

**Appendix A**  
**Black Hills Energy**  
**10-Year Transmission Projects**

## **Table of Contents**

<b>SB 07-100 Projects Summary .....</b>	<b>A-3</b>
Boone 230:115 kV Transformer #2 .....	A-5
La Junta Tri-State Interconnection .....	A-6
Pueblo-Hyde Park-West Station 115 kV Transmission Line .....	A-8
Rattlesnake Butte 115 kV Substation .....	A-10
Greenhorn-Reader 115 kV Transmission Line Rebuild .....	A-11
Reader-Rattlesnake Butte 115 kV .....	A-13
Transmission Line .....	A-13
<b>Transmission Projects Summary .....</b>	<b>A-15</b>
Baculite Mesa-Overton 115 kV Line Rebuild .....	A-16
Portland-West Station #2 115 kV Line & Substation Expansion/Upgrades .....	A-18
<b>Substation Projects Summary .....</b>	<b>A-20</b>
Cañon City 115 kV Capacitor Bank Project .....	A-21
Overton 115 kV Substation .....	A-22
<b>Distribution Projects Summary .....</b>	<b>A-24</b>
Reader 115/69 kV Transformer Replacement .....	A-25

## **SB 07-100 Projects Summary**

Senate Bill 07-100 (SB-100) was passed by the Colorado legislature and signed by the Governor in 2007. This bill determined that a robust electric transmission system is critical to ensuring the reliability of electric power for Colorado citizens and Colorado's vibrant economy. It also determined that a high quality of life depends on the continued availability of clean, affordable, reliable electricity. Therefore, Colorado utilities should continually evaluate the adequacy of electric transmission facilities throughout the state, and be encouraged to promptly and efficiently improve such infrastructure as required to meet the state's existing and future energy needs.

The legislation requires Public Service Company of Colorado ("PSCo") and Black Hills/Colorado Electric Utility Company, L.P. ("Black Hills") to:

- Designate "Energy Resource Zones" ("ERZs"). An ERZ is defined as "a geographic area in which transmission constraints hinder the delivery of electricity to Colorado consumers, the development of new electric generation facilities to serve Colorado consumers, or both."
- Develop plans for transmission necessary to deliver the electric power consistent with the timing of development of energy resources in or near each zone.
- Consider how transmission can be provided to encourage local ownership of renewable energy facilities.
- Submit proposed plans, designations, and applications for Certificate of Public Convenience and Necessity (CPCN).

Regulated utilities are required to file a report with the Colorado Public Utilities Commission (“COPUC”) on or before October 31 of each odd number year with the most recent filing in October 2011.

In 2011, the SB-100 studies focused on increasing transfer capability in or around the ERZs identified by the participating utilities. Analysis was performed which focused on projects that upgrade the primary delivery system of the transmission network. With the exception of minor terminal equipment upgrades, the 2011 analysis determined that four previously planned BHE transmission projects met the criteria for reliable delivery of beneficial resources to customer load as required by SB-100.

The COPUC has determined that no CPCN was required for the Reader-Rattlesnake Butte 115 kV project, which includes a new 115 kV Rattlesnake Butte substation and the rebuild of the Reader-Greenhorn 115 kV line. The La Junta Tri-State Interconnection Project was also determined to be in the ordinary course of business, as well as the rebuild of the Pueblo-Hyde Park-West Station 115 kV line. A final decision on the second Boone 230/115 kV transformer is pending.

## Boone 230:115 kV Transformer #2

**Project Sponsor:** Black Hills Energy  
**Additional Project Participants:** PSCo and TSG&T  
**Project Description:** Second 230/115 kV 150 MVA transformer at Boone substation.

Voltage Class: 230 kV  
Facility Rating:  
Point of Origin/Location: Boone 230 kV substation (near Boone, CO)  
Point of Termination:  
Intermediate Points:  
Length of Line (in Miles):  
Type of Project: Substation  
Development Status: Planned  
Routing:  
Subregional Planning Group: CCPG

**Purpose of Project:** Increased reliability in the Rocky Ford/La Junta area.

**Estimated Cost (in 2011 Dollars):** \$5,300,000

### **Schedule:**

Construction Date: 2013  
Planned In-Service Date: 2013  
Regulatory Info: Pending  
Regulatory Date:  
Permitting Info:  
Permitting Date:

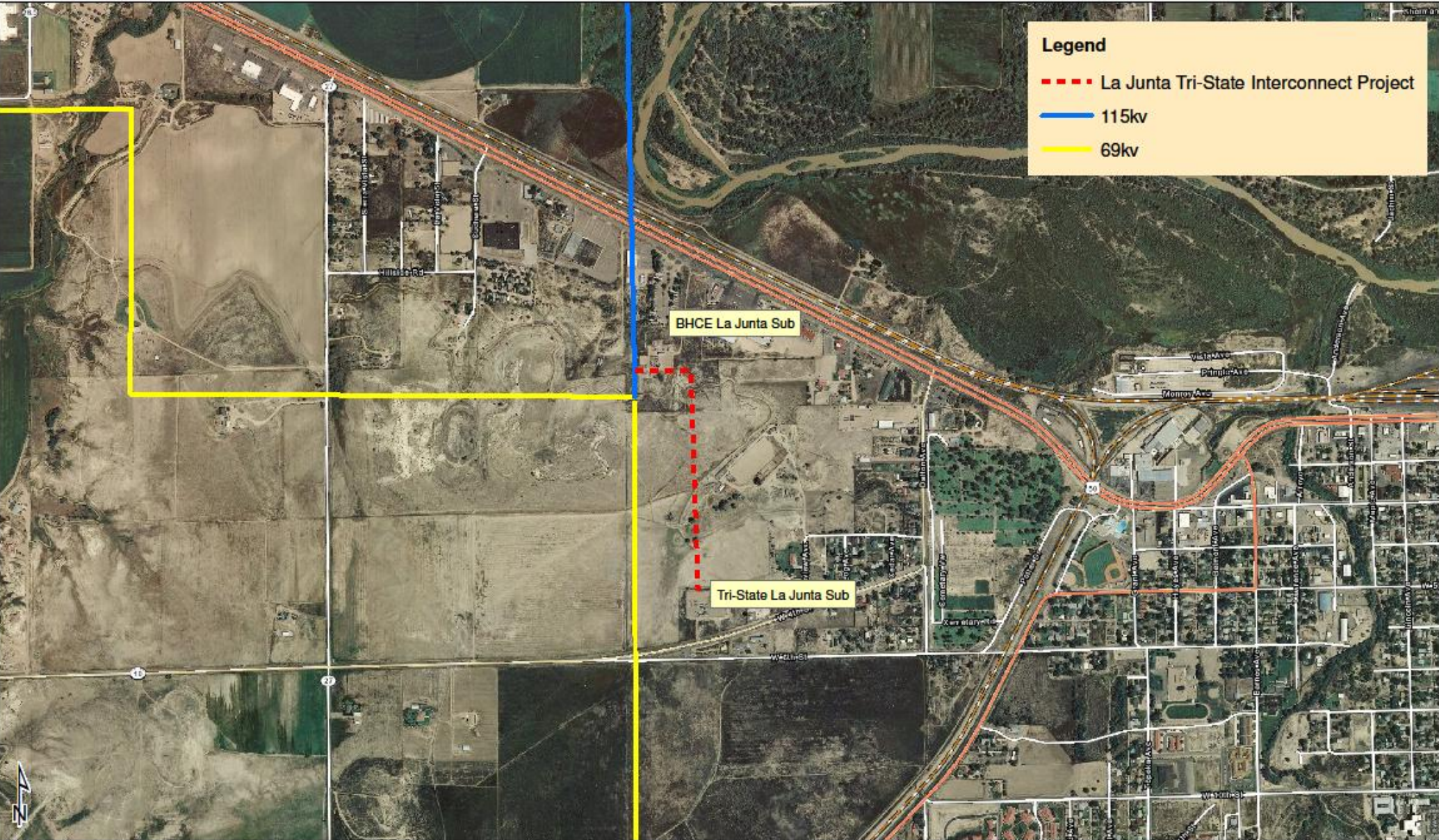
**Contact Information:** Eric Egge  
Email: eric.egge@blackhillscorp.com  
Phone: 605-721-2646  
Website Information: Pending

# La Junta Tri-State Interconnection

<b>Project Sponsor:</b>	Black Hills Energy
<b>Additional Project Participants:</b>	TSG&T
<b>Project Description:</b>	Add capacity at BHE LaJunta and add new 0.5 mile 115 kV line to TSG&T LaJunta substation (Final La Junta Tie Study_041609.pdf).
Voltage Class:	115 kV
Facility Rating:	222 MVA
Point of Origin/Location:	Black Hills Energy LaJunta 115 kV substation
Point of Termination:	TriState LaJunta 115 kV substation
Intermediate Points:	
Length of Line (in Miles):	1
Type of Project:	Substation
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
<b>Purpose of Project:</b>	Improved reliability in the LaJunta area.
<b>Estimated Cost (in 2011 Dollars):</b>	\$6,000,000
<b>Schedule:</b>	
Construction Date:	2013
Planned In-Service Date:	2014
Regulatory Info:	Approved - Colorado PUC
Regulatory Date:	
Permitting Info:	
Permitting Date:	
<b>Contact Information:</b>	Eric Egge
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La Junta Tri-State Interconnect Project



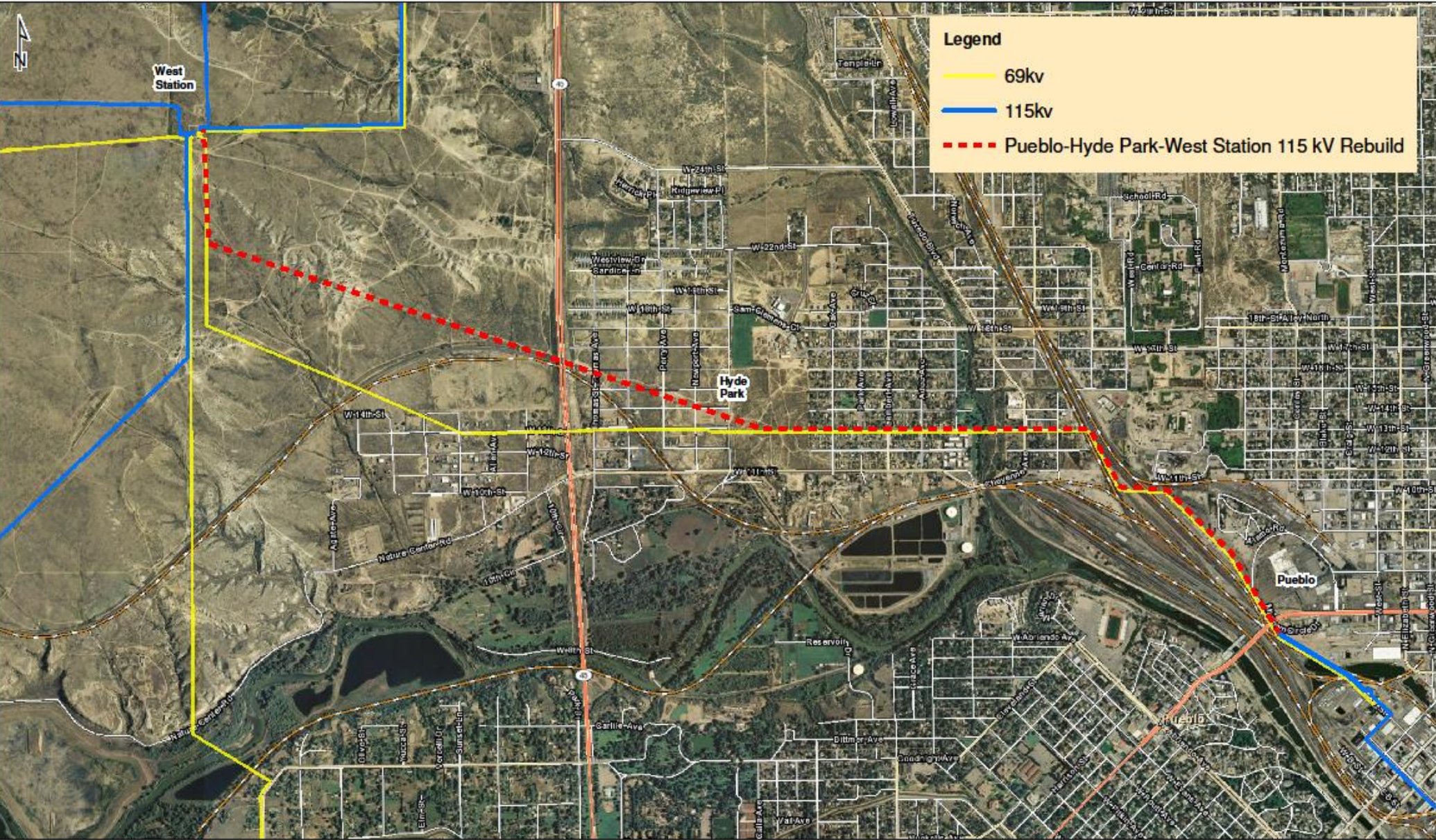


# Pueblo-Hyde Park-West Station 115 kV Transmission Line

<b>Project Sponsor:</b>	Black Hills Energy
<b>Additional Project Participants:</b>	
<b>Project Description:</b>	Rebuild existing Pueblo-Hyde Park-West Station 115 kV line (2009 SB07-100 Report_Filed.pdf).
Voltage Class:	115 kV
Facility Rating:	222 MVA
Point of Origin/Location:	Pueblo 115 kV
Point of Termination:	West Station 115 kV
Intermediate Points:	Hyde Park 115 kV
Length of Line (in Miles):	5
Type of Project:	Transmission Line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
<b>Purpose of Project:</b>	Improved reliability in the Pueblo area.
<b>Estimated Cost (in 2011 Dollars):</b>	\$2,700,000
<b>Schedule:</b>	
Construction Date:	2012
Planned In-Service Date:	2013
Regulatory Info:	Approved - Colorado PUC
Regulatory Date:	
Permitting Info:	
Permitting Date:	
<b>Contact Information:</b>	Eric Egge
Email	eric.egge@blackhillscorp.com
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BHE Pueblo-Hyde Park-West Station 115 kV Rebuild





# Rattlesnake Butte 115 kV Substation

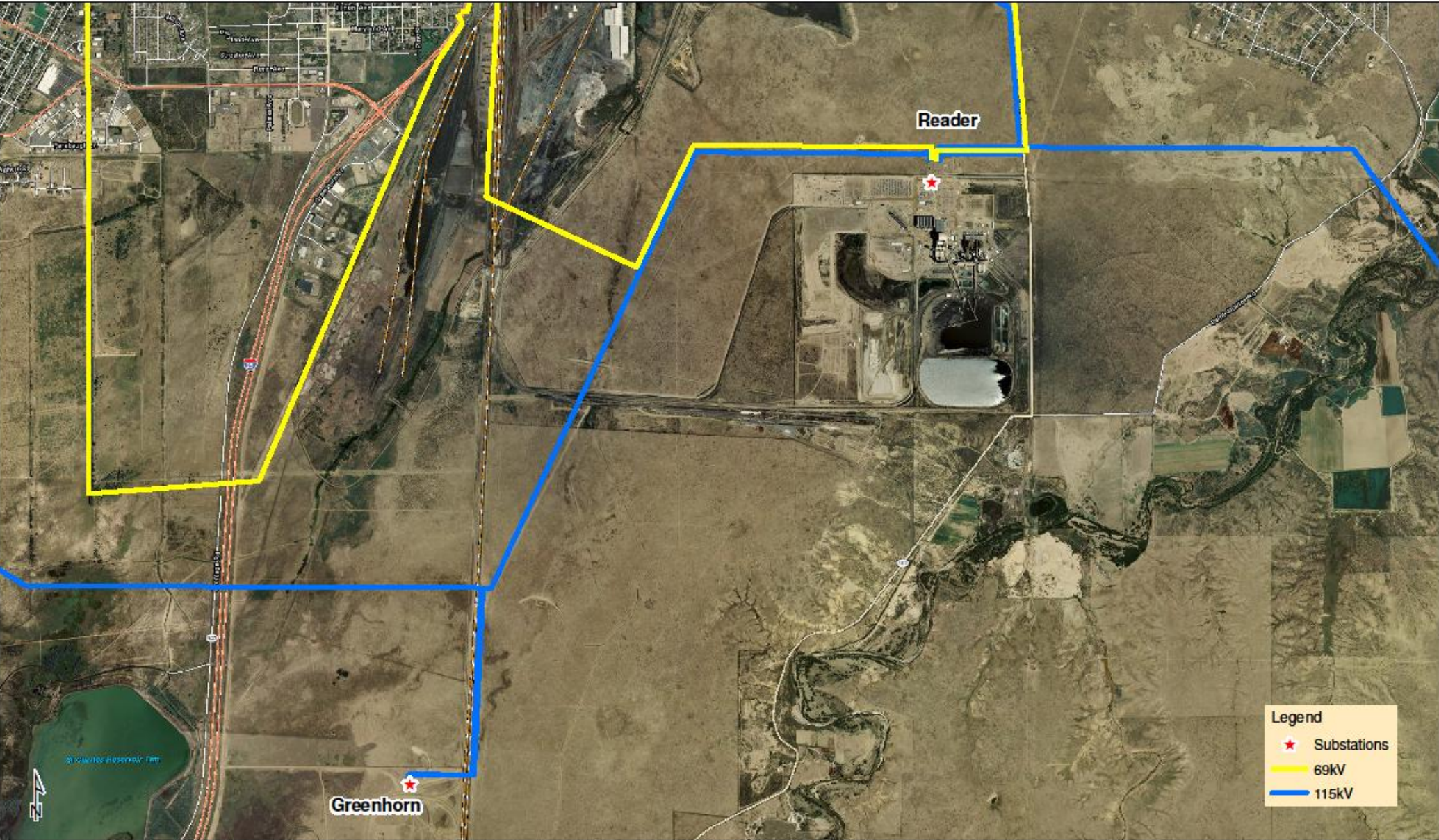
<b>Project Sponsor:</b>	Black Hills Energy
<b>Additional Project Participants:</b>	
<b>Project Description:</b>	New 115 kV substation to accommodate new wind generation (BHCT-G8 System_Impact_Study_Report_-_Final.pdf).
Voltage Class:	115 kV
Facility Rating:	
Point of Origin/Location:	Rattlesnake Butte 115 kV (36 miles south of Pueblo, CO)
Point of Termination:	
Intermediate Points:	
Length of Line (in Miles):	
Type of Project:	Substation
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
<b>Purpose of Project:</b>	Generation interconnection.
<b>Estimated Cost (in 2011 Dollars):</b>	\$1,500,000
<b>Schedule:</b>	
Construction Date:	2012
Planned In-Service Date:	2012
Regulatory Info:	Approved - Colorado PUC
Regulatory Date:	
Permitting Info:	
Permitting Date:	
<b>Contact Information:</b>	Eric Egge
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# Greenhorn-Reader 115 kV Transmission Line Rebuild

<b>Project Sponsor:</b>	Black Hills Energy
<b>Additional Project Participants:</b>	
<b>Project Description:</b>	Rebuild 115 kV line from Reader to new Greenhorn substation (2009 SB07-100 Report_Filed).
Voltage Class:	115 kV
Facility Rating:	222 MVA
Point of Origin/Location:	Greenhorn 115 kV
Point of Termination:	Reader 115 kV
Intermediate Points:	
Length of Line (in Miles):	4
Type of Project:	Transmission Line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
<b>Purpose of Project:</b>	Improved reliability in the Pueblo area.
<b>Estimated Cost (in 2011 Dollars):</b>	\$3,000,000
<b>Schedule:</b>	
Construction Date:	2012
Planned In-Service Date:	2013
Regulatory Info:	Approved - Colorado PUC
Regulatory Date:	
Permitting Info:	
Permitting Date:	
<b>Contact Information:</b>	Eric Egge
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Phone	605-721-2646
Website Information	<a href="http://www.westconnect.com/documents_results.php?categoryid=177">http://www.westconnect.com/documents_results.php?categoryid=177</a>



BHE Greenhorn 115 kV to Reader 115 kV



0 0.5 1 Miles

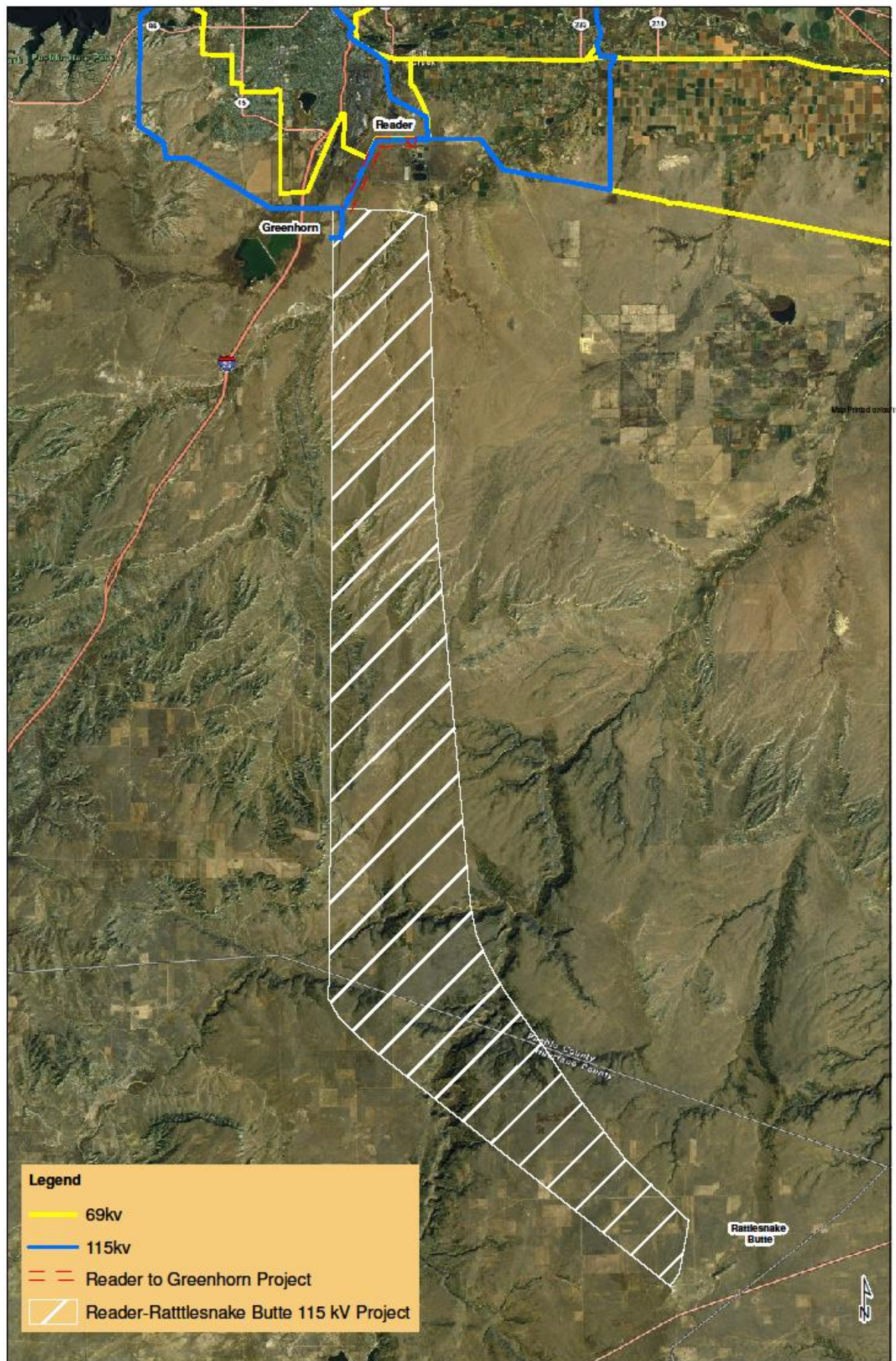
Map Printed 12/09/11.  
Line Route shown is for informational purposes only.

# Reader-Rattlesnake Butte 115 kV Transmission Line

<b>Project Sponsor:</b>	Black Hills Energy
<b>Additional Project Participants:</b>	
<b>Project Description:</b>	New 115 kV line from Reader to new Rattlesnake Butte substat'n (BHCT-G8 System_Impact_Study_Report_-_Final.pdf).
Voltage Class:	115 kV
Facility Rating:	222 MVA
Point of Origin/Location:	Reader 115 kV substation
Point of Termination:	Rattlesnake Butte 115 kV substation
Intermediate Points:	
Length of Line (in Miles):	36
Type of Project:	Transmission Line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
<b>Purpose of Project:</b>	Generation interconnection.
<b>Estimated Cost (in 2011 Dollars):</b>	\$14,100,000
<b>Schedule:</b>	
Construction Date:	2012
Planned In-Service Date:	2012
Regulatory Info:	Approved - Colorado PUC
Regulatory Date:	
Permitting Info:	
Permitting Date:	
<b>Contact Information:</b>	Eric Egge
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# Reader-Rattlesnake Butte 115 kV Project





## **Transmission Projects Summary**

With the exception of those listed as “SB 07-100 Projects” above, all upgrades to BHE’s existing 115 kV transmission line infrastructure or new line additions were classified as “Transmission Projects.” These projects were identified to increase reliability in the event of a contingency situation, accommodate new generation interconnections, or a combination of the two.

The Baculite Mesa generation interconnection necessitated the construction of a new double circuit 115 kV line to West Station, a new single circuit 115 kV line to Nyberg, and the rebuild of the single circuit 115 kV line to Airport Memorial. The segment of the Baculite Mesa-Northridge 115 kV line between Baculite Mesa and the planned location of the new 115 kV Overton substation will also be rebuilt to accommodate the new generation.

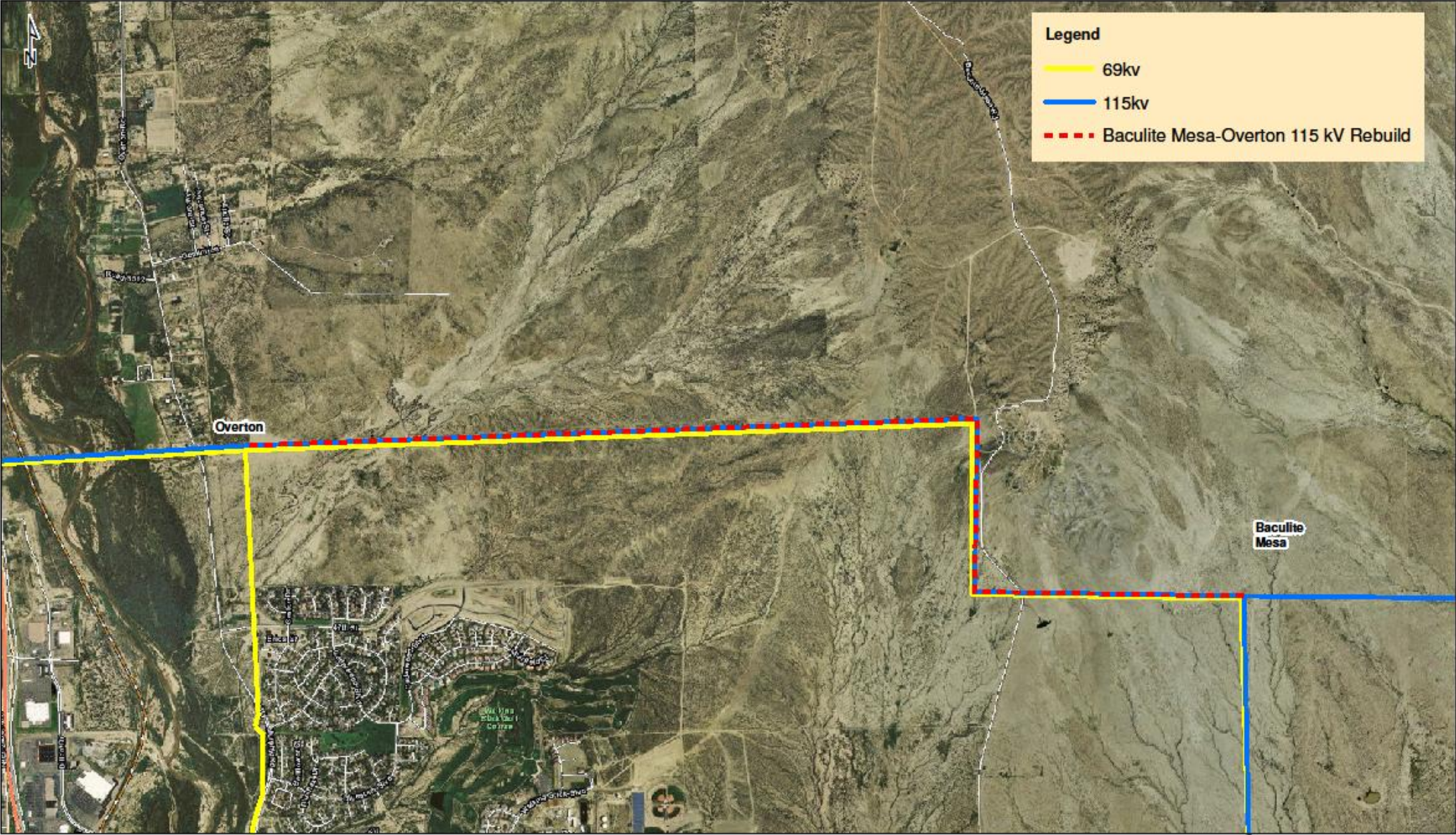
A second 115 kV line from Portland to West Station is planned to increase reliability to the Cañon City area following the planned retirement of the Cañon City generation in response to the Clean Air Clean Jobs Act signed into law in 2010.

# Baculite Mesa-Overton 115 kV Line Rebuild

<b>Project Sponsor:</b>	Black Hills Energy
<b>Additional Project Participants:</b>	
<b>Project Description:</b>	Rebuild existing 115 kV line between Baculite Mesa and new Overton substation (Final 2010 BHCT LTP Report.pdf).
Voltage Class:	115 kV
Facility Rating:	222 MVA
Point of Origin/Location:	Baculite Mesa 115 kV
Point of Termination:	Overton 115 kV
Intermediate Points:	
Length of Line (in Miles):	4
Type of Project:	Transmission Line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
<b>Purpose of Project:</b>	Increased reliability and generation interconnection.
<b>Estimated Cost (in 2011 Dollars):</b>	\$2,000,000
<b>Schedule:</b>	
Construction Date:	2012
Planned In-Service Date:	2012
Regulatory Info:	Approved - Colorado PUC
Regulatory Date:	
Permitting Info:	
Permitting Date:	
<b>Contact Information:</b>	Eric Egge
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Phone	605-721-2646
Website Information	<a href="http://www.westconnect.com/documents_results.php?categoryid=177">http://www.westconnect.com/documents_results.php?categoryid=177</a>



Baculite Mesa-Overton 115 kV Rebuild



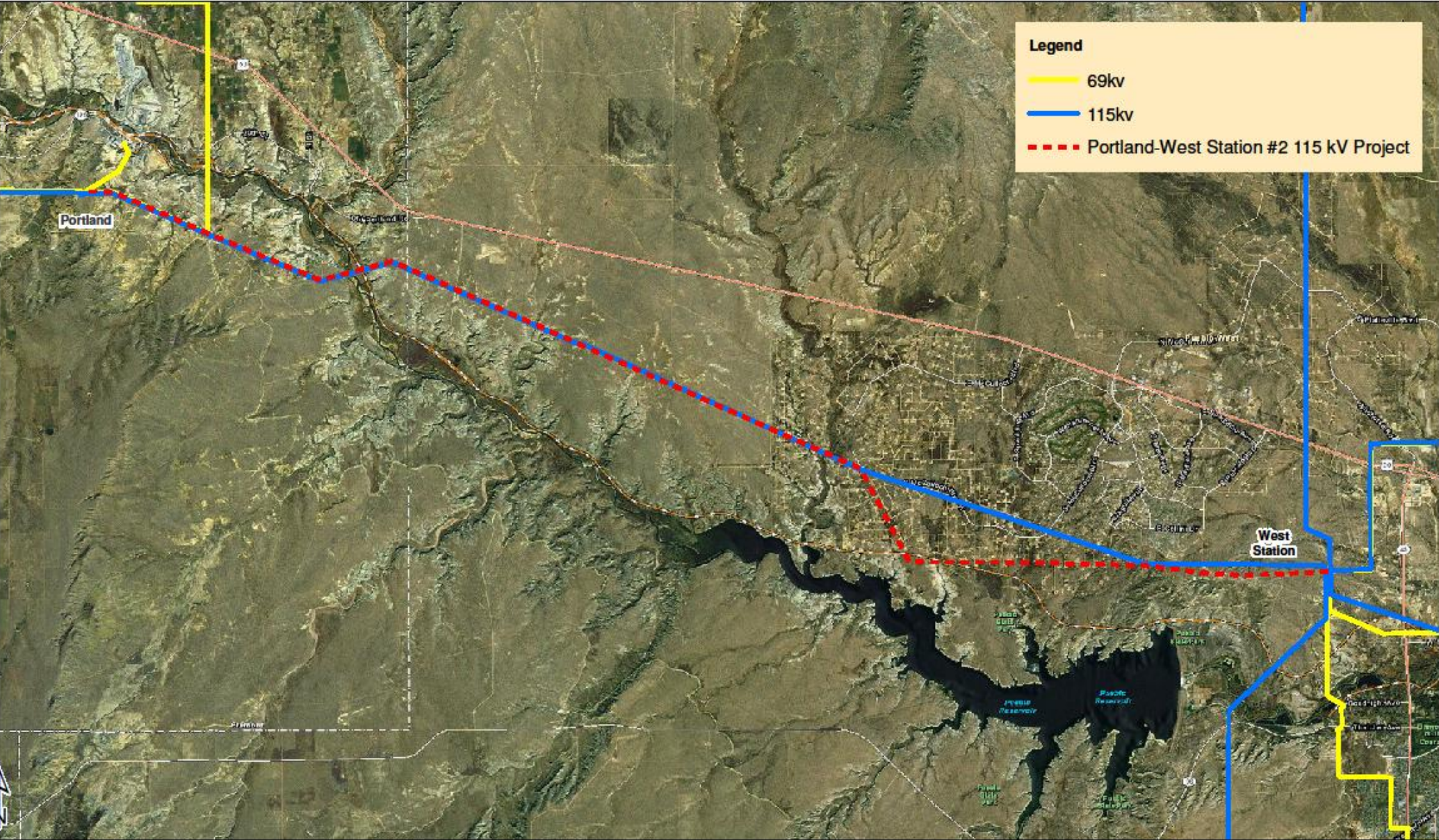
Map Printed 12/09/11.  
Line Route shown is for informational purposes only.

# Portland-West Station #2 115 kV Line & Substation Expansion/Upgrades

<b>Project Sponsor:</b>	Black Hills Energy
<b>Additional Project Participants:</b>	
<b>Project Description:</b>	Add second Portland-West Station 115 kV line utilizing existing 69 kV ROW (2009 SB07-100 Report_Filed.pdf).
Voltage Class:	115 kV
Facility Rating:	222 MVA
Point of Origin/Location:	Portland 115 kV
Point of Termination:	West Station 115 kV
Intermediate Points:	
Length of Line (in Miles):	20
Type of Project:	Transmission Line
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
<b>Purpose of Project:</b>	Improved reliability in the Cañon City area.
<b>Estimated Cost (in 2011 Dollars):</b>	\$12,500,000
<b>Schedule:</b>	
Construction Date:	2012
Planned In-Service Date:	2012
Regulatory Info:	Approved - Colorado PUC
Regulatory Date:	
Permitting Info:	
Permitting Date:	
<b>Contact Information:</b>	Eric Egge
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Phone	605-721-2646
Website Information	<a href="http://www.westconnect.com/documents_results.php?categoryid=177">http://www.westconnect.com/documents_results.php?categoryid=177</a>



Portland-West Station #2 115 kV Project





## **Substation Projects Summary**

In addition to the Rattlesnake Butte substation listed under "SB 07-100 Projects," BHE identified the need to construct three new 115 kV substations and expand a fourth substation in the current 10-Year Transmission Plan. The Nyberg and Baculite Mesa 115 kV substations were needed to accommodate a new generation plant at Baculite Mesa. The Overton 115 kV substation was identified as beneficial for load serving capability and increased voltage support under stressed system conditions. Expansion of the existing West Station 115 kV substation was required to accommodate a new double circuit 115 kV line from Baculite Mesa as part of the generation interconnection. These system additions also contribute to increased transmission system reliability in the Pueblo area.

A 20 MVar capacitor at the Cañon City 115 kV substation was included in the Transmission Plan to provide voltage support to the area following the planned retirement of the Cañon City generation in response to the Clean Air Clean Jobs Act signed into law in 2010.



# Cañon City 115 kV Capacitor Bank Project

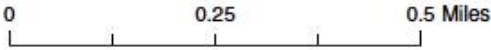
<b>Project Sponsor:</b>	Black Hills Energy
<b>Additional Project Participants:</b>	
<b>Project Description:</b>	A 20 MVAR switched shunt capacitor at the Cañon City 115 kV substation.
Voltage Class:	115 kV
Facility Rating:	
Point of Origin/Location:	Cañon City 115 kV (near Cañon City, CO)
Point of Termination:	
Intermediate Points:	
Length of Line (in Miles):	
Type of Project:	Substation
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
<b>Purpose of Project:</b>	Improved voltage support and reliability in the Cañon City area.
<b>Estimated Cost (in 2011 Dollars):</b>	\$500,000
<b>Schedule:</b>	
Construction Date:	2012
Planned In-Service Date:	2012
Regulatory Info:	Approved - Colorado PUC
Regulatory Date:	
Permitting Info:	
Permitting Date:	
<b>Contact Information:</b>	Eric Egge
Email	eric.egge@blackhillscorp.com
Phone	605-721-2646
Website Information	Pending

# Overton 115 kV Substation

<b>Project Sponsor:</b>	Black Hills Energy
<b>Additional Project Participants:</b>	
<b>Project Description:</b>	New 115 kV substation at Belmont Tap on the West Station - Overton 69 kV line (NERC Category C Study_WPC.pdf).
Voltage Class:	115 kV
Facility Rating:	
Point of Origin/Location:	Overton 115 kV (near Pueblo, CO)
Point of Termination:	
Intermediate Points:	
Length of Line (in Miles):	0
Type of Project:	Substation
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
<b>Purpose of Project:</b>	Additional voltage support and load growth capacity.
<b>Estimated Cost (in 2011 Dollars):</b>	\$5,500,000
<b>Schedule:</b>	
Construction Date:	2013
Planned In-Service Date:	2013
Regulatory Info:	Approved - Colorado PUC
Regulatory Date:	
Permitting Info:	
Permitting Date:	
<b>Contact Information:</b>	Eric Egge
Email	eric.egge@blackhillscorp.com
Phone	605-721-2646
Website Information	<a href="http://www.westconnect.com/documents_results.php?categoryid=177">http://www.westconnect.com/documents_results.php?categoryid=177</a>



BHE Overton 115 kV Substation



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Line Route shown is for informational purposes only.



## **Distribution Projects Summary**

Projects designed to increase reliability or load serving capability at the sub-transmission level but include facilities connected to the 115 kV and above system were classified as "Distribution Projects" in the BHE 10-Year Transmission Plan. A single project falling under this category was included in this Plan. The replacement of both of the existing 42 MVA 115/69 kV transformers at Reader with larger 80 MVA units is planned to add additional transformation capability in the Pueblo area.

# Reader 115/69 kV Transformer Replacement

<b>Project Sponsor:</b>	Black Hills Energy
<b>Additional Project Participants:</b>	
<b>Project Description:</b>	Replace existing 2 x 41 MVA Reader transformers with 80 MVA units (NERC Category C Study_WPC.pdf).
Voltage Class:	115 kV
Facility Rating:	
Point of Origin/Location:	Reader 115 kV (near Pueblo, CO)
Point of Termination:	
Intermediate Points:	
Length of Line (in Miles):	0
Type of Project:	Distribution
Development Status:	Planned
Routing:	
Subregional Planning Group:	CCPG
<b>Purpose of Project:</b>	Improve reliability and add additional transformation capacity.
<b>Estimated Cost (in 2011 Dollars):</b>	\$6,500,000
<b>Schedule:</b>	
Construction Date:	2012
Planned In-Service Date:	2013
Regulatory Info:	Approved - Colorado PUC
Regulatory Date:	
Permitting Info:	
Permitting Date:	
<b>Contact Information:</b>	Eric Egge
Email	eric.egge@blackhillscorp.com
Phone	605-721-2646
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