Agenda Item 1 – Call to Order, Introductions and Receipt of Proxies
RTWG Chair Mr. Dennis Reed called the meeting to order at 3:00 p.m. on September 2, 2008 and asked for a round of introductions. There were 21 persons in attendance (Attachment 1 – Attendance).

Agenda Item 2 – Generation Interconnection Queue Task Force
Mr. Steve Ferry reviewed the current state of the GQTF (Attachment 2 – GQTF Presentation) (Attachment 3 – Strawman (redlined)). The RTWG provided the following direction/questions:

- Increased detail for the pricing of study cost
- Plan to address the current backlog
- How does the proposal specifically respond to the current backlog?
- Tighten-up on the procedures surrounding clustering. Minimize discretion
- What will be the process for transitioning from the existing procedure to the new?
- Justification for dollar amounts

Agenda Item 3 – Adjournment
Mr. Dennis Reed adjourned the meeting at 5:00 p.m.

Respectfully Submitted-

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RTWG Secretary
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Contents

• Introduction
• Existing Process
• Proposed Process
• Recommendation
GQTF Status Report - Introduction

- GQTF formed in early 2008.
- Mission is to speed-up the processing of large generator interconnection requests; Attachment V of the SPP Regional Tariff.
- GQTF attended by TOs, renewable developers, marketers and SPP staff.
- Have met at least monthly via conference call or face-to-face since March.

GQTF Status Report
Existing Process per Attachment V

A sequential process:
- Interconnection Request
- Interconnection Feasibility Study
- Interconnection System Impact Study
- Interconnection Facilities Study
- Large Generator Interconnection Agreement
GQTF Status Report
Existing Process per Attachment V – Cont’d

Existing process bogged-down.
• Significant increase in new interconnection requests
• Low cost entry requirements and associated fees
• After signing LGIA, requestor has right to suspend progress for up to three years at no cost

GQTF Status Report
Proposed Process

• Remove feasibility study from critical path.
• Make System Impact Study and Facilities Study stand alone milestones. No more overall-process queue position.
• Reduce suspension impact
• Increase cost of entry and associated fees. No free Mulligans.
Milestones

1. Feasibility Study (Milestone set 1, but not required)
2. Preliminary Impact Study (Milestone set 2)
3. Definitive Impact Study (Milestone set 3)
4. Facility Study (Milestone set 4)
5. Interconnection Agreement (Finish line!)

Cost of Entry / Associated Fees

1. Feasibility Study (Milestone 1, but not required)
   - Initial $10,000 fee; reduced or increased by actual cost.
   - Study materials and info including, one lines, POI, size, GSU data
GQTF Status Report
Proposed Process – Cont’d

Cost of Entry / Associated Fees

2. Preliminary Impact Study (Milestone 2)
   ▪ Application with study deposit of: $40K < 100 MW, $60K 100MW – 800 MW, $90K > 800MW; reduced or increased by actual cost. Extra is prorated; 50% by number of studies, 50% by size.
   ▪ Site control
   ▪ Detailed study materials (one-line, point of interconnection, preliminary plant size, GSU data)

3. Definitive Impact Study (Milestone 3)
   ▪ Study deposit of $75K < 75MW, $150K > 75 MW; reduced or increased by actual cost. Extra is prorated; 50% by number of studies, 50% by size.
   ▪ Point of interconnection
   ▪ Definitive plant size
   ▪ Site control
   ▪ Facility info (one-line, GSU data)
   ▪ Study materials per Appendix 7 of LGIP
   ▪ One of these: 1) security of $2K per MW, 2) power purchase agreement, 3) PO for equipment, 4) air permit or FAA permit application
GQTF Status Report
Proposed Process – Cont’d

Cost of Entry / Associated Fees

3. Definitive Impact Study (Milestone 3) - Continued
   ▪ In addition to the previous, one of these must be provided:
     1) security of $2K per MW
     2) power purchase agreement, similar hedge, or attestation that unit is part of approved state resource plan or similar requirement.
     3) PO for equipment specific to site
     4) Accepted air or FAA permit application

GQTF Status Report
Proposed Process – Cont’d

Cost of Entry / Associated Fees

4. Facility Study (Milestone 4)
   Provide one of the following:
   ▪ Letter of credit or payment for estimated network facilities
   ▪ power purchase agreement, similar hedge, or attestation that unit is part of approved state resource plan or similar requirement.
   ▪ PO for equipment specific to site
   ▪ Accepted air or FAA permit application
Cost of Entry / Associated Fees

Interconnection Agreement
- Suspension for up to 18 months.
- First six months free
- Next twelve months requires funding the greater of network upgrades or fee.

Interconnection Agreement Suspension Fees:

A. > 100MW
   a) 0-6 months – no additional payment
   b) 6-18 months - $5,000,000

B. <100 MW but >50MW
   a) 0-6 months – no additional payment
   b) 6-18 months - $2,500,000

C. <50MW
   a) 0-6 months – no additional payment
   b) 6-18 months - $1,000,000
GQTF Status Report
Proposed Process – Cont’d

Queue Position

Three separate queues: 1) feasibility study, 2) preliminary impact study, 3) definitive impact study.

Clustering

At SPP staff’s discretion to use where beneficial.

GQTF Recommendation

• GQTF voted on August 20 to recommend RTWG implement the straw-man proposal. RTWG to prepare tariff language PDQ.
• To MOPC for action on October 14 – 15, BOD approval on October 28.
Southwest Power Pool, Inc. (“SPP”) Standard Large Generator Interconnection Procedures (“LGIP”) Proposal

1. **PRE-APPLICATION PHASE**

   a. **Information available to Interconnection Customers** – In lieu of Interconnection Customers requesting a Feasibility Study, SPP will make the following information available to Customers (who have signed applicable non-disclosure agreements) so that they may perform their own Feasibility Study.
      i. Base powerflow models for the latest Definitive Impact Study
      ii. Map showing current interconnection queue positions with their locations and status.

2. **APPLICATION REVIEW PHASE**

   Based on the milestone set that the Interconnection Request meets, the interconnection request will be entered into one of the following three queues.

   a. **Feasibility Study / Screening Process (GENFB-2009-xxx)** – Interconnection Customer may submit a request for an optional Feasibility Study during a three month window. Feasibility Studies will be conducted once every three months. A customer will not be assigned a binding queue number based on their request to have a Feasibility Study performed. Such interconnection requests will have a queue number assigned to them with an FB suffix.
      i. Milestone Set 1 Feasibility Study (minimum required for valid request)
         - $10,000 fee
            a. This fee is refundable. Customer will be responsible for actual study costs over. **If costs exceed $10,000, Customer will be responsible for additional cost.**
      
      ii. Basic study materials due for power flow per Appendix 1 of the current SPP LGIP
         - One Line Diagram
         - Point of Interconnection (POI)
         - Plant MW
         - GSU data
b. Preliminary Impact Study (GENPI-2009-xxx) – Interconnection Customer may submit a request for Preliminary Impact Study during a six month window. Preliminary Impact Studies will begin every six months. The customer will be assigned a preliminary Impact Study queue position. To enter a preliminary Impact Study window, the Customer must meet Milestone Set 2

i. Study Deposit
   - <100 MW - $40,000
   - >=100 MW and <800 MW - $60,000
   - >=800 MW - $90,000
   - Unused portion of study deposit is refundable or can apply toward later milestone sets.
   - 50% of the cost of study divided to each request evenly. 50% pro-rated for MW.

ii. Site control (no alternate available). Site control shall be of sufficient quantity for the type of generation facility to be studied. A general rule of thumb for wind farms agreed to is approximately 3000 acres per 100 MW of wind turbines.

iii. Detailed study materials per Appendix 7 of the SPP LGIP (this information is currently required six (6) months after queue date – would be required at this time) for power flow and stability (includes collector system layout for wind farms)
   - One Line Diagram
   - Point of Interconnection (POI)
   - Plant MW
   - GSU data

c. Definitive Planning Process (GEN-2009-xxx)

i. Definitive Impact Study – Interconnection Customers that are able to meet Milestone Set 3 may proceed into the Definitive Impact Study. Definitive Impact Studies will begin every six months. The Customer will be assigned a Definitive Impact Study Queue position. The milestones that must be met to enter a Definitive Impact Study are
below. Otherwise, the Customer will not be assigned a Definitive Impact Study queue position

- **Study Deposit**
  a. <75MW - $75,000
  b. >=75MW - $150,000
  c. 50% of the cost of study divided to each request evenly. 50% pro-rated for MW.
  d. Unused study deposit is refundable at Commercial Operation
  e. If request withdraws before IA execution then unused study deposit is refundable less two times actual study costs
  f. If request terminates or suspends its LGIA, this deposit is not refundable.

- **Site control (no alternate available).** Site control shall be of sufficient quantity for the type of generation facility to be studied. A general rule of thumb for wind farms agreed to is approximately 3000 acres per 100 MW of wind turbines.

- **Definitive point of interconnection**

- **Definitive plant size (MW) (no decrease allowed after study)**

- **Detailed study materials per Appendix 7 of the SPP LGIP (this information is currently required six (6) months after queue date – would now be required at this time) for power flow and stability (includes collector system layout for wind farms)**
  a. One Line Diagram
  b. GSU data

And, in addition, provide **one** of the milestones below:

- Security equal to $2000/MW of the plant size (refundable at commercial operation or withdrawal).
- Power Purchase Agreement or similar hedge type agreement or statement signed by an officer or authorized agent of the Interconnection Customer attesting that the Generating Facility is included in applicable state resource plan or other information that the Transmission Provider deems to be reasonable evidence that the Generating Facility will qualify as a designated network resource

**FINAL DRAFT – FOR GQTF VOTING**
• Purchase Order for generating equipment specific to queue position (Not Frame Agreement) or statement signed by an officer or authorized agent of the Interconnection Customer attesting that the Generating Facility is included to be supplied with turbines with a Frame Agreement that Interconnection Customer is a party. This Agreement shall be provided to Transmission Provider.
• Application for an air permit (if applicable)
• Application for Federal Aviation Administration permit

ii. **Facilities Study**- Within 30 days of posting the Definitive Impact Study, the Interconnection Customer is required to post one of the following milestones before entering into the Facilities Study. If these milestones cannot be met, the Customer’s request will be withdrawn and the Customer will have to re-enter the queue at the next Definitive Impact Study window.

• Letter of Credit or payment for Estimated Network Upgrades (less the amount provided by in M3) -refundable at withdrawal before LGIA is signed
• Power Purchase Agreement or similar hedge type agreement or statement signed by an officer or authorized agent of the Interconnection Customer attesting that the Generating Facility is included in applicable state resource plan or other information that the Transmission Provider deems to be reasonable evidence that the Generating Facility will qualify as a designated network resource
• Purchase Order for generating equipment specific to queue position (Not Frame Agreement) or statement signed by an officer or authorized agent of the Interconnection Customer attesting that the Generating Facility is included to be supplied with turbines with a Frame Agreement that Interconnection Customer is a party. This Agreement shall be provided to Transmission Provider.
• Application for an air permit (if applicable)
• Application for Federal Aviation Administration permit

iii. **Letter of Credit Requirements**- The Letter of Credit should meet the current requirements for Letter of Credit in the Southwest Power Pool Credit Policy (Attachment X).
3. QUEUE POSITION

a. **Separate Queues** – Depending upon the milestones that Customer has met, their request will be entered into one of three different queues. The Definitive planning queue takes precedence over the Preliminary planning queue. The Preliminary planning queue takes precedence over the Feasibility queue.

b. **Clustering** – The intent is to utilize clustering where this process is beneficial. Task Force has recommended that to clear out the backlog of interconnection requests that all pending requests that have not had an impact study will be candidates for a clustering/grouping study on a geographical/electrical impact basis. After approval of these procedures, a 6 month window will apply for the grouping of studies on a geographical/electrical impact basis. Per the existing tariff, common upgrades may be cost allocated to clustered requests without regard to queue position.

4. STUDY PROCEDURES

a. **Feasibility Study Procedures**– The Feasibility Study will be offered as an Initial Screening. The intent of the Feasibility Study will be to test the system readiness for interconnection. The Feasibility Study will begin on a three month schedule (3) months. The procedures would apply:
   i. Feasibility Study Agreements due in fifteen (15) calendar days
   ii. Existing cure procedures
   iii. Group Study Process
   iv. Powerflow Analysis
      - Prior Queued projects that have an executed LGIA and have entered Preliminary Impact Study phase
      - Can evaluate up to three points of interconnection. A customer’s request to evaluate two voltage levels at the same site will be considered two points of interconnection.
      - List of network constraints
      - Process similar to Impact Study in Attachment A.
   v. Rough cost for Interconnection Substation
   vi. After study posted Impact Study Agreement sent out
   vii. Proceed to Preliminary Impact Study in the next study cycle
b. Preliminary Impact Study Procedures (Day 0-150) – Studies will begin every six (6) months - For Milestone Set 2 Interconnection Customers who have chosen to go straight to the Preliminary Impact Study and Customers advancing from Feasibility Study.

   i. Impact Study Agreements due by the first day of the study (Day 0)

   ii. Less Lenient Cure Procedures – no cure for Study Agreement, detailed study materials or Deposit. This is necessary due to the possibility of clustering. When the time to start the study comes, all of the Customer’s data needs to be submitted. There is no time available to go through a cure period.

   iii. Customers advancing from Feasibility study that cannot meet Milestone Set 2 will not be given a Preliminary Impact Study queue position. Customers can be passed over by other customers meeting Milestone Set 2.
       ● Queue position will be revised based on when Milestone Set 2 requirements are received.

   iv. Possible Group Study with all customers in close electrical proximity regardless of queue date (decision to group and who to group made by Transmission Provider’s engineering judgment based on electrical impacts)

   v. Impact Study Process is detailed in Attachment A.

   vi. Rough cost of Interconnection Substation

   vii. Rough cost allocation of network upgrades from the group (for group studies).
       ● Cost Allocation Methodology
         ○ For each constraint that an interconnection request is considered responsible to mitigate, a mitigation plan will be developed.
         ○ Each interconnection requests responsibility for the network upgrade will be based upon the following (upon approval by applicable working groups at SPP).
The full network upgrade cost will be determined.

- The PTDF (no contingency) distribution factor of each interconnection request upon the network upgrade will be determined.
- The impact factor will be calculated for each interconnection request. Impact factor equal to interconnection request MW * PTDF
- The sum of all impact factors for all interconnection requests affecting the network upgrade will be calculated.
- Cost allocation will be calculated.

$$\text{IR X Impact Factor} = \text{PTDF}%(X) \times \text{MW}(X) = X_1$$

$$\text{IR Y Impact Factor} = \text{PTDF}(Y) \times \text{MW}(Y) = Y_1$$

$$\text{IR Z Impact Factor} = \text{PTDF}(Z_Y) \times \text{MW}(Z) = Z_1$$

$$\text{IR X Cost Allocation (\$)} = \frac{\text{Network Upgrade (\$)} \times X_1}{X_1 + Y_1 + Z_1}$$

$$\text{IR Y Cost Allocation (\$)} = \frac{\text{Network Upgrade (\$)} \times Y_1}{X_1 + Y_1 + Z_1}$$

$$\text{IR Z Cost Allocation (\$)} = \frac{\text{Network Upgrade (\$)} \times Z_1}{X_1 + Y_1 + Z_1}$$

viii. Study Posted and Definitive Impact Study Agreements sent out (Day 150)

ix. Customer allowed thirty (30) days to return Set 3 Milestones (M3).

c. Definitive Impact Study Procedures (Day 180 – 300) – For Milestone Set 3 Customers. Customer may enter directly into the Definitive Impact Study.

i. Milestone Set 3 (see Milestones section) (due day 180)-
Customers not meeting Milestone Set 3 will not be able to advance into Definitive Impact Study. They will be passed over by Customers that do meet Milestone Set 3.

ii. The Preliminary Impact Study will be evaluated to determine if the Definitive Impact Study is necessary.

iii. Definitive Impact Study begins taking into account dropouts from Preliminary Impact Study (Day 180-300)

iv. Same process as Preliminary Impact Study except for the following
   • Facility study grade estimates will be requested from Transmission Owners with multiple projects in their area. Decision made by Transmission Provider.

v. Post Definitive Impact Study (Day 300)

vi. Customer allowed thirty (30) days to return Set 4 Milestones (M4).

d. Facility Study Procedures (Day 330 – 420)
   i. Milestone Set 4 (M4) Due (see milestones section)

   ii. Facility Study information sent to Transmission Owners (Day 300)

   iii. Transmission Owner conducts short circuit study

   iv. Possible restudy of Definitive Impact Study (Day 330-375)

   v. Updated information sent to Transmission Owner (Day 375)

   vi. Post Facility Study (Day 420)
5. **INTERCONNECTION AGREEMENT**

Interconnection Agreement (Day 420-480)

a. Customer provided with draft Standard Large Generator Interconnection Agreement ("LGIA") with Appendices

b. Sixty (60) days to negotiate with SPP and Transmission Owner

c. Suspension will require payment for allocated cost of shared Network Upgrades (6 months after execution)

d. In addition, suspension will require additional payment unless the allocated cost of shared network upgrades are greater
   - IR $\geq$ 100MW
     - 0-6 months – no additional payment
     - 6-18 months - $5,000,000
   - IR <100 MW but $\geq$50MW
     - 0-6 months – no additional payment
     - 6-18 months - $2,500,000
   - IR <50MW
     - 0-6 months – no additional payment
     - 6-18 months - $1,000,000

e. Suspension allowed up to 18 months.

f. If suspension is chosen by the Customer, the customer could be relieved of its obligations to pay for any network upgrades if the following occurs
   - construction is prevented by the order of a Governmental Authority
   - the network upgrades are not to be used for any other Interconnection Customer
   - Transmission Owner or Transmission Provider determines that a Force Majeure events prevents construction of a network upgrade

g. Customer, Transmission Owner and SPP sign LGIA (Day 480)
ATTACHMENT A. – STUDY PROCESSES

1. Powerflow Analysis

- Prior Queued projects that have an executed LGIA or in Definitive Planning will be included in the base case model.

- Initial linear powerflow analysis will be performed on a summer peak case and an off peak case with appropriate dispatch. The following shall apply
  - The load level where the output of the new generation facility is expected to at its nameplate rating
  - Summer peak load level conditions with the new generation facility dispatched at its expected output level.

The first and second condition may be combined in instances where the nameplate output is expected at peak load (i.e. on a fossil-fueled unit). In a Group study involving a mix of various fuel types, multiple scenarios may need to be studied to capture all conditions for generating units.

All existing generators and higher queued (i.e. Definitive Planning) generators and associated network upgrades, in the vicinity of the proposed point of interconnection should be modeled. Excess generation should be dispatched against other generating units across the SPP footprint electrically remote from the study area.

- Subsequent AC powerflow analyses after preliminary assessments of network upgrades have been made.

- The monitored element and contingency list will be the standard lists used for all SPP studies. These include n-1 contingencies in all SPP control areas and applicable n-2 and greater contingencies that have been previously submitted by the various control areas and balancing authorities.

- Elements loaded above 100% of their applicable ratings will be classified as constraints. A twenty percent (20%) sensitivity threshold (or other agreed upon value) for network upgrades will be used to determine whether a particular generation interconnection request is required to mitigate the constraint.
2. Power Factor Criteria check for wind farms per FERC Order No. 661-A. The reactive power limits for a wind generating plant will be set at unity power factor and voltages will be monitored in the local area under n-1 conditions. If the wind plant causes a criteria violation, the LGIA power factor requirements will apply. If no voltage criteria violation is observed, the wind plant will not be subject to any power factor requirements. However, the wind plant will be required to maintain a voltage schedule at the point of interconnection of 1.0 pu unless transmission owner has different standard.

3. Rough cost of Interconnection Substation

4. Rough cost allocation of injection and stability upgrades from the group (if a group study).
   - Cost Allocation Methodology
     - For each constraint that an interconnection request is considered responsible to mitigate, a mitigation plan will be developed.
     - Each interconnection requests responsibility for the network upgrade will be based upon the following (upon approval by applicable working groups at SPP).
       - The full network upgrade cost will be determined
       - The PTDF (no contingency) distribution factor of each interconnection request upon the network upgrade will be determined.
       - The impact factor will be calculated for each interconnection request. Impact factor equal to interconnection request MW * PTDF
       - The sum of all impact factors for all interconnection requests affecting the network upgrade will be calculated
       - Cost allocation will be calculated.

\[
\text{IR X Impact Factor} = \text{PTDF}(X) \times \text{MW}(X) = X_1
\]

\[
\text{IR Y Impact Factor} = \text{PTDF}(Y) \times \text{MW}(Y) = Y_1
\]

\[
\text{IR Z Impact Factor} = \text{PTDF}(ZY) \times \text{MW}(Z) = Z_1
\]

\[
\text{IR X Cost Allocation (S)} = \frac{\text{Network Upgrade (S)} \times X_1}{X_1 + Y_1 + Z_1}
\]

\[
\text{IR Y Cost Allocation (S)} = \frac{\text{Network Upgrade (S)} \times Y_1}{X_1 + Y_1 + Z_1}
\]
IR Z Cost Allocation ($) = Network Upgrade ($) * Z1
                           X1 + Y1 + Z1

5. Stability Analysis (will not be conducted for Feasibility Study) – After determination of network upgrades has been made for powerflow analysis. Each request will be studied for stability that will include the following. Upon completion of stability analysis, if an interconnection request requires additional reactive compensation, it will be at the sole expense of the deficient interconnection request. If it is found that a particular scenario causes general system instability, the mitigation will be shared by the group based on the cost allocation methodology above.

   • Dynamic Stability Analysis – also check for FERC Order No. 661-A Low Voltage Ride-Through (“LVRT”) compliance for wind farms

   • Voltage Stability Analysis

*(Technical portions may be applicable to SPP Criteria or Business Practices (and not the tariff) and need approval from the TWG. Cost Allocation portions may need approval from the CAWG)*