## 2016 Integrated Transmission Planning Near-Term Assessment

## SPP Request Management System (RMS) Questions & Answers from the posted Draft Portfolio

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|---|---|---|---|---|
| 1 | Basin | Please specify the location of the power flow data on TrueShare. | The power flow data is located on TrueShare in the following folders:<br><br>Integrated Transmission Planning--Confidential and Protected Material and or Critical Energy Infrastructure Information-Do Not Release >> 2016 ITPNT >> 2016 ITPNT Powerflow Models Final and 2016 ITPNT Powerflow Models Final 2 | 2/23/2016 |
| 2 | OPPD | OPPD had high and low voltage issues to address in our south rural 69kV system. In order to do this, two 161/69kV primary taps will need to be changed along with installing a new stepped, 10MVAR capacitor bank at S964. The primary tap changes are to address high voltage issues. When the primary taps are changed, it lowers the voltage on the 69kV system making a 5MVAR cap bank too small to correct the post contingent low voltage issues. OPPD recommends the following:<br><br>(1) Adjust the primary tap (DETC) on the existing OPPD S1263/W. Brock T1 161/69kV autotransformer to reduce the high voltage on the 69kV system. This change will apply to all models.<br>(2) Adjust the primary tap (DETC) on the existing OPPD Humboldt/S975 T4 161/69kV autotransformer to reduce the high voltage on the 69kV system. This change will apply to all models.<br><br>OPPD also recommends placing the new capacitor bank at S964. S993 was initially considered in OPPD's evaluation of the low voltage issues in the area. However, the S993 site will be more expensive and difficult than the S964 site (see images in attached email, both were taken at about the same altitude for size and expansion capability comparison). The S993 site is very small (40ft x 75ft), will require the acquisition of additional land (if even possible) for expansion, expansion/addition of RTU capabilities, and a fair amount of substation modifications. Alternatively, the S964 location is much larger (200ft x 275ft), does not require the acquisition of additional land or expansion of the site, has existing RTU capabilities, and would require the least amount of work. The S964 location is expected to be a much cheaper and cost effective location than the S993 location. There is significant additional cost for placing the capacitor bank at S993 as compared to S964 due to electrical and physical space limitations at S993. Also, the capacitor bank is staged so that additional stages can be turned on during various post-contingent scenarios and to address potential voltage flicker violations upon energizing the capacitor bank. | SPP Staff will take this input into consideration while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |
| 3 | AEP | Upgrade: Linwood 138kV Terminal Upgrades, Pierremont 138kV Terminal Upgrades<br><br>The Pierremont Substation is bounded by a street, a building and the curve of a bayou. There is no space available in the existing substation to add a new terminal and expansion is not feasible. This project would require a change in scope to construct a new substation at an alternate location. Additionally, it will be very difficult to obtain a suitable site in the vicinity due to congestion and may require the purchase of residential or commercial properties.<br><br>Upon further review, AEP has discovered another issue with the Linwood-Pierremont 138 kV project: With the Linwood-Pierremont 138 kV line modeled as 3.6 miles of 1272 ACSR, for the loss of Arsenal Hill-Fort Humbug 138 kV in the 20SP0 case, the project increases the loading on the Arsenal Hill-McWillie 138 kV line from 88% of its 308 MVA emergency rating to 98%. The Arsenal Hill-McWillie line is limited to 308 MVA by 2.86 miles of 1272 AAC conductor. | SPP Staff has received the notification of the physical limitations of the substation and will take this input into consideration while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |
| 4 | AEP | Upgrade: Hugo 345/138kV Transformer, Hugo 345kV Terminal Upgrades, Sawyer 138/69kV Transformer, Sawyer 138kV Terminal Upgrades<br><br>AEP also questions whether the Hugo project and the Sawyer project are intended to address the same needs (also the same as the rebuild project mentioned above) in which case both (or three) projects would not all be needed. With respect to the Sawyer project, WFEC's 138kV Sawyer station and AEP's 69kV Sawyer station are about 8 miles apart. A new transmission line would be needed in addition to the transformer which does not appear to be in the existing scope. | SPP Staff will take the line mileage into account for these projects and will take this input into consideration while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |

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| 5 | AEP | Upgrade: Granite 138/69kV Transformer, Granite-Hobart 138kV Ckt 1 New Line<br><br>AEP questions whether the Elk City 138-13.8kV transformer and load move corrects the needs that are requiring this project. If SPP determines that it is needed, AEP believes there may be a better location than the Granite station to connect the project that would reduce the project cost. | SPP Staff will take this input into consideration while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |
| 6 | AEP | Upgrade: Okay 69kV Reactor<br><br>AEP has performed a field verification of the tap settings on the Okay 138/69kV autotransformer. The actual tap setting is 1.0217. In the 2020 model series for the 2016 ITPNT, this tap setting was modeled at 1.052. With the correct tap setting, AEP was able to resolve the area voltage violations. Note that on some contingencies, it is necessary to switch off area capacitors and switch on reactors at Northwest Texarkana. AEP does not believe that the Okay 69kV reactor is needed. | SPP Staff tested with the correct tap settings provided and the Okay reactor is no longer needed as part of the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |
| 7 | ITC | After going through the draft portfolio, we noticed that for the project "New 345/138 kV transformer at Hugo7 New Hugo4-Hugo7 138 kV line," the cost estimate of approx. $10 million only accounts for the transformer and not the approx. 14.5 miles of 138kV line from ITC Hugo 345kV Sub to AEP Hugo 138kV Sub. We believe this might be due to a confusion between the locations of AEP Hugo 138kV and Western Farmers Hugo 138kV Substations. WFEC Hugo Hugo substation is very close to ITC Hugo 345kV Sub. | SPP Staff will take the line mileage into account for this project while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |
| 8 | Southwest Transmission | The draft portfolio did not contain information on the ITP Need (i.e. Need ID) that each solution is intended to address. As such, it is difficult to provide comments as to the effectiveness of the portfolio in meeting the identified needs through the ITPNT process. Once the Need IDs are provided, Southwest Transmission anticipates it will have further comments as to whether the proposed solutions are indeed more efficient or cost effective than other proposed solutions.<br><br>As stated above, Southwest Transmission cannot determine whether or not its remaining solutions were given due consideration without knowing the Need ID each proposed solution is intended to address. | SPP Staff will be posting a listing of the projects and the needs solved by each prior to the Engineering planning summit on March 4, 2016. | 2/23/2016 |
| 9 | GRDA | Upgrade: Cedar Crest - Salina 161kV ckt 1 (new line) - we don't feel is valid.<br><br>GRDA has an Op Guide that identifies the facility has a short-term emergency rating that allows the operator time to reduce generation at Salina pumpback plant so to not overload the Kerr to Saline Creek ckt 1 or 2 in the event the the other is lost. | SPP staff has received verification and notification of this Operating Guide, and will take this information into account while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |
| 10 | AEP | Upgrade: AEP Pittsburg - WFEC Pittsburg 138 kV Ckt 1 New Line (AEP), Pittsburg 138/69 kV Transformer (AEP)<br><br>AEP suspects that the Pittsburg (AEP) - Pittsburg (WFEC) project including the autotransformer is not needed. In addition to the local switched shunts that can be used to control voltage in the area, AEP has a planned project to rebuild and reconductor the Atoka-McAlester 69 kV line that will relieve low voltage conditions in the area. The project is to rebuild and reconductor the 46.7 mile line to 1272 ACSR with 138 kV construction (new conductor rating 161/237 MVA). | SPP Staff acknowledges the verification and notification of the planned project. This planned projects will result in a modeling error that will be taken into account while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |

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| **11** | AEP | Upgrade: Wilburton 69 kV Reactor, Lone Oak 69 kV Reactor<br><br>AEP does not believe that either of these reactor projects are needed. In addition to the local switched shunts that can be used to control voltage in the area, AEP believes the tap settings on the autotransformer at Lone Oak can be adjusted to control the voltage.<br><br>Additional comment received: AEP had decided to adjust the tap settings of the autotransformer at Lone Oak so that the ratio will be 1.001 as indicated in the attached IDEV file. This will reduce the voltage of the 69 kV system in the area from the voltage presently seen in the models. With this adjustment, along with the switching of shunts devices in the area as needed to control voltage, neither of these two reactor projects are needed. We recommend that they both be removed from the draft portfolio. | SPP Staff has received notification and verification of the topology updates, and will take this information into consideration while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |
| **12** | GRDA | In reference to the Kinzie transformer overload in the 2016 ITPNT models, GRDA is submitting an idev to correct the topology in the Stillwater area and this should negate the need for the proposed Stillwater to Central 138kV line. | SPP Staff has received notification and verification of the topology updates, and will take this information into consideration while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |
| **13** | OGE | Upgrade: Knob Hill - Mooreland 138 kV Ckt 1 New Line (OGE) is not a viable solution.<br><br>This project would increase flows across the existing Woodward District - Wind Farm Switching Station flowgate by lowering the path impedance from WFEC Mooreland to the Alva area (OGE Knob Hill and WFEC Noel). In addition, this project would involve building a costly new 138kV line with a length between 47 miles and 53 miles. | SPP Staff will take the line mileage into account for this project while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |
| **14** | SPS | 1. SPS has some concerns about building the line and provided a Google Earth image showing the oil wells and issues around the substations. We are finding difficulty in getting through oil fields and this comes from the operators of the fields. SPS is concerned about the constructability of the line between the stations.<br>2. SPS has great concerns about being able to expand the 230 kV bus at Amoco and provided an image of the area. When SPS looked at expanding the bus at that location, it wasn't possible due to the wells close to the fence and the underground pipes and roads. We would suggest SPP consider another project as this may not be constructable. The problem at Amoco may not be just above ground obstacles but also underground pipelines which can't be moved. These projects may not be feasible to construct depending on landowner, pipeline, and oil well interference issues. We would like to discuss alternatives to both with SPP staff.<br>3. On the Draft Portfolio, the upgrade of the Seminole Autos is an Oklahoma project, and is really a Texas project. Is there confusion with SPS Seminole and the Seminole Plant in Oklahoma? | 1. SPP Staff has received the notification of the physical limitations of the substation due to the difficulty in getting through oil fields, as well as the constructability of the line between the stations.<br>2. SPP Staff has received the notification of the physical limitations of the substation and will take this information into account while finalizing the 2016 ITPNT portfolio.<br>3. SPP staff will make the correction to the draft portfolio to reflect the appropriate location.<br><br>An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |
| **15** | OGE | This project (SW134TP4 - West Moore 138 kV Ckt 1 New Line) is not a viable solution. The modeled SW134TP4 bus is actually a three way switch structure surrounded by a densely developed suburban area. A new substation site with a four-breaker ring would would have to be built to eliminate the four terminal line created by attempting to connect the existing three terminal line into WFEC West Moore. There is no property available to accomplish this. Please let us know what needs you are trying to solve and we will attempt to help with a viable solution. | SPP Staff has received the notification of the physical limitations of the substation and surrounding area, and will take this information into account while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |

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| **16** | WFEC | Description: Fully rebuild 69 kV line from Sara Road to Sunshine Canyon.<br>Upgrade Justification: To address the overload of Mustang - Sunshine Canyon 69 kV Ckt 1 for the outage of Jensen Road - Jensen Tap 138 kV Ckt 1.<br>Referred to SPP-NTC-200245.<br>WFEC proposes the following solution:<br>a) Install a 10 MVAR cap bank at bus 514821 (Jensen)<br>b) If contingency "Jensen to Jensen tap (514821 to 514820)" occur. Open "El Reno to Jensen (520893 to 514821)".<br><br>WFEC is capable to maintain its system within appropriate SOL if the tie line El Reno to Jensen (520893 to 514821) is opened under contingency Jensen to Jensen tap (514821 to 514820). WFEC is willing to discuss the matter. | SPP staff has received verification and notification of this Operating Guide, and will take this information into account while finalizing the 2016 ITPNT portfolio. An updated 2016 ITPNT portfolio will be presented at the March 4, 2016, Engineering planning summit. | 2/23/2016 |
| **17** | WFEC | Description: Construct new 69 kV line from Four Corners to Nash.<br>WFEC doesn't see the Justification for this Upgrade.<br>Please provide to WFEC the reliability issue that this Upgrade is supposed to solve. | SPP Staff will be posting a listing of the projects and the needs solved by each prior to the Engineering planning summit on March 4, 2016. | 2/23/2016 |
| **18** | WFEC | Description: Install 138/69 kV transformer at Granite.<br>WFEC doesn't see the Justification for this Upgrade<br>Please provide to WFEC the reliability issue that this upgrade is supposed to solve. | SPP Staff will be posting a listing of the projects and the needs solved by each prior to the Engineering planning summit on March 4, 2016. | 2/23/2016 |
| **19** | WFEC | Description: Construct new 138 kV line from Granite to Hobart.<br>WFEC doesn't see the Justification for this Upgrade<br>Please provide to WFEC the reliability issue that this upgrade is supposed to solve. | SPP Staff will be posting a listing of the projects and the needs solved by each prior to the Engineering planning summit on March 4, 2016. | 2/23/2016 |