

**Final SATS Meeting Notes
Tucson Electric Power Company Operating Hdqtrs
Training Room B
January 21, 2010**

Attendees:

Bruce Evans, SWTC
Karen Cathers, Trico
Ryan Patton, TEP
Reuben Ruiz, CAP
Jim Tang, CAP
Kathy Estrada, TEP
Ron Belval, TEP
Don Stoneberger, FMI
Mike Gazda, APA
Gary Trent, TEP
Cary Deise, USE Consulting
Bill Kipp, Black Forest
Doug Patterson, Black Forest
Randy Etheridge, TSNA
Alistair Rennie, SRP

On Phone Bridge:

Tom Wray, SunZia
Cindy Bailey, SunZia
Gary Romero, KRSA
Kevin Serrato, Env. Consultant

Agenda Items:

1) Welcome and Introductions

Gary Trent welcomed everyone to TEP's offices and asked for introductions from the meeting attendees and those on the phone.

2) Review Agenda

No new items were added to the agenda.

3) Review/Approve 11/17/09 Meeting Notes

No comments received. Bruce will final the Notes and send them out with the action items from this meeting.

4) Review/Approve 12/16/09 Meeting Notes

No comments were received. Bruce noted that he had inadvertently misspelled Bill Kipp's name on page 5 of the notes and it will be corrected in the final notes he sends out with the action items from this meeting.

Don Stoneberger informed the group that there is a 50% probability that the FMI load at Morenci will increase 50-60 MW in the next 2 quarters.

5) Review Action Items from 11/17/09 and 12/16/09 Meetings

5a) Action Items from 11/17/09 Meeting:

1. Gary to set up an interim conference call in December to discuss items that need to go into the 2010 Study Plan for SATS – including a VAR Margin Study. **Complete**
2. Josh and EvaMarie to provide language for the Apache to Adams Tap line rating for draft 2009 SATS Study Report. **Complete**
3. EvaMarie to provide mitigation procedures for voltage deviations in 2013, 2014 and 2019 for draft 2009 SATS Study Report. **Complete**
4. All to provide comments on draft 2009 SATS Study Report to Gary as soon as possible. **Complete**

5b) Action Items from 12/16/09 Meeting:

1. Distribute SATS Report drafts per the provided schedule (see 12/16/09 Notes) with anticipation of January 21st approval. **Complete**

6) Cochise County Study Update

David Bryan was unable to attend the meeting today and asked Bruce to provide the update for this agenda item.

Bruce noted that at the last Cochise County Study Group (CCSG) Meeting, held on January 11th, David was selected as the new chair of the group. The next steps of the group were discussed at the meeting and the group felt that PDS Consulting should be retained to do a Facilities Study of the area, keying off of the Final Study Report that was performed by PDS to satisfy the 5th BTA Order. The Final Report was e-mailed to CCSG participants on January 4th. Bruce stated that if others would like a copy of the Report to send him an e-mail.

There are a number of issues that David will be working on in preparation for the next meeting of the group, which is tentatively set for APS's offices in Casa Grande on February 22nd. There is a need to determine principles for cost allocation of the projects required to ensure continuity of service in Cochise County and David envisions setting up a finance or contracts sub-committee of CCSG to handle these and other important issues. He will be sending out a draft of the meeting notes and will be asking the CCSG participants for names of individuals to sit on this sub-committee. He envisions both the technical sub-committee and the finance or contracts sub-committee members to be in attendance at this meeting.

David has asked that the Transmission Providers look at what needs to be done on their respective systems to implement the recommended transmission plan as outlined in the Final Report. In turn, SSVEC will be looking at what it is going to take to loop their 69 kV system, which was not originally designed to be looped. It is possible that to make the system work under a looped configuration, SSVEC will likely need to install some new switching stations and other equipment.

7) SunZia Update

Tom Wray reminded the group that there is a 3-phase peer review meeting on February 10th at PDS Consulting offices in Tempe. If anyone is interested in attending this meeting, they need to contact Jim Hsu at jim.hsu@pdsplc.com or Tom Wray at tray@southwesternpower.com.

The major activity for SunZia in the upcoming months is development of a draft EIS. Tom envisions the draft EIS being published in Federal Register in December of this year. This is a very aggressive schedule. The Environmental Planning Group (EPG) is working on a Scoping Report that will be available to the public by the end of this month. It will be available on the Project's website, www.sunzia.net. EPG is doing an evaluation on environmental impacts in both Arizona and New Mexico, following the NEPA regulations, which are very prescriptive. EPG will also be looking at constructability issues and the costs associated with mitigation efforts in the line segment ROW's.

At the next SATS meeting, Tom plans to report on the line route determinations in the SATS footprint, which might impact SATS planning activities.

A public meeting was held in Cascabel recently with BLM in attendance. Comments on the various paths were heard at the meeting, with some being published in the media. Tom feels that it was a good meeting. There are 3 major corridors being studied in the area, and within those 3 corridors are several potential routes. Crossing the San Pedro River is a big consideration that was discussed at the meeting. However, the areas where the San Pedro is proposed to be crossed are mostly on State Trust Land that is designated as multiple use.

Tom was asked about the timeline for the permits. He replied that the key permit SunZia is seeking is the Record of Decision (ROD), and the guiding effort for the ROD is the EIS which, as discussed earlier, is expected to be placed in the Federal Register in December of this year. There is a 90-day review period as required by the Federal Register before the final EIS can be issued. Mostly likely it will be June or July of 2011 before it gets issued. The ROD should be issued by December of 2012 or earlier.

Tom also noted that a CEC will be filed with the ACC at the same time as the filing of the draft EIS.

Lastly, Tom shared with the group that SunZia has executed a Memorandum of Understanding (MOU) with the Western Area Power Administration. The MOU discusses what Western's interest might be in SunZia, going forward.

8) Black Forest Southline Project Update

Doug Patterson of Black Forest gave a power point presentation of preliminary study results that have been performed for the Southline Transmission Project. For the last 2 months, Black Forest has been designing the study, looking particularly at siting issues, and has submitted an application to the BLM for a ROW. There are two considerations. First, is the new build of a 345 kV line (on approximately 80% of BLM land) from Afton, New Mexico, to the Apache Station near Willcox, Arizona. Second, is the route from Apache Station to Palo Verde. Black Forest is looking at the best routes for this segment of the line, with a goal to collect and connect as many renewable resources as possible.

One slide from the presentation provided a simplified map of the project, showing a single 345 kV line from Afton to Apache Station, an upgrade of the Apache to Bicknell 230 kV line to a double-circuit 345/230 kV line and a new 345 kV line from Bicknell to the Hassayampa Switchyard. The map shows potential locations of new renewable resources of up to 2,000 MW, with 1000 MW represented in both New Mexico and Arizona.

A SATS 2014 Base Case was used for the preliminary study.

Doug was asked if the substations shown on the map (Afton, Columbus, Hidalgo, Apache, Bicknell, Pinal West and Hassayampa) will be tied into the proposed line. Cary Deise replied that they will. There will be transformations at the substations and these were included in the model for the study. It was assumed that the generation would mostly be solar. The sites that were selected for the generation are high potential, flat land areas best suited for solar installations.

Doug was also asked if the project is considering a line to tie to the proposed Tres Amigas Superstation. Doug replied that it was not pursued, but could be an option in the future. He stated that the goal at this time is to get renewable resources to California. Cary noted that the generation in the model was scheduled all the way to Adelanto.

Doug reviewed the line flows and delta-voltage analyses and noted certain Vail 345/138 transformers are heavily loaded. Gary asked for a detailed representation of this so that he can ascertain if there are TEP Two-County bonding issues. Ron asked about parallel flows on the Apache to Bicknell 230 kV line and Cary replied that this didn't seem to be much of an issue. Gary replied that the Apache to Bicknell line is represented in the SATS 2014 as being upgraded. It was suggested that the line flows on the proposed Pinal Central to Tortolita path be shown.

There were some high voltages seen in the Bicknell area and Gary suggested that Black Forest get a copy of TEP's Planning and Processes Document off of the TEP OASIS

which will provide ideas on how TEP plans its system. Gary also pointed out that the rating of the Apache to Adams Tap 115 kV line should reflect the latest changes from Western on the rating of this line. It was also noted that the rating of the Bicknell – Vail line has not changed in the SATS studies.

Various 138 kV outage issues were noted, as well as some problems in El Paso Electric's area. Cary will be coordinating with El Paso on the results of the study.

Cary noted that most of the system limitations found in the study are N-2. He asked for N-2 contingency lists from SWTC and TEP to do a more extensive look at these limitations. TEP replied that along with the N-2 outages, which are the more limiting on its system, it would need to provide information on its load-shed program and other mitigating efforts, such as increasing local generation.

Doug asked about the next steps. It was discussed that if there are no show-stoppers under N-1 outage conditions, then the logical next step is to enter into interconnection requests with SWTC and TEP. Cary agreed, noting that wires to wires agreements with SWTC and TEP would be the way to go, as opposed to an LGIP agreement.

Randy Etheridge stated that there are potential resources in the area for the proposed line and provided information regarding Tessera's project in the area, which is #78 in the APS queue. This, he felt, should be the next step for Black Forest and offered to arrange a meeting between their respective companies, prior to discussions with SWTC and TEP.

The group encouraged Black Forest, through their marketing arm, to start talking to various generators in the area. Doug concurred, stating that this is being done, but that while Black Forest has a lot of investors that are interested in the Project a critical piece of the viability of the Project is interest by entities in the area.

Ron expressed a desire to work with Black Forest under the current FERC guidelines, but wanted to know how to deal with the intermittency of the solar resources. There will be a need to know the types of conventional generation that will be placed on the system, if any. Don asked how a cost of dispatch would be handled with the proposed interconnections. Cary replied that this would be a negotiated issue and that Black Forest will not cause inadvertent re-dispatch costs to happen. Ron explained that under the FERC guidelines, if a customer submits an interconnection request, the transmission provider must determine if it can accommodate the request. If the transmission provider has looked at re-dispatch, the customer would be required to pay the incremental difference in the cost of the re-dispatch. Cary agreed but said that this holds true if a customer wants to use the proposed line, but that it does not apply if Black Forest does not want to use the transmission provider lines. In any case there is a need to determine what this impact is to the utilities. Cary offered that Black Forest would be willing to develop a nomogram to help determine these impacts.

It was also noted that the WECC Three-phase Rating Process is a means of helping Black Forest to get a protect rating.

Cary stated that if the work to date is sufficient to show that Southline is a viable Project, then he will contact each utility so that Black Forest can proceed with their plans.

The presentation given today will be provided to Bruce so that it can be sent to the SATS participants.

9) 2010 Study Plan

Gary reviewed the 2010 Study Plan with the group:

- Present Plan and subsequent findings to SWAT, Westconnect, and local stakeholders;
- Revise load forecasts;
- Develop base cases for 2010 study;
- Conduct study to determine impacts of deferring previously planned projects;
- Investigate alternate configurations to mitigate high flows on the Winchester 345/230 kV transformer, Apache – Bicknell 230 kV line, and Bicknell 345/230 kV transformer caused by EHV system contingencies;
- Develop and evaluate alternatives to the two joint Tortolita – North Loop 345 kV proposals based on the SPPR Three Terminal proposal;
- Develop and evaluate alternatives for joint SWTC/TEP substation(s) to supply TEP/Trico loads south of Tucson;
- Identify potential projects in the SATS footprint;
- VAR Margin Study – 230 kV and above.

The SWTC/TEP substations to supply TEP/Trico loads south of Tucson would likely be done through a sub-group of SATS.

The 2010 Study Plan was approved and will be presented at the SWAT Oversight Committee Meeting next month.

The first action item out of the 2010 Study Plan is for entities to provide Gary with load forecasts for the 2011-2020 time frame by March 1st.

Development of Base Cases:

- How many cases to develop for 2010 study?
- Proposed cases
 - 2012 Heavy Summer
 - 2015 Heavy Summer
 - 2020 Heavy Summer
- Schedule
 - Start: February 1, 2010
 - End: March 31, 2010

The cases will also be coordinated with CATS. TEP has volunteered to coordinate the cases. A 2020 case that has been used by High Plains Express for study work is being

proposed at WestConnect. Approval to use this case was expected at the last Planning Management Committee Conference Call, but there was not a quorum on the call to vote for it. An e-mail vote will be conducted next, and so it probably best that the 2020 case be developed last. An advantage of this WestConnect case is that it would have a dynamics data (dyd) file associated with it for stability studies. Gary proposed developing the 2012 case from last year's SATS 2012 case and using a 2015 WECC case, if it becomes available by mid-February. Gary accepted an action item to call Kent Bolton of WECC to inquire about the availability of the 2015HS case by mid-February. The 2020 case that is used by SATS will either be a WECC 2019HS case or the WestConnect 2020 HPX case.

CASE ISSUES:

- Apache – Del Bac 115 kV impedances. Bruce noted that as far as he knows, these have all been resolved by Western. Future cases should reflect updated impedances on this path.
- Duplication of loads
 - Lumped load models vs. detailed representations. Since Western was unable to be in attendance at today's meeting, Bruce accepted an action item to call Josh Johnston to discuss this issue.

PROJECTS TO INCLUDE?

- Southeast Valley/Pinal Central – Tortolita
- SunZia
- Black Forest Southline
- TEP/SWTC Quad
- Apache – Bicknell Reconductor
- SWTC Transformer Additions/Replacements
- TEP 138 kV Line Uprates

The thought is to include all of these projects in the cases, but status out the ones that we know won't be on-line in a particular study year, and status on those that we know will be. Cary suggested that if there is a problem in the studies and one of these projects alleviates the problem, then the project should be statused-in. Gary agreed and stated that if a private project benefits the system, it will be noted. Gary also suggested that the projects that were proposed to Western for the TIP Program will also be included.

Ron suggested using the WestConnect Transmission Plan model – if a project is a planned project, then status it in. If the project is a conceptual project, then status it out.

10) SATS 2009 Report

A final draft of the SATS 2009 Report was sent out last Friday to participants. No additional comments were received as of noon yesterday.

A few additional changes were made to the final draft and it was approved. An action item will be for it to be sent out as a final document, with these changes, to SATS participants and for posting on the WestConnect website. It, too, will be presented at the SWAT Oversight Committee Meeting next month.

11) Additional Items

There were no additional items for discussion.

12) Review of Action Items

- 1) Entities are to send Gary Trent their load forecasts for the 2011-2020 time frame by March 1st.
- 2) Gary to call Kent Bolton of WECC regarding the availability of a WECC 2015HS base case by mid-February.
- 3) Bruce to contact Western regarding lumped loads in SATS Base Cases.
- 4) Final SATS Report to be distributed to SATS Membership.

13) Next Meeting Agenda

The meeting agenda for the next meeting, subject to change prior to the meeting, is as follows:

- 1) Review/Approve Meeting Notes
- 2) SunZia Update
- 3) Southline Project Update
- 4) Load Forecast Update
- 5) Base Case Development Update
- 6) Three Terminal Project Update

14) Next Steps/Meeting(s)

The next meeting will be held on April 8th at TEP's Offices