



**Southwest Power Pool**  
**TRANSMISSION WORKING GROUP MEETING**  
**June 25, 2012**  
**Teleconference**

**Agenda Item 1 – Administrative Items**

TWG Chair Noman Williams called the meeting to order at 2:03 p.m. The following members were in attendance:

Mo Awad, Westar Energy, Inc.  
John Chamberlin, City Utilities of Springfield, MO  
Joe Fultz, Grand River Dam Authority  
John Fulton, Southwestern Public Service Co.  
Travis Hyde, Oklahoma Gas and Electric Company  
Dan Lenihan, Omaha Public Power District  
Jim McAvoy, Oklahoma Municipal Power Authority  
Matt McGee, American Electric Power  
Nathan McNeil, Midwest Energy, Inc.  
Alan Myers, ITC Great Plains  
Jason Shook, GDS representing East Texas Electric Cooperative  
Noman Williams, Sunflower Electric Power Corp.  
Harold Wyble, Kansas City Power & Light

The following stakeholders and staff were also in attendance:

Syed Ahmad, Federal Energy Regulatory Commission  
Roy Boyer, Southwestern Public Service Co.  
Will Chamberlin, Southwestern Power Administration  
Scott Feuerborn, Burns & McDonnell  
Kirk Hall, SPP Staff  
Jeff Hawker, Southwestern Power Administration  
Robert Hirschak, CLECo  
Jody Holland, SPP Staff  
Rachel Hulett, SPP Staff  
Rob O'Keefe, American Electric Power  
Bob Lux, SPP Staff  
Hassan Shah, SPP Staff  
Pat Wilkins, Tres Amigas, LLC

Rachel Hulett, SPP Staff, noted that a quorum was reached to begin the meeting.

**Agenda Item 2 – Tres Amigas Interconnection**

Noman Williams shared that the call was to discuss the Tres Amigas interconnection studies and concerns. TWG discussed the Tres Amigas interconnection and the impacts of approving the interconnection. Several people voiced concern over studying the interconnection at 0 MW, instead of as a load or generation. John Fulton, Southwestern Public Service Co., proposed the language for additional studies be captured in the interconnection agreement and/or TWG approving the interconnection review with a conditional note that additional technical studies needed to be performed prior to commercial operation.



After further discussion, John Fulton provided a motion to staff for TWG to consider. Staff will send out the motion and seek feedback on the motion through Friday, June 29. TWG will seek a vote on the final motion during the first week of July.

### **Agenda Item 3 – Other**

Noman Williams asked members to provide comments on the merchant transmission owner data requirements proposal that was sent to TWG. This item will be reported at the July MOPC meeting.

Seeing no further business, the meeting was adjourned at 3:00 p.m.

Respectfully Submitted,

Rachel Hulett  
Secretary

### **Supplemental Activity**

#### **Tres Amigas Interconnection Review**

On July 3, 2012, John Fulton made the motion below, which Alan Myers seconded, and a vote was held via email:

Tres Amigas (TA) has produced powerflow and stability studies to date that represent an initial look at their proposed interconnection. They are considered by the TWG to be 'feasibility' level studies. TWG accepts the 'developmental' nature of this interconnection request and endorses proceeding to the next stage which requires more in depth technical studies. Therefore, I (John Fulton) move TWG approve the Tres Amigas (TA) studies completed to date as meeting their coordinated planning requirements under SPP Criteria, subject to the following conditions:

1. TA shall
  - a. Produce, in conjunction with their HVDC vendor Alstom, a fully documented model for voltage sourced converter, with particular attention to commutation failure, voltage thresholds and limits, and frequency response limits. This should be a vendor specific model of a voltage sourced converter, with parameters set respecting final or near-final control system design. Any PSCAD or EMTP work on TA design should be complete enough to fully specify the dynamics model. Any other data to fully document their total facility must also be included.
  - b. Perform powerflow studies per the following, if deemed necessary by TWG:
    - i. Use the Scenario 5 models, breaking them into an East to West and West to East Scenarios. SPP may be required to perform this model building operation.
    - ii. N-1 studies will be done with the two scenario models, monitoring SPS and all first tier areas. Include all affected party systems
    - iii. Results tabulated will allow parties to review and determine upgrades for their area.
  - c. Perform stability studies per the following:
    - i. With new HVDC model, above information, re-run stability studies and capture generator information in all first tier systems, plus NPPD, Westar. Plot files should be able to plot machine behaviors and interface voltages at points of interconnections. Reclosing should be used on lines that have existing reclosing schemes.
    - ii. No non-convergent solutions should be noted in the SPP region and should be mitigated if outside the SPP region.

- iii. Run stability studies on multiple HVDC interactions, which may include Lamar, Blackwater, Eddy County, Oklaunion, and CleanLine Plains & Eastern.
  - iv. Plots will be done for 20 seconds. Plot data will be available for export in to MS Excel for assessing damping by affected parties.
  - d. Perform other studies per the following:
    - i. Sub-Synchronous resonance study Harmonic interaction studies– may be part of final converter design study
    - ii. EMTP or reactor sizing study for 56 mile 345 kV interconnection line, considering the completed EMTP study for SPP GEN 2008-022.
2. TWG shall
- a. Provide guidance on modeling of faults (3 phase fault impedance)
  - b. Provide guidance on clearing time requirements
  - c. Define the combination HVDC interactions cases for TA to study in the updated stability studies.
3. SPS shall
- a. In conjunction with PNM, provide guidance on HVDC restart after a block/shutdown for simulation timing.
  - b. In conjunction with GSEC, provide stability data for the PSS additions in SPS
  - c. Prepare a interconnection facilities study, including the fault current studies and breaker ratings analysis.

TWG requires that these studies will be required for commercial operation of the proposed TA facility. TWG also requires that any generator interconnections that may occur at the TA 345 kV bus or buses will go through the SPP GI study process or affected system study.

TWG endorses the fact that these studies are required to connect TA's first 750 MW HVDC to the Tolk Station 345 kV bus and these studies and TA's interconnection request do not allow TA to connect subsequent HVDC converters to the SPS transmission facility. Subsequent interconnections requests will be made by TA under SPP Criteria Section 3.5 or under any subsequent SPP OATT process which may be in effect at the time of the request.

Quorum was obtained. The TWG approved the motion unopposed on July 6, 2012.