

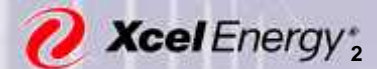
Public Service Company of Colorado Transmission Projects Status



CCPG

August 17, 2017

Reliability Projects



Generation Additions/Reductions

Name	Interconnection	Owner	Net MW	Type	ISD
Zuni 2 (retired)	Zuni	PSCo	-65	Coal	2015
Golden West	Fuller 230 kV	Golden West	250	Wind	2015
Hooper 1	San Luis Valley 230 kV	Solar Star	52	Solar (PV)	2015
Comanche Solar	Comanche 230 kV	Comanche Solar	120	Solar (PV)	2016
Cherokee 3 (retired)	Cherokee 115kV	PSCo	-152	Coal	2016
Cherokee 5,6, 7	Cherokee 115kV	PSCo	570	Gas (CC)	2016
Rush Creek	Missile Site 345 kV	PSCo	600	Wind	2018
2016 Electric Resource Plan	????				

Substations

➤ Completed

- Ridge 230 kV Uprate
- Happy Canyon (IREA Wholesale Load)
- Cloverly (Pleasant Valley - Retail Load)

➤ 2018

- Harvest Mile
- Bluestone Valley

➤ 2020

- Husky (Ault 44kV Replacement)
- Graham Creek (Easton 44kV Replacement)

➤ TBD

- Box Elder Replacement
- Reliability:
 - ▶ Bluestone Valley Phase 2

➤ Distribution

- Moon Gulch (2017)
- Avery (2019)
- Thornton (2019)
- Barker (2021: Banks 1,2; 2023, Bank 3)
- Conceptual:
 - ▶ New Castle
 - ▶ Wilson
 - ▶ Titan
 - Formerly Sterling Ranch
 - ▶ Dove Valley
 - Formerly Surrey Ridge
 - ▶ High Point
 - Formerly Pena Station
 - ▶ Stock Show
 - Formerly National Western
 - ▶ Solterra
 - ▶ Superior
 - ▶ Sandy Creek

Transmission

Completed

➤ 2016

- Cherokee – Ridge 230 kV Uprate
- Rifle – Parachute 230 kV #2
- DCP Lucerne 2 – Cloverly 115 kV

Planned

➤ 2018

- Rush Creek – Missile Site 345 kV

➤ 2019

- Pawnee – Daniels Park 345 kV

➤ 2020

- Ault – Cloverly 230/115 kV

➤ 2021

- Gilman – Avon 115 kV

➤ 2022

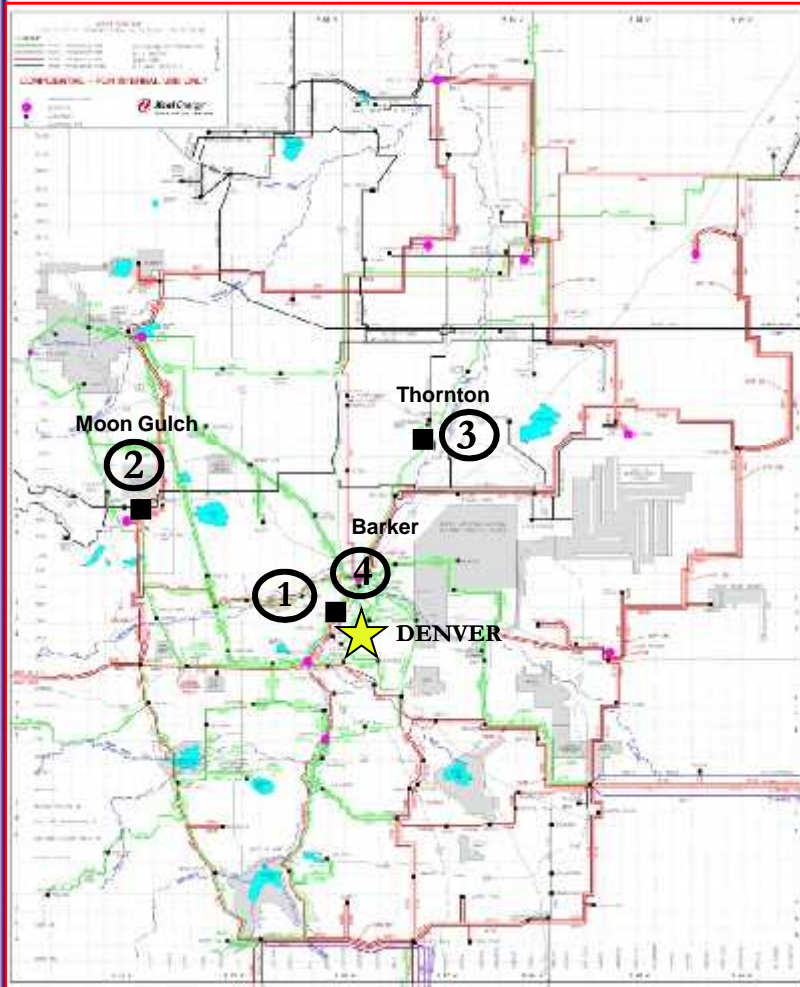
- South of Greeley Plan

Conceptual

- Glenwood – Rifle Upgrade
- Parachute – Cameo 230 kV
- Lamar – Front Range
- Hayden – Foidel – Gore Pass 230 kV Loop
- San Luis Valley – Poncha 230kV #2**
- Poncha – W. Canon – Midway 230kV #2

** TSGT lists SLV as 2022

Denver/Boulder

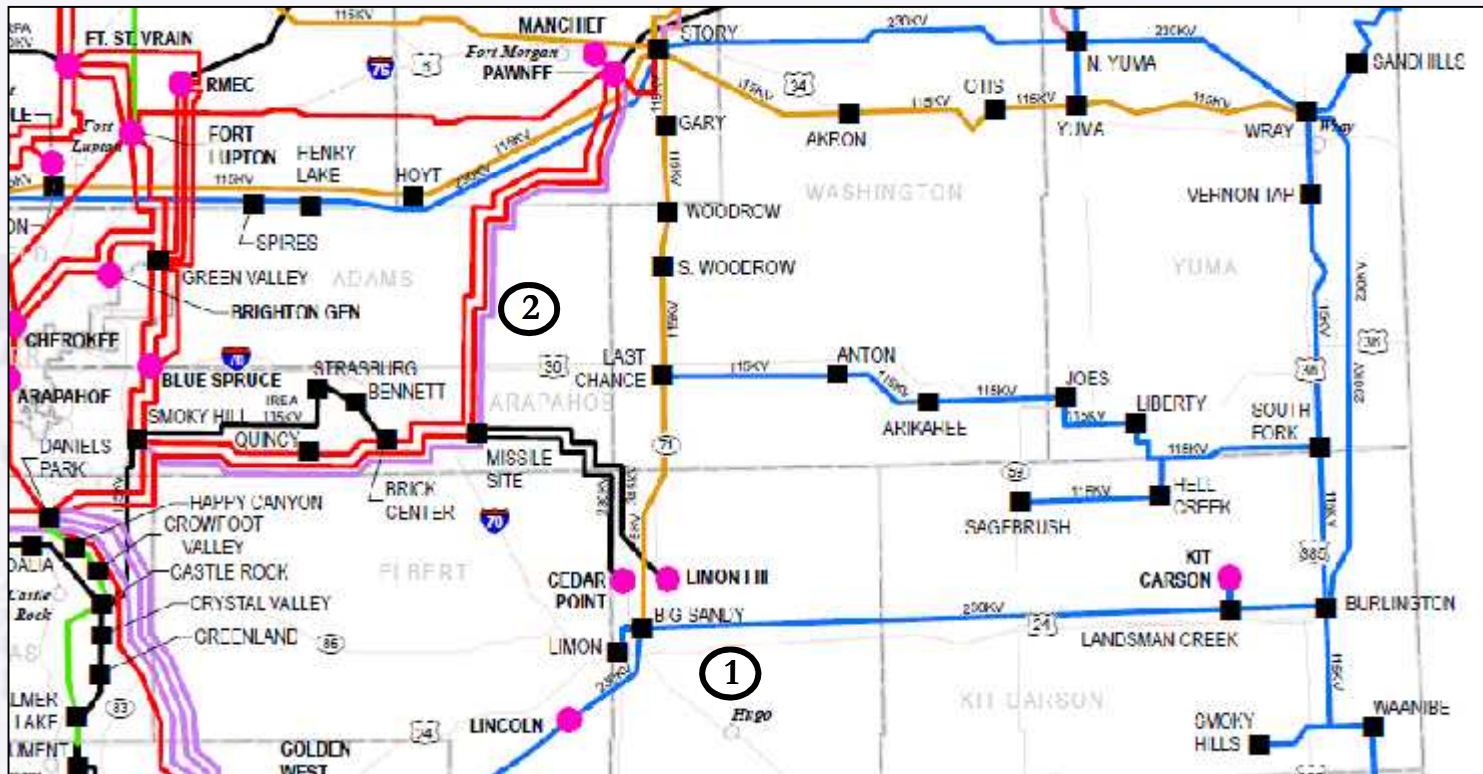


#	Project	Comments	ISD*	Drivers
1	Cherokee-Arvada-Ridge 230kV Conversion	Convert the existing 115kV line between the Cherokee and Ridge substations to a 230kV line.	2016	Reliability and Distribution
2	Moon Gulch Substation	Proposed new Distribution Substation in either the City of Arvada or Jefferson County to serve distribution loads	2017	Distribution
3	Thornton Substation	New substation in Thornton to serve distribution loads. Replaces the Brantner Substation project.	2019	Distribution
4	Barker Substation	New Substation in Denver Area to serve distribution load growth in Historic Ballpark Area	2021	Distribution

*All project in-service dates subject to change

East Plains Area

#	Project	Comments	ISD*	Drivers
1	Missile Site – Rush Creek 345 kV Transmission Line	New generation tie-line for the Rush Creek Wind Project	2018	Generation
2	Pawnee – Daniels Park 345 kV Transmission Line	Add an additional 345 kV line between the Pawnee and Daniels Park substations. Add Harvest Mile Substation near Smoky Hill	2019	Reliability



*All project in-service dates subject to change

Rush Creek Task Force (RCTF)

➤ **Process**

- **CCPG Task Force**

➤ **Scope:**

- **Evaluate Alternative Proposals to “Network” the Gen-Tie**
- **PSCo Facilitation**

➤ **Status:**

- **RCTF Kicked off December 2016**
- **Over 20 Proposals Considered**
- **Fourteen Alternatives Studied**
- **Final Report Drafted**

➤ **Plan**

- **Publish Report in September 2017**
- **Document Results in 2018 Rule 3627 Report (PSCo)**

Pawnee – Daniels Park Project

➤ Purpose

- Accommodate Resources
- SB07-100
- Reliability

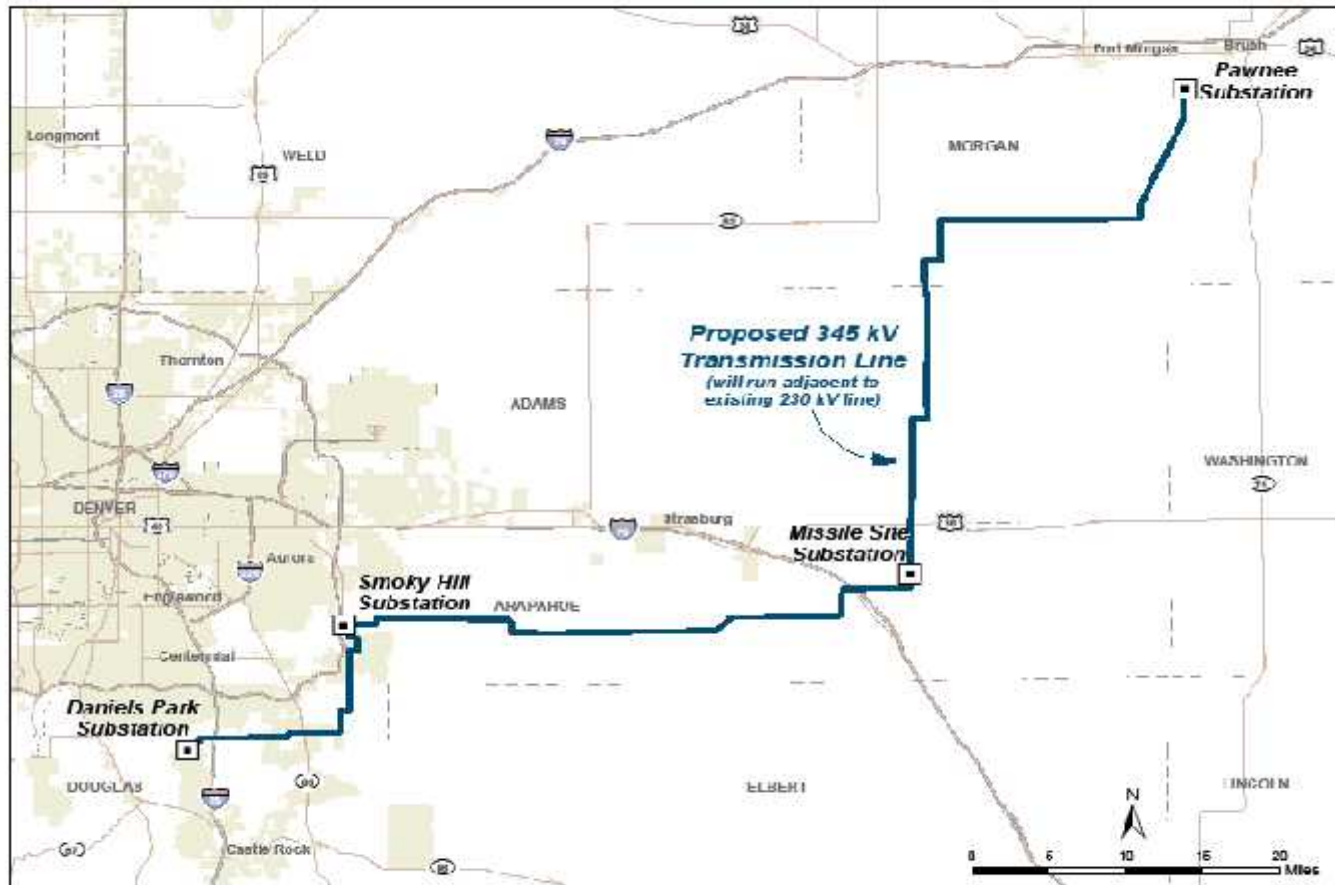
➤ Project Components

- Pawnee – Missile Site – Daniels Park 345 kV (115 miles)
- Smoky Hill – Daniels Park 345 kV line (21 miles)
- Entire Project within existing PSCo corridors
- About 51 miles already constructed
- New Harvest Mile Substation
- Cost Estimate ~ \$180 M

➤ Plan

- CPCN Filed 3/28/14
- CPCN Approved March 2015
- ISD 2019 (approved by PUC in Rush Creek Proceeding)

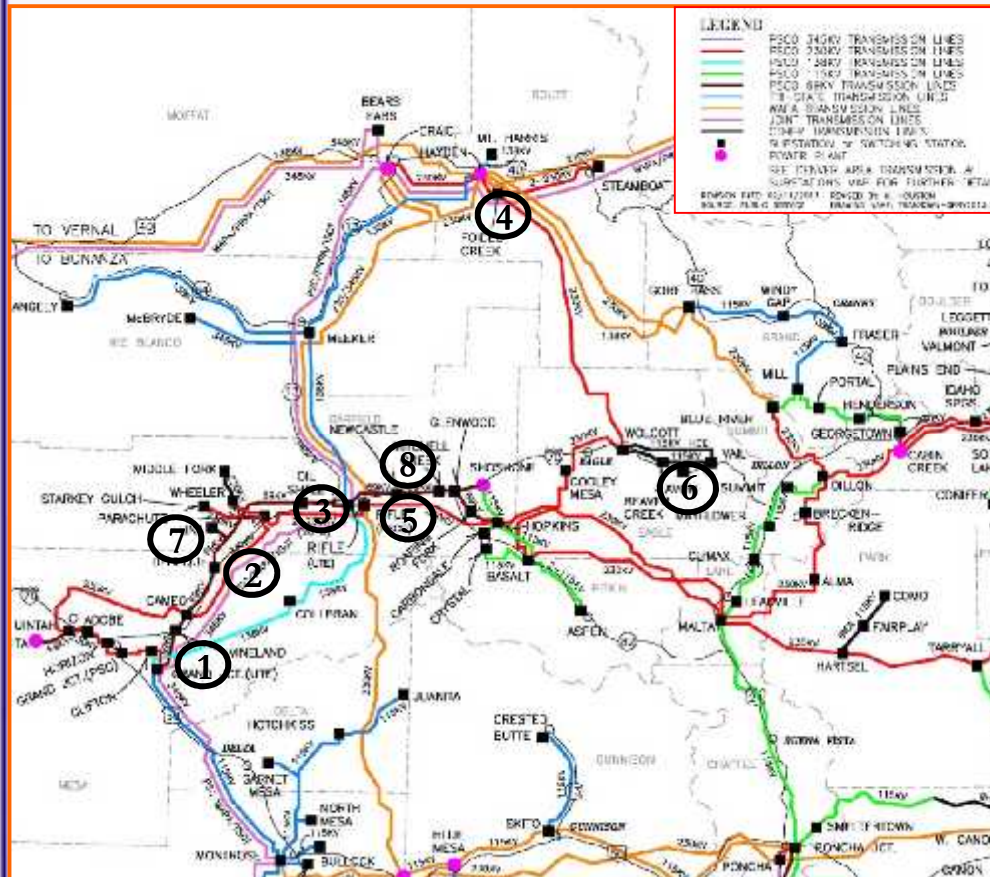
Pawnee - Daniels Park Project Map



Location: Morgan, Adams, Arapahoe, Elbert and Douglas counties

Infrastructure: 115-mile transmission line from Pawnee Substation to Daniels Park Substation and from Smoky Hill Substation to Daniels Park Substation

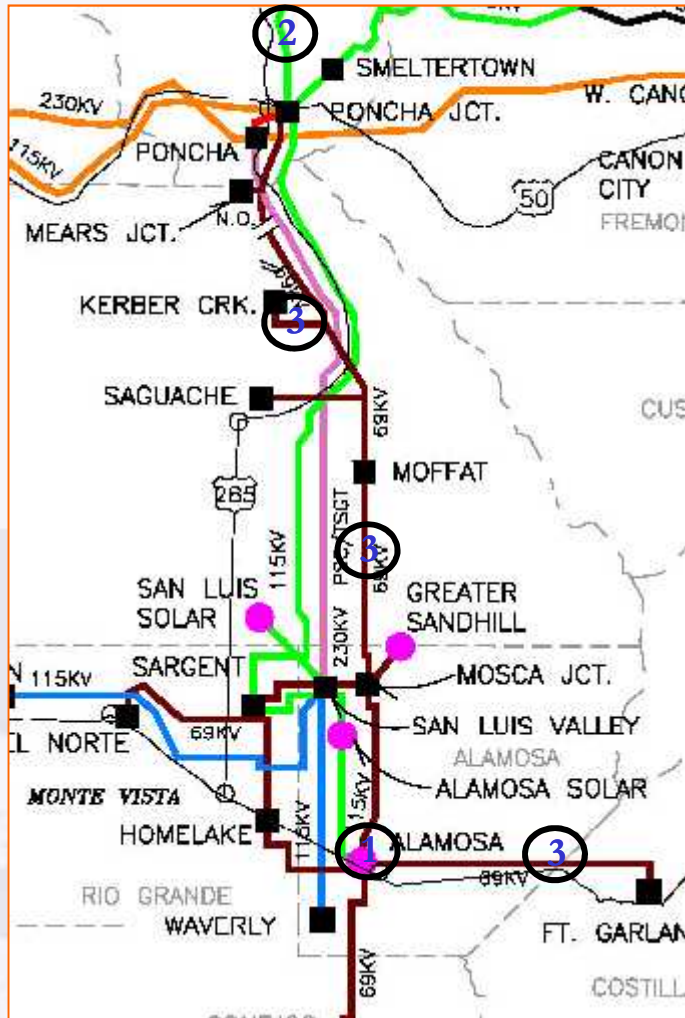
Western Slope / Mountain Area



#	Project	Comments	ISD*	Drivers
1	Bluestone Valley Substation	Phase 1: Construct the Bluestone Valley 69kV Switching Station with 69kV bus work, switches, breaker, and a 1.4-mile double circuit 69kV line from Bluestone Valley to an in-and-out tap of DeBeque-Cameo 69kV line. Phase 2: Construct the 230kV Bluestone Valley Substation that taps the Parachute-Cameo 230kV line, 230kV yard with 230kV ring bus, 230/69 kV transformer, bus work breakers, switches., etc.	Phase 1: 2018 Phase 2: TBD	Reliability
2	Foidel Creek 230kV Line Tap	Loop the Hayden-Gore Pass 230kV line into Foidel Creek Substation creating a Hayden-Foidel Creek 230kV Line #2 and a Foidel Creek-Gore Pass 230kV line.	TBD	Reliability
3	Glenwood-Rifle 69 to 115kV	Upgrade the Glenwood-Rifle 69 kV line to 115 kV.	TBD	Reliability
4	Gilman-Avon 115kV Line	Add a new 10-mile 115kV line in Eagle County for reliability and alternate source to Holy Cross customers	2021	Reliability
5	Parachute - Cameo 230kV Line	New 230 kV line from the Parachute substation to Cameo substation	TBD	Reliability
6	New Castle Substation	Construct a new 115 kV substation to serve Distribution loads in New Castle	TBD	Distribution

*All project in-service dates subject to change

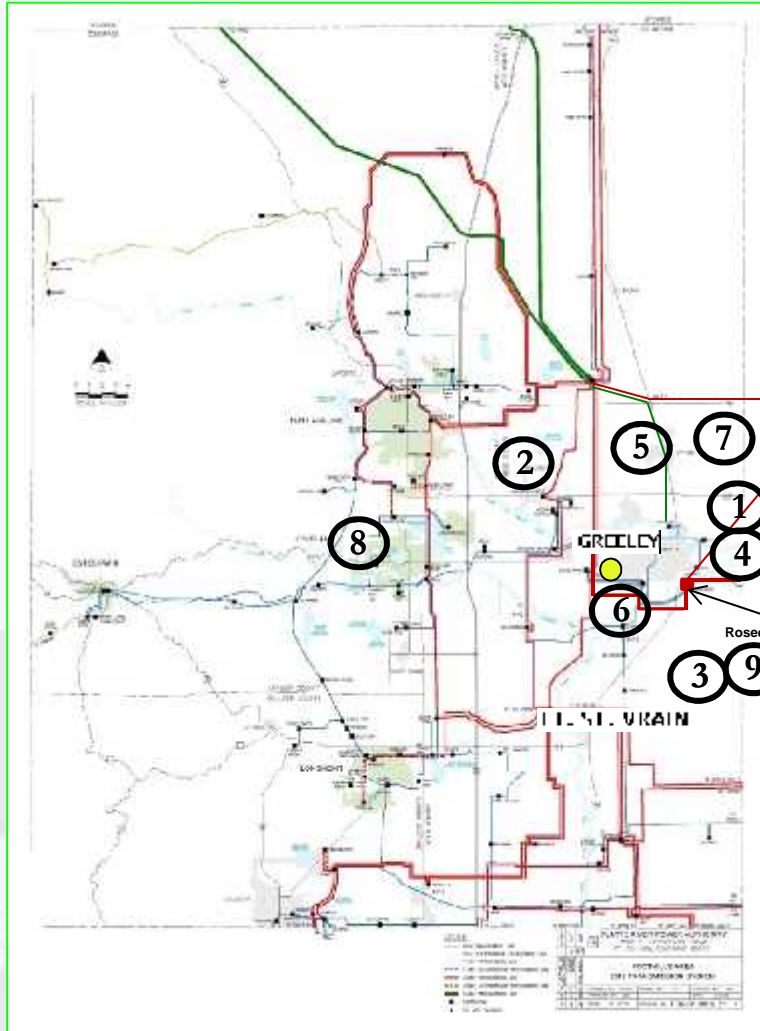
Proposed Transmission Projects San Luis Valley Area, 2016-2020



#	Project	Comments	ISD*	Drivers
1	Alamosa Bank #4 115/69kV Autotransformer	Installing a new 84 MVA 115/69kV at Alamosa Terminal to replace the aging 25 MVA bank.	1Q 2017	Reliability
2	Motor Operated Gang Switches at Otero Pump and Buena Vista Substation	Installing MOGs at Otero Pump and Buena Vista 115kV line to minimize restoration time.	2Q 2017	Reliability
3	Rebuilding 69kV lines (SLV-Poncha, Villa Grove-Kerber Ck, and Alamosa- Ft. Garland)	Rebuilding 69kV lines in the SLV area due to aging.	4Q 2017	Reliability

*All project in-service dates subject to change

Foothills/Greeley Area

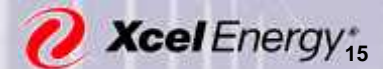


#	Project	Comments	ISD*	Drivers
1	Monfort – Cloverly 115 kV	Radial load serving 115 kV line to retail Customer facility	2016	Load Growth
2	Avery Substation	New distribution substation to serve loads in the area	2018	Distribution
3	Southwest Weld Transmission Project (SWEP)	Participate with Tri-State Project to improve reliability, increase load-serving and resource injection capability	2018	Reliability Load Growth Resource
4	Milton–Rosedale 230 kV	New line from Rosedale Substation to Milton Substation Combined with Weld – Rosedale 230kV line creates 230kV backbone south of Greeley.	2022	Reliability Load Growth
5	Ault – Cloverly 230/115kV Subs: Husky, Graham Ck.	New line from Ault Substation to Cloverly Substation. Create new substations near PSCo Ault and Eaton to move 44 kV loads to higher voltage.	2019	Reliability Load Growth Resource
6	Weld – Rosedale 230 kV Beebe Draw Substation (LaSalle Upgrade)	New line from Rosedale Substation to Ault Substation. Build a new 230 kV substation (Beebe Draw) to replace the existing 44kV La Salle Substation. Combined with Milton – Rosedale 230kV to create 230kV backbone south of Greeley.	2022	Reliability Load Growth
7	Weld County Expansion	High voltage transmission from Ault to Greeley	TBD	Reliability Resource
8	Wilson Substation	New 115kV substation to serve distribution loads. This project will tap PRPA's 115kV Horseshoe – West transmission line	TBD	Distribution
9	Box Elder Replacement	Convert 44kV Box Elder Substation to a 115kV substation to service growing loads in the area. Might tie into SWEP	TBD	Load Growth

*All project in-service dates subject to change



Public Policy Planning Senate Bill 07-100

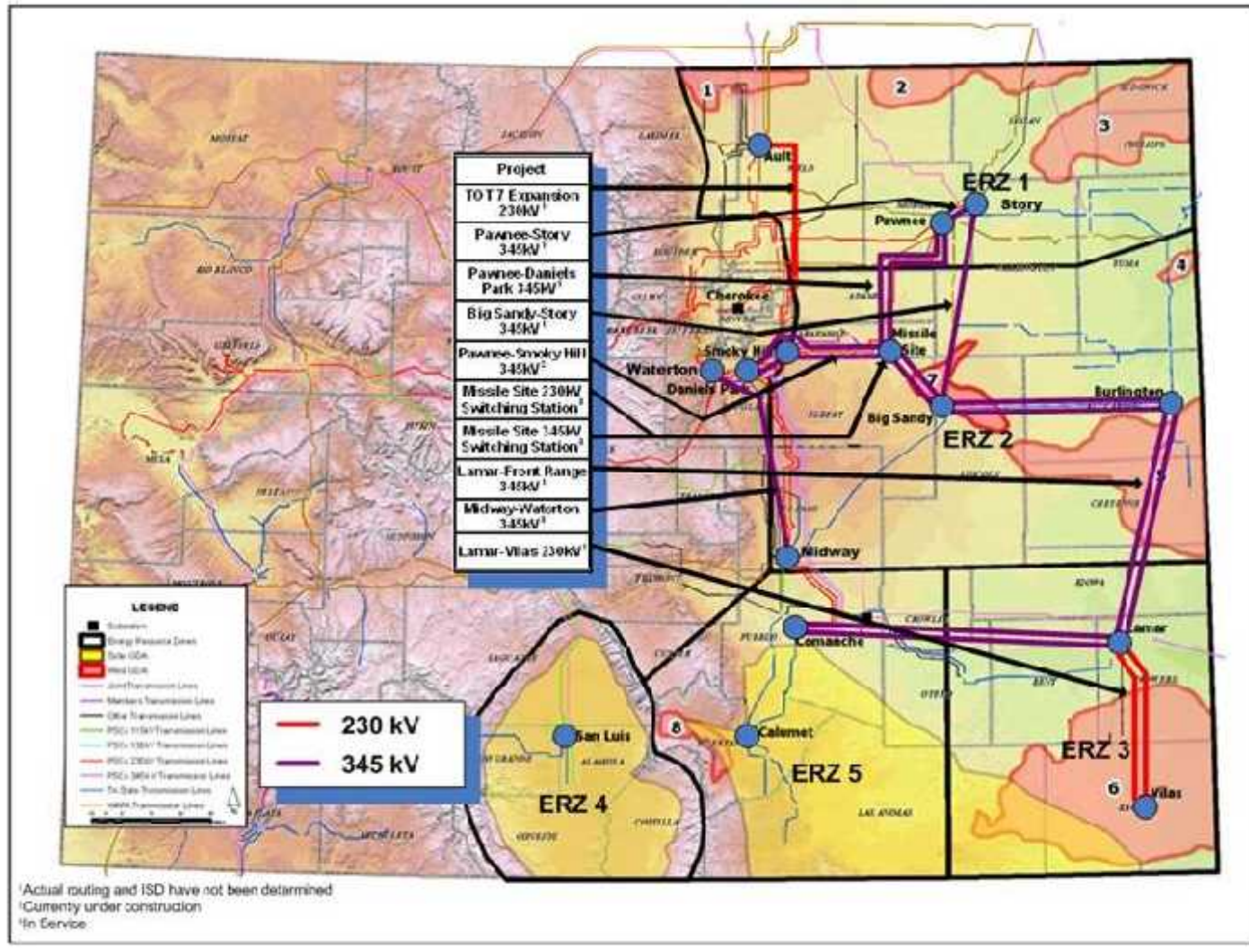


PSCo Public Policy

Senate Bill 07-100

- **Designate “Energy Resource Zones (ERZ)”**
- **Develop plans for the construction or expansion of transmission facilities necessary to deliver electric power consistent with the timing of the development of beneficial energy resources located in or near such zones**
- **Consider how transmission can be provided to encourage local ownership of renewable energy facilities**
- **Submit proposed plans, designations, and applications for certificates of public convenience and necessity to the commission**

Public Service Company of Colorado SB-100 Projects



Senate Bill 100 Project List

Item	Project	Zone	In Service Date*	Project Status
Planned				
1.	Missile Site 230kV Switching Station	2	Nov 2010	In Service No CPCN Required
2.	Midway - Waterton 345kV Transmission Project	3,4,5	Jun 2011	In Service CPCN: July 2009
3.	Missile Site 345kV Switching Station	2	October 2012	In service CPCN: June 2010
4.	Pawnee-Smoky Hill 345kV Transmission Project	1	June 2013	IN Service CPCN: Feb 2009
5.	Pawnee-Daniels Park 345kV Transmission Project	1	2019	CPCN: April 2015
Conceptual				
6.	Lamar-Front Range 345kV Transmission Project	2, 3	TBD	Studies Complete. No plans for full build-out at this time
7.	Lamar-Vilas 230kV Transmission Project	3	TBD	See Lamar – Front Range
8.	Northeast Colorado (Weld County Expansion)	1	TBD	Studies Ongoing CCPG – NECO Subcommittee
9.	San Luis Valley	4	TBD	Studies Complete Tri-State Lists 2022 ISD

*All project in-service dates subject to change



PSCo Regulatory Activities Rule 3627

Rule 3627

➤ **Source:**

- **Colorado Department of Regulatory Agencies**
- **Public Utilities Commission**
 - ▶ **4 Code of Colorado Regulations 723-3**
 - ▶ **Part 3 Rules Regulating Electric Utilities**
- **Rule 3627 Adopted in 2011**
- **Applies to Black Hills, Tri-State, Public Service**
- **Filing: 10-Year Transmission Plan & 20-Year Scenarios**
- **Two-Year Cycle**
 - ▶ **File in February of Even Years**
- **Stakeholder Opportunities for Participation**
- **Commission Determines Adequacy**

Rule 3627

➤ **Planning Process:**

- **Public Service Studies**
- **Colorado Coordinated Planning Group Studies**
- **Stakeholder Outreach**
- **Develop Report**

➤ **Report Content:**

- **Transmission Plan**
 - ▶ **Projects > 100 kV**
- **Methodology, Criteria, Assumptions**
- **Related Reports and Studies**
- **Summary of Stakeholder Participation**

Rule 3627 Filing History

- **2012 and 2014 Reports Deemed Adequate**
 - **PUC Held Workshops to Aid Decision**

- **2016 Report Filed February 2016**

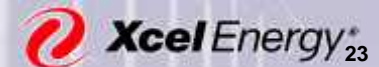
- **Proceeding Consolidated with SB07-100**

- **PUC Assigned to Administrative Law Judge (ALJ)**
 - **ALJ Requested Evidentiary Hearing**
 - **Hearing: December 6, 2016**
 - **Recommended Decision: July 31, 2017**
 - **Final PUC Decision Pending**

- **Next Filing: February 2018**



Xcel Energy Colorado Electric Resource Plan



PSCO/CCPG ERP Study

➤ **2016 ERP Phase 1 Filed May 27, 2016**

- **Acquire Generation Needed by 2023**
- **Envision Cost-Effective Gas, Wind, and Solar Generation**
- **PUC Approved PSCo Plan for Bidding**

➤ **July 11, 2017 Governor Announcement and Order**

- **Specific Goals for Carbon Reduction**
 - ▶ **26% from 2005 levels by 2025**
 - ▶ **25% from 2012 by 2025**
 - ▶ **35% from 2012 by 2033**

➤ **CCPG Study Plan (Proposed)**

- **Establish CCPG Forum**
- **Evaluate:**
 - ▶ **Retirement of Coal-Fired Generation**
 - ▶ **Additional Renewable Generation**
 - ▶ **Incremental Gas-Fired Generation**



Tom Green

(303) 571-7223

Thomas.Green@xcelenergy.com