19.167	0
73316	GREENMT1 6.9000	1	73	WAPA R.M.	755	1	10	14.444	0
73317	GREENMT2 6.9000	1	73	WAPA R.M.	755	1	10	14.444	0
73319	MARYLKPP 6.9000	1	73	WAPA R.M.	754	1	7	10.35	0
73324	POLEHILL 13.800	1	73	WAPA R.M.	754	1	35	40.25	0
73328	WILLMFRK 2.4000	1	73	WAPA R.M.	755	1	2	3	0
73332	ALCOVA1 6.9000	1	73	WAPA R.M.	753	1	15	21.8	0
73333	BOYSEN1 4.2000	1	73	WAPA R.M.	750	1	5	7.5	0
73333	BOYSEN1 4.2000	2	73	WAPA R.M.	750	1	5	7.5	0
73334	BBILL1-2 6.9000	1	73	WAPA R.M.	750	1	4	6.67	0
73334	BBILL1-2 6.9000	2	73	WAPA R.M.	750	1	4	6.67	0
73339	HEART MT 2.4000	1	73	WAPA R.M.	750	1	3	6.9	0
73341	NSS2 13.800	2	73	WAPA R.M.	751	1	93	93.7	0
73347	SHOSHONE 6.9000	1	73	WAPA R.M.	750	1	1	3.33	0
73349	FREMONT1 11.500	1	73	WAPA R.M.	753	1	27	35.16	0
73350	FREMONT2 11.500	1	73	WAPA R.M.	753	1	27	35.16	0
73351	GLENDO1 6.9000	1	73	WAPA R.M.	753	1	15	19	0
73352	GLENDO2 6.9000	1	73	WAPA R.M.	753	1	15	19	0
73353	GUERNSY1 2.4000	1	73	WAPA R.M.	753	1	2	3.2	0
73356	KORTES1 6.9000	1	73	WAPA R.M.	753	1	10	13.3	0
73357	KORTES2 6.9000	1	73	WAPA R.M.	753	1	10	13.3	0
73358	KORTES3 6.9000	1	73	WAPA R.M.	753	1	10	13.3	0
73363	SEMINOE1-2 6.9000	1	73	WAPA R.M.	753	1	12	15	0
73363	SEMINOE1-2 6.9000	2	73	WAPA R.M.	753	1	12	15	0
73381	BIRDSAL1 13.800	1	73	WAPA R.M.	757	0	0	17.2	2.9
73382	BIRDSAL2 13.800	1	73	WAPA R.M.	757	0	0	17.2	2.9
73383	BIRDSAL3 13.800	1	73	WAPA R.M.	757	0	0	24.6	3.3

73418	RD_NIXON 20.000	1	73	WAPA R.M.	757	1	220.47	225.39	110.9
73424	TESLA1 13.800	1	73	WAPA R.M.	757	1	13.2	27.5	0.9
73427	DRAKE 5 13.800	1	73	WAPA R.M.	757	0	0	49.65	26.2
73428	DRAKE 6 13.800	1	73	WAPA R.M.	757	1	80.6	83.19	42.3
73429	DRAKE 7 13.800	1	73	WAPA R.M.	757	1	137.1	141.03	74.6
73434	NIXONCT1 12.500	1	73	WAPA R.M.	757	0	0	27	19.8
73435	NIXONCT2 12.500	1	73	WAPA R.M.	757	0	0	27	19.8
73438	ALCOVA2 6.9000	1	73	WAPA R.M.	753	1	13	21.8	0
73439	BBILL3-4 6.9000	1	73	WAPA R.M.	750	1	4	6.67	0
73441	SEMINOE3 6.9000	1	73	WAPA R.M.	753	1	10	15	0
73444	GUERNSY2 2.4000	2	73	WAPA R.M.	753	1	2	3.2	0
73448	FLATIRN1 13.800	2	73	WAPA R.M.	754	1	35	47.8	0
73449	FLATIRN2 13.800	1	73	WAPA R.M.	754	1	35	47.8	0
73449	FLATIRN2 13.800	3	73	WAPA R.M.	754	1	6	8.5	-10.16
73461	ELBERT-2 11.500	1	73	WAPA R.M.	755	1	80	105.26	0
73462	SPIRTMTN 6.9000	1	73	WAPA R.M.	750	1	3	5	0
73507	FTRNG1CC 18.000	1	73	WAPA R.M.	757	1	137.3	142	71
73508	FTRNG2CC 18.000	1	73	WAPA R.M.	757	1	136.9	142	71.6
73509	FTRNG3CC 21.000	1	73	WAPA R.M.	757	1	176.19	207	39.2
73532	LINCOLN1 13.800	1	73	WAPA R.M.	752	1	64.5	64.5	40
73533	LINCOLN2 13.800	1	73	WAPA R.M.	752	1	64.5	64.5	40
73631	COHIWND_G1 0.6900	W	73	WAPA R.M.	752	1	13.1	67	12.3
73635	COHIWND_G2 0.6900	W	73	WAPA R.M.	752	1	5.1	23.1	0
74014	NSS_CT1 13.800	1	73	WAPA R.M.	751	1	40	40	0
74015	NSS_CT2 13.800	1	73	WAPA R.M.	751	1	40	40	0
74016	WYGEN 13.800	1	73	WAPA R.M.	751	1	93	93.7	0
74017	WYGEN2 13.800	1	73	WAPA R.M.	751	1	100	100	0
74018	WYGEN3 13.800	1	73	WAPA R.M.	751	1	110	110	0
74029	LNG_CT1 13.800	1	73	WAPA R.M.	751	1	40	40	0
74042	CLR_1 0.6000	1	73	WAPA R.M.	753	1	29	29.4	0
74043	SS_GEN1 0.6000	1	73	WAPA R.M.	753	1	42	42	0

74061	CPGSTN_1 13.800	G1	73	WAPA R.M.	753	1	40	40	0
74061	CPGSTN_1 13.800	G2	73	WAPA R.M.	753	1	40	40	0
74061	CPGSTN_1 13.800	S1	73	WAPA R.M.	753	1	24	24.8	0
74062	CPGSTN_2 13.800	G1	73	WAPA R.M.	753	1	40	40	0
74063	CPGSTN_3 13.800	G1	73	WAPA R.M.	753	1	40	40	0
74063	CPGSTN_3 13.800	G2	73	WAPA R.M.	753	1	40	40	0
74063	CPGSTN_3 13.800	S1	73	WAPA R.M.	753	1	20	24.8	0
76301	ARVADA1 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76302	ARVADA2 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76303	ARVADA3 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76305	BARBERC1 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76306	BARBERC2 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76307	BARBERC3 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76309	HARTZOG1 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76310	HARTZOG2 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76311	HARTZOG3 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76313	TK DVAR1 0.4800	1	73	WAPA R.M.	751	0	0	0.5	0
76314	TK DVAR2 0.4800	1	73	WAPA R.M.	751	0	0	0.5	0
76351	RCDC W 230.00	1	73	WAPA R.M.	751	1	34	200	0
76404	DRYFORK 19.000	1	73	WAPA R.M.	751	1	420	440	0
79015	CRAIG 1 22.000	1	73	WAPA R.M.	790	1	375	470	0
79016	CRAIG 2 22.000	1	73	WAPA R.M.	790	1	375	470	0
79017	CRAIG 3 22.000	1	73	WAPA R.M.	790	1	478	478	120
79019	MORRO1-2 12.500	1	73	WAPA R.M.	790	1	70	81	0
79019	MORRO1-2 12.500	2	73	WAPA R.M.	790	1	70	81	0
79040	HAYDEN1 18.000	1	73	WAPA R.M.	790	1	150	212	0
79041	HAYDEN2 22.000	1	73	WAPA R.M.	790	1	200	286	0
79123	FONTNLLE 4.1600	1	73	WAPA R.M.	790	1	7	11.111	0
79154	FLGORG1 11.500	1	73	WAPA R.M.	790	1	40	56.1	0
79155	FLGORG2 11.500	1	73	WAPA R.M.	790	1	40	56.1	0
79156	FLGORG3 11.500	1	73	WAPA R.M.	790	1	40	56.1	0

79157	BMESA1-2 11.500	1	73	WAPA R.M.	790	1	37	44	0
79157	BMESA1-2 11.500	2	73	WAPA R.M.	790	1	37	44	0
79158	NUCLA 1 13.800	1	73	WAPA R.M.	790	0	0	12	8
79159	NUCLA 2 13.800	1	73	WAPA R.M.	790	0	0	12	8
79160	NUCLA 3 13.800	1	73	WAPA R.M.	790	0	0	12	8
79161	NUCLA 4 13.800	1	73	WAPA R.M.	790	0	0	74	46
79162	CRYSTAL 11.500	1	73	WAPA R.M.	790	1	30	35	0
79164	TOWAOC 6.9000	1	73	WAPA R.M.	790	1	8	12.1	0
79166	MOLINA-L 4.2000	1	73	WAPA R.M.	790	1	3	4.9	0
79172	MOLINA-U 4.2000	1	73	WAPA R.M.	790	1	7	8.6	0
79176	MCPHEE 2.4000	1	73	WAPA R.M.	790	1	1	1.3	0
79251	QFATLAS1 13.800	1	73	WAPA R.M.	790	0	0	32.7	15
79251	QFATLAS1 13.800	2	73	WAPA R.M.	790	0	0	15.4	3
79252	QFATLAS2 13.800	3	73	WAPA R.M.	790	0	0	15.4	3
79252	QFATLAS2 13.800	4	73	WAPA R.M.	790	0	0	15.4	3

2026 Light Spring Generation Table

Bus Number	Bus Name	Id	Area Num	Area Name	Zone Num	In Service	PGen (MW)	PMax (MW)	PMin (MW)
1	SLVGEN 13.200	1	70	PSCOLORADO	710	1	0	1000	0
70069	CABCRKA 13.800	HA	70	PSCOLORADO	705	0	80	162	75
70070	CABCRKB 13.800	HB	70	PSCOLORADO	705	0	80	162	75
70083	CANON_55 13.800	C1	70	PSCOLORADO	712	0	0	18	0
70084	CANON_59 13.800	C1	70	PSCOLORADO	712	0	0	24	0
70104	CHEROK2 15.500	SC	70	PSCOLORADO	700	1	0	0	0
70106	CHEROK4 22.000	C4	70	PSCOLORADO	700	1	225	383	215
70119	COMAN_1 24.000	C1	70	PSCOLORADO	704	0	250	360	200
70120	COMAN_2 24.000	C2	70	PSCOLORADO	704	1	275.1056	365	200
70133	CTY_LAM 13.800	G1	70	PSCOLORADO	712	0	24.8	27	10
70135	CTY LAM 13.800	G2	70	PSCOLORADO	712	0	16.9	17	8

70145	CHEROK5 18.000	G5	70	PSCOLORADO	700	1	100	168	70
70146	CHEROK6 18.000	G6	70	PSCOLORADO	700	1	100	168	70
70147	CHEROK7 18.000	G7	70	PSCOLORADO	700	1	175	240	70
70160	E_CANON 69.000	G1	70	PSCOLORADO	712	0	0	8	0
70180	FRUITA 13.800	G1	70	PSCOLORADO	708	0	15	17	5
70306	PP_MINE 69.000	G1	70	PSCOLORADO	712	0	0	3	0
70310	PAWNEE 22.000	C1	70	PSCOLORADO	706	1	325	536	305
70314	MANCHEF1 16.000	G1	70	PSCOLORADO	706	0	130	140	45
70315	MANCHEF2 16.000	G2	70	PSCOLORADO	706	0	130	140	45
70334	PUB_DSLS 4.1600	G1	70	PSCOLORADO	712	0	0	25	0
70337	PUEBPLNT 14.000	G1	70	PSCOLORADO	712	0	0	20	5
70337	PUEBPLNT 14.000	G2	70	PSCOLORADO	712	0	0	9	0
70344	R.F.DSLS 4.1600	G1	70	PSCOLORADO	712	0	0	10	0
70350	RAWHIDE 24.000	C1	70	PSCOLORADO	706	1	283	304	45
70351	RAWHIDEA 13.800	GA	70	PSCOLORADO	706	0	65	70	40
70385	SHOSHA&B 4.0000	H1	70	PSCOLORADO	708	1	7	7	5
70385	SHOSHA&B 4.0000	H2	70	PSCOLORADO	708	1	8	8	5
70406	ST.VR_2 18.000	G2	70	PSCOLORADO	706	1	65	127	65
70407	ST.VR_3 18.000	G3	70	PSCOLORADO	706	1	65	132	65
70408	ST.VR_4 18.000	G4	70	PSCOLORADO	706	1	65	132	65
70409	ST.VRAIN 22.000	G1	70	PSCOLORADO	706	0	150	309	39
70487	JMSHAFR4 13.800	G4	70	PSCOLORADO	706	0	0	34.4	23
70487	JMSHAFR4 13.800	G5	70	PSCOLORADO	706	0	0	33.4	23
70490	JMSHAFR3 13.800	G3	70	PSCOLORADO	706	0	0	35.4	22
70490	JMSHAFR3 13.800	ST	70	PSCOLORADO	706	0	0	50.7	24
70493	JMSHAFR2 13.800	ST	70	PSCOLORADO	706	0	0	50.7	24
70495	JMSHAFR1 13.800	G1	70	PSCOLORADO	706	0	0	35.4	23
70495	JMSHAFR1 13.800	G2	70	PSCOLORADO	706	0	0	35.4	23
70498	QF_BCP2T 13.800	G3	70	PSCOLORADO	706	0	0	30.4	17
70498	QF_BCP2T 13.800	ST	70	PSCOLORADO	706	0	0	36.7	17
70499	QF_B4-4T 13.800	G4	70	PSCOLORADO	706	0	24	24	7

70499	QF_B4-4T 13.800	G5	70	PSCOLORADO	706	0	23	24	7
70500	QF_CPP1T 13.800	G1	70	PSCOLORADO	706	0	23	24	10
70500	QF_CPP1T 13.800	G2	70	PSCOLORADO	706	0	23	24	10
70501	QF_CPP3T 13.800	ST	70	PSCOLORADO	706	0	26	27	10
70503	PONNEQUI 26.100	W1	70	PSCOLORADO	754	1	5.7	30	0
70548	APT_DSLS 4.1600	G1	70	PSCOLORADO	712	0	0	10	0
70553	ARAP5&6 13.800	G5	70	PSCOLORADO	700	0	36	37	17
70553	ARAP5&6 13.800	G6	70	PSCOLORADO	700	0	36	37	17
70554	ARAP7 13.800	G7	70	PSCOLORADO	700	0	44	45	17
70556	QF_B4D4T 12.500	ST	70	PSCOLORADO	706	0	50	70	17
70557	VALMNT7 13.800	G7	70	PSCOLORADO	703	0	36	37	17
70558	VALMNT8 13.800	G8	70	PSCOLORADO	703	0	36	37	17
70560	LAMAR_DC 230.00	DC	70	PSCOLORADO	712	1	0	210	-210
70561	RAWHIDEF 18.000	GF	70	PSCOLORADO	706	0	128	138	50
70562	SPRUCE1 18.000	G1	70	PSCOLORADO	700	0	130	132	70
70563	SPRUCE2 18.000	G2	70	PSCOLORADO	700	0	130	136	69
70565	KNUTSON1 13.800	G1	70	PSCOLORADO	700	0	0	64.5	40
70566	KNUTSON2 13.800	G2	70	PSCOLORADO	700	0	0	64.5	40
70567	RAWHIDED 13.800	GD	70	PSCOLORADO	706	0	65	70	40
70568	RAWHIDEB 13.800	GB	70	PSCOLORADO	706	0	65	70	40
70569	RAWHIDEC 13.800	GC	70	PSCOLORADO	706	0	65	70	40
70577	FTNVL1&2 13.800	G1	70	PSCOLORADO	704	0	40	40	17
70577	FTNVL1&2 13.800	G2	70	PSCOLORADO	704	0	40	40	17
70578	FTNVL3&4 13.800	G3	70	PSCOLORADO	704	0	40	40	17
70578	FTNVL3&4 13.800	G4	70	PSCOLORADO	704	0	40	40	17
70579	FTNVL5&6 13.800	G5	70	PSCOLORADO	704	0	40	40	17
70579	FTNVL5&6 13.800	G6	70	PSCOLORADO	704	0	40	40	17
70580	PLNENDG1 13.800	G0	70	PSCOLORADO	700	0	4.8	5.5	1.7
70580	PLNENDG1 13.800	G1	70	PSCOLORADO	700	0	4.8	5.5	1.7
70580	PLNENDG1 13.800	G2	70	PSCOLORADO	700	0	4.8	5.5	1.7
70580	PLNENDG1 13.800	G3	70	PSCOLORADO	700	0	4.8	5.5	1.7

70580	PLNENDG1 13.800	G4	70	PSCOLORADO	700	0	4.8	5.5	1.7
70580	PLNENDG1 13.800	G5	70	PSCOLORADO	700	0	4.8	5.5	1.7
70580	PLNENDG1 13.800	G6	70	PSCOLORADO	700	0	4.8	5.5	1.7
70580	PLNENDG1 13.800	G7	70	PSCOLORADO	700	0	4.8	5.5	1.7
70580	PLNENDG1 13.800	G8	70	PSCOLORADO	700	0	4.8	5.5	1.7
70580	PLNENDG1 13.800	G9	70	PSCOLORADO	700	0	4.8	5.5	1.7
70585	PLNENDG3 13.800	G1	70	PSCOLORADO	700	0	7.2	8.4	0
70585	PLNENDG3 13.800	G2	70	PSCOLORADO	700	0	7.2	8.4	0
70585	PLNENDG3 13.800	G3	70	PSCOLORADO	700	0	7.2	8.4	0
70585	PLNENDG3 13.800	G4	70	PSCOLORADO	700	0	7.2	8.4	0
70585	PLNENDG3 13.800	G5	70	PSCOLORADO	700	0	7.2	8.4	0
70585	PLNENDG3 13.800	G6	70	PSCOLORADO	700	0	7.2	8.4	0
70585	PLNENDG3 13.800	G7	70	PSCOLORADO	700	0	7.2	8.4	0
70586	PLNENDG4 13.800	G1	70	PSCOLORADO	700	0	7.2	8.4	0
70586	PLNENDG4 13.800	G2	70	PSCOLORADO	700	0	7.2	8.4	0
70586	PLNENDG4 13.800	G3	70	PSCOLORADO	700	0	7.2	8.4	0
70586	PLNENDG4 13.800	G4	70	PSCOLORADO	700	0	7.2	8.4	0
70586	PLNENDG4 13.800	G5	70	PSCOLORADO	700	0	7.2	8.4	0
70586	PLNENDG4 13.800	G6	70	PSCOLORADO	700	0	7.2	8.4	0
70586	PLNENDG4 13.800	G7	70	PSCOLORADO	700	0	7.2	8.4	0
70587	PLNENDG2 13.800	G0	70	PSCOLORADO	700	0	4.8	5.5	1.7
70587	PLNENDG2 13.800	G1	70	PSCOLORADO	700	0	4.8	5.5	1.7
70587	PLNENDG2 13.800	G2	70	PSCOLORADO	700	0	4.8	5.5	1.7
70587	PLNENDG2 13.800	G3	70	PSCOLORADO	700	0	4.8	5.5	1.7
70587	PLNENDG2 13.800	G4	70	PSCOLORADO	700	0	4.8	5.5	1.7
70587	PLNENDG2 13.800	G5	70	PSCOLORADO	700	0	4.8	5.5	1.7
70587	PLNENDG2 13.800	G6	70	PSCOLORADO	700	0	4.8	5.5	1.7
70587	PLNENDG2 13.800	G7	70	PSCOLORADO	700	0	4.8	5.5	1.7
70587	PLNENDG2 13.800	G8	70	PSCOLORADO	700	0	4.8	5.5	1.7
70587	PLNENDG2 13.800	G9	70	PSCOLORADO	700	0	4.8	5.5	1.7
70588	RMEC1 15.000	G1	70	PSCOLORADO	700	1	82	147	82

70589	RMEC2 15.000	G2	70	PSCOLORADO	700	1	82	147	82
70591	RMEC3 23.000	G3	70	PSCOLORADO	700	1	120	292	52
70593	SPNDLE1 18.000	G1	70	PSCOLORADO	703	0	75	134	0
70594	SPNDLE2 18.000	G2	70	PSCOLORADO	703	0	75	134	0
70622	MIS_SITE 34.500	W1	70	PSCOLORADO	700	1	75	250	0
70635	LIMON1_W 34.500	W1	70	PSCOLORADO	700	1	60.3	201	0
70636	LIMON2_W 34.500	W2	70	PSCOLORADO	700	1	60.3	201	0
70637	LIMON3_W 34.500	W3	70	PSCOLORADO	700	1	60.3	201	0
70665	JKFUL_W1 0.6900	W1	70	PSCOLORADO	757	1	37.23	124.1	0
70666	JKFUL_W2 0.6900	W2	70	PSCOLORADO	757	1	37.74	125.8	0
70701	CO_GRN_E 34.500	W1	70	PSCOLORADO	712	1	24.3	81	10
70702	CO_GRN_W 34.500	W2	70	PSCOLORADO	712	1	24.3	81	10
70703	TWNBUTTE 34.500	W1	70	PSCOLORADO	712	1	22.5	75	0
70710	PTZLOGN1 34.500	W1	70	PSCOLORADO	706	1	60.3	201	0
70712	PTZLOGN2 34.500	W2	70	PSCOLORADO	706	1	36	120	0
70713	PTZLOGN3 34.500	W3	70	PSCOLORADO	706	1	23.85	79.5	0
70714	PTZLOGN4 34.500	W4	70	PSCOLORADO	706	1	52.5	175	0
70721	SPRNGCAN 34.500	W1	70	PSCOLORADO	706	1	18	60	0
70723	RDGCREST 34.500	W1	70	PSCOLORADO	752	1	8.91	29.7	0
70777	COMAN_3 27.000	C3	70	PSCOLORADO	704	1	675	788	450
70823	CEDARCK_1A 34.500	W2	70	PSCOLORADO	706	1	66	220	0
70824	CEDARCK_1B 34.500	W3	70	PSCOLORADO	706	1	24	80	0
70825	CEDARCK_2A 34.500	W1	70	PSCOLORADO	706	1	45	150	0
70826	CEDARCK_2B 34.500	W2	70	PSCOLORADO	706	1	30	100	0
70931	G-SANDHIL_PV34.500	S1	70	PSCOLORADO	710	1	10.4	16	0
70932	IBERDROLA_PV34.500	S2	70	PSCOLORADO	710	1	19.5	30	0
70933	COGENTRIX_PV34.500	S3	70	PSCOLORADO	710	1	19.5	30	0
70934	COMAN_PV 34.500	S1	70	PSCOLORADO	704	1	0	120	0
70935	SUNPOWER 34.500	S1	70	PSCOLORADO	710	1	33.8	52	0
70950	ST.VR_5 18.000	G5	70	PSCOLORADO	706	1	75	148	73
70951	ST.VR_6 18.000	G6	70	PSCOLORADO	706	1	76	147	76

71001	BAC_MSA GEN113.800	G1	70	PSCOLORADO	712	1	90	90.6	0
71002	BAC_MSA GEN213.800	G1	70	PSCOLORADO	712	1	90	90.6	0
71003	BAC_MSA GEN313.800	G1	70	PSCOLORADO	712	1	12	40	0
71003	BAC_MSA GEN313.800	G2	70	PSCOLORADO	712	0	0	40	0
71003	BAC_MSA GEN313.800	S1	70	PSCOLORADO	712	0	0	24.8	0
71004	BAC_MSA GEN413.800	G1	70	PSCOLORADO	712	0	0	40	0
71004	BAC_MSA GEN413.800	G2	70	PSCOLORADO	712	0	0	40	0
71004	BAC_MSA GEN413.800	S1	70	PSCOLORADO	712	0	0	24.8	0
71005	BAC_MSA GEN513.800	G1	70	PSCOLORADO	712	0	0	40	0
71009	BUSCHRWTG1 0.7000	G1	70	PSCOLORADO	712	1	4	28.8	0
71012	BUSCHRWTG2 0.6900	G2	70	PSCOLORADO	712	1	4	28.8	0
71015	BUSCHRWTG3 0.6900	G3	70	PSCOLORADO	712	1	4	28.8	0
72500	SPR GEN3 21.000	1	73	WAPA R.M.	790	1	415	452	165
72714	KC_GEN 0.6900	G1	73	WAPA R.M.	752	1	15.2	51.2	2.4
72742	RIDGEWAY 4.2000	1	73	WAPA R.M.	791	0	0	7.2	0
72742	RIDGEWAY 4.2000	2	73	WAPA R.M.	791	0	0	0.8	0
73054	ELBERT-1 11.500	1	73	WAPA R.M.	755	1	45	105.26	0
73105	LAPORTE 115.00	TP	73	WAPA R.M.	754	1	1.294	1.486	0
73129	MBPP-1 24.000	1	73	WAPA R.M.	753	1	341.3211	605	0
73130	MBPP-2 24.000	1	73	WAPA R.M.	753	1	300	605	0
73181	SIDNEYDC 230.00	1	73	WAPA R.M.	756	1	196	200	-200
73226	YELLO1-2 13.800	1	73	WAPA R.M.	750	1	28	65.789	0
73226	YELLO1-2 13.800	2	73	WAPA R.M.	750	1	28	65.789	0
73227	YELLO3-4 13.800	3	73	WAPA R.M.	750	1	28	65.789	0

73227	YELLO3-4 13.800	4	73	WAPA R.M.	750	1	28	65.789	0
73289	RCCT1 13.800	1	73	WAPA R.M.	751	0	0	17	0
73291	RCCT2 13.800	2	73	WAPA R.M.	751	0	0	17	0
73292	RCCT3 13.800	3	73	WAPA R.M.	751	0	0	17	0
73293	RCCT4 13.800	4	73	WAPA R.M.	751	0	0	17	0
73299	BIGTHOMP 4.2000	1	73	WAPA R.M.	754	1	3	4.5	0
73302	BRLNGTN1 13.800	1	73	WAPA R.M.	752	0	0	50.4	25
73303	BRLNGTN2 13.800	1	73	WAPA R.M.	752	0	0	50.4	25
73306	ESTES1 6.9000	1	73	WAPA R.M.	754	1	7	19.167	0
73307	ESTES2 6.9000	1	73	WAPA R.M.	754	1	7	19.167	0
73308	ESTES3 6.9000	1	73	WAPA R.M.	754	1	7	19.167	0
73316	GREENMT1 6.9000	1	73	WAPA R.M.	755	1	6	14.444	0
73317	GREENMT2 6.9000	1	73	WAPA R.M.	755	1	6	14.444	0
73319	MARYLKPP 6.9000	1	73	WAPA R.M.	754	1	4	10.35	0
73324	POLEHILL 13.800	1	73	WAPA R.M.	754	1	17	40.25	0
73328	WILLMFRK 2.4000	1	73	WAPA R.M.	755	1	2	3	0
73332	ALCOVA1 6.9000	1	73	WAPA R.M.	753	1	9	21.8	0
73333	BOYSEN1 4.2000	1	73	WAPA R.M.	750	1	4	7.5	0
73333	BOYSEN1 4.2000	2	73	WAPA R.M.	750	1	4	7.5	0
73334	BBILL1-2 6.9000	1	73	WAPA R.M.	750	1	4	6.67	0
73334	BBILL1-2 6.9000	2	73	WAPA R.M.	750	1	4	6.67	0
73339	HEART MT 2.4000	1	73	WAPA R.M.	750	1	3	6.9	0
73341	NSS2 13.800	2	73	WAPA R.M.	751	1	93	93.7	0
73347	SHOSHONE 6.9000	1	73	WAPA R.M.	750	1	2	3.33	0
73349	FREMONT1 11.500	1	73	WAPA R.M.	753	1	15	35.16	0
73350	FREMONT2 11.500	1	73	WAPA R.M.	753	1	15	35.16	0
73351	GLENDO1 6.9000	1	73	WAPA R.M.	753	1	7	19	0
73352	GLENDO2 6.9000	1	73	WAPA R.M.	753	1	7	19	0
73353	GUERNSY1 2.4000	1	73	WAPA R.M.	753	1	2	3.2	0
73356	KORTES1 6.9000	1	73	WAPA R.M.	753	1	6	13.3	0
73357	KORTES2 6.9000	1	73	WAPA R.M.	753	1	6	13.3	0

73358	KORTES3 6.9000	1	73	WAPA R.M.	753	1	6	13.3	0
73363	SEMINOE1-2 6.9000	1	73	WAPA R.M.	753	1	6	15	0
73363	SEMINOE1-2 6.9000	2	73	WAPA R.M.	753	1	6	15	0
73381	BIRDSAL1 13.800	1	73	WAPA R.M.	757	0	0	17.2	2.9
73382	BIRDSAL2 13.800	1	73	WAPA R.M.	757	0	0	17.2	2.9
73383	BIRDSAL3 13.800	1	73	WAPA R.M.	757	0	0	24.6	3.3
73389	BRIARGATE S 115.00	TP	73	WAPA R.M.	757	1	16.2	17	0
73395	CTTNWD S 34.500	TP	73	WAPA R.M.	757	1	16.2	17	0
73396	DRAKE E 34.500	TP	73	WAPA R.M.	757	0	0	9	0
73417	RD_NIXON 115.00	TP	73	WAPA R.M.	757	0	0	12	0
73418	RD_NIXON 20.000	1	73	WAPA R.M.	757	1	212.39	225.39	110.9
73424	TESLA1 13.800	1	73	WAPA R.M.	757	1	1.2	27.5	0.9
73427	DRAKE 5 13.800	1	73	WAPA R.M.	757	1	31.65	49.6	26.2
73428	DRAKE 6 13.800	1	73	WAPA R.M.	757	1	44.19	83.19	42.3
73429	DRAKE 7 13.800	1	73	WAPA R.M.	757	1	94.343	141.03	74.6
73434	NIXONCT1 12.500	1	73	WAPA R.M.	757	0	0	27	19.8
73435	NIXONCT2 12.500	1	73	WAPA R.M.	757	0	0	27	19.8
73438	ALCOVA2 6.9000	1	73	WAPA R.M.	753	1	9	21.8	0
73439	BBILL3-4 6.9000	1	73	WAPA R.M.	750	1	4	6.67	0
73441	SEMINOE3 6.9000	1	73	WAPA R.M.	753	1	6	15	0
73444	GUERNSY2 2.4000	2	73	WAPA R.M.	753	1	2.9	3.2	0
73448	FLATIRN1 13.800	2	73	WAPA R.M.	754	1	20	47.8	0
73449	FLATIRN2 13.800	1	73	WAPA R.M.	754	1	20	47.8	0
73449	FLATIRN2 13.800	3	73	WAPA R.M.	754	1	4	8.5	-10.16
73461	ELBERT-2 11.500	1	73	WAPA R.M.	755	1	45	105.26	0
73462	SPIRTMTN 6.9000	1	73	WAPA R.M.	750	1	3	5	0
73470	COLLEGLK 230.00	TP	73	WAPA R.M.	754	1	0.813	0.934	0
73499	CROSSRDS 115.00	TP	73	WAPA R.M.	754	1	0.212	0.243	0
73507	FTRNG1CC 18.000	1	73	WAPA R.M.	757	0	0	142	71
73508	FTRNG2CC 18.000	1	73	WAPA R.M.	757	0	0	142	71.6
73509	FTRNG3CC 21.000	1	73	WAPA R.M.	757	0	0	207	39.2

73520	BFDIESEL 4.1600	1	73	WAPA R.M.	751	0	0	10	0
73532	LINCOLN1 13.800	1	73	WAPA R.M.	752	1	44	64.5	40
73533	LINCOLN2 13.800	1	73	WAPA R.M.	752	0	0	64.5	40
73564	KETTLECK 34.500	TP	73	WAPA R.M.	757	1	16.2	17	0
73565	KELKER W 34.500	TP	73	WAPA R.M.	757	0	0	1.1	0
73600	COBBLAKE 115.00	TP	73	WAPA R.M.	754	1	0.769	0.883	0
73631	COHIWND_G1 0.6900	W	73	WAPA R.M.	752	1	20.1	67.1	12.3
73635	COHIWND_G2 0.6900	W	73	WAPA R.M.	752	1	7.1	23.1	0
74014	NSS_CT1 13.800	1	73	WAPA R.M.	751	0	0	40	0
74015	NSS_CT2 13.800	1	73	WAPA R.M.	751	0	0	40	0
74016	WYGEN 13.800	1	73	WAPA R.M.	751	1	93	93.7	0
74017	WYGEN2 13.800	1	73	WAPA R.M.	751	1	100	100	0
74018	WYGEN3 13.800	1	73	WAPA R.M.	751	1	110	110	0
74029	LNG_CT1 13.800	1	73	WAPA R.M.	751	0	0	40	0
74042	CLR_1 0.6000	1	73	WAPA R.M.	753	0	7	29.4	0
74043	SS_GEN1 0.6000	1	73	WAPA R.M.	753	0	7	42	0
74061	CPGSTN_1 13.800	G1	73	WAPA R.M.	753	1	38	40	0
74061	CPGSTN_1 13.800	G2	73	WAPA R.M.	753	0	0	40	0
74061	CPGSTN_1 13.800	S1	73	WAPA R.M.	753	0	0	24.8	0
74062	CPGSTN_2 13.800	G1	73	WAPA R.M.	753	0	0	40	0
74062	CPGSTN_2 13.800	G2	73	WAPA R.M.	753	0	0	40	0
74062	CPGSTN_2 13.800	S1	73	WAPA R.M.	753	0	0	24.8	0
74063	CPGSTN_3 13.800	G1	73	WAPA R.M.	753	0	0	40	0
74399	BHPLPLAN 13.800	1	73	WAPA R.M.	751	0	0	100	0
76301	ARVADA1 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76302	ARVADA2 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76303	ARVADA3 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76305	BARBERC1 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76306	BARBERC2 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76307	BARBERC3 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76309	HARTZOG1 13.800	1	73	WAPA R.M.	751	0	0	7.2	0

76310	HARTZOG2 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76311	HARTZOG3 13.800	1	73	WAPA R.M.	751	0	0	7.2	0
76313	TK DVAR1 0.4800	1	73	WAPA R.M.	751	0	0	0.5	0
76314	TK DVAR2 0.4800	1	73	WAPA R.M.	751	0	0	0.5	0
76351	RCDC W 230.00	1	73	WAPA R.M.	751	1	-130	200	0
76404	DRYFORK 19.000	1	73	WAPA R.M.	751	0	0	0	0
76502	SPFSHPRK 69.000	1	73	WAPA R.M.	751	0	0	4	0
79015	CRAIG 1 22.000	1	73	WAPA R.M.	790	1	351	470	0
79016	CRAIG 2 22.000	1	73	WAPA R.M.	790	1	351	470	0
79017	CRAIG 3 22.000	1	73	WAPA R.M.	790	1	373.8	478	120
79019	MORRO1-2 12.500	1	73	WAPA R.M.	790	1	35	81	0
79019	MORRO1-2 12.500	2	73	WAPA R.M.	790	1	35	81	0
79040	HAYDEN1 18.000	1	73	WAPA R.M.	790	1	183	202	95
79041	HAYDEN2 22.000	1	73	WAPA R.M.	790	1	260	285	125
79123	FONTNLLE 4.1600	1	73	WAPA R.M.	790	1	5	11.111	0
79154	FLGORG1 11.500	1	73	WAPA R.M.	790	1	24	56.1	0
79155	FLGORG2 11.500	1	73	WAPA R.M.	790	1	24	56.1	0
79156	FLGORG3 11.500	1	73	WAPA R.M.	790	1	24	56.1	0
79157	BMESA1-2 11.500	1	73	WAPA R.M.	790	1	19	44	0
79157	BMESA1-2 11.500	2	73	WAPA R.M.	790	1	19	44	0
79158	NUCLA 1 13.800	1	73	WAPA R.M.	790	0	0	12	8
79159	NUCLA 2 13.800	1	73	WAPA R.M.	790	0	0	12	8
79160	NUCLA 3 13.800	1	73	WAPA R.M.	790	0	0	12	8
79161	NUCLA 4 13.800	1	73	WAPA R.M.	790	0	0	74	46
79162	CRYSTAL 11.500	1	73	WAPA R.M.	790	1	15	35	0
79164	TOWAOC 6.9000	1	73	WAPA R.M.	790	1	6	12.1	0
79166	MOLINA-L 4.2000	1	73	WAPA R.M.	790	1	2	4.9	0
79172	MOLINA-U 4.2000	1	73	WAPA R.M.	790	1	4	8.6	0
79176	MCPHEE 2.4000	1	73	WAPA R.M.	790	1	1	1.3	0
79251	QFATLAS1 13.800	1	73	WAPA R.M.	790	0	0	32.7	15
79251	QFATLAS1 13.800	2	73	WAPA R.M.	790	0	0	15.4	3

79252	QFATLAS2 13.800	3	73	WAPA R.M.	790	0	0	15.4	3
79252	QFATLAS2 13.800	4	73	WAPA R.M.	790	0	0	15.4	3

APPENDIX F: Benchmark Cases San Luis Valley Load Tables

2026 Heavy Summer San Luis Valley Loads

Bus Number	Bus Name	Id	Area Num	Area Name	Zone Num	Zone Name	Owner Num	Owner Name	Pload (MW)	Qload (Mvar)
70024	ALMSA_ST 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	4.697	1.718
70025	ALMSA_TM 115.00	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	6.419	1.764
70025	ALMSA_TM 115.00	P3	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	6.158	2.487
70028	ANSEL_TS 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	4.41	0.12
70029	ANTONITO 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	2.677	1.097
70029	ANTONITO 69.000	P3	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.452	0.053
72480	CARMEL 115.00	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	8.39	1.9
70092	CENTER 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	12.85	3.65
70118	COCENTER 69.000	MU	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.5	0.493
70129	CREEDE 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	3.45	-1.14
70143	DELNORTE 69.000	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.526	0.935
70143	DELNORTE 69.000	P3	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.348	0.498
70187	FTGARLND 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	2.62	-0.209
70187	FTGARLND 69.000	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	3.126	0.559
70187	FTGARLND 69.000	P3	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.206	0.295
70221	HILANDSL 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	0.69	-0.23
70228	HOMELAKE	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.851	1.214

	69.000									
70228	HOMELAKE 69.000	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	5.589	2.826
70228	HOMELAKE 69.000	TS	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	3.34	0.97
70229	HOOPER 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	3.86	1.09
70509	KERBERCK 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.32	-0.012
70245	LAGARITA 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	6.43	1.82
70507	MEARSJCT 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	0.06	0.02
70289	MOFFAT 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.258	0.087
70289	MOFFAT 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	4.7	0.2
70292	MOSCA 69.000	NT	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	-7.942	0
70292	MOSCA 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.906	0.655
70600	OXCART 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	0.14	0
70325	PLAZA 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	10.9	3.09
70327	PONCHA 115.00	NT	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	-1.4	-1.01
70327	PONCHA 115.00	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	8.674	0.936
70360	RIOGRAND 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	3.089	1.48
70360	RIOGRAND 69.000	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	2.24	1.61
70367	ROMEO 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	3.084	1.692
70367	ROMEO 69.000	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	3.262	1.397
70506	SAGUACHE 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	2.464	-0.111
70375	SANLSVLY	TS	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.75	0.25

	230.00									
70379	SARGENT 115.00	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	6.338	5.176
70383	SFORK_SL 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	2.76	-0.91
70932	SOLAR_GE 34.500	TS	70	PSCOLORADO	710	ZONESL	700	NON UTILITY	0.03	0
70411	STANLEY 115.00	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	5.76	0.48
70467	WAVERLY 115.00	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	3.9	0.54
72481	ZINZER 115.00	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	5.07	1.13

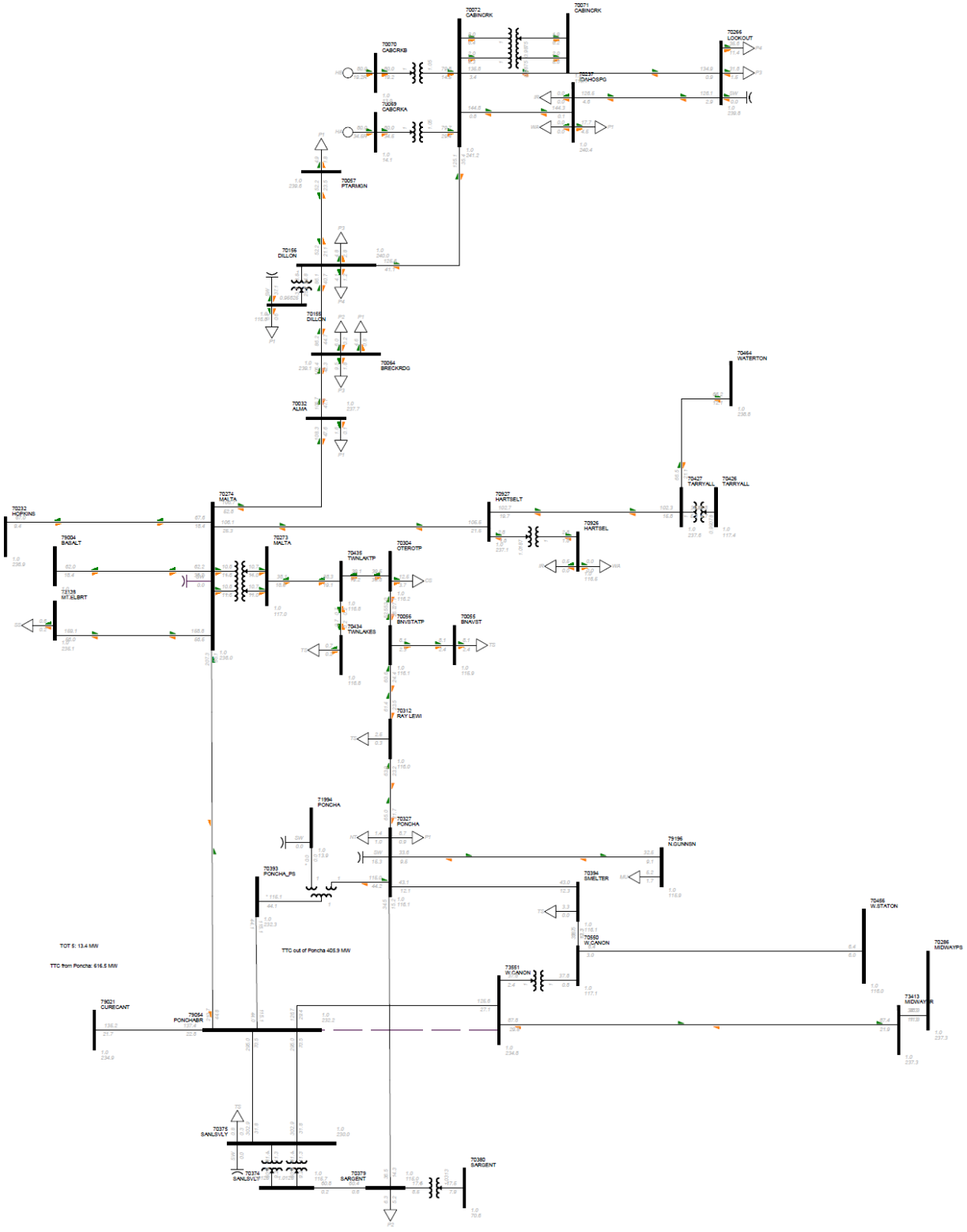
2026 Light Spring San Luis Valley Loads

Bus Number	Bus Name	Id	Area Num	Area Name	Zone Num	Zone Name	Owner Num	Owner Name	Pload (MW)	Qload (Mvar)
70024	ALMSA_ST 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	2.366	0.822
70025	ALMSA_TM 115.00	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	3.229	0.765
70025	ALMSA_TM 115.00	P3	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	3.098	1.132
70028	ANSEL_TS 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	0.96	0.03
70029	ANTONITO 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.347	0.52
70029	ANTONITO 69.000	P3	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.732	0.013
72480	CARMEL 115.00	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	3.77	0.99
70092	CENTER 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	4.88	1.39
70118	COCENTER 69.000	MU	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.34	0.44
70129	CREEDE 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	1.64	-0.54
70143	DELNORTE 69.000	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.768	0.456
70143	DELNORTE 69.000	P3	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.68	0.246
70187	FTGARLND 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.321	-0.124
70187	FTGARLND 69.000	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.573	0.229
70187	FTGARLND 69.000	P3	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.608	0.145

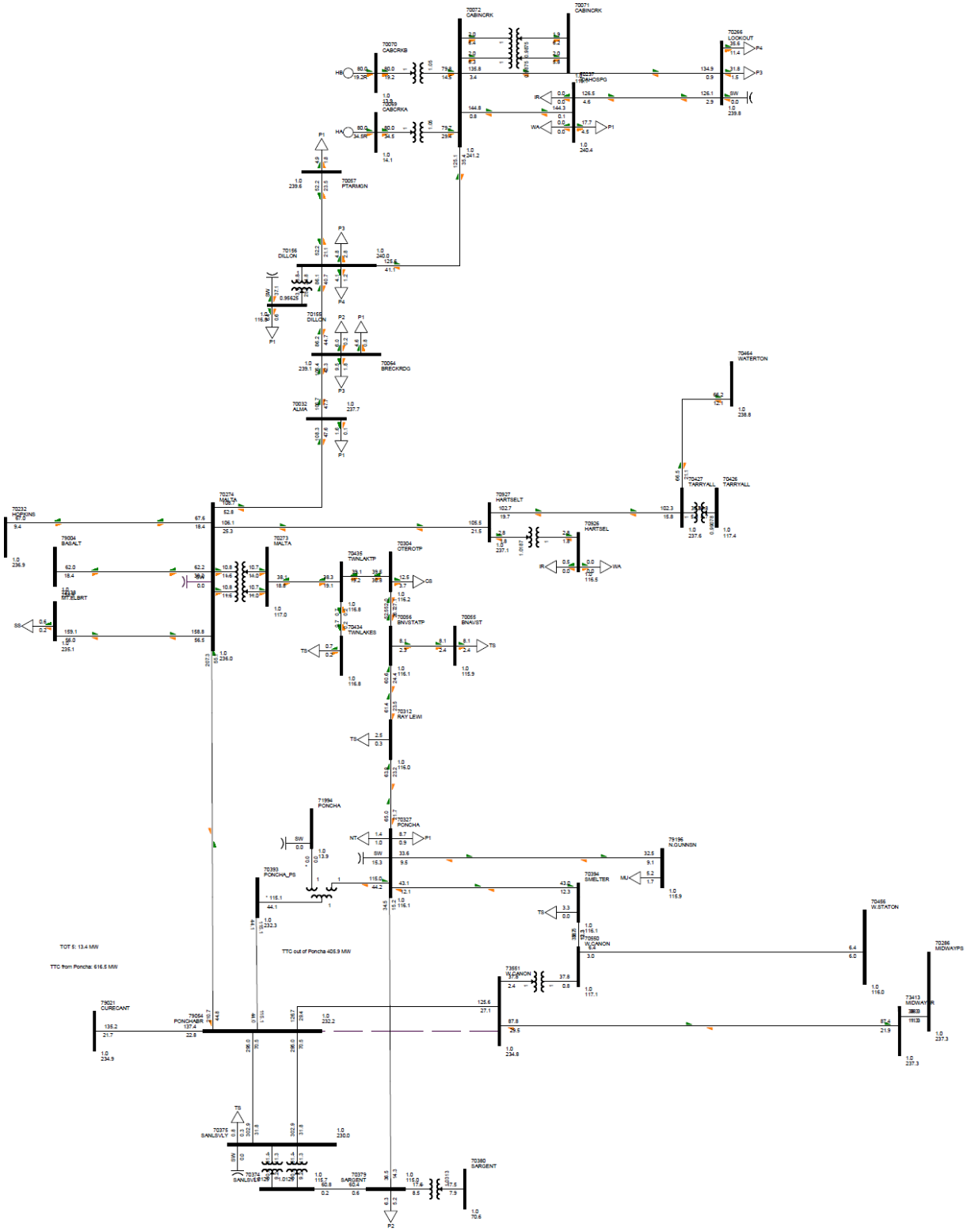
70221	HILANDSL 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	0.25	-0.08
70228	HOMELAKE 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.932	0.594
70228	HOMELAKE 69.000	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	2.812	1.355
70228	HOMELAKE 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	1.21	0.35
70229	HOOPER 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	1.1	0.31
70932	IBERDROLA_PV34.500	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	0	0
70509	KERBERCK 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.161	-0.008
70245	LAGARITA 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	1.83	0.52
70507	MEARSJCT 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	0.04	0.01
70289	MOFFAT 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.13	0.043
70289	MOFFAT 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	1.39	0.06
70292	MOSCA 69.000	NT	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	-7.942	-2.098
70292	MOSCA 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.961	0.323
70600	OXCART 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	0.03	0
70325	PLAZA 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	6.01	1.7
70327	PONCHA 115.00	NT	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	-1.399	0.019
70327	PONCHA 115.00	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	4.366	0.295
70360	RIOGRAND 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.555	0.701
70360	RIOGRAND 69.000	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.128	0.783
70367	ROMEO 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.544	0.812
70367	ROMEO 69.000	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.638	0.677
70506	SAGUACHE 69.000	P1	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	1.242	-0.072
70375	SANLSVLY 230.00	TS	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	0.56	0.18
70379	SARGENT 115.00	P2	70	PSCOLORADO	710	ZONESL	65	PSCOLORADO	3.189	2.452
70383	SFORK_SL 69.000	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	0.98	-0.32
70411	STANLEY 115.00	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	1.77	0.15
70467	WAVERLY 115.00	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	0.93	0.13
72481	ZINZER 115.00	TS	70	PSCOLORADO	710	ZONESL	73	TRI-STATE G&	1.58	0.35

APPENDIX G: Craig Unit 1 Retirement Data

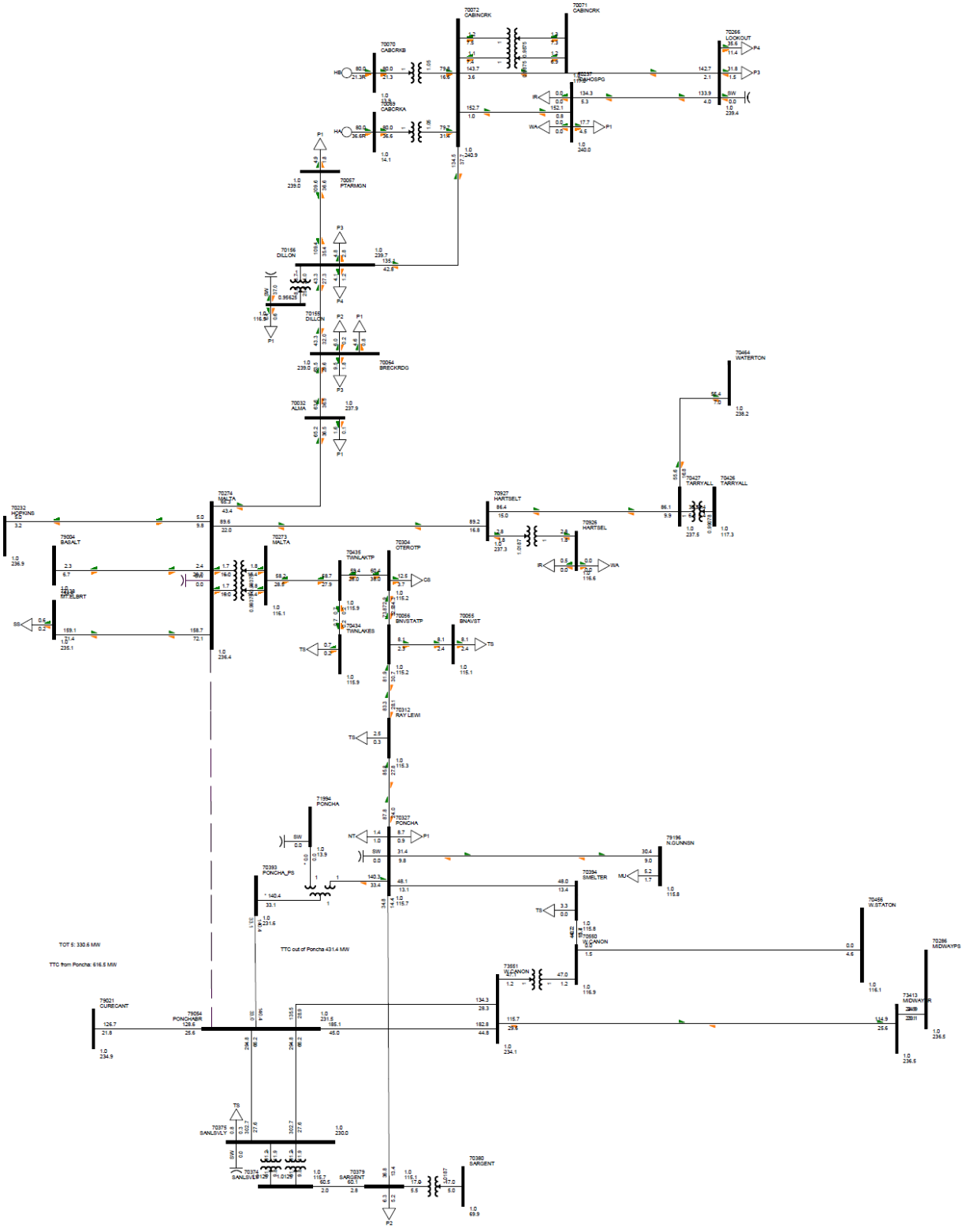
2026HS Alternative 1A TTC With Craig #1 In-Service



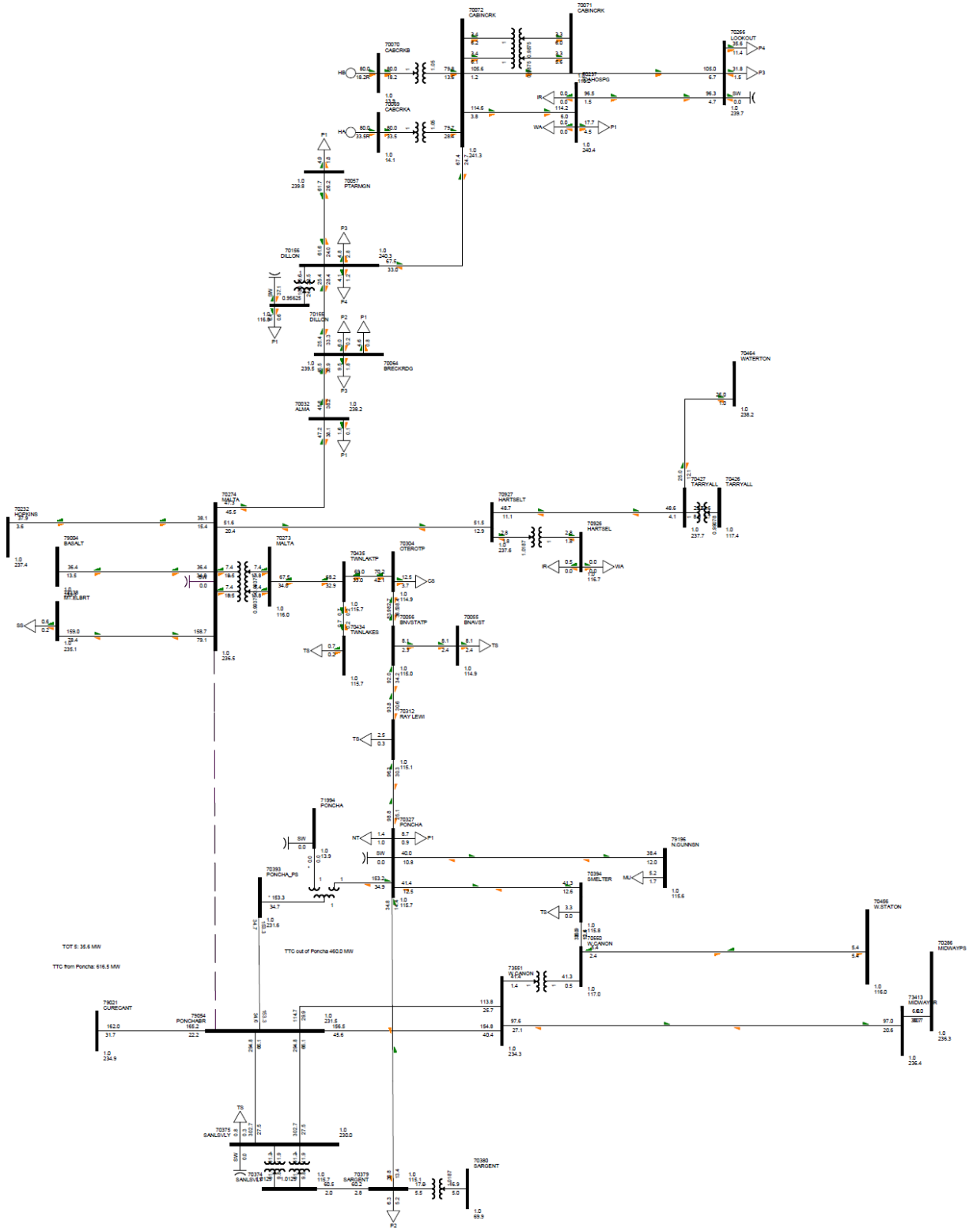
2026HS Alternative 1A TTC With Craig #1 Out-Of-Service



2026HS Alternative 2A TTC With Craig #1 In-Service



2026HS Alternative 2A TTC With Craig #1 Out-Of-Service



APPENDIX H: TOT 5 Stressed Data

Tables below are summary of TOT 5 Stressed findings

Case	Added Gen	TOT 5 (MW)	PON (M)	Limiting Element	Contingency	% Load	Element Rating (MVA)	Comments
BM	110	1000 MW	-44.3	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	60*	Terminal Equipment Limitations
BM	325	1000 MW	-256.1	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	102.6%	115	90F
BM	375	1000 MW	-304.8	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	120	
BM	75	1100 MW	-9.4	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.7%	60*	Terminal Equipment Limitations
BM	300	1100 MW	-231.7	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	102.6%	115	90F
BM	325	1100 MW	-256.1	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	101.4%	120	
BM	50	1200 MW	15.5	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	105.7%	60*	Terminal Equipment Limitations
BM	275	1200 MW	-207.3	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	102.0%	115	90F
BM	300	1200 MW	-231.7	Briargate S - Cottonwood S 115kV	Cottonwood N to Kettle Creek S 115 kV	100.0%	150	Normal Rating (97F)
BM	300	1200 MW	-231.7	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	120	

Case	Added Gen	TOT 5 (MW)	PON (M)	Limiting Element	Contingency	% Load	Element Rating (MVA)	Comments
BM w/ BH	125	1000 MW	-59.2	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	102.0%	60*	Terminal Equipment Limitations
BM w/ BH	300	1000 MW	-231.7	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	97.2%	115	90F
BM w/ BH	350	1000 MW	-280.5	Poncha - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	107.4%	120	90F
BM w/ BH	350	1000 MW	-280.5	W. Canon 230/115 T1	Canon West - Midway BR 230 kV	100.0%	100	
BM w/ BH	100	1100 MW	-34.4	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	106.0%	60*	Terminal Equipment Limitations
BM w/ BH	275	1100 MW	-207.2	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	96.5%	115	90F
BM w/ BH	325	1100 MW	-256.1	Poncha - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	106.8%	120	90F
BM w/ BH	325	1100 MW	-256.1	W. Canon 230/115 T1	Canon West - Midway BR 230 kV	102.6%	100	
BM w/ BH	50	1200 MW	15.5	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	101.5%	60*	Terminal Equipment Limitations
BM w/ BH	275	1200 MW	-207.3	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	102.1%	115	90F
BM w/ BH	275	1200 MW	-207.3	W. Canon 230/115 T1	Canon West - Midway BR 230 kV	100.0%	100	
BM w/ BH	300	1200 MW	-231.7	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	120	

Case	Added Gen	TOT 5 (MW)	PON (M)	Limiting Element	Contingency	% Load	Element Rating (MVA)	Comments
North	225	1000 MW	-158.1	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	60*	Terminal Equipment Limitations
North	670	1000 MW	-587.1	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	120	
North	670	1000 MW	-587.1	W.Canon 230/115 kV	Canon West - Midway BR 230 kV	100.0%	100*	
North	680	1000 MW	-596.5	Smeltertown- W. Canon	Poncha-Canon West 230 kV	100.0%	119	Switch Rating - Conductor Rated 141
North	175	1100 MW	-108.7	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	103.1%	60*	Terminal Equipment Limitations
North	610	1100 MW	-530.4	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	120	
North	610	1100 MW	-530.4	Brairgate S - Cottonwood S 115 kV	Cottonwood N - Kettle Creek S 115 kV	100.0%	150	Normal Rating (97F)
North	620	1100 MW	-539.9	W.Canon 230/115 kV	Canon West - Midway BR 230 kV	100.0%	100*	
North	125	1200 MW	-59.2	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	103.3%	60*	Terminal Equipment Limitations
North	550	1200 MW	-473.3	Briargate S - Cottonwood S 115kV	Cottonwood N to Kettle Creek S 115 kV	100.0%	150	Normal Rating (97F)
North	560	1200 MW	-482.8	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	120	
North	570	1200 MW	-492.3	W. Canon 230/115 T1	Poncha-Canon West 230 kV	100.0%	100	

Case	Added Gen	TOT 5 (MW)	PON (M)	Limiting Element	Contingency	% Load	Element Rating (MVA)	Comments
North w/ BH	225	1000 MW	-158.1	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	99.0%	60*	Terminal Equipment Limitations
North w/ BH	580	1000 MW	-501.9	W. Canon 230/115 T1	Canon West - Midway BR 230 kV	100.9%	100	
North w/ BH	670	1000 MW	-587.1	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	120	
North w/ BH	680	1000 MW	-596.5	Smeltertown- W. Canon	Poncha-Canon West 230 kV	100.0%	119	Switch Rating - Conductor Rated 141
North w/ BH	200	1100 MW	-133.4	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	103.9%	60*	Terminal Equipment Limitations
North w/ BH	530	1100 MW	-454.2	W. Canon 230/115 T1	Canon West - Midway BR 230 kV	100.0%	100	
North w/ BH	610	1100 MW	-530.4	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	120	
North w/ BH	610	1100 MW	-530.4	Briargate S - Cottonwood S 115kV	Cottonwood N to Kettle Creek S 115 kV	100.0%	150	Normal Rating (97F)
North w/ BH	150	1200 MW	-84.0	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	104.3%	60*	Terminal Equipment Limitations
North w/ BH	475	1200 MW	-401.4	W. Canon 230/115 T1	Canon West - Midway BR 230 kV	100.0%	100	
North w/ BH	550	1200 MW	-463.7	Briargate S - Cottonwood S 115kV	Cottonwood N to Kettle Creek S 115 kV	100.0%	150	Normal Rating (97F)
North w/ BH	560	1200 MW	-482.8	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	120	

Case	Added Gen	TOT 5 (MW)	PON (M)	Limiting Element	Contingency	% Load	Element Rating (MVA)	Comments
East	300	1000 MW	-231.6	Briargate S - Cottonwood S 115kV	Cottonwood N to Kettle Creek S 115 kV	100.0%	150	Normal Rating (97F)
East	375	1000 MW	-304.7	Poncha - Smelter Town 115 kV	West Canon 230/115 kV	100.0%	60*	Terminal Equipment Limitations
East	620	1000 MW	-539.8	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	100.0%	115	90F
East	225	1100 MW	-158.0	Briargate S - Cottonwood S 115kV	Cottonwood N to Kettle Creek S 115 kV	100.0%	150	Normal Rating (97F)
East	350	1100 MW	-280.4	Poncha - Smelter Town 115 kV	West Canon 230/115 kV	100.0%	60*	Terminal Equipment Limitations
East	610	1100 MW	-530.4	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	100.0%	115	90F
East	200	1200 MW	-133.4	Briargate S - Cottonwood S 115kV	Cottonwood N to Kettle Creek S 115 kV	100.0%	150	Normal Rating (97F)
East	325	1200 MW	-256.1	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	60*	Terminal Equipment Limitations
East	600	1200 MW	-520.9	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	100.0%	115	90F

Case	Added Gen	TOT 5 (MW)	PON (M)	Limiting Element	Contingency	% Load	Element Rating (MVA)	Comments
East w/ BH	300	1000 MW	-231.6	Briargate S - Cottonwood S 115kV	Cottonwood N to Kettle Creek S 115 kV	100.0%	150	Normal Rating (97F)
East w/ BH	400	1000 MW	-328.9	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	60*	Terminal Equipment Limitations
East w/ BH	620	1000 MW	-539.8	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	100.0%	115	90F
East w/ BH	225	1100 MW	-158.0	Briargate S - Cottonwood S 115kV	Cottonwood N to Kettle Creek S 115 kV	100.0%	150	Normal Rating (97F)
East w/ BH	375	1100 MW	-304.7	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	102.5%	60*	Terminal Equipment Limitations
East w/ BH	610	1100 MW	-530.3	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	100.0%	115	90F
East w/ BH	200	1200 MW	-133.4	Briargate S - Cottonwood S 115kV	Cottonwood N to Kettle Creek S 115 kV	100.0%	150	Normal Rating (97F)
East w/ BH	325	1200 MW	-256.1	Poncha - Smelter Town 115 kV	Poncha-Canon West 230 kV	100.0%	60*	Terminal Equipment Limitations
East w/ BH	600	1200 MW	-520.9	Buena Vista - Ray Lewis Tap 115 kV	Poncha-Canon West 230 kV	100.0%	115	90F

APPENDIX I: Indicative Level Cost Estimates for Alternatives

Element	Description	Cost Est. (Millions)
SLV – Poncha 230kV #2 Line (Phase 1)	Construct a new 62-mile, 230kV single circuit overhead transmission line. Convert 9 miles of 69 kV to 230 kV. New 115/69 kV substation. Poncha substation additions. San Luis Valley substation additions.	**$75M**
Alternative 1: Poncha – Malta 230kV (Phase 2)	Construct approximately 52 miles of new single circuit 230kV OH transmission line. Will require new easements/ROW. New line terminations and associated equipment at Poncha and Malta Substations.	**$100M**
Alternative 2: Poncha – W.Canon – Midway 230kV (Phase 2)	Construct approximately 88 miles of new single circuit 230kV and 115kV OH transmission line. Will require new easements/ROW. New line terminations and associated equipment at Poncha, West Canon and Midway Substations.	**$170M**