

FOOTHILLS AREA PLANNING GROUP
Meeting Notes

May 27, 2010
0900-1200
Tri-State Office

Attendance:

John Collins (PRPA)	Stan Lawrenson (TSGT)	Mike Houglum (TSGT)
David Silver (PSCo)	Mike Rein (PSCo)	W. Anderson (PSCo)
Bob Johnson (PSCo)	Steve Owen (WAPA)	Jared Griffith (WAPA)
Joe Liberatore (WAPA)	Bob Staton (PSCo)	Rocky Ray (TSGT)
Jeremy Brownrigg (PRPA)		

- 1) Meeting Notes and Action Items from the April 7, 2010 meeting
Revisions to the 4/7/10 meeting notes were made to the electronic version. The revised version will be posted on the WestConnect website.
- 2) Foothills Area summer assessment and operating procedures
The group discussed how to interpret the table in a spreadsheet that has been prepared by Jeremy Brownrigg. The typical Colorado-Big Thompson (CBT) generation is around 60 MW although an analysis has been conducted at multiple CBT output levels. The group decided to use Category B for N-1 analysis. There are tabs in the spreadsheet for other contingencies. The group discussed how Planning and Operations could utilize the chart. The potential loss of a capacitor bank in under voltage conditions was discussed. The group discussed if there is any protection for the capacitor banks at Hygiene, Terry, or Longs Peak (2) or if anyone has looked the issue. The group agreed that it would be worthwhile to set up potential training, via a meeting or a net meeting at the WAPA training room or web conference. The training will discuss how to utilize and share the chart with others in the office that may be (or should be) interested. A procedure can be developed from the chart to mitigate an N-1 contingency condition. The information could be used to train operators and inform real time planners. The group would like to determine how to evaluate the load at Kodak (and other loads in the area), especially when evaluating a Weld-Whitney 115kV outage.

Action Item: Stephanie Kuhn, the Training Coordinator at WAPA will assist PSCo and Tri-State to arrange training.

- 3) TOT 7
The status of TOT7-2010 Summer Season Operating Limits Study was discussed. The facility ratings were discussed. The study requires some

facility rating clarifications. The rating methodologies of the various organizations were discussed:

- i. PSCo – The company uses both continuous and emergency ratings. For operational studies, PSCo uses emergency (30-minute) ratings for all lines no matter what category is being studied be it Category B, C or D (extreme). PSCo uses 30-minute emergency ratings for its transmission lines. PSCo and PRPA have agreed to use PSCo emergency ratings for the TOT7 seasonal operating limit studies for all disturbance categories. For planning purposes PSCo does not use emergency ratings, only continuous ratings.
- ii. WAPA – The issues with the Ault Substation terminals was discussed and how this affects the TOT7 operating limit. The TOT7 operating limit is presently based on the Ault Substation equipment ratings (disconnect switches and breakers). With the Ault Substation Circuit Breaker #2186 closed (and at higher Foothills Area demand levels), the TOT7 limiting contingency is the failure of the Ault Circuit Breaker #2186 to open to clear a fault on the Ault-Ft.St.Vrain 230kV line or to clear a fault on the Ault-Timberline 230kV line (breaker failure scenario). This breaker failure scenario overloads the Weld 230kV bus-tie (currently rated at 1600A or 637 MVA). To avoid this breaker failure scenario, WAPA operates the Ault Circuit Breaker #2186 open. This allows more capacity for the TOT7 transfer path. Once the Weld CTs are replaced (scheduled for the 2010-2011 winter season) the Weld 230kV bus tie will be rated for 2000A (797 MVA) and the breaker failure scenario will not limit TOT7. This will allow WAPA to close CB #2186.

For the Ault Substation, the 1200 amp disconnect switches could limit WAPA transmission lines terminating at Ault to a 478 MVA rating. This limiting element philosophy restricts the rating of the TOT7 pathway. WAPA has not made a decision on whether they will increase the rating of the disconnect switch to beyond 1200A.

PRPA indicated that CBT may be shut down for a month in October 2010. This could limit the TOT7 rating to between 200 MW and 250 MW depending on demand.

4) Study Plans

Study plans are being prepared for the following studies:

- TOT 7 - 2010 Summer Season Operating Limits – Transient Stability
- TOT 7 - 2010 Summer Season Operating Limits – Voltage Stability
- Greeley Area System Reliability

5) Foothills Website

The "South of Ault" slide has been removed from the website

Issues with the April 7, 2010 meeting notes were discussed. These include:

- i. WestConnect Website: Foothills, TOT7 and the May 27 meeting agenda are the only things on the website
 1. The Foothills Group needs to post finalized meeting notes from the last meeting on the website.
 2. The Foothills Group will not post transmission line and substation detailed information or locations.
 3. The Foothills Group will not post planned projects.
The group discussed the things that should and shouldn't be posted on the website. The group discussed whether the Project log should be placed on the website.

6) The Carey 230 kV Interconnection Project

The project is on-hold pending a decision by PSCo on funding for transmission line and cost participation. The decision on whether to place the Carey Substation three miles from the Ault-Timberline 230kV transmission line or to place the substation under the line and construct distribution lines to the loads was discussed. Keith Therence of PSCo Capacity Planning is conducting a study to determine if a distribution line can be utilized to serve PSCo loads.

7) Weld 230/115 Transformer # Project

A new in-service date proposed by Jared Griffith is April 10, 2013. WAPA is verifying the validity of the date. WAPA and PSCo need to determine how to assign ownership in order for PSCo to capitalize the project and for WAPA to get approval for the project to go forward, They are trying to determine what would happen if the project were not able to be capitalized. Bob Staton will talk to Steve Mornis about how to finance the project. WAPA will still have a problem with the bus arrangement in their yard as it does not solve the bus fault issue.

8) Promontory 230/115 project

Bill Anderson is using a 2015 case to study the project. Results were not what he expected. Bill will work with Joe Liberatore and Rocky Ray to determine if there are modeling problems.

9) Weld-Whitney 115 line rating

There was no new information to share on the facility rating (at present 166 MVA).

10) Ault-Cherokee 230 kV Project

From a reliability standpoint, the TOT7 system operating limit continues to decrease as demand in the Foothills area increases. The Ault-Cherokee 230kV Project could increase the transfer capability and system operating limit. PSCo would like to determine if there are any other parties that are interested in participating in the project if it increases the TOT7 path

rating. The Ault-Cherokee 230kV line is in the 2015 WECC approved case. PSCo will need to determine if having the line in this case is still valid.

- 9) The Ault-Weld 230 kV Project - Shiloh Interconnection and Line Extension to Bracewell (230kV)

These projects are being considered by Tri-State. No official interconnection requests will be made until the Promontory Project study is complete. The official request is for an Ault–Weld 230 kV circuit. The Shiloh Interconnection has been proposed as an alternative to the Promontory Project if the project does not go forward. There may be a TOT7 transfer impact.

- 10) Foothills Project Log, Maps, and Drawings
Mike Rein has agreed to develop the map.

- 11) Other items
None