

**Final SATS Conference Call Notes  
April 8, 2010**

Attendees:

Bruce Evans, SWTC  
Cary Deise, USE Consulting  
Bill Kipp, Black Forest  
Doug Patterson, Black Forest  
Jim Tang, CAP  
Reuben Ruiz, CAP  
Phil Hutton, Kleinfelter  
Stephen Mellentine, SRP  
Cindy Bailey, SWPG  
Vincent Thor, APS  
Philip Hobbs, Tohono O'odham Nation  
Kathy Estrada, TEP  
Lisa Tzot, Tessera Solar  
Kevin Serrato, SWCA  
Joshua Johnston, Western  
Gabriela Canales, Hunt Oil  
Bryan Krawchshyn, TransCanada  
Bart Jones, TransCanada  
Don Stoneberger, FMI  
Estit Ramirez, APS  
David Tovar, EPE  
Gary Trent, TEP  
Jim Hsu, PDS Consulting  
Gary Romero, KRSA

Agenda Items:

1) Welcome and Introductions

Gary Trent welcomed everyone to the call and the Go To Meeting feature. He asked for all to introduce themselves.

2) Review Agenda

No new items were added to the agenda.

3) Review/Approve 1/21/10 Meeting Notes

Two comments were received. The last sentence of the next to last paragraph on page 3 should read: "The ROD should be issued by December 2012 or earlier." The other

comment asked for a definition of the acronym “dyd” in the first paragraph on page 7. Gary Trent explained that it means a dynamics data file. Bruce will spell this out in the final notes. No other comments received. Bruce will final the Notes and send them out with the action items from this meeting.

#### 4) Review Action Items from 1/21/10 Meeting

1. Entities are to send Gary Trent their load forecasts for the 2011-2020 time frame by March 1<sup>st</sup>. **To date, only CAP and FMI have sent in their load forecasts. Those still needing to send in their forecasts should do so ASAP.**
2. Gary to call Kent Bolton of WECC regarding the availability of a WEC 2015HS base case by mid-February. **This item is complete, but Gary will discuss it in detail under agenda item #9.**
3. Bruce to contact Western regarding lumped loads in SATS Base Cases. **Bruce reported that he had contacted Western, but found that they were not responsible for the particular lumped loads. He subsequently contacted APS, who has addressed the issue.**
4. Final SATS Report to be distributed to SATS Membership. **This item is complete.**

#### 5) February 2010 SWAT Meeting

- a) 2009 SATS Report. At the SWAT Oversight Committee Meeting held on February 16<sup>th</sup> this report was approved.
- b) 2010 SATS Study Plan. This was also approved at the SWAT Oversight Committee Meeting. Gary also reported that the SATS Report was provided to the TEP Legal Department and subsequently docketed with the ACC.

#### 6) Cochise County Study Update

David Bryan was unable to attend the conference call today and Bruce provided the update for this agenda item based on an e-mail he received from David.

The Cochise County Study Group (CCSG) is continuing to move ahead with the mandate set by the ACC in the 2008 BTA. In January 2010, SWTC docketed, on behalf of the CCSG participants, the CCSG’s 2009 Report with specific system recommendations. APS’s and TEP’s 10 year plans referenced this report. SSVEC docketed a letter of support on the Report. For 2010, CCSG has set some modest goals as CCSG is awaiting comments from the ACC on its 2009 Study Report.

The 2010 Goals for the CCSG are as follows:

- 1) Negotiate and execute the McNeal Amendment No. 1 with original design, procurement and installation costs and on-going monthly costs to be split evenly between APS and SSVEC.

- 2) WAPA to begin work of creating a new McNeal and Palominas Tie Agreement (normally open ties) between the parties using the existing McNeal Tie Agreement plus any current Amendments as the basis.
- 3) Complete a high-level Facilities Study [individual utilities review their facilities to determine improvements and estimate the cost.]

Gary asked if anyone on the call had attended the last meeting and could provide additional information. Vincent Thor replied that he attended the meeting and that what Bruce had reported was correct. Basically the group has decided to hold off on any more study efforts until the ACC has reviewed the CCSG Report. He confirmed that each utility was asked to do its own facility evaluation.

The next meeting of the group will be held at Western's offices on May 10<sup>th</sup> and will start at 1:30 p.m. Those interested in attending this meeting need to contact David Bryan.

#### 7) SunZia Update

Cindy Bailey and Jim Hsu were on the call to discuss this project. Cindy provided an update on the project, noting the study area has been expanded for the project. As a result of scoping comments, preliminary studies and consultations with interested parties, and governmental resource agencies, the BLM made a decision to consider the potential for additional routes in Arizona and New Mexico. The route considers two additional counties in New Mexico, Torrance and Valencia, and is also to consider alternate routes that will not impact military training and testing operations at White Sands Missile Range, Holloman Air Force Base, Kirtland Air Force Base, Cannon Air Force Base and Fort Bliss. In Arizona, the San Pedro River and Sulphur Springs Valley are two areas that are to be avoided, and the I-10 corridor is to be utilized through the Tucson metropolitan area.

An open house public scoping meeting will be held at the Socorro County Fairgrounds in New Mexico on April 27<sup>th</sup> with another public scoping meeting being held at the Holiday Inn on South Palo Verde Road in Tucson on April 29<sup>th</sup>. Both of these meetings will provide additional technical and environmental information to the public about the project and the proposed EIS.

The question was asked how much will the new routes increase the distance of the line? Cindy replied that that is an unknown at this time. The proposed routes will be discussed at the two scoping meetings to get feedback from stakeholders and then an evaluation will be made of the line length.

Jim Hsu discussed the recent activities to date with regards to the SunZia project. A Phase II Review Group meeting was held on February 10<sup>th</sup>. The project entered Phase 1 on July 12, 2007 and was completed on July 27, 2009 with acceptance of the comprehensive project report leading to the initiation of Phase II. Phase 2 is expected to be completed before the end of 2010. TEP, APS, PNM, and SRP are the transmission providers that are involved in the Phase II Review Group.

The project will originate at a substation called SunZia East and will continue to a substation called SunZia South, where a stepdown transformer will be installed to tie into the Luna to McKinley 345 kV line. The line will then continue from SunZia South to Willow and from Willow to Pinal Central. The line will have series compensation. SunZia East To SunZia South will have a value of 70% compensation, SunZia South to Willow will have a value of 50% compensation and Willow to Pinal Central will have a value of 50% compensation.

The original plan of service is still valid to achieve a 3,000 MW rating. Criteria was met for power flow (thermal and voltage), transient stability and post-transient stability.

The N-1 power flow results are as follows:

- 2013 Heavy Summer Base Case
  - SunZia E – SunZia S 500 kV #1 (99.1% Rating)
  - SunZia S – Willow 500 kV #1 (92.4% Rating)
- 2013 Heavy Winter Base Case
  - SunZia E – SunZia S 500 kV #1 (99.3% Rating)
  - SunZia S – Willow 500 kV #1 (89.6% Rating)

The N-2 power flow results are as follows:

- 2013 Heavy Summer Base Case
  - Winchester – Vail 345 kV Overload (106.8%) for Greenlee – Willow and Springerville – Vail2 Outage (RAS: Reducing SunZia generation by 650 MW)
  - Winchester – Vail 345 kV Overload (105.0%) for Springerville – Greenlee and Springerville – Vail2 Outage (RAS: Reducing SunZia generation by 500 MW)
- 2013 Heavy Winter Base Case
  - None

Sensitivity cases were run with no additional violations or mitigations needed:

<u>Sensitivity</u>	<u>Additional Violation</u>	<u>Additional Mitigation</u>
PNM/EPE 500 MW	None	None
TEP/EPE 500 MW	None	None
TEP 1000 MW	None	None
Bowie & Luna Gen Off-Line	None	None

The N-1 Stability Results Summary:

Severity ranking was indicated as follows:

- A three-phase fault at SunZia E 500 kV bus with loss of one SunZia E – SunZia S 500 kV line and generation tripping of 1500 MW
- A three-phase fault at SunZia S 500 kV bus with loss of one SunZia S – Willow 500 kV line and generation tripping of 500 MW
- A three-phase fault at Willow 500 kV bus with loss of one Willow – Pinal Central 500 kV line
- 400 MVAR of SunZia SVC was modeled
- All other cases tested met the voltage dip, damping and frequency deviation limits

The N-2 Stability Results Summary:

Severity ranking was indicated as follows:

- A three-phase fault at SunZia E 500 kV bus with loss of two SunZia E – SunZia S 500 kV lines and generation tripping of 3000 MW
- A three-phase fault at SunZia S 500 kV bus with loss of two SunZia S – Willow 500 kV lines and generation tripping of 2000 MW
- A three-phase fault at Willow 500 kV bus with loss of two Willow – Pinal Central 500 kV lines and generation tripping of 1500 MW
- All other cases tested met the voltage dip, damping and frequency deviation limits

Sensitivity Stability cases were run with no additional violations or mitigations:

<u>Sensitivity</u>	<u>Violation</u>	<u>Additional Mitigation</u>
Wind Type 3	No	None
3000 MW Wind	No	None
2000 MW Wind 1000 MW Thermal	No	None
No Qgen for Wind	No	None
No SVC @ SunZia E	No	None

The N-1 Post-Transient Results Summary:

Severity ranking was indicated as follows:

- Loss of one SunZia S – Willow 500 kV (Tripping 500 MW Gen)  
(Willow 500 kV drop 2.4% in HS Case vs. 2.4% in HW Case)

- Loss of one Willow – Pinal Central 500 kV (No gen tripping)  
(Willow 500 kV drop 2.3% in HS Case vs. 2.3% in HW Case)
- Loss of one Winchester - Vail 345 kV line  
(Vail 345 kV drop 3.1% in HS Case vs. 1.2% in HW Case)
- All other N-1 cases tested met the 5% voltage deviation limit

The N-2 Post-Transient Results Summary:

Severity ranking was indicated as follows:

- Loss of Winchester – Vail & Springerville – Vail 2 345 kV Lines (With RAS of Tripping Gen & Adding Shunt Cap)  
(Vail 345 kV drop 7.4% in HS Case vs. 4.2% in HW Case)
- Loss of two Willow – Pinal Central 500 kV line (No RAS)  
(Vail 345 kV drop 5.6% in HS Case vs. 4.6% in HW Case)
- Loss of two SunZia S – Willow 500 kV lines (Tripping 2000 MW Gen)  
(Greenlee 345 kV drop 4.7% in HS Case vs. 3.7% in HW Case)
- All other N-2 cases tested met the 10% voltage deviation limit

The following simultaneous studies are being worked on now, and will be reported on at the next meeting:

- Evaluate SunZia Simultaneous Impacts with the following paths:
  - Path 47 (NM1): 1048 MW
  - Path 48 (NM2): 1970 MW
  - Path 54 (COR-SKG): 1494 MW
  - Path 50 (CHO-PPK): 1200 MW
  - Path 22 (Four Corners West): 2325 MW
  - Path 66 (COI): 4800 MW
- Mitigations will be developed if any violations are discovered in power flow, stability, and post-transient criteria limits

Additional Sensitivity Studies:

- Projects Similarly Situated
  - Path 51 (Navajo South) at 3200 MW
- Projects Not Similarly Situated
  - NM Collector System
  - High Plains Express
  - PNM Connection
  - Springerville Injection
- Luna/Hidalgo/SunZia S substations
- Willow – Tortolita 500 kV Line Alternative

### Sensitivity Analyses Scope:

- Studies will be limited to running the sensitivity case on the non-simultaneous basis and under the most critical contingency only
- If criteria violations are found, no attempt at identifying mitigation measures will be pursued
- Study results to be used only for information purposes

### Parallel Studies:

- Switchable Shunt Line Reactors Study
- RAS Arming Study
  - Generation & Load Drop Sizes & Locations
  - Arming
- Short Circuit
- Others?

### Phase II Rating Study Milestone Schedule:

- |   |                      |   |
|---|----------------------|---|
| • Develop Draft Working Study Plan            | 08/20/09             | X |
| • PRG Meeting #1                              | 08/27/09             | X |
| • Develop Pre-Project Base Cases              | 09/18/09             | X |
| • Finalize Working Study Plan                 | 09/25/09             | X |
| • Develop Post-Project Non-Simultaneous Cases | 10/15/09             | X |
| • Complete Non-Simultaneous Studies           | 12/25/09             | X |
| • PRG Meeting #2                              | 01/07/10 to 02/10/10 |   |
| • Develop Simultaneous Base Cases             | 01/15/10 to 03/01/10 |   |
| • Complete Simultaneous Studies               | 05/28/10             |   |
| • PRG Meeting #3                              | 06/18/10             |   |
| • Develop Sensitivity Base Cases              | 06/25/10             |   |
| • Complete Sensitivity/Parallel Studies       | 09/10/10             |   |
| • Draft Report                                | 09/30/10             |   |
| • PRG Meeting #4                              | 10/08/10             |   |
| • Final Report                                | 10/15/10             |   |

A question was asked about the rating of Navajo South Path. APS went through the WECC Three-phase Rating Process for this path and came up with a value of 2800 MW. Why is the value represented by SunZia higher? Jim replied that these are the kinds of things that he will be looking at.

Another question was raised about the changes to the route – will this have an impact on the studies that need to be completed? Jim replied that once the EIS is complete the model will change and the studies will be based on the new data.

Jim noted that more information can be found on the following websites:

Project Website: [www.sunzia.net](http://www.sunzia.net)

BLM EIS Website:

[www.blm.gov/nm/st/en/prog/more/lands\\_realty/sunzia\\_southwest\\_transmission.html](http://www.blm.gov/nm/st/en/prog/more/lands_realty/sunzia_southwest_transmission.html)

#### 8) 2010 Load Forecast Update

So far, Gary has only received forecasts from FMI and CAP. He encouraged others to get their load forecasts to him ASAP.

#### 9) Base Case Development

- 2012 Heavy Summer Case
  - Complete and distributed
- 2015 Heavy Summer Case
  - WECC case not approved. May need a back-up plan if this case isn't approved in a timely manner. Plan would be to use the SATS 2014 base case from last year.
- 2020 Heavy Summer Case
  - Comments due this week
  - Distribution expected by Monday 4/12/2010

#### 10) Three Terminal Project

Gary asked if there was anyone on the line who could talk about the Three Terminal Project. Josh Johnston stated that he could speak to it on behalf of Western. Western is working with SPPR Members to finalize their needs and coordinate with the Western 10 Year Plan. Josh offered to provide an update on this at future meetings.

Gary Romero joined the call later and stated that discussions are still ongoing on the project. He mentioned that the 3 Terminal Plan was filed with WestConnect and the ACC. This is the status of the project until further notice. Gary Trent accepted an action item to send the 2020HS base case to Gary Romero so that the project can be included in it.

#### 11) SWTC/TEP 2<sup>nd</sup> Quarter Stakeholder Meeting

The date for this meeting has tentatively been set for June 3<sup>rd</sup> and will be held at TEP's Irvington Campus. Additionally, the ability for On-line and conference call access will be available for those who are unable to attend in person. Those wanting to attend the meeting in person will need to go through TEP Security. A formal meeting notice will be sent out 30 days prior to the meeting.

Bruce noted that the presentation for the meeting will be sent out ahead of time for stakeholders to review.

## 12) Southline Project Update

Doug Patterson stated that he did not have a formal presentation to give, but had 4 key points to make to the group regarding the project:

- 1) Siting related issues. Black Forest has been working with BLM on the proposed ROW for the Southline Project and it has been accepted. They are currently working with BLM on a cost agreement for the ROW and on items related to a proposed EIS.
- 2) Support and interest in the project. Black Forest had some very successful meetings in Washington, D.C. concerning the project and the folks they met with are very supportive of their efforts to build transmission to accelerate the growth of renewable in this country and to help spur job growth.
- 3) Need for the project. Black Forest has held meetings with various renewable developers in the area which have also been encouraging and have confirmed that the size and scope of the project are suitable for moving forward.
- 4) Proposal to SATS for study sub-group. The Southline Project was introduced at the WestConnect Steering Committee Meeting in October last year. The purpose of the project is to collect renewable resources in New Mexico and Arizona and get them to market hubs. The Steering Committee suggested that Black Forest get involved in SWAT and SATS. Input was collected from various stakeholders for a preliminary route and study. The results of the preliminary study were presented to SATS at its January 21<sup>st</sup> meeting and no show stoppers were revealed. Black Forest then initiated meetings with regional transmission providers and discussed potential integration with other projects proposed in the project study area. The purpose of the study sub-group is to provide an open, transparent process for all interested parties to be a part of a joint study to look at all of the available options to produce the most optimal, cost-effective solution to build the project.

Black Forest encouraged all entities to participate in the study sub-group. Individuals wanting to participate can help fund the project, be involved as time will allow or be a reviewer of the study results. Doug has developed a participation interest form that he can route to the group.

Gary asked that either Doug or Cary send a request to SATS for the joint study sub-group so as to populate the sub-group with interested parties. This will give the interested parties time to discuss their level of participation with their managers.

Gary also noted that he had discussed this with Cary and that he has a call into Rob Kondziolka regarding how this will be done. The WECC PCC recently voted on changes to the WECC Regional Planning Process, which is now called Regional Coordination, and the revised document will be voted on by the WECC Board at the end of this month. A Project Coordination Review Group can use sub-regional planning groups as a forum for the project, as per the revised document. Since SWAT is a sub-regional planning

group, then it is likely that SATS, CATS and NM will need involvement in the Southline Project. An assignment could be given to SATS to perform the work.

Cary asked if the project will need to go to WECC for approval. Gary replied that it would. He stated that he felt that the Board action on the revised changes to the Regional Planning Process will likely be discussed at the SWAT Oversight Committee Meeting next month. Discussion of how to proceed in this manner can then be addressed – whether it will occur at the SWAT level or at SATS. Gary will get with Rob to ensure that this is an agenda item for SWAT so that consideration of the direction that we need to take can be firmed up.

Cary asked Doug to provide an e-mail to Bruce containing the Southline Joint Study Proposal and an Interest form, so that he could then send it to the SATS Membership and also include Rob Kondziolka on the list. Bruce accepted an action to send Doug's e-mail to the group and to Rob for notification to the general SWAT membership.

#### 13) Additional Agenda Items

No additional items were put forth for discussion.

#### 14) Review of Action Items

- 1) Entities that have not sent their load forecasts for the 2011-2020 timeframe to Gary Trent should do so ASAP .
- 2) Doug Patterson will send Bruce an e-mail of a proposal to set up a Southline Project Study Group within SATS. Bruce will forward this e-mail to the SATS Membership and also to Rob Kondziolka for notification to the general SWAT membership.
- 3) Comments to the 2020HS Base Case are due this week. Gary to coordinate comments to the case and distribute when finalized. The 2015HS Base Case will be sent out for comment when available from WECC.
- 4) Gary Trent to include Gary Romero in the distribution of the 2020HS Base Case for inclusion of the 3 Terminal Plan.

#### 15) 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

## 16) Next Meeting(s)

The following meeting dates are currently scheduled:

- SWAT Meetings
  - Albuquerque
  - May 4-5
- SATS
  - Next SATS meeting is tentatively set for May 27<sup>th</sup> at TEP's offices
  - SWTC/TEP 2<sup>nd</sup> Quarter Stakeholder Meeting is tentatively set for June 3<sup>rd</sup> at TEP's offices