Final SATS Meeting Notes
TEP's Offices
August 14, 2008

Attendees:

Bruce Evans, SWTC
EvaMarie King, SWTC
Ron Belval, TEP
Bobby Chavez, TEP
Estit Ramirez, APS
Jim Rein, SWTC
Stan Sierra, SWTC
Cindy Bailey, SWPG/SunZia
Mark Etherton, PDS/SunZia
Ray Som, SWTC
Mike Gazda, APA
Don Adams, KRSA
Gary Romero, KRSA
Suzanne James-King, 3M
Ken Bagley, SSVEC/Genesee
Joe Herrera, ED3/CATS-HV
Craig Hansen, Ft. Huachuca
Dale Benth, Ft. Huachuca
David Bryan, SSVEC
Paul Roquet, SSVEC
Gary Ijams, CAWCD

On Phone Bridge:

Vincent Thor, APS
Sedina Eric, FERC

Agenda Items:

1) Welcome and Introductions

Ron Belval welcomed everyone to TEP's offices and asked all to introduce themselves and to discuss their interests in SATS.

Ron stated that Item #6 of the proposed agenda, Cochise County Study Report, will be moved up for discussion and become Agenda Item #3. In addition, he asked for time to discuss a new agenda item, SATS Presentation to SWAT Oversight Committee Meeting. This will become Agenda Item #11.

2) Review/Approve 7/17/2008 Meeting Notes

Only one comment to the notes was received, which came from Dianne Kresich of ADOT. She asked that on page 2 of the notes that wording be added to convey that the

Regional Framework Studies, including Central Arizona, are still underway, and that study progress can be tracked on www.bqaz.gov. The results will be posted when the studies are complete. She also asked that a statement be added to the effect that the effort to increase the sales tax by one cent is being conducted by the TIME Coalition, which is a private group, and not ADOT.

Bruce will incorporate these changes and send the notes out as final next week.

3) Cochise County Study Report

Ken Bagley provided a Power Point Presentation to the Group:

Slide #1: Cochise County Report

- Status – Nearly Done
- Expected Completion – Any Day Now

Slide #2: Cochise County Report

- Study Group Participants
  - APS
  - Fort Huachuca
  - SSVEC
  - SWTC
  - TEP
  - Western

Ken noted that the group has held 3 official meetings.

Slide #3: Cochise County Report History

- 6-25-08 1st Draft Issued
  - Requested Comments by 7-03-08
- 7-03-08 Reminder E-mail

Slide #4: Cochise County Report History

- 7-10-08 TEP Provided Comments
- 7-16-08 SWTC Provided Comments
- 7-24-08 SSVEC Commented on Comments
- 7-27-08 2nd Draft Issued
  - Requested Comments by August 1st

Slide #5: Cochise County Report History

- 7-28-08 SSVEC Comments on 2nd Draft
  - Minor comments on sub-transmission and 230 kV

    - No other comments received by August 1st
- 8-05-08 3rd Draft Issued
    - (Optimism was running high)

Slide #6: Cochise County Report History

- 8-07-08 SWTC Comments on 3rd Draft
- 8-08-08 TEP Comments on 3rd Draft
- 8-11-08 SSVEC Comments on SWTC Comments
- 8-12-08 SWTC Comments on SSVEC Comments on SWTC Comments
- 8-13-08 Fort Huachuca Comments on TEP Comments

Slide #7: Cochise County Report

- Primary Remaining Issues
    - Study Group's Conclusion on Sierra Vista
    - Service to Fort
    - Under Summary of Issues – SWTC or SSVEC?
    - Final Call on Issue Description – Affected Parties or All Participants?
- Need for Additional Meeting?

Ken asked the group if there is a need for an additional meeting of the Cochise County Group. The group agreed that an additional meeting is needed. One of the things to discuss at the next meeting is how the Cochise County Study Report fits into the SATS Report.

Jim stated that the results of the ROW Study need to be included in the report, provided that they will be completed in a timely manner. David feels, however, that the Report should reflect what was discussed. He expressed the thought that perhaps the Report should contain two differing conclusions, one position from SSVEC and one position from SWTC.

Overall, the group feels that Draft #3 is close, but there is still disagreement between SWTC and SSVEC.

David suggested that comments to the Report be highlighted in a group, such as Issue No. 1, etc. Ken stated that he would like to see a "cut-off" as to what will be discussed in this Report. It can always be amended later to add what is to be done going forward.

Ron suggested that a cut-off date for the SATS and SATS Subgroup reports needs to be set up. David suggested a formal date of January 9th. In any case, it was proposed that there be discussion at the next meeting as to how to resolve the differences between SSVEC and SWTC. The group also suggested some additional possibilities, such as a 2nd Study Report with its own Study Plan. Or, merely have updates to the Group's efforts, at each SATS meeting or develop a simple study scope schedule.

David accepted an action item to send out a notice to all participants of the next Cochise County Study Meeting, proposed for August 28th, at SSVEC's Benson offices. The meeting will start at 10:00 a.m.

Representatives from Fort Huachuca, who were in attendance at the meeting, stated that they are very much interested in any new transmission that is built in Cochise County. Any new transmission that is built will need to fit into their overall mission, particularly as it relates to maintaining radio interference free zones. The Fort also expressed that they have issues with their current level of service from TEP. They agreed that the best place to discuss their issues would be at the August 28th meeting.

4) South & Southwest Tucson Study Area

a. SATS TP Subgroup. TEP has done a long range system study and have identified alternative projects that contribute to solutions covering 10, 20 and possibly even 30 years into the future. However, issues are showing up just beyond 2013. There are multiple projects, some of which may be competing, that, if one or two are implemented by 2014 would meet the needs for a few years. The dilemma is that no sponsors are prepared to step up for the first project at this time. Therefore there is a need to agree which may be joint transmission projects, that may be selected as having the highest probability of being implemented early enough to solve these issues. The key is to study the interconnected transmission system as a single system. For this reason, the SATS Transmission Planning Subgroup or SATS TPSG has been set up and the timeframe for the studies under consideration by the group are 2010-2018.

   Jim Charters asked if TEP had gotten cooperation with City and County entities as it regards their long range plans. Ron replied that TEP is making progress informing the various jurisdictions of the need to identify potential transmission line corridors and substation sites. The challenge is achieving consensus on the location and extent of potential load growth as the basis for identifying the potential corridors and substations sites. Regardless, TEP has relied on the jurisdictions' land use plans to model load within the TEP service territory. That effort ultimately resulted in identification of facilities needed to meet future demand for electricity. The goal is to get these proposed corridors into City, Town and County land-use plans. Having corridors and sites incorporated into jurisdictional land use plans does not circumvent federal, state or local sitting authority.

   Jim also asked if these entities are willing to participate in SATS in the future. Ron replied that the jurisdictions have not expressed specific interest in participating in SATS. Nevertheless TEP continues to schedule sessions with individual jurisdictions with the expectation of convening a meeting, bringing all jurisdictions and other stakeholders together to share our findings and recommendations. The most we can reasonably do as planners is develop our models, assumptions and alternative projects based on the best information

available. Then share our results with stakeholders, ask for their input and do the best we can to incorporate their input into the final recommended plan. The benefit of this process is that it provides the opportunity to work together with stakeholders so we may all be better informed to actively participate when the time comes to request regulatory approval for specific transmission and substation projects.

Mark noted that the Pinal County Comprehensive Plan is currently out for review. It includes the CATS-HV Saturated Load Study Results. Mark will be providing comments to the Plan for incorporation of the SunZia Project.

Ron stated that in addition to city, town and county comprehensive plans, transportation is becoming a vital issue and noted that SATS has had representatives from ADOT at the last two SATS meetings. There is a lot of common ground between ADOT and SATS and both entities are committed to working together.

Ron produced a map that was marked-up at the initial meeting of the SATS TPSG. He stated that decisions regarding which projects to model in the 2014 to 2018 timeframe need to be made as soon as possible, particularly in the Greenlee-Vail 345 kV transmission line corridor. The parallel SWTC 230 kV system becomes overloaded in the 2014 time frame for loss of the two 345 kV lines in this corridor. The fix to this problem (addition of parallel 345kV lines) is very expensive. In addition, the planned interconnection of the Bowie Power Plant at Willow by 2012 will accelerate this impact. The Bowie plant is a needed resource for the SATS area, but it also adds to the overloading of the SWTC 230 kV system when the parallel 345kV lines are out.

Ron noted that growing Trico loads in the vicinity of Tucson as well as the growing APS and SSVEC loads in Cochise County, all within the entire SATS footprint, will have an impact in this timeframe.

The TPSG will be using the latest WestConnect 2013 base case for its studies. A load-serving capability study will be performed for the entire SATS footprint. The TPSG will also look into determining projects to include in a new 2018 base case.

Bobby Chavez displayed a Visio Drawing of the area showing the various load pockets and their corresponding loads. As mentioned by Ron, the issues occur upon loss of the 2 – 345 kV lines from Winchester to Vail, which overloads the Apache to Butterfield 230 kV line, with overloads extending as far as Bicknell depending upon area loads. A potential alternative solution to this problem is to upgrade Western's 115 kV line, which parallels SWTC's 230 kV line, from Apache to Nogales Tap. This would provide a parallel 230 kV path. A possibility also exists of looping SWTC's Bicknell – Vail 345kV line into the TEP South station. Another option is to consider looping SWTC's 230 kV line into the South Station. However, none of these options have been studied in any detail.

A “brute force” fix is to add in 2 new 345 kV lines from Winchester to Vail.

Another problem that occurs, once Bowie ties to Willow, would be the loss of the Willow to Greenlee and Willow to Winchester 345 kV lines. Mark stated that Bowie would be set up to trip off under such an N-2 condition. He also mentioned that he has revised the model for the SunZia Project, which may help to alleviate certain N-2 outages. Additionally, the first segment of the SunZia Project could be in-service by 2013. While this has not been modeled in the TEP studies, TEP agreed to add it to the model, switched off to conduct future sensitivity studies.

When asked about the use of high ampacity conductors as a solution for the overloads that are seen, Ron stated that they are being considered.

In the model used by TEP, Bobby noted that the 345/230 kV transformation, with the Western 115 kV line converted to 230 kV operation shows flows going from the 230 kV to 345 kV in some cases. Another potential solution is a phase-shifting transformer at Bicknell.

Bobby pointed out on the visio drawing that the Cochise County load pocket was 436 MW. Someone questioned if this number was correct. EvaMarie replied that it was not. The drawing represents a double-counting of the SSVEC load in that area. Western now reports the SSVEC loads in the WECC base cases. EvaMarie had also provided the loads to TEP for the studies, but the loads were not double-counted in the case. There would be no fixes necessary in the PSLF study cases.

Ron explained that load-serving capability study for the entire area could indicate a need to accelerate projects. Ron asked each entity if they felt their loads were correctly stated in the cases. APS replied that theirs were okay. SSVEC replied that theirs were slightly understated but were okay for the study. Fort Huachuca replied that their load representation at 25 MW was okay.

Ron reiterated the fact that these studies and their outcomes are a critical path for SATS. Initial studies are showing that significant steps (as described in the document below) need to be taken within the next 5 years.

Ron passed out a document entitled “SATS Study Area Definition & Summary of Characteristics/Potential Solutions.” This document is intended to serve as a starting point and guide to define the scope of the analysis to be done by the SATS Transmission Planning SubGroup (TPSG) It is reproduced below:

SATS – Study Area Definition and Summary of Characteristics / Potential Solutions
July 23, 2008
Revised: August 13, 2008

The purpose of this paper is to get the ball rolling on the joint planning effort to address issues and to identify possible joint projects. As discussed during our teleconference on July 22nd, we generally agree on strategies to meet saturation load level needs. The

critical problem is deciding the sequence of the alternative projects to pursue as well as how to allocate those costs in the 2010 to 2018 time frame. Therefore we agree that our focus should be on evaluation of system constraints under a variety of scenarios, modeling cases in the 2011 to 2018 planning horizon. At the meeting on August 4, 2008 at TEP, the SATS Transmission Planning Subgroup (SATS_TPS) participants agreed to conduct load serving capability (LSC) analyses wherein TEP, Trico and SSVEC loads would be scaled as if they were a single system. Since system issues arise within the five year time frame, a current 2013 heavy summer case is recommended for the LSC analysis. As the information becomes available, LSC analysis may subsequently be done with Freeport-McMoran loads added. We are generally looking at three areas initially, and then integrating solutions among the three areas. The areas and their respective characteristics and potential solutions are described as follows:

Greenlee to Vail EHV and 230kV Corridor Area
Characteristics: This area includes two 345kV lines in parallel with an interconnected 230kV system. Key features are:

- Growing TEP and Trico loads are increasing stress on the parallel 345kV and 230kV transmission lines. The critical contingency is loss of the Express and the Winchester - Vail 345kV lines.
- WAPA owns a significant portion of the 115kV system paralleling the SWTC 230kV lines from Apache into Tucson. Limitations associated with this 115kV system are not clearly understood at this time.
- A new 500 MW generator is proposed to be interconnected at a new Willow 345kV switching station to be located on the Greenlee - Winchester 345kV line at the point where the Dos Condado - Red Tail 230kV line crosses. This power plant may become an important resource to supply growing area loads, but will require certain EHV, and possibly other local system reinforcements. Critical contingencies involve loss of the Express line with either the Winchester - Vail 345kV or the Willow - Winchester 345kV lines.
- The Apache to Winchester portion of the 115kV line from Apache to Hayden is constructed at 230kV. Conversion to 230kV operation may be accomplished by adding 230/115kV transformation at Winchester to supply SWTC load to Hayden, and possibly addition of a second 345/230 kV transformer at Winchester.
- Phelps Dodge plans to increase Morenci area load. Hackberry load growth is according to plans to achieve 100 MW by 2011. PD Morenci load has been reported to increase to 260-280 MW by 2008, and to 440-480 MW in the 2009/2010 time frame.
- Apache generation station may be considered for generation expansion?
- SunZia Project was announced to be in service by 2013. This project is not certain, but should be evaluated. Interconnection at Winchester, were it to occur, would require EHV reinforcement.

Potential Solutions: Alternatives to mitigate overloads caused by critical contingencies include the following:

- New 345kV Winchester – Vail double circuit line
- New 345kV Willow – Winchester double circuit
- Winchester – Tortolita 500kV line
- Uprate 230kV Apache – Bicknell line

- Convert Apache – Winchester 115kV to 230kV (Includes 230/115kV transformation at Winchester)
- Add 2nd 345/230kV transformer at Winchester
- Add 345/230kV interconnection at Willow station (Possible mitigation for increasing PD Morenci load)
- Add new 230kV San Rafael – Kartchner (or Ft Huachuca) line and rebuild to Pantano (or 230kV interconnection further west). This might be supported by SSVEC and Ft H?
- Rebuild the WAPA 115 kV line to 230 kV from Apache to a TBD location somewhere in the vicinity of Nogales Tap. A site is to be identified to terminate the proposed new 230 kV line with transformation as appropriate to 115 kV to maintain continuity of the Parker-Davis system. Options to integrate the new 230 kV line with the SWTC, TEP, Trico and WAPA systems include interconnection with existing 230 kV and/or transformation to 345 kV and 138 kV facilities.
- Install a Phase Angle Regulator (PAR) near Bicknell, Butterfield or other location on the 230 kV line to regulate post-contingency flows on the Apache to Bicknell 230 kV line.

South of Tucson Area

Characteristics: This area has the lowest ratio of TEP to Trico service territory land area. TEP and Trico agree that opportunities for cost-effective joint load serving substation expansion within this area appear to be great. This area includes two parallel 345kV lines, plus a parallel 230kV line. Key features are:

- The Vail – Bicknell 345kV SWTC line passes close by the South Loop substation. A critical contingency is loss of the Vail – South Loop 345kV line, potentially causing overloads on the parallel 138kV system.
- A 230 kV line from Pantano, which parallels a significant portion of the WAPA 115kV line to Del Bac, terminates at the Bicknell station. Possible loop-in at South at either 230kV or 345kV could provide mutual benefits.
- There are several transformations at Bicknell, including 345/230kV and 230/115kV. The 115kV terminal supplies the SWTC 115 kV system that interconnects with WAPA at Marana Tap.

Potential Solutions: A joint new interconnection between either 345kV or 230kV transmission to local area 138kV or 115kV transmission could be cost effect alternatives to expanding local area transmission to serve local load. Looping-in 345kV or 230kV could defer or eliminate the need for new 345kV or 230kV transmission. Alternatives follow:

- Loop-in the Vail – Bicknell 345kV line at South Loop. This relieves post-contingency loading on the 138kV system. Need to determine land availability and permitting requirements.
- Loop Pantano – Sahuarita 230kV line into South Loop. Possible multiple benefits include loading relief on the Apache – Butterfield 230kV line, stronger source for Bicknell and/or new joint distribution substation east of Bicknell. Need to determine land availability and permitting requirements.
- New Three Points – Bicknell 345kV or 230kV line. Possible benefits may be available through increased transfer capability between South of Tucson Area and West of Tucson Area during contingencies.

West of Tucson Area

Characteristics: The area west of Tucson is served by Trico and TEP. The TEP territory consists of a relatively narrow strip west of I-10 extending from Marana to the San Xavier District of the Tohono O'Odham Nation. The Trico territory is generally west and south west of the TEP service area. Transmission located west of Tucson is provided by CAP, WAPA, SWTC and TEP. Key features are:

- The WAPA 115kV line, which is sourced from the APS Saguaro station, begins in a southwesterly direction and continues southeaster through the WAPA Tucson station to del Bac and beyond into the South of Tucson Area. Continuity of the WAPA 115kV system is necessary to meet contractual obligations to customers receiving transmission services from WAPA.
- Another WAPA 115kV line connects Saguaro to Oracle and continues south to the Tucson station. This line is the third side of a 115kV triangle with vertices at the Saguaro, Oracle and Tucson stations.
- The CAP system presently is a radial 115kV line supplied by the WAPA system through an interconnection at Rattlesnake. CAP owns the 115kV transmission facilities from Rattlesnake to Del Bac, but the line is open at Del Bac. Radial service subjects the CAP pumping system to N-1 outages.
- The SWTC local 115kV system is interconnected to WAPA at the Marana Tap and the SWTC Bicknell station.
- SPPR has proposed a "Three Terminal Project" to deliver new generation output to its participants. One of the three terminals is proposed to connect to the SWTC and WAPA 115kV systems through a 230/115kV transformation at the Marana Tap station.

Potential Solutions: SWTC and CAP are in the process of integrating their respective systems through planned interconnections at Sandario (near Brawley) and Valencia (near San Xavier). SWTC is also panning to construct a new 115kV line from Saguaro as the 4th circuit on the new TEP "Quad" circuit. This new line is to connect proposed intermediate distribution substations along the corridor to the North Loop substation, and eventually terminate at the WAPA Rattlesnake station. Alternatives follow:

- Saturated load level (build-out) envisions a possible joint double circuit 345kV project between Tortolita and North Loop plus a Vail – Irvington (or SS NO30) – South Loop 345kV project. One of these EHV projects is anticipated to be in service by ~2014 (based on the current 2008 load forecast) unless a local Tucson area generation project is identified to defer such an upgrade. The second described project would be required within the next 15 to 20 year time frame.
- The SPRR Three Terminal proposal presents alternative strategy elements for SATS to develop and evaluate. Introduction of a new 230kV source at the Marana Tap location suggests that a 230kV line (possibly double circuit to retain the WAPA 115kV line) continuing into Tucson and terminating at a yet-to-be-determined location in either the South of Tucson or Greenlee to Vail Corridor Areas should be evaluated. Intermediate 230/138kV and/or 230/115kV connections at North Loop, DMP, del Bac, SS NO30 or other location may also be considered.
- A new 345/115kV connection at Three Points is an option for reinforcing the integrated SWTC/CAP system.
- A new 345 switching station at Three Points with a 345kV line replacing the existing 115kV line to Bicknell could strengthen the tie between the West of Tucson and

South of Tucson Areas. An alternative is a new 345/230kV station at Three Points with a 230kV line replacing the existing 115kV line to Bicknell.

- Emergency 138/115kV interconnections such as that which was contemplated for a previously considered in the Black Mountain Three Party agreement may be discussed.

5) SPPR / SATS Study

Ron updated the group briefly on the two 345 kV lines that SATS had originally studied, as Strategy C. The two 345kV lines were considered to be joint projects. The first would be located adjacent to the existing three TEP 138kV lines between Tortolita and North Loop. The second would run from the Tortolita Station through Marana Tap, and continue on to North Loop. The SPPR Three-Terminal Plan, which includes a 230 kV line into Marana utilizing the same corridor, is an alternative to the second 345kV line.

In previous SATS meetings, it has been suggested that a technical study group be formed between SPPR and SATS. Gary Romero had sent an e-mail prior to this meeting asking for volunteers. Several have responded, such as Mike Gazda, APA; Karen Cathers, Trico; and Jim Rein, SWTC.

Gary accepted an action item to set up the first meeting of this technical study group sometime during the week of August 25th to 29th.

Ron stated that there is need for coordination between SATS and CATS and Joe Herrera replied that this is in the works, but nothing definite has been set up. He suggested that a standing item be added to the SATS agenda for these updates.

6) Status Reports of 2018, 2028 and Saturated Power Flow Analysis

No new information will be presented today on this topic. The 2018 WestConnect base case is out for review – currently waiting on some entities for their updates. Ron informed the group that TEP has developed a whole new model for this case and that Gary Trent is currently evaluating it for compliance with NERC Standards.

7) Executive Summary

Ken Bagley provided a Power Point Presentation to discuss his efforts in writing the Executive Summary for the SATS Report:

Slide #1: SATS Report Current Content

- Version No. 8
  - 25 Section Headings
  - 80 Pages without Cochise County Report or Appendices
  - Expected length in excess of 150 pages

Slide #2: SATS Report Executive Summary

- Agreed Format
  - Stand-Alone Document
    - Sufficient Content to Represent Report
  - No More Than 10 Pages

Slide #3: SATS Report – Executive Summary Proposed Outline

- SATS Committee Overview
  - Organization (committee creation)
  - Study Area
  - Participants
- Study Overview
  - Goals/Objectives
  - Scope/Schedule
  - Criteria
  - Methodology/Assumptions

Slide #4: SATS Report – Executive Summary Proposed Outline (cont.)

- Load Forecast
  - Saturated Load Study
  - Aggregate Forecast
- Scenarios
- Current System
  - Transmission and Generation
  - Western's Transmission Corridor

Slide #5: SATS Report – Executive Summary Proposed Outline (cont.)

- Long-Term Strategies
  - SATS
  - Individual Providers
- Findings from Power Flow Analysis
- Cochise County Study
  - Description of System
  - Summary of Issues
  - Recommendation

Slide #6: SATS Report – Executive Summary Proposed Outline (cont.)

- Developing a Flexible Plan
- Conclusions/Recommendations
- SATS 2008 Study Plan

Ron suggested the SATS 2009 Study Plan be included and Ken replied that this should be in the last section of the Executive Summary, consistent with the SATS Report.

Ken accepted an action item to prepare the Executive Summary of the Draft SATS Report as a stand alone document, as discussed at the meeting, with a goal to limit the document to 10+ pages.

8) SATS Draft Report

Ron stated that he would give a very quick overview of what the changes are in this Version 8. He noted, however, that the Trico revisions have not been incorporated. Ray Som accepted an action item to add the Trico revisions to Version 8, upon receiving a Word document of the Draft Report from Ron.

Ron further stated that there are additional TEP changes that will need to be added to the Draft Report, along with the Trico revisions, and this new draft will become Version 9.

The following are the changes that occur in Version 8:

- Section 4.8 "Load Serving Entities" has been added as a new definition.
- Section 6.5 contains an additional clarification that remedial action schemes will be considered.
- Section 7.0 Study Scope and Schedule contains language that the SATS report is scheduled to be completed in October 2008.
- Section 8.4 contains language that the emphasis was shifted to the 2013 and 2018 cases as the study progressed.
- Section 9.0 Study Methodology and Assumptions contains minor edits about the load allocations. A paragraph has also been added that discusses the coordination among the SWAT study subgroups. Renewables have been incorporated which will influence our thinking processes and future decisions Sub-section 9.6 in this Section contains a discussion on Strategy F, a variation of Strategy C, which is a reach-in to the Tucson area without building transmission. The concept is to deliver capacity to the borders and reinforce the 138 kV system. Sub-section 9.7 discusses that the work on the 2028 case was less rigorous that what was done for the ten year horizon analysis.

Ron discussed a characteristic of the system that he has observed from the studies, which he referred to as a "null" point. Flows come into Tucson from the east and from the west, resulting in zero flows at this null point. He stated that this null point could change with a 500 kV injection from New Mexico. He stated that he may discuss this characteristic at the SWAT Oversight Committee Meeting next week. He asked if others had seen this phenomenon in their studies.

The group replied that while there are several new 500 kV lines that are being developed in the Phoenix area, which will eventually ring the valley, and bring expected changes to the interconnected system, no null point has been seen in the Phoenix area. One

explanation for this is that most of the capacity is currently being brought into the Phoenix area from the north. If capacity begins to be brought in from the south, then a null point may appear.

Ron pointed out that a null point in the studies shows very minor changes if the system is built as planned in 2018. This is one of the reasons why TEP is interested in evaluating the feasibility of a phase-shifter at Bicknell. When asked if the studies show any flows from Mexico coming in at Gateway, Ron replied that this has not been studied.

- Section 10.0 Saturation Load Study contains language that some sensitivity analyses were done to defer transmission through generation additions. Ron noted that this is something that bears further study.
- Section 11.0 Load Forecast adds that the load forecasts have been revised for price elasticity.
- Section 13.0 Existing Transmission and Generation has been populated with more detail. Information from SWTC is needed to complete the tables in this Section. It was pointed out that the Palo Verde to Pinal West 500 kV line needs to be added to the table describing the existing TEP EHV transmission lines, as it has now been completed.
- Section 15.0 Western 115 kV Transmission Corridor has new items added. Diagrams will need to be added showing the SPPR proposal along with information about SPPR. Gary Romero offered to provide language on SPPR for this Section. The group suggested that information on existing Western and APS lines also be added to this Section.
- Section 16.0 Long-Term SATS and Individual Transmission Provider Strategies contains a new paragraph that discusses Strategy F. A new table of TEP load serving substations, existing and planned, has also been added. Sub-section 16.1 which is a map of the SATS Strategies will be updated in the next version of the Report. Additional description of the alternatives and strategies are also planned. SunZia needs to be added and possibly a 138 kV long range plan.
- Section 17.0 Inventory of Projects needs work. It needs to show the projects that are most likely or feasible to be constructed.
- Section 18.0 Findings from Power Flow Analysis needs to be updated to reflect the recent study work.

Ron stated that he will also add accomplishments in 2008 and tasks to be done in 2009. He anticipates that this new Version 9 of the Report will be completed within the next 3 weeks.

9) Project Updates

a. Bowie. Mark said he had just a couple of items to discuss. First, he informed the group that a System Impact Study (SIS) was completed for the Bowie Project in May and asked that TEP share this with the group. Ron accepted an action item to talk to Ed Beck about providing access to the Bowie SIS to the SATS participants. An update to this study may need to be done to show the impacts to the system

with the Express 345 kV line looped into Willow. The Transmission Service Study is still too early to share, but the same issues keep coming up – N-2 outages cause various overloads on the system. Second, construction crews have been on site at Bowie, clearing the land and building retention ponds

b. SunZia. An effort is underway to finalize all of the organizational documents. Potential corridors are being looked at closely to complete the BLM filing which should be done by next week.

10) Action Items

a. David Bryan to send out a meeting notice to all participants of the next Cochise County Study Meeting. The meeting is proposed to be held at SSVEC's Benson Office on August 28th and start at 10:00 a.m.
b. Gary Romero to send out a notice of the 1st meeting of the SPPR/SATS Task Force, which will be held sometime during the week of August 25th to 29th.
c. Ken Bagley to prepare the Executive Summary of the Draft SATS Report as a Stand Alone document, as discussed in the meeting, with a goal to limit the document to 10+ pages.
d. Ray Som to add the Trico revisions to Version 8 of the Draft SATS Report.
e. Ron Belval to talk to Ed Beck about providing access to the Bowie System Impact Study to SATS participants.

11) Items to Include in SATS Update to SWAT Oversight Committee Meeting

- Review Scope/Schedule
- Draft Report – Version 8 →Version 9
- Decisions in 5+ year planning horizon
    - Cochise County
    - SATS TP Subgroup
    - SPPR Sawtooth Generation
- Final Work Plan
    - October 2008 Report – add in SPPR efforts
    - 2009 Work Plan – add in SPPR efforts

It was suggested that a reference be made as to how much of the study work has been done. It is 80% - 90% completed

12) Next Meeting Agenda

It was agreed that the agenda for the next meeting be similar to today's agenda.

13) Next Steps / Meeting(s)

The next meeting of the group will be held September 25th with a location TBD.

Subsequent to the meeting, TEP offered to host the next meeting.