

# BLACK HILLS COLORADO TRANSMISSION

## TRANSMISSION COORDINATION & PLANNING COMMITTEE Q4 MEETING

December 13, 2010

Black Hills Power Service Center  
Rapid City, SD



one vision  
one community  
one company

# TCPC Meeting Policies

- FERC Standards of Conduct
- Anti-Trust Policy
- Confidentiality

# BHC Transmission Planning Department Updates

- CO Rule 3206: System Additions for the Next 3 Calendar Years (Added in 2010)
  - New Portland-West Station 115 kV line (2013)
  - Greenhorn-Reader 115 kV line rebuild (2014)
  - Reconductor Pueblo-Hyde Park-West Station 115 kV line (2012)

Refer to Docket No. 10M-206E for more information

# BHC Transmission Planning Department Updates

## CO Clean Air Clean Jobs Act (HB1365)

- Lower NOx emissions by 70% on half of coal-fired generation facilities by 12/31/2017
  - Filed proposal on Oct. 29 to retire W.N. Clark generation facility in Canon City, CO (42 MW)
  - Replace with utility-owned gas-fired generation at Baculite Mesa
  - Interconnection request filed

# BHC Transmission Planning Department Updates

## Colorado SB07-100

- Report filed in 2009
- Biennial study process to begin again in 2011

For more information:

[https://www.oatioasis.com/BHCT/BHCTdocs/2009\\_SB07-100\\_Report\\_Filed.pdf](https://www.oatioasis.com/BHCT/BHCTdocs/2009_SB07-100_Report_Filed.pdf)

# BHC Transmission Planning Department Updates

Date 12/10/10

## Black Hills/Colorado Electric - Large Generator Interconnection Queue

| Interconnection Request Information |            |           |                  |                   | Facility Output (MW) |        | Facility Location |       | Point of Interconnection | Projected In-Service | Generator Information |           | Study Report Status |               |            | Notes                    |
|-------------------------------------|------------|-----------|------------------|-------------------|----------------------|--------|-------------------|-------|--------------------------|----------------------|-----------------------|-----------|---------------------|---------------|------------|--------------------------|
| Queue Number                        | Queue Date | Status    | Company Name     | Requested Service | Summer               | Winter | County            | State |                          |                      | Generation Type       | Fuel Type | Feasibility         | System Impact | Facilities |                          |
| BHCT-G1                             | 2/12/2009  | Withdrawn | Black Hills Corp | NR/ER             | 240                  | 240    | Pueblo            | CO    | Reader 115 kV            | 10/1/2011            | Combustion Turbine    | Nat. Gas  |                     |               |            | Withdrawn by Customer    |
| BHCT-G2                             | 4/1/2009   | Withdrawn | Black Hills Corp | NR/ER             | 120                  | 120    | Pueblo            | CO    | Reader 115 kV            | 10/1/2011            | Combustion Turbine    | Nat. Gas  |                     |               |            | Withdrawn by Customer    |
| BHCT-G3                             | 4/3/2009   | Active    | Black Hills Corp | NR/ER             | 200                  | 200    | Pueblo            | CO    | Airport Tap 115 kV       | 10/1/2011            | Combustion Turbine    | Nat. Gas  | Complete            | Complete      | Complete   | LGIA tendered            |
| BHCT-G4                             | 4/3/2009   | Active    | Black Hills Corp | NR/ER             | 100                  | 100    | Pueblo            | CO    | Airport Tap 115 kV       | 10/1/2011            | Combustion Turbine    | Nat. Gas  | Complete            | Complete      | Complete   | LGIA tendered            |
| BHCT-G5                             | 4/3/2009   | Active    | Black Hills Corp | NR/ER             | 100                  | 100    | Pueblo            | CO    | Airport Tap 115 kV       | 10/1/2011            | Combustion Turbine    | Nat. Gas  | Complete            | Complete      | Complete   | LGIA tendered            |
| BHCT-G6                             | 12/3/2010  | Active    | Black Hills Corp | NR                | 100                  | 100    | Pueblo            | CO    | Baculite Mesa            | 1/1/2013             | Combustion Turbine    | Nat. Gas  | NA                  |               |            | SISA tendered 12/13/2010 |
|                                     |            |           |                  |                   |                      |        |                   |       |                          |                      |                       |           |                     |               |            |                          |
|                                     |            |           |                  |                   |                      |        |                   |       |                          |                      |                       |           |                     |               |            |                          |

# BHCE Ten Year Plan

- Baculite Mesa 115 kV substation (2011)
- Nyberg 115 kV substation (2011)
- West Station 115 kV substation expansion (2011)
- Overton 115 kV substation (2013)
- West Station-Baculite Mesa 115 kV double ckt (2011)
- Baculite Mesa-Nyberg 115 kV line (2011)
- Baculite Mesa-Airport Memorial 115 kV rebuild (2011)
- Pueblo-Hyde Park-West Station 115 kV rebuild (2012)
- Portland-West Station #2 115 kV line (2013)
- La Junta Tri-State 115 kV Interconnection (2013)
- Reader 115:69 kV transformer #1&2 replacement (2013)
- Greenhorn-Reader 115 kV line rebuild (2014)
- Baculite Mesa-Overton 115 kV line rebuild (2015)

# TCPC Overview

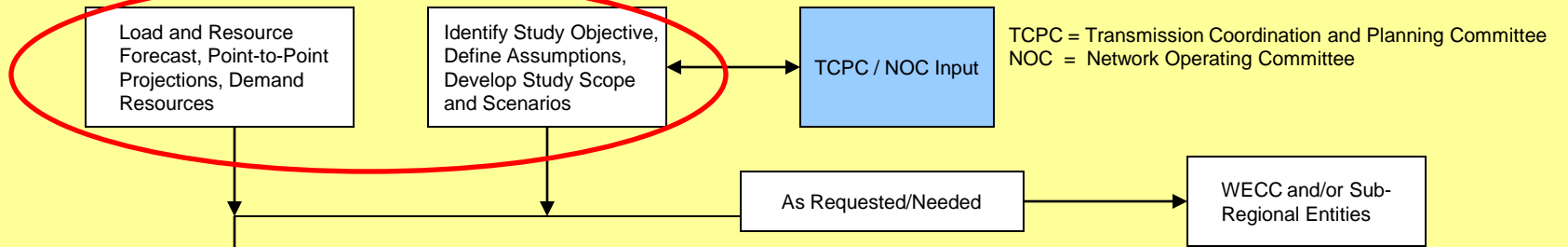
- FERC Order 890 – 9 Principles
  - Coordination
  - Openness
  - Transparency
  - Information Exchange
  - Comparability
  - Dispute Resolution
  - Regional Participation
  - Economic Planning Studies
  - Cost Allocation for New Projects

## Local Transmission Plan (LTP) Study Cycle

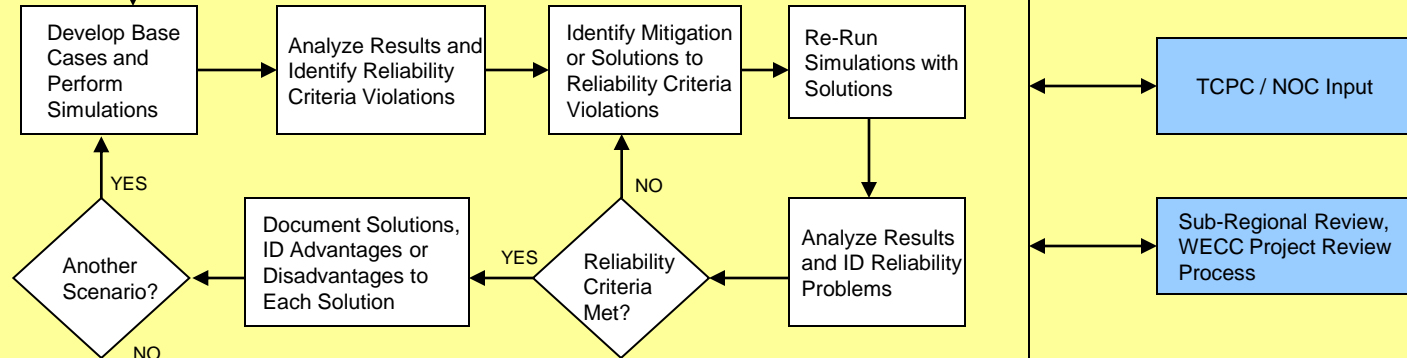
| Quarter | Planning Steps                                      | Data Collection | TCPC Meetings |
|---------|---|-----------------|---------------|
| Q4      | Study Scope, Data Collection & Scenario Development | Open            | X             |
| Q1      | Technical Study                                     | Optional        | X             |
| Q2      |   | Closed          | X             |
| Q3      | Decision & Reporting                                |                 |               |

# LTP Study Process

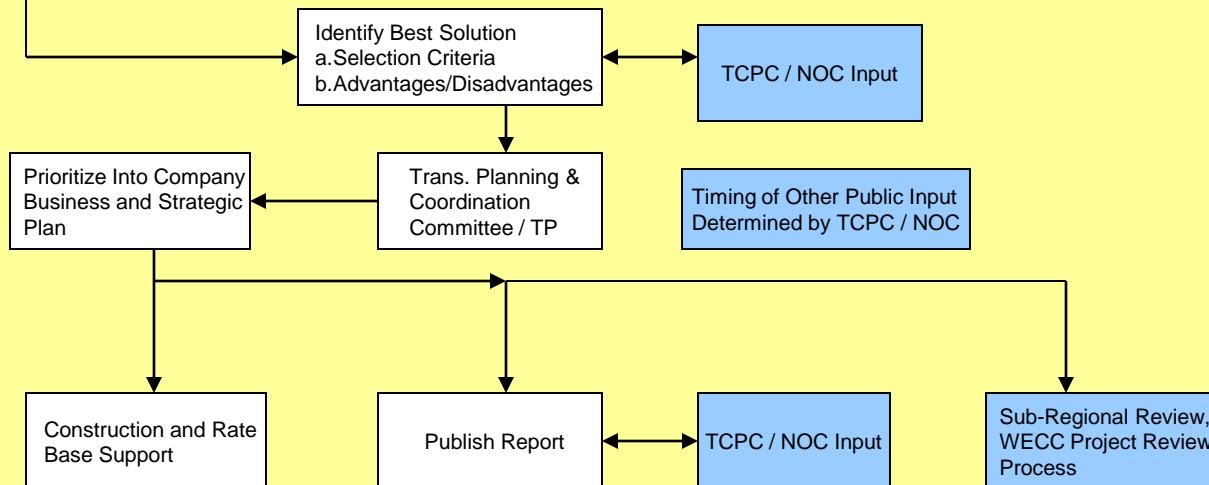
## Data Collection, Study Scope and Scenario Development



## Technical Study



## Decision And Reporting

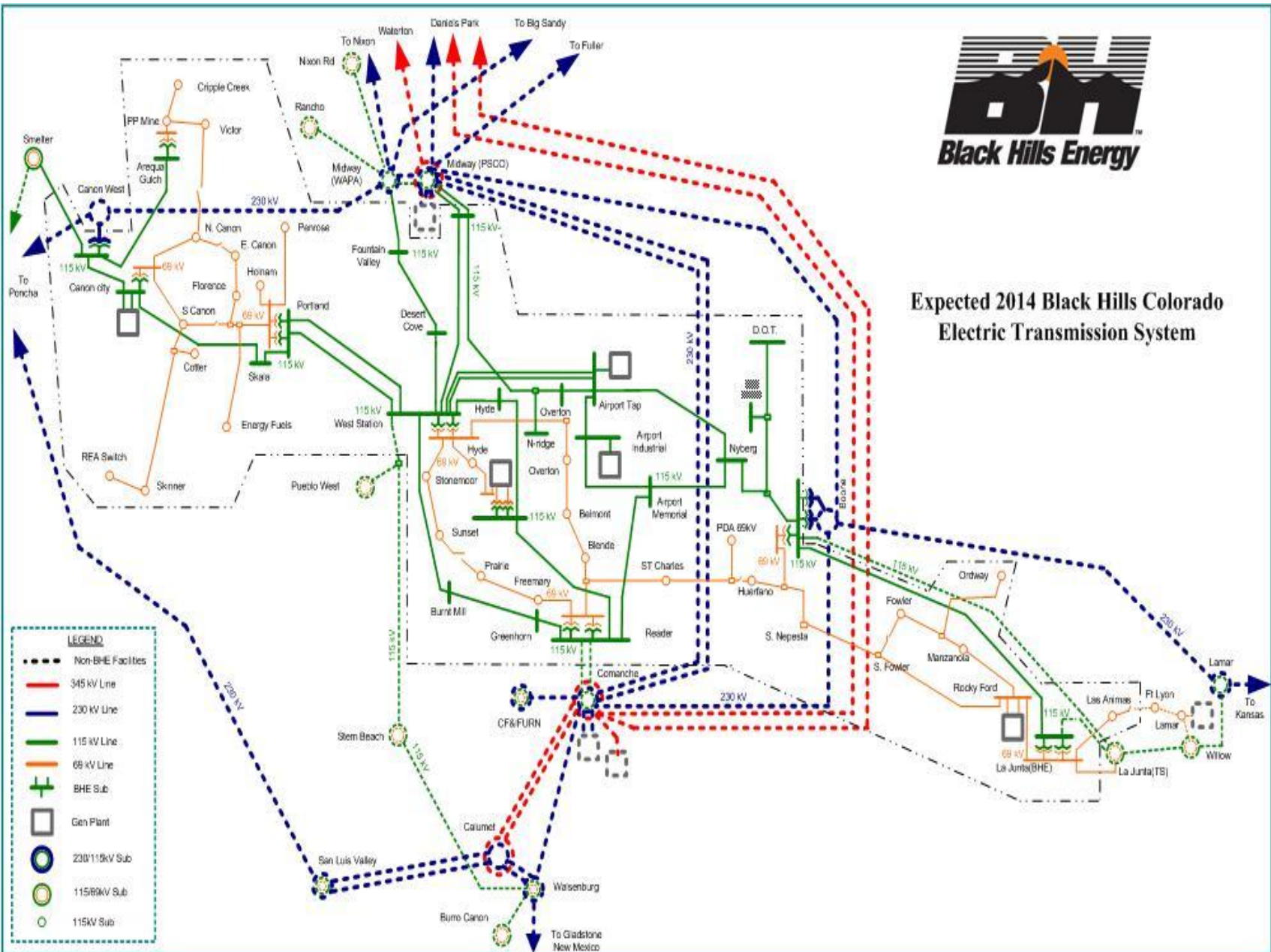


# LTP Study Scope

- 2016 and 2021 timeframes
- Analyze peak and off-peak scenarios
  - Power Flow
  - Transient Stability
- Use NERC/WECC planning criteria
- Evaluate N-0, N-1, N-2 and N-1-1 scenarios (Category A-C)
- Worst-case bus outages also evaluated (Category D)
- Validate committed projects/recommend additional solutions



### Expected 2014 Black Hills Colorado Electric Transmission System



# 2016 Baseline Cases

- 2016 Heavy Summer (peak)
  - Starting Case: WECC 16hs2a1p.sav
- 2016 Light Autumn (off-peak)
  - Starting Case: WECC 16la1sa1p.sav

# 2021 Baseline Cases

- 2021 Heavy Summer (peak)
  - Starting Case: WECC 21hs1a1p.sav
- 2021 Light Winter (off-peak)
  - Starting Case: 2010 TCPC 2020LW Study Case (with updates)

# Baseline Case Projects

## Major BHCE Projects/Additions Included:

- Portland-West Station 115 kV #2 line
- Baculite Mesa-Nyberg 115 kV line
- Baculite Mesa-West Station double circuit 115 kV line
- Baculite Mesa generation
- Rocky Ford cap bank
- Baculite Mesa-Airport Memorial 115 kV rebuild
- Overton 115 kV substation
- Pueblo-Hyde Park-West Station 115 kV rebuild
- Greenhorn-Reader 115 kV rebuild
- Reader 115:69 kV transformer replacement (1&2)
- Baculite Mesa-Overton 115 kV rebuild

# Baseline Case Projects

## Major External Projects/Additions Included:

- Boone 230:115 kV #2 transformer (BHCE/TSG&T)
- Calumet project (TSG&T/PSCO)
- La Junta Substation Tie project (BHCE/TSG&T)

# Data Collection

- Data request returned by **Friday January 21, 2011**
- Peak and Off-Peak Load Data by POD
  - Monthly demand data for study years is critical
  - Monthly demand for 10 year planning horizon is preferred
- Resource Data
  - should equal the sum of your load and reserves
- Reservation Data
  - Forecasted monthly transfer values on a per path basis
- Scenario Suggestions
  - Significant modifications to the base case to be evaluated in uncertainty scenarios.
  - Suggestions will be considered and discussed during the Q1 TCPC meeting.

Q1 Meeting Date/Time: TBD

# Questions



# Comments / Suggestions

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