



Public Service Company of Colorado

Senate Bill 100 Plans
&
Lamar Transmission CPCN

**CCPG Meeting
August 18, 2011**

Senate Bill 07-100

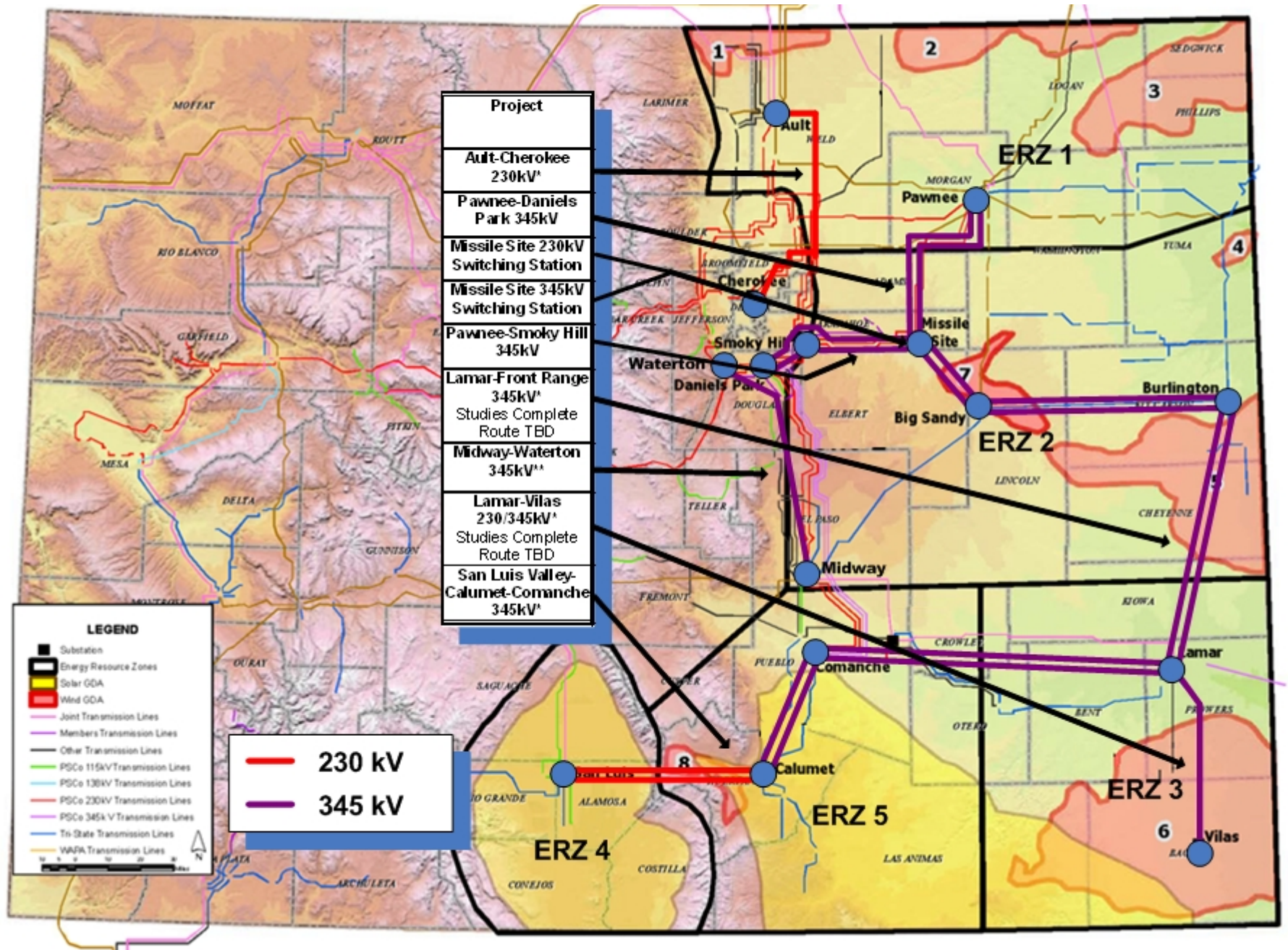
Senate Bill 100 requires

- ✓ Designate “Energy Resource Zones”
- ✓ Develop plans for expansion of transmission for delivering power from beneficial energy resource in or near such zones
- ✓ Submit proposed projects for CPCN
- ✓ File every other year in October –
- ✓ Next filing October 31, 2011

Senate Bill 07-100 Calendar

- **February 26, 2009: CPCN granted for Pawnee - Smoky Hill 345 kV transmission project**
- **May 14, 2009: CPCN filed for SLV – Calumet – Comanche Transmission Project**
- **October 30, 2009: SB-100 Biennial Report Filed**
- **June 2010: CPCN granted for Missile Site 345 kV substation**
- **December 2010: Recommended decision on SLV- Calumet – Comanche granting CPCN with conditions**
- **March 23 2011: PUC order addressing recommended decision for SLV (granting CPCN)**
- **April 2011: ARRR submitted by two intervenors for SLV**
- **2010-2011 Studies and stakeholder process on the Lamar-Front Range and Lamar Vilas projects.**
- **LFR CPCN application to be filed October 2011.**
- **SB100 Report to be filed October 2011**
- **<http://www.sb100transmission.com>**

SB-100 Project Map



*Indicates Actual Routing Has Not Been Determined
**Currently Under Construction

Senate Bill 100 projects

| Item | Project | Generation (MW) | In Service Date* | Project Status |
|------|---|-----------------|------------------|---|
| 1. | Missile Site 230kV Switching Station | 250 | In service | Project completed. |
| 2. | Missile Site 345kV Switching Station | 500 | 2013 | CPCN granted June 2010 |
| 3. | Pawnee-Smoky Hill 345kV Transmission project | | 2013 | CPCN granted Feb 2009 |
| 4. | Midway-Waterton 345kV Transmission Project | | June 2011 | CPCN granted May 2009 Project completed |
| 5. | San Luis Valley-Calumet-Comanche 345kV Transmission Project | 750 – 1400 | 2018 | ALJ Recommended decision on CPCN Dec 2011 and PUC order on the exceptions March 2011. |
| 6. | Lamar-Front Range 345kV •Lamar-Comanche 345kV •Lamar-Missile SitekV | 2000 | 2018-2019 | CPCN planned to be filed October 2011 |
| 7. | Lamar-Vilas 230kV Transmission Project | 600 | 2018-2019 | Part of LFR Project CPCN planned to be filed October 2011 |
| 8. | Pawnee-Daniels Park 345kV Transmission Project | 300 – 500 | - | Begin Studies in 2012 |
| 9. | Ault-Cherokee 230kV Transmission Project | 300 – 600 | - | TBD* |

*Project status and dates subject to change



Missile Site 230 kV

| | |
|--------------------|--|
| Sponsor | PSCo |
| Description | New 230 kV substation intersecting the Pawnee – Daniels Park 230 kV transmission line. |
| Purpose | Accommodate approximately 250 MW of resource additions from Energy Resource Zone (ERZ) 2. |
| Schedule | November 2010 - Completed |

Missile Site 345 kV

| | |
|--------------------|--|
| Sponsor | PSCo |
| Description | Expand the Missile Site Substation by constructing a 345 kV switchyard and intersect the planned Pawnee – Smoky Hill 345 kV transmission line. Connect with the existing 230 kV yard with a single 345/230 kV 560 MVA autotransformer |
| Purpose | Accommodate additional resources from Energy Resource Zone (ERZ) 2. |
| Schedule | 1/31/2013 – CPCN granted – on schedule |

Pawnee – Smoky Hill 345 kV Transmission Project

| | |
|--------------------|---|
| Sponsor | PSCo |
| Description | New 95 mile 345kV transmission line from the Pawnee Substation, through Missile Site Substation, to Smoky Hill Substation. |
| Purpose | Accommodate new resources from Energy Resource Zones (ERZ) 1 and 2. |
| Schedule | ISD of Jan 2013 – CPCN Granted Project is on schedule |

Midway - Waterton 345 kV Transmission Project

| | |
|--------------------|--|
| Sponsor | PSCo |
| Description | 82 miles of 345 kV transmission line between the Midway Substation, near Colorado Springs and the Waterton Substation, southwest of the Denver metro area |
| Purpose | Accommodate new generation resources in Energy Resource Zones 3, 4 and 5. Alleviates potential overloads on the Colorado Springs Utilities network |
| Schedule | Completed June 2011 |

San Luis Valley – Calumet – Comanche Transmission Project

| | |
|--------------------|---|
| Sponsor | PSCo |
| Description | New, double-circuit 230 kV transmission line from the San Luis Valley Substation to a new Calumet Substation, near Walsenburg, Colorado. New double-circuit 345 kV transmission from Calumet to the Comanche Substation. |
| Purpose | Accommodate new generation resources in ERZs 4 and 5 Improve system reliability to PSCo and Tri-State customers. This project can accommodate 750-1400 MW of resources in the San Luis Valley (ERZ4) and the Walsenburg/Comanche area (ERZ5) |
| Schedule | CPCN Granted 2011 ARRR decision pending ISD = 2018 |



Lamar – Front Range Transmission Project

| | |
|--------------------|---|
| Sponsor | PSCo, TSGT |
| Description | This project consists of three primary transmission components. <ol style="list-style-type: none">1. Lamar – Comanche 345kV double-circuit: approximately 125 miles2. Lamar - Energy Center – Burlington – Big Sandy – Missile Site 345kV double-circuit; apx. miles3. Lamar – Vilas 230kV double-circuit |
| Purpose | Accommodate new PSCo generation in ERZ 2 and 3 Accommodate Tri-State resource plans near Lamar Improve reliability to Lamar area loads and resources |
| Schedule | CPCN to be filed October 2011 ISD = 2018 – 2019 |



Pawnee – Daniels Park 345 kV Transmission Project

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|--------------------|--|
| Sponsor | PSCo |
| Description | New 345 kV transmission from the Pawnee Substation, north of the Denver-metro area, to the Daniels Park Substation, south of the Denver-metro area. The project will also result in a new Smoky Hill – Daniels Park 345 kV line |
| Purpose | Accommodate new generation resources in ERZs 1 and 2. Project also would improve system reliability. |
| Schedule | Tentative plan to begin studies in 2012 |

Ault – Cherokee 230 kV Transmission Project

| | |
|--------------------|---|
| Sponsor | PSCo |
| Description | New 85-mile 230kV transmission line from the Ault Substation to Cherokee Substation. This will consist of a single 59-mile line from Ault to just outside of Ft. Lupton. From this point the line will become a 26-mile double circuit line by rebuilding the existing 115kV line from Ft. Lupton to Cherokee, where one side will remain in operation at 115kV and the other side will be operated at 230kV, completing the Ault-Cherokee 230kV circuit |
| Purpose | Accommodate new generation resources from ERZ1 |
| Schedule | TBD |



Lamar Transmission Projects

Lamar – Front Range Scope

➤ **Purpose:**

- 1. SB100 project for PSCo: Alleviates constraints from ERZs 2, 3**
- 2. Facilitate Tri-State Resource Needs**
- 3. Improve reliability in SE Colorado**

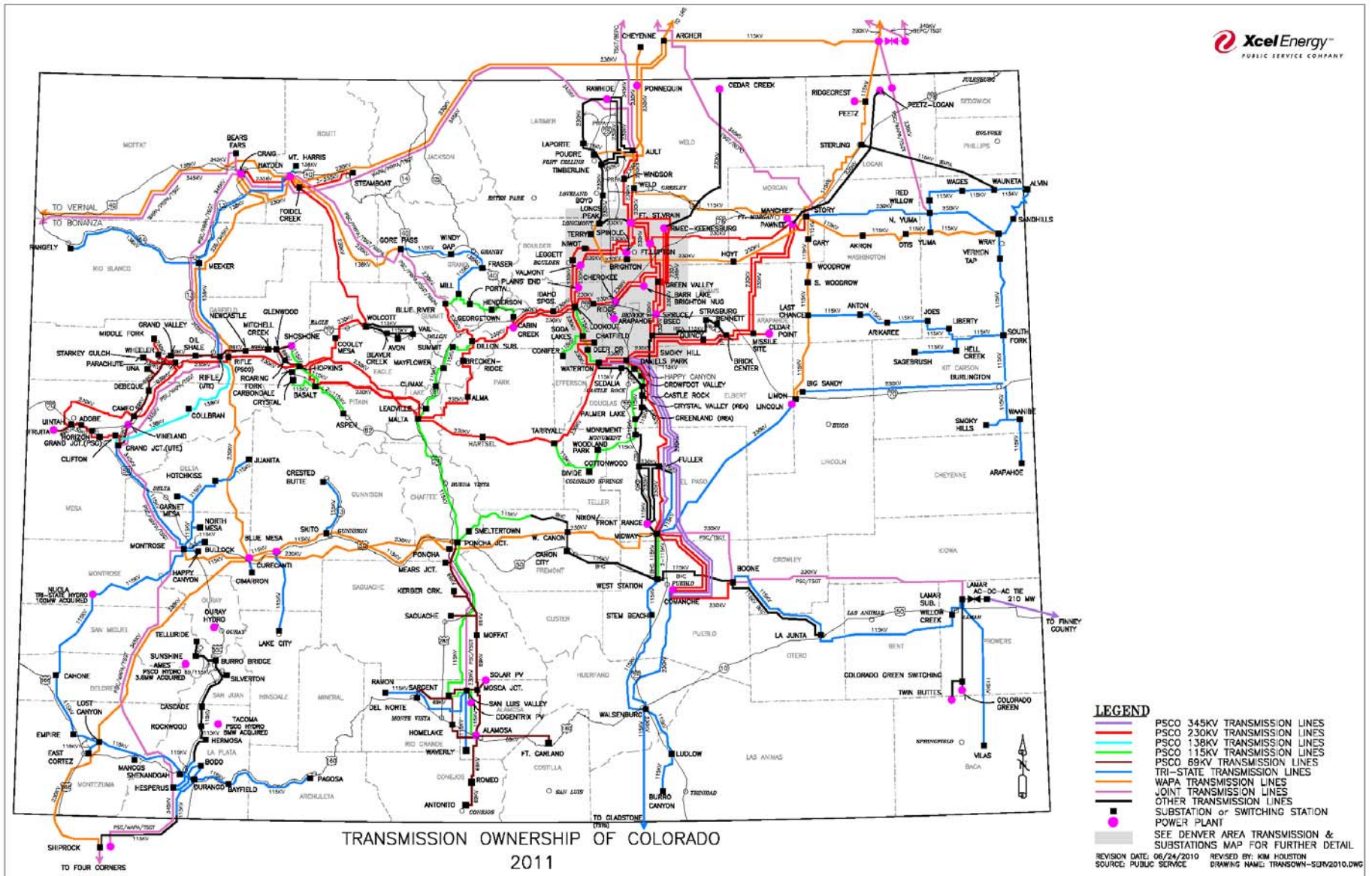
➤ **Process**

- **Studies 2010-2011**
- **Open process through CCPG**
- **30 participants**

➤ **Methodology**

- **Several alternatives**
- **Powerflow, Transient Stability**
- **Peak and Off-peak models**

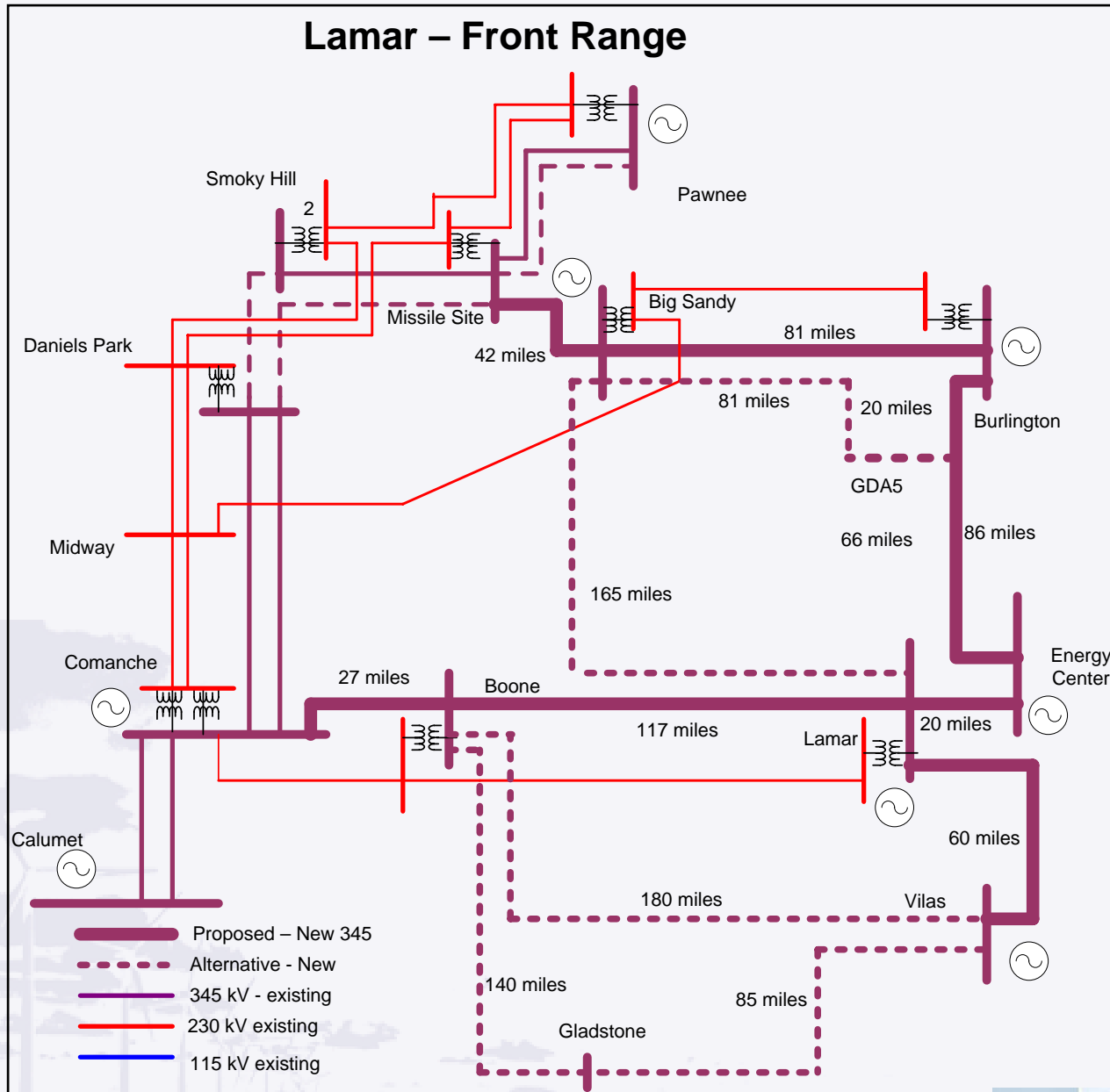
Transmission Map



LFR Sensitivities

- **Single/Double 345 kV**
- **“GDA5” Substation 20 miles south of Burlington**
- **Boone 345/230 kV Transformer**
- **Increase Comanche #3 and BH Generation**
- **Interconnection with Gladstone**
- **Vilas Transmission**
- **Peak / Off-Peak Loads**

Lamar – Front Range Alternatives



SB100 Schedule

- **Lamar – Front Range CPCN**
 - **Studies Complete**
 - **Technical Report Drafted**
 - **Ownership / Participation Agreements Under Development**
 - **Stakeholder Outreach Initiated**
 - **File CPCN October 2011**
- **SB100 Filing**
 - **Report Drafted**
 - **File October 2011**

SB100 Questions

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