



# **TAG Meeting July 19, 2016**

**NCEMC Office  
Raleigh, NC**



# **TAG Meeting Agenda**

- 1. Administrative Items – Rich Wodyka**
- 2. 2016 Study Activities Update – Orvane Piper**
- 3. NCTPC 2015 Collaborative Transmission Plan Mid-year Update – Mark Byrd**
- 4. Regional Studies Update – Bob Pierce**
- 5. 2016 TAG Work Plan Update – Rich Wodyka**
- 6. TAG Open Forum – Rich Wodyka**

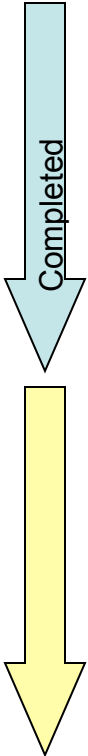


# **2016 Study Activities Update**

**Orvane Piper  
Duke Energy Carolinas**



# Steps and Status of the Study Process

- 
- Two vertical arrows are positioned to the left of the list. The top arrow is light blue and points downwards, with the word 'Completed' written vertically inside it. The bottom arrow is yellow and also points downwards. The top arrow covers the first four steps, and the bottom arrow covers the last four steps.
1. Assumptions Selected
  2. Study Criteria Established
  3. Study Methodologies Selected
  4. Models and Cases Developed
  5. Technical Analysis Performed
  6. Problems Identified and Solutions Developed
  7. Collaborative Plan Projects Selected
  8. Study Report Prepared



# Studies for 2016

- **Annual Reliability Study**
  - **Assess DEC and DEP transmission systems' reliability and develop a single Collaborative Transmission Plan**
- **Sensitivities**
  - **Assess DEC and DEP interface with neighboring systems by modeling hypothetical transfers**



## **Sensitivity #1**

- **Forced outage of multiple nuclear units**
  - **Study year 2026 Summer**
  - **DEP's Brunswick Units (1 & 2)**
  - **Capacity replacement equally from Southern Company and PJM Market.**



## **Sensitivity #2**

- **Identification of permanent transmission upgrades to eliminate use of specific operating procedures**
  - **Study year 2026 Summer**
  - **1 DEC/DEP operating procedure**
  - **4 DEP operating procedures**



# Base Case Model Development

- **Latest updates to detailed models for DEC and DEP systems will be included**
- **Start with 2015 series MMWG cases**
- **Adjustments may be made based on additional coordination with neighboring transmission systems**
- **Planned transmission additions from updated 2015 Plan may be included in models**





## **Technical Analysis**

- **Conduct thermal screenings of the 2021 and 2026 base cases**
- **Conduct thermal screenings of 2026 sensitivities**

Category	Initial Condition	Event
<b>P0</b> No Contingency	Normal System	None
<b>P1</b> Single Contingency	Normal System	Loss of one of the following: <ol style="list-style-type: none"><li>1. Generator</li><li>2. Transmission Circuit</li><li>3. Transformer</li><li>4. Shunt Device</li><li>5. Single Pole of a DC line</li></ol>
<b>P2</b> Single Contingency	Normal System	<ol style="list-style-type: none"><li>1. Opening of a line section w/o a fault</li><li>2. Bus Section Fault</li><li>3. Internal Breaker Fault (non-Bus-tie Breaker)</li><li>4. Internal Breaker Fault (Bus-tie Breaker)</li></ol>
<b>P3</b> Multiple Contingency	Loss of generator unit followed by System adjustments	Loss of one of the following: <ol style="list-style-type: none"><li>1. Generator</li><li>2. Transmission Circuit</li><li>3. Transformer</li><li>4. Shunt Device</li><li>5. Single pole of a DC line</li></ol>

Category	Initial Condition	Event
<b>P4</b> Multiple Contingency (Fault Plus stuck breaker)	Normal System	Loss of multiple elements caused by a stuck breaker (non-Bus-tie Breaker) attempting to clear a Fault on one of the following: <ol style="list-style-type: none"> <li>1. Generator</li> <li>2. Transmission Circuit</li> <li>3. Transformer</li> <li>4. Shunt Device</li> <li>5. Bus Section</li> <li>6. Loss of multiple elements caused by a stuck breaker (Bus-tie Breaker) attempting to clear a Fault on the associated bus</li> </ol>

Category	Initial Condition	Event
<b>P5</b> Multiple Contingency (Fault plus relay failure to operate)	Normal System	Delayed Fault Clearing due to the failure of a non-redundant relay protecting the Faulted element to operate as designed, for one of the following: <ol style="list-style-type: none"> <li>1. Generator</li> <li>2. Transmission Circuit</li> <li>3. Transformer</li> <li>4. Shunt Device</li> <li>5. Bus Section</li> </ol>
<b>P6</b> Multiple Contingency (Two overlapping singles)	Loss of one of the following followed by System adjustments. <ol style="list-style-type: none"> <li>1. Transmission Circuit</li> <li>2. Transformer</li> <li>3. Shunt Device</li> <li>4. Single pole of a DC line</li> </ol>	Loss of one of the following: <ol style="list-style-type: none"> <li>1. Transmission Circuit</li> <li>2. Transformer</li> <li>3. Shunt Device</li> <li>4. Single pole of a DC line</li> </ol>

Category	Initial Condition	Event
<b>P7</b> Multiple Contingency (Common Structure)	Normal System	<p>The loss of:</p> <ol style="list-style-type: none"> <li>1. Any two adjacent (vertically or horizontally) circuits on common structure</li> <li>2. Loss of a bipolar DC line</li> </ol>



## **Problems Identified and Solutions Developed**

- **Identify limitations and develop potential alternative solutions for further testing and evaluation**
- **Estimate project costs and schedule**

2021 (% Loading)						Overloaded Branch		
21S	Br1Dn	HarDn	Rob2Dn	21W	AshvDn	Comments	Name	Branch Type
96.6	93.7	94.8	92.5	---	107	Operating Guide	BADIN - TUCKERTOWN	100 kV Line
---	---	---	---	110.2	106.1	Upgrade 6.3 miles	BOGER CITY BL	100 kV Line
---	---	---	---	100	100.1	Upgrade 6.3 miles	BOGER CITY WH	100 kV Line
---	---	---	---	---	91.5	N/A, outside 10 year plan	DAVIDSON RIVER BL	100 kV Line
---	---	---	---	94.5	108.1	upgrade 4.7 miles (<\$10 M)	DAVIDSON RIVER BL	100 kV Line
---	---	---	---	---	95.5	AEU	DAVIDSON RIVER WH	100 kV Line
94.5	94.7	94.7	94.7	---	---	Tarrant Rd SS (<\$10 M)	DEEP RIVER WH	100 kV Line
94.2	---	---	---	---	---	Upgrade 13.9 miles	DUNCAN WH N	100 kV Line
---	---	---	---	101.7	104.4	Upgrade 11.8 miles	HARLEY BL	100 kV Line
---	---	---	---	101.8	104.3	Upgrade 11.8 miles	HARLEY BL	100 kV Line
---	---	---	---	109.9	115.2	Upgrade 11.8 miles	HARLEY WH	100 kV Line
108.6	105.3	106.6	104	---	120.3	Operating Guide	HIGH ROCK - TUCKERTOWN	100 kV Line
---	---	---	---	---	91.6	N/A, outside 10 year plan	HOGBACK BL	100 kV Line
---	---	---	---	---	93.2	N/A, outside 10 year plan	HOGBACK WH	100 kV Line
93.3	97.5	98.4	96.7	---	---	Upgrade 9.8 miles	LINDEN ST BL	100 kV Line
---	94.8	95.7	94	---	---	Upgrade 9.8 miles	LINDEN ST WH	100 kV Line
---	94.7	95.6	93.9	---	---	Upgrade 3.2 miles	LINDEN ST WH	100 kV Line
---	95	95.8	---	---	---	Upgrade 9.7 miles	PIEDMONT BL	100 kV Line
113.9	113.8	113.8	113.8	---	---	Operating Guide	WATEREE BL	100 kV Line
113.9	113.9	113.9	113.9	---	---	Operating Guide	WATEREE WH	100 kV Line
98.3	98.4	98.6	98.4	---	---	Springfield SS (<\$10 M)	WEDDINGTON BL	100 kV Line
98.3	98.6	98.6	98.6	---	---	Springfield SS (<\$10 M)	WEDDINGTON BL	100 kV Line
---	---	---	---	106.1	100.3	DEP proposed project	PISGAH TIE 09	115/100 kV Transformer
---	---	---	---	106.6	100.8	DEP proposed project	PISGAH TIE 10	115/100 kV Transformer
90.9	---	---	---	---	---	N/A, outside 10 year plan	FISHER BL	230 kV Line
90.9	---	---	---	---	---	N/A, outside 10 year plan	FISHER WH	230 kV Line
101.7	92.4	91.7	93.6	---	---	Operating Guide	LONDON CREEK BL	230 kV Line
101.7	92.4	91.7	93.6	---	---	Operating Guide	LONDON CREEK WH	230 kV Line
92.1	---	---	---	---	---	N/A, outside 10 year plan	SADLER BL	230 kV Line
92.1	---	---	---	---	---	N/A, outside 10 year plan	SADLER WH	230 kV Line
---	93.2	93.6	92.7	---	---	add second 230 kV circuit (<\$10 M)	SANDY RIDGE BL	230 kV Line
---	---	---	---	95.3	---	AEU	STAMEY BL	230 kV Line
95.1	---	---	---	---	---	AEU	ALLEN 2B	230/100 kV Transformer
93.2	---	---	---	---	---	N/A, outside 10 year plan	ALLEN STEAM PL 06	230/100 kV Transformer
---	---	---	---	109.8	102.5	AEU	PISGAH TIE 01	230/100/44 kV Transformer
---	---	---	---	107.1	100.1	AEU	PISGAH TIE 02	230/100/44 kV Transformer
104.7	---	---	---	---	---	add transformer (<\$10 M)	SADLER TIE 03	230/100/44 kV Transformer
109.3	---	---	---	98.9	---	add transformer (<\$10 M)	SADLER TIE 04	230/100/44 kV Transformer
94.5	90.3	90.7	---	---	---	AEU	STONEWATER TIE A4	230/100/44 kV Transformer
94.4	90.3	90.7	---	---	---	AEU	STONEWATER TIE A5	230/100/44 kV Transformer
98.9	91.9	91.8	91.7	91.5	---	AEU	KATOMA	500 kV Line
---	---	91.2	---	---	---	N/A, outside 10 year plan	PARKWOOD TIE 05	500/230 kV Transformer

2026 (% Loading)								Overloaded Branch	
26S	26S_Br1Dn	26S_HarDn	26S_Rob2Dn	Brunswick	Brunswick_HarDn	Brunswick_Rob2Dn	Comments	Name	Branch Type
105	99.6	101	---	99.9	100.3	---	Operating Guide	BADIN - TUCKERTOWN	100 kV Line
101.4	101.6	101.6	101.5	101.5	101.6	97.4	Tarrant Rd SS (<\$10 M)	DEEP RIVER WH	100 kV Line
113.9	112.2	111.5	113.4	106.2	111.6	103.6	Upgrade 13.9 miles	DUNCAN WH N	100 kV Line
118.1	112	113.6	110.2	112.3	112.8	101.6	Operating Guide	HIGH ROCK - TUCKERTOWN	100 kV Line
---	---	---	---	100	100	101.8	Upgrade 9.8 miles	LINDEN ST BL	100 kV Line
114	113.9	113.9	113.9	114	113.9	114.4	Operating Guide	WATEREE BL	100 kV Line
114	113.9	113.9	113.9	114	113.9	114.4	Operating Guide	WATEREE WH	100 kV Line
106.1	106.3	106.3	106.2	106.4	106.4	101.7	Springfield SS (<\$10 M)	WEDDINGTON BL	100 kV Line
106.8	107.1	107.1	107	107.2	107.1	102.5	Springfield SS (<\$10 M)	WEDDINGTON BL	100 kV Line
---	---	---	---	96.6	---	98.8	Upgrade 24.5 miles	CLAY HILL BL	230 kV Line
---	---	---	---	---	---	99.2	Upgrade 21.7 miles	HARRISBURG BL	230 kV Line
---	---	---	---	---	---	99.2	Upgrade 21.7 miles	HARRISBURG WH	230 kV Line
125.7	125.9	125.2	127.1	118.9	125.3	116.3	Operating Guide	LONDON CREEK BL	230 kV Line
125.7	125.9	125.2	127.1	118.9	125.3	116.3	Operating Guide	LONDON CREEK WH	230 kV Line
95.3	---	---	---	---	---	---	N/A, outside 10 year plan	RIPP BL	230 kV Line
95.3	---	---	---	---	---	---	N/A, outside 10 year plan	RIPP WH	230 kV Line
---	96.3	96.7	95.7	98.1	96.7	99.3	N/A, outside 10 year plan	SANDY RIDGE BL	230 kV Line
---	92.6	93	92.8	96.4	---	---	N/A, outside 10 year plan	STEELBERRY BL	230 kV Line
---	92.6	93	92.8	96.4	---	---	N/A, outside 10 year plan	STEELBERRY WH	230 kV Line
---	92.8	94.1	91.9	---	---	---	N/A, outside 10 year plan	WESTPORT WH	230 kV Line
---	90	94.1	94.5	---	---	---	N/A, outside 10 year plan	ALLEN 2B	230/100 kV Transformer
96	90.4	90.2	90.4	---	---	---	N/A, outside 10 year plan	BECKERDITE TIE 02	230/100 kV Transformer
96.5	90.9	90.7	90.8	---	---	---	N/A, outside 10 year plan	BECKERDITE TIE 03	230/100 kV Transformer
---	90.4	90.3	90.5	---	---	---	N/A, outside 10 year plan	BUCK TIE AT3	230/100 kV Transformer
---	90.4	90.3	90.5	---	---	---	N/A, outside 10 year plan	BUCK TIE AT4	230/100 kV Transformer
106.4	---	---	---	107.2	---	---	add transformer (<\$10 M)	SADLER TIE 03	230/100/44 kV Transformer
111	---	---	---	111.8	---	---	add transformer (<\$10 M)	SADLER TIE 04	230/100/44 kV Transformer
102.5	98.3	98.6	97.9	104.2	98.7	95.1	AEU	STONEWATER TIE A4	230/100/44 kV Transformer
---	---	91	90.3	---	---	---	N/A, outside 10 year plan	STONEWATER TIE A4	230/100/44 kV Transformer
102.4	98.2	98.6	97.9	104.1	98.6	95.1	AEU	STONEWATER TIE A5	230/100/44 kV Transformer
---	---	91.1	90.3	---	---	---	N/A, outside 10 year plan	STONEWATER TIE A5	230/100/44 kV Transformer
97.3	---	---	---	95.9	---	---	N/A, outside 10 year plan	KATOMA	500 kV Line
---	93.5	95.8	90.8	96.2	96	95.3	N/A, outside 10 year plan	PARKWOOD TIE 05	500/230 kV Transformer



21S Base Reliabilty Study %Loading					
Base Case	Br1DnTRM	HarDnTRM	Rob2DnTRM	Notes	Monitored Facility
----	99.57	----	----	Proposed Project	PILKINGTON LIBBEY-OWENS-FORD-BUTLER TAP 115 kV LINE
----	98.17	----	----	Proposed Project	MAXTON-BUTLER TAP 115 kV LINE
93.20	----	92.11	----	Beyond 10-Year Planning Horizon	VISTA-CASTLE HAYNE 115 kV LINE
----	----	----	94.57	Beyond 10-Year Planning Horizon	EASTOVER-SHAW AFB TAB 115 kV LINE
----	----	----	90.50	Beyond 10-Year Planning Horizon	CAMDEN TAP-CAMDEN CITY 115 KV LINE
----	92.86	92.11	104.48	Operating Procedure	CAMDEN-CAMDEN TAP 115 kV LINE
----	90.70	----	101.71	Operating Procedure	CAMDEN-CAMDEN INVISTA 115 kV LINE

21/22W Base Reliability %Loading			
Base Case	AshvCT1DnTRM	Notes	Monitored Facility
90.98	116.04	Operating Procedure	PISGAH-CRADLE OF FORESTRY 115 kV LINE
----	96.97	Operating Procedure	CANTON-CRADLE OF FORESTRY 115 kV LINE
97.79	N/A	Proposed Project	MAXTON-BUTLER TAP 115 kV LINE

26S Base Reliability Study %Loading				26S_Br1&2Dn Study %Loading				
Base Case	Br1DnTRM	HarDnTRM	Rob2DnTRM	Base Case	HarDnTRM	Rob2DnTRM	Notes	Monitored Facility
----	----	----	----	92.06	----	----	Beyond 10-Year Planning Horizon	SUTTON-CASTLE HAYNE 230 kV LINE
----	90.33	----	----	----	----	----	Beyond 10-Year Planning Horizon	SUTTON-WILMINGTON NINTH & ORANGE 230 kV LINE
----	----	----	----	----	91.13	90.68	Beyond 10-Year Planning Horizon	WEATHERSPOON-WEST LUMBERTON 115 kV LINE
----	----	----	----	----	----	93.77	Beyond 10-Year Planning Horizon	CAPE FEAR SOUTH-LILLINGTON 115 kV LINE
----	----	----	----	----	----	98.84	Beyond 10-Year Planning Horizon	DARLINGTON COUNTY-S BETHUNE 230 kV LINE
----	----	----	----	----	92.77	----	Beyond 10-Year Planning Horizon	RALEIGH BRIERS CREEK-DURHAM 230 kV LINE
94.26	94.58	95.04	94.33	94.81	95.84	94.97	Beyond 10-Year Planning Horizon	CHESTNUT HILLS-MILBURNIE 115 kV LINE
----	----	91.05	----	----	92.52	----	Beyond 10-Year Planning Horizon	ROCKINGHAM-WADESBORO TAP 230 kV LINE
----	----	----	----	94.31	99.74	101.10	*Ancillary Equipment Upgrade	CUMBERLAND-GARLAND 230 kV LINE
----	98.49	----	----	110.25	116.08	111.29	Proposed Project	PILKINGTON LIBBEY-OWENS-FORD-BUTLER TAP 115 kV LINE
----	----	----	----	98.63	104.07	99.26	Proposed Project	MAXTON-PEMBROKE 115 kV LINE
----	96.99	----	----	108.75	114.57	109.78	Proposed Project	MAXTON-BUTLER TAP 115 kV LINE
97.67	----	96.56	92.61	----	----	----	Beyond 10-Year Planning Horizon	VISTA-CASTLE HAYNE 115 kV LINE
91.22	----	90.12	----	----	----	----	Beyond 10-Year Planning Horizon	VISTA-JONES-ONSLOW EMC HUGH BATTS 115 kV LINE
98.21	98.90	98.33	98.29	99.75	100.46	100.07	*Ancillary Equipment Upgrade & Raise 9.89 Miles	LELAND INDUSTRIAL-DELCO 115 kV LINE
----	----	----	----	----	91.62	----	Beyond 10-Year Planning Horizon	LAKE WACCAMAW-HALLSBORO 115 kV LINE
----	----	----	----	----	93.79	----	Beyond 10-Year Planning Horizon	HALLSBORO-WHITEVILLE TAP 115 kV LINE
----	----	----	----	----	91.02	----	Beyond 10-Year Planning Horizon	NICHOLS-MULLINS 115 kV LINE
----	----	----	----	93.37	105.90	96.05	*Reconductor 8.65 Miles w/3-1590	MULLINS-MARION 115 kV LINE
----	----	----	----	----	90.07	----	Operating Procedure	MARION-DILLON TAP 115 kV LINE
----	----	----	----	----	----	90.49	Beyond 10-Year Planning Horizon	SUMTER-SUMTER GOLD KIST TAP 115 kV LINE
----	----	----	----	----	----	90.56	Beyond 10-Year Planning Horizon	KINGS HIGHWAY-SUMTER GOLD KIST TAP 115 kV LINE
----	----	----	----	----	----	93.44	Beyond 10-Year Planning Horizon	KINGS HIGHWAY-SHAW AFB TAP 115 kV LINE
----	----	----	94.42	----	94.8	109.89	*Coordinate w/SCEG - Reconductor 7.37 Miles w/3-795	EASTOVER-SHAW AFB TAP 115 kV LINE
----	----	----	----	----	----	98.99	Beyond 10-Year Planning Horizon	SUMTER-WATEREE 230 kV LINE
----	----	----	91.53	----	----	100.69	Operating Procedure	CAMDEN TAP-CAMDEN CITY 115 kV LINE
----	94.67	93.91	106.36	93.59	102.69	115.68	Operating Procedure	CAMDEN-CAMDEN TAP 115 kV LINE
----	92.42	91.69	103.49	91.39	100.00	112.34	Operating Procedure	CAMDEN-CAMDEN INVISTA 115 kV LINE
----	----	----	----	----	----	91.02	Beyond 10-Year Planning Horizon	CAMDEN INVISTA-ELGIN TAP 115 kV LINE
98.85	N/A	N/A	N/A	101.04	N/A	N/A	Beyond 10-Year Planning Horizon	Bus Differential Relay Failure (P-5)
96.21	N/A	N/A	N/A	96.88	N/A	N/A	Beyond 10-Year Planning Horizon	WEATHERSPOON-WEST LUMBERTON 115 kV LINE
								SUTTON-WILMINGTON PCS 115 kV LINE
96.33	N/A	N/A	N/A	96.94	N/A	N/A	Beyond 10-Year Planning Horizon	Internal Breaker Fault (P-2)
								SUTTON-WILMINGTON PCS 115 kV LINE
							*Hypothetical Projects	



## **Collaborative Plan Projects Selected**

- **Compare alternatives and select preferred solutions**

## **Study Report Prepared**

- **Prepare draft report and distribute to TAG for review and comment**



# Questions ?





# **NCTPC 2015 Collaborative Transmission Plan Update**

**Mark Byrd**  
**Duke Energy Progress**



## 2016 Mid-Year Update to the 2015 Collaborative Transmission Plan

- **One DEC project was completed in late 2015**
- **Four DEP project cost estimates increased and one decreased (net change of + \$3M)**
- **Total Reliability Project Cost estimates changed from \$156M to \$144M**



Reliability Projects in 2015 Plan		
Reliability Project	TO	Planned I/S Date
Durham-RTP 230kV Line, Reconductor	DEP	June 2024
Brunswick #1 – Jacksonville 230 kV Line Loop-In to Folkstone 230 kV substation	DEP	June 2024
Raeford 230 kV substation, loop-in Richmond-Ft Bragg Woodruff St 230 kV Line and add 3rd bank	DEP	June 2018
Jacksonville-Grant's Creek 230 kV Line and Grant's Creek 230/115 kV Substation	DEP	June 2020





<b>Reliability Projects in 2015 Plan (continued)</b>		
<b>Reliability Project</b>	<b>TO</b>	<b>Planned I/S Date</b>
<b>Newport-Harlowe 230 kV Line, Newport SS and Harlowe 230/115 kV Substation</b>	<b>DEP</b>	<b>June 2020</b>
<b>Fort Bragg Woodruff St 230 kV Sub, Replace 150 MVA 230/115 kV transformer with two 300 MVA banks &amp; reconductor Manchester 115 kV feeder</b>	<b>DEP</b>	<b>December 2016</b>
<b>Sutton-Castle Hayne 115 kV North line Rebuild</b>	<b>DEP</b>	<b>June 2018</b>
<b>Reconductor Norman 230 kV Lines (McGuire-Riverbend)</b>	<b>DEC</b>	<b>Completed December 2015</b>



## Projects to be Added to the 2016 Collaborative Transmission Plan

- **Two DEP projects to be added in response to OATT request to interconnect two 1X1 combined cycle generating units at Asheville Plant**



### Reliability Projects to be Added to 2016 Plan

Reliability Project	TO	Planned I/S Date
Asheville Plant, Replace 2-300 MVA 230/115 kV banks with 2-400 MVA banks, reconductor 115 kV ties to switchyard, upgrade breakers, and add 230 kV capacitor bank	DEP	December 2019
Cane River 230 kV Substation, Construct 150 MVAR SVC	DEP	December 2019



*Questions ?*





# Regional Studies Reports

**Bob Pierce**  
**Duke Energy Carolinas**



# **SERC Long Term Study Group Update**



## **SERC Long Term Study Group**

- 2016 series of SERC LTSG cases are complete
- Building 2016 series of MMWG cases
- Updated 2015 series 2016 Winter MMWG model for ERAG study
- Study of 2020 Summer is ongoing
- Provided supporting data for 2016 RAWG study
- Will be supporting CPP assessment



# **Eastern Interconnection Planning Collaborative (EIPC)**





# EIPC

## Planning Activities

- Building library of industry studies for stakeholder education in lieu of an EIPC study



**<http://www.eipconline.com/>**



# SERTP



## **SERTP**

- Completed development of 2016 series of models through 2026 Winter
- Stakeholder meeting June 21<sup>st</sup> in Atlanta
- Provided preliminary 2016 Transmission Expansion Plan



**<http://www.southeasternrtp.com/>**



**PJM**



- PJM and SERTP have begun inter-regional coordination required under Order 1000
- PJM has released their 2019/2020 BRA results
- RTEP process

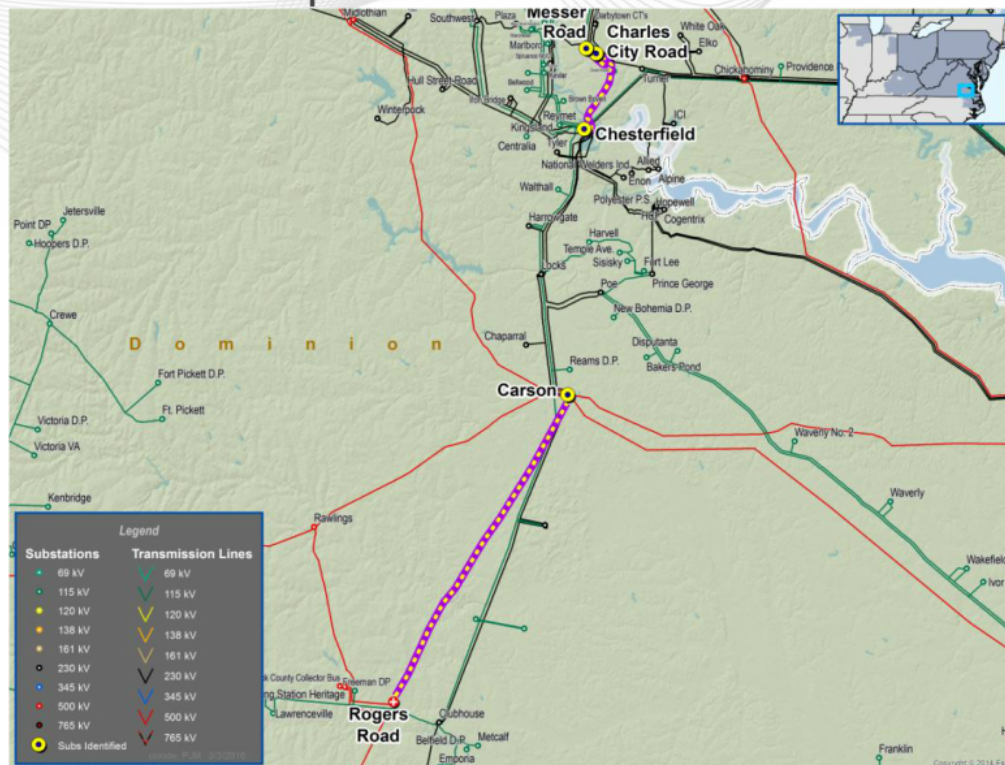


## North Carolina Transmission Planning Collaborative



### 2016 RTEP Proposal Window #1 Statistics

- 13 flow gates addressed
- 25 Proposals from 7 entities
  - 3 Transmission Owner Upgrades
    - Cost range of \$7.7M to \$48.5M
  - 22 Greenfield Projects
    - Cost range of \$15.6M - \$111.5 M







## North Carolina Transmission Planning Collaborative



### 2016 RTEP Proposals Submitted for Window #1

2 <sup>nd</sup> 500kV Circuit	230kV Clubhouse Option	Rebuild of Existing Infrastructure
2016_1-1A, 2016_1-3D, 2016_1-7C, 2016_1-6B, 2016_1-1B, 2016_1-2B, 2016_1-3C, 2016_1-7A, 2016_1-7B, 2016_1-2A, 2016_1-6A, 2016_1-6C	2016_1-2C, 2016_1-3E, 2016_1-4A, 2016_1-7D, 2016_1-4B, 2016_1-6D	2016_1-3A
<ul style="list-style-type: none"><li>• All 2<sup>nd</sup> 500 kV Proposals mitigated the 500 kV reliability criteria violation</li><li>• Caused additional violations in 2021 analysis</li><li>• Significant New ROW</li></ul>	<ul style="list-style-type: none"><li>• All 230 kV Clubhouse Proposals mitigated the 500 kV reliability criteria violation</li><li>• Line loading exceeds 90% for all Clubhouse Proposals in the year 2020 analysis</li></ul>	<ul style="list-style-type: none"><li>• The proposed rebuild of existing infrastructure fixes the reliability criteria violation</li><li>• Significant Margin</li><li>• Existing Row</li></ul>



# **NERC Reliability Standards Update**



- DER integration
- MOD standards to MMWG - models being impacted by newly effective standards and MMWG process



*Questions ?*





# **2016 TAG Work Plan Update**

**Rich Wodyka  
Administrator**



## 2016 NCTPC Overview Schedule

### Reliability Planning Process

- Evaluate current reliability problems and transmission upgrade plans
  - Perform analysis, identify problems, and develop solutions
  - Review Reliability Study Results

### Local Economic Planning Process

- No Local Economic Studies or Public Policy Studies were proposed by Stakeholders

### Coordinated Plan Development

- Reliability Study Results
- OSC publishes DRAFT Plan
- TAG review and comment

TAG Meetings

1<sup>st</sup> Quarter

2<sup>nd</sup> Quarter

3<sup>rd</sup> Quarter

4<sup>th</sup> Quarter

46



## ***2016 TAG Work Plan***

### **January – February - March**

- **2016 Study – Finalize Study Scope of Work**
  - **Receive final 2016 Reliability Study Scope for comment**
    - *Review and provide comments to the OSC on the final 2016 Study Scope – **Provide Comments by March 31st***
  - ✓ **Receive request from OSC to provide input on proposed Local Economic Study scenarios and interfaces for study**
    - *Provide input to the OSC on proposed Local Economic Study scenarios and interfaces for study – **No Requests***
  - ✓ **Receive request from OSC to provide input in identifying any**
    - *Provide input to the OSC in identifying any public policies that are driving the need for local transmission for study – **No Requests***



## January – February - March

### **First Quarter TAG Meeting – March 14<sup>th</sup> Webinar**

#### ➤ **2016 Study Update**

- ✓ Receive a progress report on the Reliability Planning study activities and 2016 Study Scope
- ✓ **Provide comments on the final 2016 Study Scope to Rich Wodyka at [rawodyka@aol.com](mailto:rawodyka@aol.com) by March 31<sup>st</sup>.**





## **April - May - June**

### **Second Quarter TAG Meeting – *Delayed until July 19th***

#### **➤ 2016 Study Update**

- ✓ **Receive a progress report on the Reliability Planning study activities**
- ✓ **Receive update status of the upgrades in the 2015 Collaborative Plan**



## **July – August – September**

### **➤ 2016 Study Update**

- ✓ **Receive a progress report on the Reliability Planning study activities and preliminary results**
- ✓ **TAG will be requested to provide input to the OSC and PWG on the technical analysis performed, the problems identified as well as proposing alternative solutions to the problems identified**

### **➤ 2016 Selection of Solutions**

- **TAG will receive feedback from the OSC on any alternative solutions that were proposed by TAG members**



## July – August – September

**Third Quarter TAG Meeting – September 12<sup>th</sup> (Tentative)**

### ➤ 2016 Study Update

- Receive a progress report on the Reliability Planning study activities and preliminary results



## **October - November - December**

### **➤ 2016 Study Update**

- **Receive and comment on final draft of the 2016 Collaborative Transmission Plan report**
- **Discuss potential study scope for 2017 studies**



## **October - November - December**

### **Fourth Quarter TAG Meeting – December TBD**

#### **➤ 2016 Study Update**

- Receive presentation on the final draft report of 2016 Collaborative Transmission Plan**
- Discuss potential study scope for 2017 studies**



# Questions ?





# **TAG**

## **Open Forum Discussion**

*Comments or Questions?*