

**Southwest Power Pool**  
**AQ IMPROVEMENT TASK FORCE MEETING**  
**June 5, 2013, 9-11am**  
**Net Conference**

• M I N U T E S •

**Agenda Item 1 – Administrative Items**

AQITF Chairman Jim McAvoy called the meeting to order at 9:00 p.m. The following taskforce members were in attendance:

Jim McAvoy, Oklahoma Municipal Power Authority  
John Payne, Kansas Electric Power Co.  
Alan Ward, American Electric Power  
David Ruyle, Proxy for Travis Hyde Oklahoma Gas & Electric  
Jason Hofer, Nebraska Public Power District  
John Fulton, Southwestern Public Service Co.  
Nathan McNeil, Midwest Energy, Inc.

The following stakeholders and staff were also in attendance:

Jody Holland, SPP Staff  
Shaun Scott, SPP Staff  
Alex Watkins, SPP Staff  
William Mauldin, SPP Staff  
Bryce Bowie, SPP Staff  
Eric Barreveld, APX Power  
Geoffrey M. Rush  
John Shipman, OPPD  
Kevin Pera, Xcel Energy  
Kyle Drees, Westar Energy  
Pete Donaly, Sunflower  
Travis Hyde, OKGE

**Agenda Item 2 – Recommendation of when Delivery Point Network Study (DPNS) should be performed using examples**

Jody gave a presentation with scenarios where a DPNS should be performed. (Attachment 1 – AQITF Action Item 1)

- While discussing load additions, deletions, and modifications along TO seams there was some discussion about when to notify SPP. It was determined that this was addressed in the AQ Flowchart.
- During the dialogue on model differences there was some debate as to which models the TOs should be using for LCS. It was decided to leave it open for the TO to decide if they want to use the MDWG or ITPNT models, but will have to do a study with the ITPNT models to receive a NTC. If the MDWG models were used for LCS any changes that were made to the standard model have to be included in the LCS Report.

### **Agenda Item 3 – Draft AQ business Practice Discussion**

- There was some discussion on the current draft of the AQ Business Practice and some modifications were made. (Attachment 2 – Delivery Point Addition Draft Business Practice 6-8-2013)
- There was lengthy discussion on attachment 2 of the Draft AQ Business Practice. Changes were made to the attachment to fully define the minimum LCS Requirements.

### **Agenda Item 4 – Next Steps for AQITF**

- The business practice needs to be presented to the TWG, RTWG, and the BPWG for review.
- Tariff language development should begin soon.
- Staff will look into updating the RSC on the progress, and getting the AQ Business Practice presented to the TWG no later than the July 24<sup>th</sup> net conference.

**Meeting was adjourned at 11:11 a.m.**



Helping our members work together  
to keep the lights on... today  
and in the future

# DPNS rather than TO's LCS

May 29, 2013



Helping our members  
work together to  
keep the lights on...  
today and in the future



# Possible situations where SPP performed DPNS may be preferred over TO's LCS

- Load addition, deletion, or modification along TO seam
- Model differences
- TC requests

# Load addition, deletion, or modification along TO seam

- Multiple TOs may be performing LCS for same load
- Energy producers have confidential contracts
- Transmission systems of different TOs are integrated so SPP may need to study the impact on multiple TOs systems
- Member and nonmember loads may affect a study.
  - Example: ITS between KAMO and GRDA contain member and nonmember loads

## Model differences

- Per SPP processes, NTC are issued based on ITP models.
- MDWG models differ from ITPNT models in dispatch in some local areas such that DPNS may be needed.
- If localized models are used for the LCS, the ITPNT models may be necessary for the DPNS
- If models used for LCS report differs significantly from ITPNT model then DPNS may be required

# TC requests

- If TC requests an independent study by RTO



## **Delivery Point Addition Draft Business Practice**

For purposes of this business practice, Host Transmission Owner is defined as the owner of that portion of the Transmission System to which such connection or modification is to be made and Transmission Customer is defined as the TC requesting the establishment or modification of a delivery point. Any capitalized terms not defined herein, shall have the meaning set forth in the SPP Tariff. The process outlined in Attachment AQ facilitates a Host Transmission Owner obtaining a Notification to Construct (“NTC”) outside the normal Integrated Transmission Planning (“ITP”) processes in Attachment O of the SPP Tariff, if the Host Transmission Owner determines that a NTC may be necessary for the addition of a delivery point to the Host Transmission Owner’s transmission system. Please refer to the Attachment AQ process flowchart attached to this Business Practice as Appendix 1.

A request to establish or change a delivery point must be made in writing to the Host Transmission Owner and/or SPP. Depending on the timing of a request and the need date for the load, a request may be included in the ITP process, which includes forecasted load.

The following changes/modifications do not need to be included in the Attachment AQ process:

1. Any new or modified loads captured in the ITP process;
2. Any capacity changes at the delivery point without a corresponding change to the load at the delivery point;
3. Any Distribution Transformer changes without a corresponding load change; or
4. Modification to a delivery point facility rating, for example breaker replacement, bus or line termination equipment including protection equipment.

The Host Transmission Owner shall determine whether the request can be included in the SPP Integrated Transmission Planning (“ITP”) processes within 10 business days of receiving the request from the Transmission Customer or in agreed upon timeframe.

If the Host Transmission Owner determines that the request can be included in the ITP processes, the delivery point and necessary transmission facilities would then be migrated into the SPP planning models (TOs input data into Model on Demand tool) which then feeds into the annual Attachment O reliability planning processes. SPP will update any corresponding Network Integration Transmission Service Agreements (“NITSA”), as required.

If the request involves a Network Resource change or a transfer of a delivery point, the request should be included in the SPP Aggregate Transmission Service Study process (Attachment Z2) and/or Delivery Point Transfer Screening Study process (Attachment AR), as applicable.

### Attachment AQ Process

If the request cannot be included in the ITP process, Aggregate Transmission Service Study or Delivery Point Transfer Screening Study, then the request should be processed through the Attachment AQ process.

Upon notification of the request from Transmission Customer and receipt of application, SPP shall assign an AQ request number and post the request to the queue on the SPP website within 10 business days.

The Host Transmission Owner will perform a screening study within 30 calendar days of receiving the request and determine whether a Load Connection Study (LCS) is required. Host Transmission Owner and Transmission Customer may discuss with SPP as needed.

If a LCS is not required, Host Transmission Owner shall notify Transmission Customer and SPP within 10 business days of the completion of the screening study. Email is sufficient for the notification of the completion of the screening study. The delivery point and any necessary interconnection or sponsored facilities are then added to the SPP planning models (Transmission Owners input data into Model on Demand tool) which then feeds into the annual Attachment O reliability planning processes. At this point, the Transmission Owner and Transmission Customer can reach an agreement with regard to funding and construction of the facilities. SPP will update any corresponding NITSAs, as required.

If the Host Transmission Owner determines that a LCS is required, the Host Transmission Owner shall tender the LCS Agreement to the Transmission Customer within 10 business days of receiving the request. A deposit to the Host Transmission Owner may be required for the LCS. The Transmission Customer must execute the LCS Agreement and provide the deposit, if required, within 30 calendar days. The Host Transmission Owner shall perform the LCS (see Appendix 2 for minimum LCS requirements) and provide the draft LCS Report to SPP and the Transmission Customer within 60 calendar days of the LCS Agreement execution.

Following receipt of the draft LCS Report, SPP will perform an initial assessment based on the Host Transmission Owner's draft LCS Report to determine whether a Delivery Point Network Study (DPNS) is required. SPP and Host Transmission Owner will coordinate results of that assessment with the Transmission Customer. If SPP and the Host Transmission Owner agree to the results of that assessment, SPP will note such agreement in the LCS report.

If SPP determines that a DPNS is required, or if the Transmission Customer requests a DPNS, SPP shall provide the DPNS Agreement to the Transmission Customer within 5 business days following SPP's determination or Transmission Customer's request. The DPNS Agreement shall commit the Transmission Customer to pay SPP for the actual cost to complete the study. The Transmission Customer shall execute the DPNS Agreement within 30 calendar days. If the Transmission Customer fails to return an executed DPNS Agreement within 30 calendar days, or at a later date as the Parties may mutually agree, SPP and Host Transmission Owner shall deem the request to be withdrawn.

SPP will perform the DPNS and will post the DPNS Report within 60 calendar days of the receipt of an executed DPNS Agreement. If SPP is unable to complete the study in the allotted time, SPP shall provide an explanation to the Transmission Customer and Host Transmission Owner regarding the cause(s) of such delay and revised completion date and study cost estimate.

If SPP determines that a DPNS is not required, the Host Transmission Owner shall provide the final LCS Report to the Transmission Customer and SPP. SPP shall post the final LCS Report on the SPP website within 10 business days of receipt from the Host Transmission Owner. Any confidential information in the LCS Report will be redacted before the report is posted.

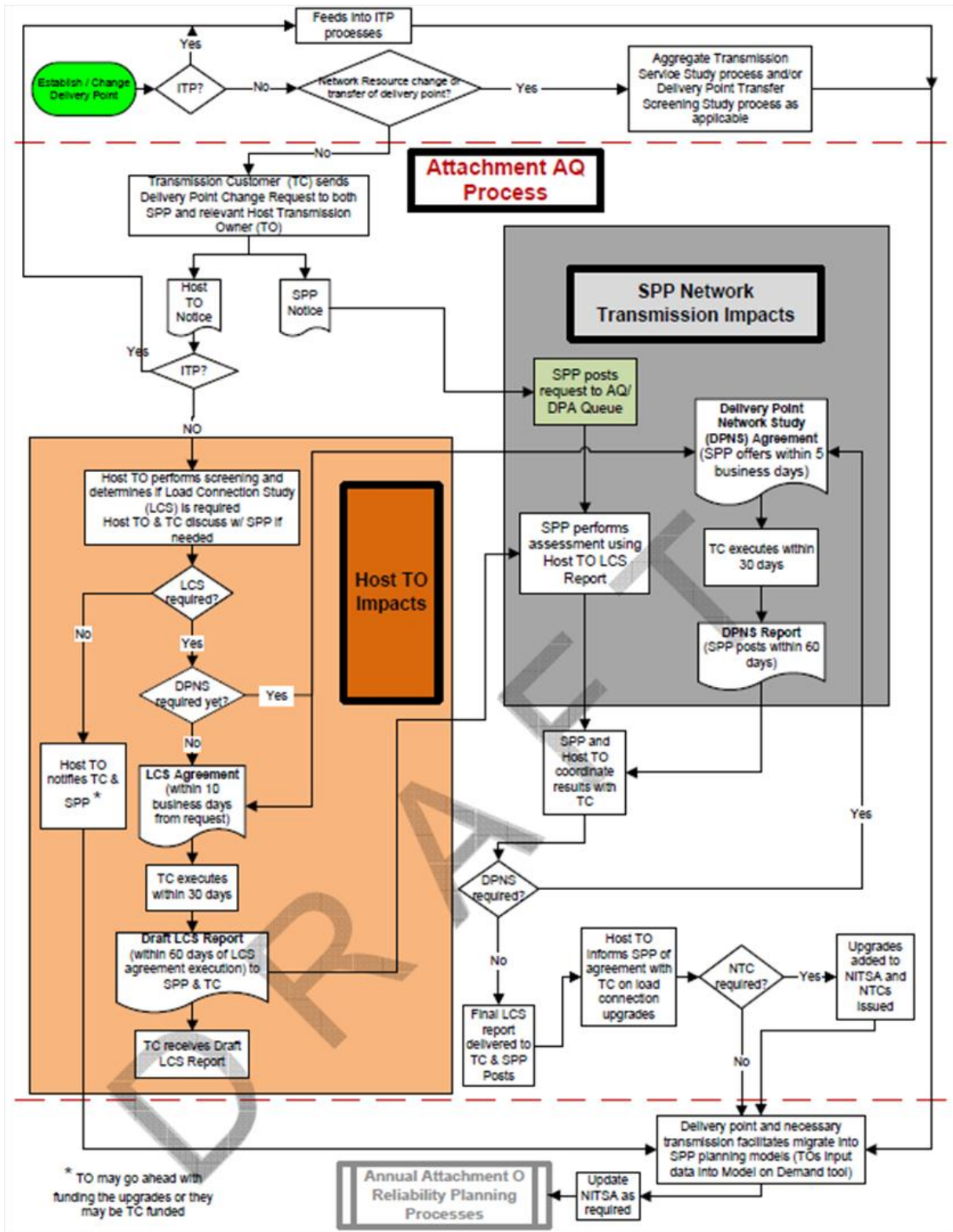
The Host Transmission Owner or Transmission Customer shall notify SPP when an agreement has been reached on load connection upgrades.

A NTC will only be issued if SPP accepts the LCS or performs a DPNS and Network Upgrades were identified by SPP. If a NTC is required, SPP will issue the NTC in accordance with Attachment O and the relevant SPP Business Practices.

If no NTC is required, delivery point and necessary transmission facilities are added to the SPP planning models (TOs input data into Model on Demand tool) which is then included in the annual Attachment O reliability planning processes. SPP will update any corresponding NITSAs, as required.

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## Appendix 1 – AQ Process Flowchart



## Appendix 2 – Minimum LCS Requirements

### **Minimum**

- Performed on the MDWG or ITPNT cases as appropriate for the next peak period as well as one year beyond. Typically this will be a summer peak but may be winter in some areas.
- Any changes to the models used will be documented in the LCS report so the results can be reproduced.
- If an NTC is desired, the ITPNT model results must be provided.
- Contingency analyses will be performed on the change case with the new load added. If violations occur compared to the base case. Compare results and determine violations, by applicable NERC standards, caused only by new load.
- Provide study solution to eliminate criteria violations
- Estimate cost of solutions to criteria violations +/- 30%
- Include tables for comparison of data
- Present report to requesting load serving entity, and to SPP if requesting out of cycle NTC or load serving entity requests
- The report should state what the customer request was for (load values), the requested ISD, the AQ request number, and the final statement as to when and the conditions under which the load can be served.

### **Desired**

- Provide multiple solutions, with estimated costs, to eliminate criteria violations.
- Make recommendation for upgrades with reasoning (ie cost, feasibility, timing, etc.) for the selection if applicable.
- Create one-line diagram with proposed options identified
- Any unique system protection requirements or system sensitivity that affects how much load can be added at various times should be stated in the report

### **Optional**

- Long term models may also be used in the study. Stability models or motor start studies should only be included if requested by the TO or customer.
- Effect on TPL-003 compliance if a solution seems to create a TPL-003 problem or has the potential to do so.
- Short circuit study and or capabilities at the point of interconnection, including the effects of any proposed network upgrades to support the request.
- Clear specification of the connecting equipment, responsibilities, and cost responsibilities for the customer and the TO

- Assumptions of power factor at the load under study and any consequences of study effects of not meeting that power factor should also be made clear.

- If multiple load requests are being made in the same areas add all prior requests in that area to the model.

- Provide tables which show the incremental load being added to the models and customer load forecast over time, not just the final load at the buses.

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## Delivery Point Addition Draft Business Practice

For purposes of this business practice, Host Transmission Owner is defined as the owner of that portion of the Transmission System to which such connection or modification is to be made and Transmission Customer is defined as the TC requesting the establishment or modification of a delivery point. Any capitalized terms not defined herein, shall have the meaning set forth in the SPP Tariff. The process outlined in Attachment AQ facilitates a Host Transmission Owner obtaining a Notification to Construct (“NTC”) outside the normal Integrated Transmission Planning (“ITP”) processes in Attachment O of the SPP Tariff, if the Host Transmission Owner determines that a NTC may be necessary for the addition of a delivery point to the Host Transmission Owner’s transmission system. Please refer to the Attachment AQ process flowchart attached to associated with this Business Practice as Appendix I.

A request to establish or change a delivery point must be made in writing to the Host Transmission Owner and/or SPP. Depending on the timing of a request and the need date for the load, a request may be included in the ITP process, which includes forecasted load.

The following changes/modifications do not need to be included in the Attachment AQ process:

1. Any new or modified loads captured in the ITP process;
2. Any capacity changes at the delivery point without a corresponding changes to the load at the delivery point;
3. Any Distribution Transformer changes without a corresponding load change; or
4. Modification to a delivery point facility rating, for example breaker replacement, bus or line termination equipment including protection equipment.

The Host Transmission Owner shall determine whether the request can be included in the SPP Integrated Transmission Planning (“ITP”) processes within 10 business days of receiving the request from the Transmission Customer or in agreed upon timeframe.

If the Host Transmission Owner determines that the request can be included in the ITP processes, the delivery point and necessary transmission facilities would then be migrated into the SPP planning models (TOs input data into Model on Demand tool) which then feeds into the annual Attachment O reliability planning processes. SPP will update any corresponding Network Integration Transmission Service Agreements (“NITSA”), as required.

~~If request cannot be included in the ITP processes, then the Host Transmission Owner determines whether the request is a Network Resource change or a transfer of delivery point.~~ If the request involves ~~is either a~~ Network Resource change or a transfer of a delivery point, the request should be included in the SPP Aggregate Transmission Service Study process (Attachment Z2) and/or Delivery Point Transfer Screening Study process (Attachment AR), as applicable.

Attachment AQ Process

If the request cannot be included in the ITP process, Aggregate Transmission Service Study or Delivery Point Transfer Screening Study, then the request should be processed through the Attachment AQ process.

Upon notification of the request from Transmission Customer and receipt of application, SPP shall assign an AQ request number and post the request to the queue on the SPP website within 10 business days.

The Host Transmission Owner will perform a screening study within 30 calendar days of receiving the request and determine whether a Load Connection Study (LCS) is required ~~(see Appendix 2 for minimum LCS requirements)~~. Host Transmission Owner and Transmission Customer may discuss with SPP as needed.

If a LCS is not required, Host Transmission Owner shall notify Transmission Customer and SPP within 10 business days of the completion of the screening study. Email is sufficient for the notification of the completion of the screening study. The delivery point and any necessary interconnection or sponsored facilities are then added to the SPP planning models (Transmission Owners input data into Model on Demand tool) which then feeds into the annual Attachment O reliability planning processes. At this point, the Transmission Owner and Transmission Customer can reach an agreement with regard to funding and construction of the any facilities. SPP will update any corresponding NITSAs, as required.

If the Host Transmission Owner determines that a LCS is required, the Host Transmission Owner shall tender the LCS Agreement to the Transmission Customer within 10 business days of receiving the request. A deposit to the Host Transmission Owner may be required for the LCS. The Transmission Customer must execute the LCS Agreement and provide the deposit, if required, within 30 calendar days. The Host Transmission Owner shall perform the LCS (see Appendix 2 for minimum LCS requirements) and provide the draft LCS Report to SPP and the Transmission Customer within 60 calendar days of the LCS Agreement execution.

Following receipt of the draft LCS Report, SPP will perform an initial assessment based on the Host Transmission Owner's draft LCS Report to determine whether a Delivery Point Network Study (DPNS) is required. SPP and Host Transmission Owner will coordinate results of that assessment with the Transmission Customer. If SPP and the Host Transmission Owner agree to the results of that assessment, SPP will note such agreement in the LCS report.

If SPP determines that a DPNS is required, or if the Transmission Customer requests a DPNS, SPP shall provide the DPNS Agreement to the Transmission Customer within 5 business days following SPP's determination or Transmission Customer's request. The DPNS Agreement shall commit the Transmission Customer to pay SPP for the actual cost to complete the study ~~and to make an advance deposit equal to the estimated study cost or \$25,000~~. The Transmission Customer shall execute the DPNS Agreement and provide the deposit within 30 calendar days. If the Transmission Customer fails to return an executed DPNS Agreement within 30 calendar days, or at a later date as the Parties may mutually agree, SPP and Host Transmission Owner shall deem the request to be withdrawn.



SPP will perform the DPNS and will post the DPNS Report within 60 calendar days of the receipt of an executed DPNS Agreement. If SPP is unable to complete the study in the allotted time, SPP shall provide an explanation to the Transmission Customer and Host Transmission Owner regarding the cause(s) of such delay and revised completion date and study cost estimate.

If SPP determines that a DPNS is not required, the Host Transmission Owner shall provide the final LCS Report to the Transmission Customer and SPP. SPP shall post the final LCS Report on the SPP website within 10 business days of receipt from the Host Transmission Owner. Any confidential information in the LCS Report will be redacted before the report is posted.

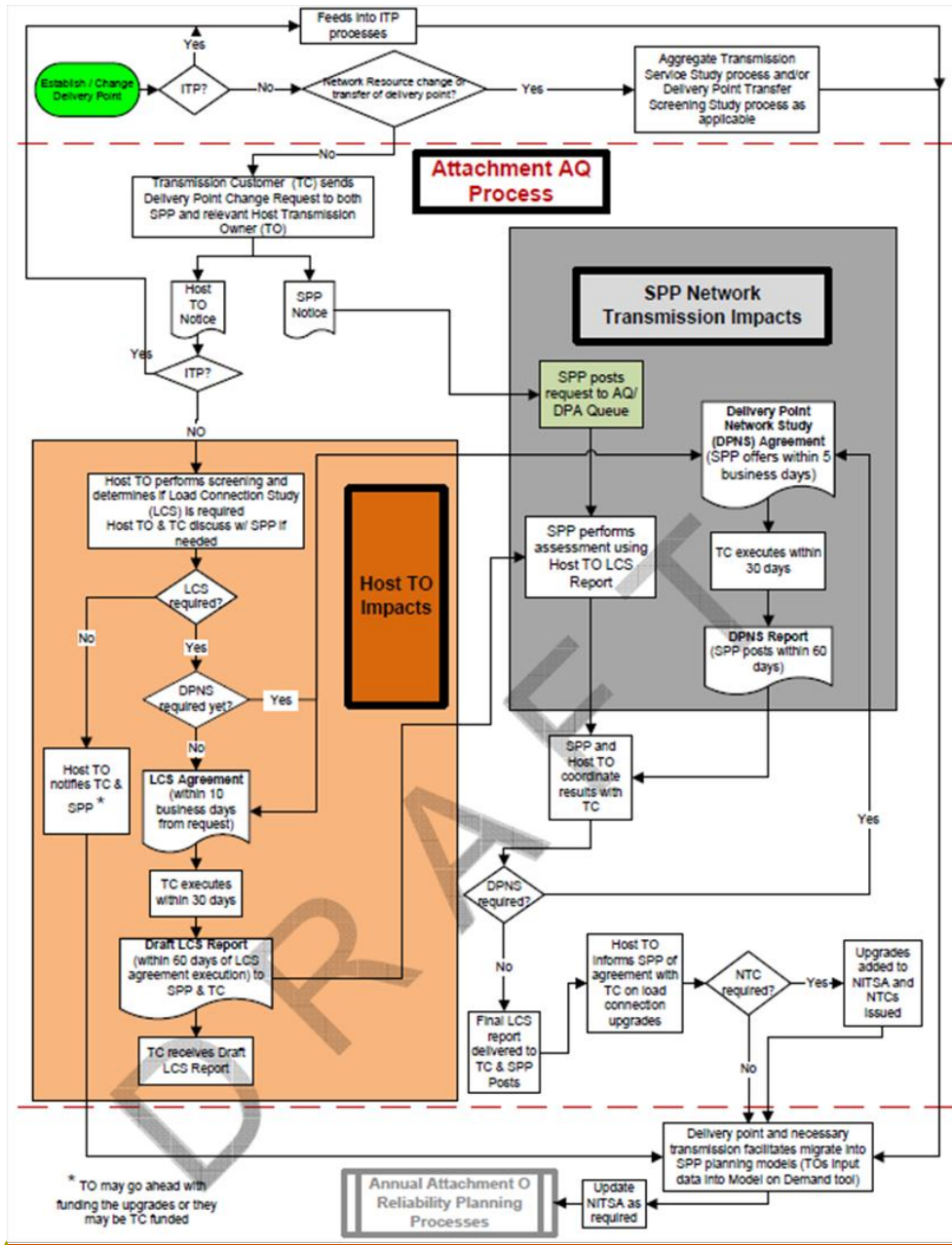
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| A NTC will only be issued if SPP accepts the LCS or performs a DPNS and Network Upgrades were identified by SPP. If a NTC is required, SPP will issue the NTC in accordance with Attachment O and the relevant SPP Business Practices.

If no NTC is required, delivery point and necessary transmission facilities are added to the SPP planning models (TOs input data into Model on Demand tool) which is then included in the annual Attachment O reliability planning processes. SPP will update any corresponding NITSAs, as required.

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**Appendix 1 – AQ Process Flowchart**



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## Appendix 2 – Minimum LCS Requirements

### Minimum

- Performed on the MDWG or ITPNT cases as appropriate for the next peak period as well as one year beyond. Typically this will be a summer peak but may be winter in some areas.

- Any changes to the models used will be documented in the LCS report so the results can be reproduced.

- If an NTC is desired, the ITPNT model results must be provided.

- Contingency analyses will be performed on the changebase case and with the new load added. If violations occur compared to the base case. Compare results and determine criteria-violations, by applicable NERC standards, caused only by new load.

- Provide study solution to eliminate criteria violations

- Estimate cost of solutions to criteria violations +/- 30%

- Include tables for comparison of data

- Present report to requesting load serving entity, and to SPP if requesting out of cycle NTC or load serving entity requests

- If the study assumptions change this should be documented clearly in the report.

- The report should state what the customer request was for (load values), the requested ISD, the AQ request number, and the

### Desired

- Provide multiple solutions, with estimated costs, to eliminate criteria violations.

- Make recommendation for upgrades with reasoning (ie- cost, feasibility, timing, etc.) for the selection if applicable.

- Create one-one-line diagram with proposed options identified

- Present all LCS reports to SPP

- Criteria Violations should include voltage and overload – Study should cover TPL-001-R1 and TPL-002-R2

- Provide tables which show the incremental load being added to the models and customer load forecast over time, not just the final load at the buses.

- Assumptions of power factor at the load under study should be made clear and any consequences of study effects of not meeting that power factor should also be made clear.

- Any unique system protection requirements or system sensitivity that affects how much load can be added at various times should be stated in the report

- If multiple load requests are being made in the same areas add all prior requests in that area to the model.

### Optional

- Long term Models models may also be used in the study. should be MDWG models that are in the near term and one long term model for compliance purposes.

- Stability models or motor start studies should only be included if requested by the TO or customer.

- Effect on TPL-003 compliance should be addressed if a solution seems to create a TPL-003 problem or has the potential to do so.

- Short circuit study and or capabilities at the point of interconnection should be provided, including the effects of any proposed network upgrades to support the request.

- Clear specification of the connecting equipment, responsibilities, and cost responsibilities for the customer and the TO are necessary

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final statement as to when and the conditions under which the load can be served ~~and under~~ what conditions.

- Assumptions of power factor at the load under study and any consequences of study effects of not meeting that power factor should also be made clear.

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