TAG Meeting
December 15, 2011

NCEMC Office

Raleigh, NC

TAG Meeting Agenda

1. Administrative Items – Rich Wodyka
2. FERC Order 1000 Report – Sam Waters
3. 2011 – 2021 Collaborative Plan DRAFT Report Study Results – Orvane Piper and Lee Adams
4. 2012 Study Scope – Bob Pierce
5. Regional Studies Update – Bob Pierce
6. 2011 and 2012 TAG Work Plans – Rich Wodyka
7. TAG Open Forum – Rich Wodyka

FERC Order No. 1000 Rule on Transmission Planning and Cost Allocation

Sam Waters

Progress Energy

FERC Order No. 1000

- Review of Order 1000 Impacts on the NCTPC
  - Public Policy
  - Interregional Coordination
  - Non - incumbent Transmission Developers
  - Cost Allocation
- Initial Duke/Progress thoughts on compliance
- Compliance timeline

Note: The compliance process includes solicitation of feedback and input from stakeholders!

FERC Order 1000 Requirements Impacting the NCTPC

1. **Development of a Regional Transmission Plan** - Public utility transmission providers are required to participate in a regional transmission planning process that satisfies Order No. 890 principles and produces a regional transmission plan

2. **Public Policy** - Local and regional transmission planning processes must consider transmission needs driven by public policy requirements established by state or federal laws or regulations

3. **Interregional Coordination** - Public utility transmission providers in each pair of neighboring transmission planning regions must coordinate to determine if more efficient or cost-effective solutions are available

4. **Non-incumbent Transmission Developer** - Rule requires the development of a not unduly discriminatory regional process for transmission project submission, evaluation, and selection and removes any federal right of first refusal from Commission-approved tariffs and agreements with respect to new transmission facilities selected in a regional transmission plan for purposes of cost allocation, subject to four limitations.

5. **Cost Allocation** – The regional transmission planning process must have a regional cost allocation method for a new transmission facility selected in the regional transmission plan for purposes of cost allocation and neighboring transmission planning regions must have a common interregional cost allocation method for a new interregional transmission facility that the regions select

Caveats regarding the following slides:

- The information provided as "current thinking" is subject to change as the issues presented by FERC Order 1000 continue to be discussed.
- Stakeholder input and feedback will be solicited as compliance positions are being developed.
- Future FERC actions or rulings may influence compliance positions.
- We are still early in the process!

FERC Order 1000 Requirements Impacting the NCTPC – Development of a Regional Plan

Initial Thinking

1. The compliance filing(s) would state that the NCTPC already develops a more cost effective transmission plan that meets the needs of the region by allowing transmission and non-transmission alternatives to be evaluated within the NCTPC process.
2. Two classes of Regional Projects would be identified: Regional Reliability Projects and "Other Regional Projects", which would include any other projects that may be proposed for economic or public policy reasons.

Areas of Continuing Discussion

1. Identifying how the NCTPC addresses both local and regional planning
2. Specifying a process to propose transmission projects and/or non-transmission projects
3. Specifying a process for project evaluation/selection including non-incumbent transmission developers

FERC Order 1000 Requirements Impacting the NCTPC – Public Policy Requirements

Initial Thinking

1. The NCTPC planning process would solicit stakeholder input into what public policy requirements drive transmission needs.
2. However, since NCTPC LSEs take public policy requirements into account in developing their integrated resource plans, transmission projects developed in accordance with those resource plans should already reflect those public policy requirements

FERC Order 1000 Requirements Impacting the NCTPC – Inter-regional Coordination

- Since the inter-regional issues are addressed in a filing to be made 6 months after the initial compliance filing, these issues will be addressed at a later meeting.
- Among the significant issues that would be addressed are:
  - Development of a consistent cost allocation methodology for inter-regional projects with each neighboring region (SCRTP, SERTP, TVA and PJM)
  - Role of existing planning efforts in compliance, e.g., SIRPP

FERC Order 1000 Requirements Impacting the NCTPC – Non-incumbent Transmission Developers

Areas of Continued Discussion

1. Non-incumbent qualification criteria
2. Information requirements for proposed projects
3. Consequences of project delays and/or cancellation
4. Responsibility for NERC compliance

FERC Order 1000 Requirements Impacting the NCTPC – Regional Cost Allocation

Initial Thinking

1. Maintain the current NCTPC "Regional Reliability Project Cost Allocation" methodology, which is based on an avoided cost approach
2. Replace the current cost allocation methodology for the Regional Economic Transmission Paths (RETPs) with a new methodology to be developed

Areas of Continuing Discussion

1. Development of a new "Other Regional Projects" cost allocation methodology for economic and public policy-driven projects
2. Determination of a method to identify beneficiaries from a project and the type of analysis that will be needed to allocate benefits

FERC Order 1000 Requirements Impacting the NCTPC – Compliance Timeline

- **Regional Compliance Filing – Oct 11, 2012**
  - Regional Transmission Planning
  - Regional Transmission Cost Allocation
  - Non-incumbent Transmission Provider Provisions
  - Public Policy

- **Interregional Compliance Filing – Apr 11, 2013**
  - Interregional Transmission Coordination
  - Interregional Cost Allocation

FERC Order 1000 Requirements Impacting the NCTPC – Compliance Timeline

- **Q1 2012**
  - **NCTPC members develop compliance concepts**
  - **March TAG meeting - review/discuss initial compliance concepts**
- **Q2 2012**
  - **NCTPC members continue to refine compliance concepts based on stakeholder input and produce drafts of compliance filings**
  - **TAG review/comment on draft documents**
  - **NCTPC members review compliance direction with the state commissions**
  - **June TAG meeting - review/discuss compliance concepts/draft documents**

FERC Order 1000 Requirements Impacting the NCTPC

– Compliance Timeline

- **Q3 2012**
  - **NCTPC members continue to refine compliance filing drafts**
  - **TAG review/comment on draft documents**
  - **September TAG meeting - review/discuss draft of final compliance documents**
  - **NCTPC members review draft of final compliance filing with state commissions**
- **Q4 – Oct 11, 2012**
  - **Regional Compliance filing(s) submitted to FERC**

Process for providing feedback and comments on FERC Order 1000 compliance:

Comments and questions should be addressed to Rich Wodyka at rawodyka@aol.com

Questions ?

NCTPC 2011 Study Overview

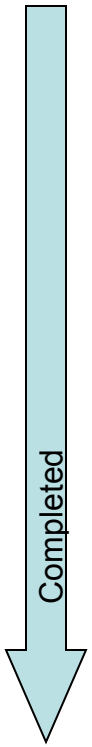
Orvane Piper

Duke Energy

Purpose of Study

- **Assess Duke and Progress transmission systems' reliability and develop a single Collaborative Transmission Plan**

Steps and Status of the Study Process



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

Study Assumptions Selected

- **Study Years for reliability analyses:**
  - **Near-term: 2016 Summer, 2016/2017 Winter**
  - **Longer-term: 2021 Summer**
- **LSEs provided:**
  - **Input for load forecasts and resource supply assumptions**
  - **Dispatch order for their resources**
- **Interchange coordinated between Participants and neighboring systems**

Study Criteria Established

- **NERC Reliability Standards**
  - Current standards for base study screening
  - Current SERC Requirements
- **Individual company criteria**

Study Methodologies Selected

- Thermal Power Flow Analysis
- Each system (Duke and Progress) will be tested for impact of other system's contingencies

Base Case Models Developed

- Started with 2010 series MMWG cases
- Detailed models for Duke and Progress systems
- Adjustments were made based on additional coordination with neighboring transmission systems (i.e. updated PJM dispatch)
- Planned transmission additions from updated 2010 Plan were included in models

Resource Supply Options Selected

- Hypothetical import/export scenarios
- Hypothetical new base load generation
- Off-shore wind

Hypothetical Import / Export

- Independent imports on all interfaces
  - 600 MW into Duke
  - 600 MW into Progress-East
- Simultaneous imports from PJM: 600 MW into Duke and 600 MW into Progress - East
- Simultaneous export to PJM: 600 MW from Duke and 600 MW from Progress - East

Hypothetical New Generation

- Davidson County
- 1,000 MW Base Load
- Sink/Source in Duke

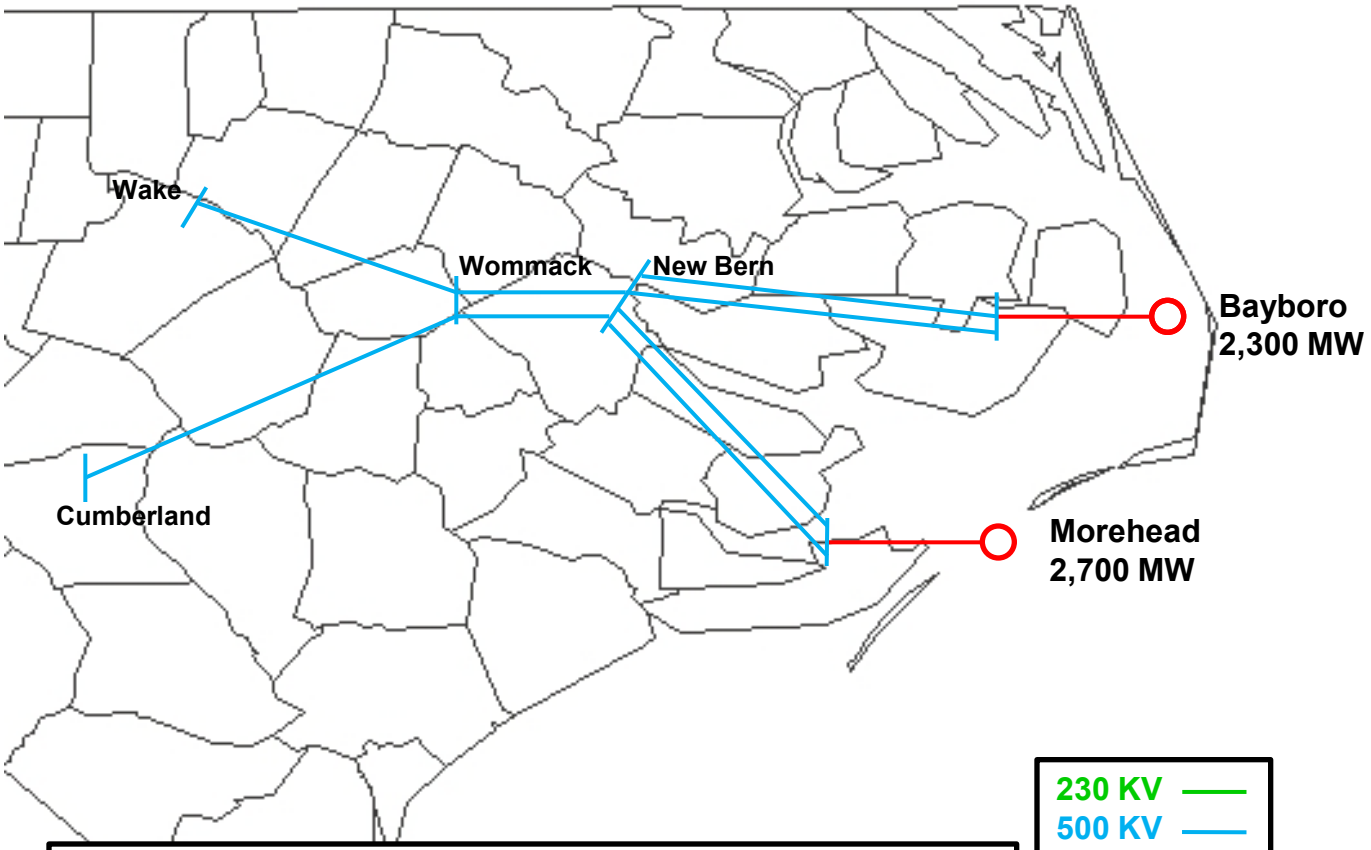
Off-Shore Wind

- **Approximately 5,000 MW total capacity**
- **Injected at two locations on Progress system**

Injection Point	On-peak MW (35-40% CF)	Off-peak MW (90% CF)
Morehead City	1,175	2,700
Bayboro	875	2,300
TOTAL	2,050	5,000

- **MW allocation – 40% SOCO, 36% Duke, 24% Progress**

Offshore Wind



Total Wind Output: 5,000 MW

Technical Analysis

- Conduct thermal screenings of the 2016 and 2021 base cases
- Conduct thermal screenings of the 2021 Hypothetical Imports / Exports and the Hypothetical New Generation Scenarios
- Conduct thermal screenings of the 2021 Offshore Wind Study

Problems Identified and Solutions Developed

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

Collaborative Plan Projects Selected

- Compare all alternatives and select preferred solutions

Study Report Prepared

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

Questions ?

2011-2021 Collaborative Plan Draft Report Study Results

Orvane Piper
Duke Energy

Base Case Results - Duke

- No new issues identified

Update On Projects In 2010 Plan

- Upgrades needed for loss of parallel line:
  - London Creek 230 kV line, 2021

Base Case Results – Progress Energy

2016 and 2021 Summer

- Folkstone – Jacksonville City 115 kV line Overload (loss of Folkstone-Jacksonville 230 kV line)
  - Loop-In Brunswick Unit # 1-Jacksonville 230 kV line at Folkstone 230 kV substation, 2016.
- Laurinburg 230/115 kV Transformer Overload (Loss of parallel bank when Brunswick # 1 unit is offline)
  - Construct a new 230 kV substation near the town of Arabia. Loop-In Richmond-Ft. Bragg Woodruff St. 230 kV line and connect to the Rockfish POD 115 kV feeder on the 115 kV side, 2020.

Base Case Results – Progress Energy

2016-17 Winter

- No new Issues identified in Western Area

Major Projects in 2011 Plan		
Reliability Project	TO	Planned I/S Date
Asheville-Enka 230 kV line, Convert 115 kV line; & Asheville-Enka 115 kV, Build new line	Progress	In-Service December ’12
Brunswick 1 - Castle Hayne 230 kV Line, Construct New Cape Fear River Crossing	Progress	December ’12
Folkstone 230/115 kV Substation	Progress	December ’12
Jacksonville Static VAR Compensator	Progress	June ‘13
Reconductor Caesar 230 kV Lines (Pisgah Tie-Shiloh Switching Station)	Duke	June ‘13

Major Projects in 2011 Plan (Continued)		
Reliability Project	TO	Planned I/S Date
Harris-RTP 230 kV line	Progress	June ’14
Brunswick 1 - Jacksonville 230 kV Line Loop - in to Folkstone 230 kV substation	Progress	December ’16
Greenville-Kinston DuPont 230 kV line	Progress	June ’17
Arabia 230 kV substation	Progress	June ‘20
Durham-RTP 230 kV Line, Reconductor	Progress	June ’21
Reconductor London Creek 230 kV Lines (Peach Valley Tie-Riverview Switching Station)	Duke	June ‘21

Comparison to Previous Collaborative Transmission Plan

	2010 Plan	2011 Plan
Number of projects with an estimated cost of $10 million or more each	14	11
Total estimated cost of Plan	$473 M	$296 M

Comparison to Previous Collaborative Transmission Plan

			2010 Plan[1]			2011 Plan		
Project ID	Reliability Project	Transmission Owner	Status[2]	Projected In-Service Date	Estimated Cost ($M)[3]	Status[2]	Projected In-Service Date	Estimated Cost ($M)[3]
0011	Asheville - Enka, Convert 115 kV Line to 230 kV, Construct new 115 kV line	Progress	Underway	12/1/2010 12/1/2012	36	Partial In-Service	12/1/2010 12/1/2012	34
0010	Rockingham - West End 230 kV East Line, Construct line	Progress	Underway	6/1/2011	29	In-Service	-	-
0010B	Asheboro - Pleasant Garden 230 kV Line, Construct new line, at Asheboro replace 2-200 MVA 230/115 kV Banks with 2-300 MVA Banks	Progress & Duke	Underway	6/1/2011	27	In-Service	-	-
0021	Ft Bragg Woodruff Street - Richmond 230 kV Line	Progress	Underway	6/1/2011	83	In-Service	-	-
0004	Clinton-Lee 230 kV Line, Construct line	Progress	Underway	12/1/2011	22	In-Service	-	-

Comparison to Previous Collaborative Transmission Plan

			2010 Plan[1]			2011 Plan		
Project ID	Reliability Project	Transmission Owner	Status[2]	Projected In-Service Date	Estimated Cost ($M)[3]	Status[2]	Projected In-Service Date	Estimated Cost ($M)[3]
0026	Brunswick 1 - Castle Hayne 230 kV Line, Construct New Cape Fear River Crossing	Progress	Underway	6/1/2012	20	Underway	12/31/2012	25
0022	Jacksonville Static VAR Compensator	Progress	Underway	6/1/2012	34	Underway	6/1/2013	30
0023	Folkstone 230/115 kV Substation	Progress	Underway	6/1/2013	23	Underway	12/1/2012	21
0010A	Harris Plant - RTP 230 kV Line, Establish a new 230 kV line by utilizing the Amberly 230 kV Tap, converting existing Green Level 115 kV Feeder to 230 kV operation, Construction of new 230 kV line, remove 230/115 kV transformation and connection at Apex US1	Progress	Underway	6/1/2014	67	Underway	6/1/2014	57

Comparison to Previous Collaborative Transmission Plan

			2010 Plan[1]			2011 Plan		
Project ID	Reliability Project	Transmission Owner	Status[2]	Projected In-Service Date	Estimated Cost ($M)[3]	Status[2]	Projected In-Service Date	Estimated Cost ($M)[3]
0028	Brunswick #1 – Jacksonville 230 kV Line Loop-In to Folkstone 230 kV Substation	Progress	-	-	-	Planned	6/1/2016	11
0008	Greenville - Kinston DuPont 230 kV Line, Construct line	Progress	Planned	6/1/2017	22	Planned	6/1/2017	20
0029	Arabia 230 kV Substation	Progress	-	-	-	Planned	6/1/2020	20
0024	Durham - RTP 230 kV Line, Reconductor	Progress	Planned	6/1/2020	19	Planned	6/1/2021	15
0025	Sadler Tie - Glen Raven Main Circuit 1 & 2 (Elon 100 kV Lines), Reconductor	Duke	Underway	6/1/2011	26	In-Service	-	-

Comparison to Previous Collaborative Transmission Plan

			2010 Plan[1]			2011 Plan		
Project ID	Reliability Project	Transmission Owner	Status[2]	Projected In-Service Date	Estimated Cost ($M)[3]	Status[2]	Projected In-Service Date	Estimated Cost ($M)[3]
0027	Reconductor Caesar 230 kV Lines (Pisgah Tie - Shiloh Switching Station #1 & #2)	Duke	Underway	6/1/2013	22	Underway	6/1/2013	20
0014	Reconductor London Creek 230 kV Lines (Peach Valley Tie - Riverview Switching Station #1 & #2)	Duke	Planned	6/1/2020	43	Planned	6/1/2021	43
TOTAL					473			296

[1] Information reported in Appendix B of the NCTPC 2010 - 2020 Collaborative Transmission Plan" dated January, 18, 2011.

[2] Status: ***In-service:*** Projects with this status are in-service.
Underway: Projects with this status range from the Transmission Owner having some money in its current year budget for the project to the Transmission Owner having completed some construction activities for the project.
Planned: Projects with this status do not have money in the Transmission Owner's current year budget; and the project is subject to change.
Deferred: Projects with this status were identified in the 2010 Report and have been deferred beyond the end of the planning horizon based on analysis performed to develop the 2011 Collaborative Transmission Plan.

[3] The estimated cost is in nominal dollars which reflects the sum of the estimated annual cash flows over the expected development period for the specific project (typically 2 – 5 years), including direct costs. loadings and overheads; but not including AFUDC. Each year's cash flow is escalated to the year of the expenditures. The sum of the expected cash flows is the estimated cost.

Questions ?

2021 Hypothetical Import / Export

Resource From	Sink	Test Level (MW)	Results – New Projects Identified (TO)
NORTH – PJM (AEP)	Duke	600	None
SOUTH – SOCO	Duke	600	None
SOUTH – SCEG	Duke	600	None
SOUTH – SCPSA	Duke	600	None
EAST – Progress (CPLE)	Duke	600	None
WEST – TVA	Duke	600	None

2021 Hypothetical Import / Export

Resource From	Sink	Test Level (MW)	Results – New Projects Identified (TO)
NORTH – PJM (AEP)	Progress (CPLE)	600	Progress
NORTH – PJM (DVP)	Progress (CPLE)	600	Progress
SOUTH – SCEG	Progress (CPLE)	600	Progress
SOUTH – SCPSA	Progress (CPLE)	600	Progress
WEST – Duke	Progress (CPLE)	600	Progress

2021 Hypothetical Import / Export

Resource From	Sink	Test Level (MW)	Results – New Projects Identified (TO)
NORTH – PJM (AEP / AEP)	Duke / Progress (CPLE)	600 / 600	Progress
NORTH – PJM (AEP / DVP)	Duke / Progress (CPLE)	600 / 600	Progress
Duke / EAST – Progress (CPLE)	PJM (DVP)	600 / 600	None

2021 Hypothetical Import / Export

Progress Projects Identified

- Construct a 3rd 230 kV line between Rockingham – Lilesville 230 kV substations. **($20M**)
  - Upgrade driven by increase in west to east flow
- Reconductor Sumter – SCEG's Eastover 115 kV Line. (**$12M**)
  - Upgrade driven by change in dispatch.
- Timing of upgrades driven by distance from source of import.

Resource Supply Options – 2021 Hypothetical Transfer Scenarios Studied

Exports to CPLE

Primary Alternative Investigated	Issue Identified	TO	Lead Time (years)	DEC 600 MW		PJM (AEP) 600 MW		PJM (DVP) 600 MW		SCEG 600 MW		SCPSA 600 MW	
				Date Needed[1]	($M)[2]	Date Needed[1]	($M)[2]	Date Needed[1]	($M)[2]	Date Needed[1]	($M)[2]	Date Needed[1]	($M)[2]
Rockingham – Lilesville 230 kV line, construct 3rd line	Line overloads for loss of parallel line	CPLE	4	2021	20	2022	20	-	-	-	-	-	-
Sumter - Eastover (SCEG) 115 kV line, reconductor	Line overloads for common tower outage of Sumter – (SCEG) Wateree and Sumter – (SCEG) Santee	CPLE	3	2023	12	2022	12	2022	12	2021	12	2021	12

[1] The tables in Appendix D reflect the date the project is needed in order to implement the resource supply option studied.

[2] The estimated cost is in nominal dollars which reflects the sum of the estimated annual cash flows over the expected development period for the specific project (typically 2 – 5 years), including direct costs, loadings and overheads; but not including AFUDC. Each year's cash flow is escalated to the year of the expenditures. The sum of the expected cash flows is the estimated cost.

Resource Supply Options – 2021 Hypothetical Transfer Scenarios Studied

PJM (AEP), PJM (AEP/DVP) Exports to CPLE/Duke and CPLE/Duke Export to PJM(DVP)

Primary Alternative Investigated	Issue Identified	TO	Lead Time (years)	PJM (AEP) Export of 1,200 MW to CPLE/Duke[2]		PJM (AEP/DVP)[1] Export of 1,200 MW to CPLE/Duke[2]		CPLE/Duke[2] Export of 1,200 MW To PJM (DVP)	
				Date Needed[3]	($M)[4]	Date Needed[3]	($M)[4]	Date Needed[3]	($M)[4]
Rockingham - Lilesville 230 kV line, construct 3rd line	Line overloads for loss of parallel line	CPLE	4	2024	20	-	-	-	-
Sumter - Eastover (SCEG) 115 kV line, reconductor	Line overloads for common tower outage of Sumter – (SCEG) Wateree and Sumter – (SCEG) Santee	CPLE	3	2023	12	2022	12	-	-

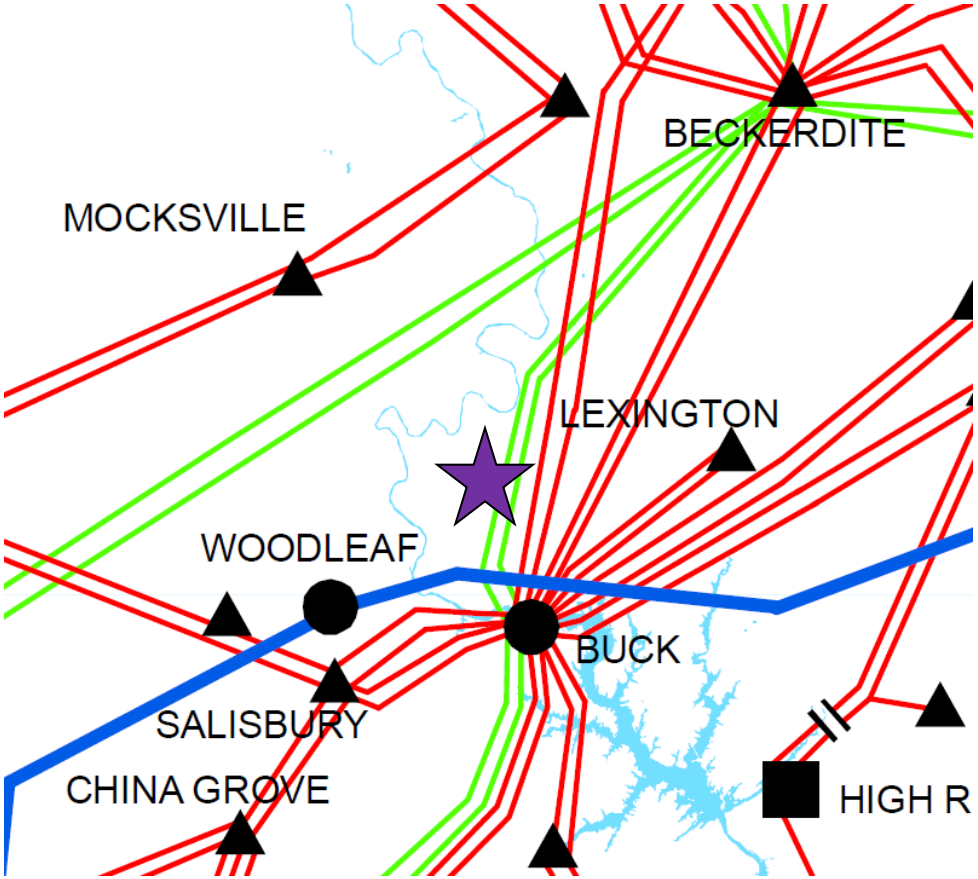
[1] 1,200 MW shared 600/600 between AEP and DVP

[2] 1,200 MW shared 600/600 between CPLE and DUKE

[3] The tables in Appendix D reflect the date the project is needed in order to implement the resource supply option studied.

[4] The estimated cost is in nominal dollars which reflects the sum of the estimated annual cash flows over the expected development period for the specific project (typically 2 – 5 years), including direct costs, loadings and overheads; but not including AFUDC. Each year's cash flow is escalated to the year of the expenditures. The sum of the expected cash flows is the estimated cost.

Davidson County 1000 MW Resource



- 2021 Request
- Located 5 miles north of Buck Steam Station on Tyro 230 kV lines (Buck – Beckerdite)
- Sink/Source in Duke

Davidson County 1000 MW Resource

Resource Supply Options – 2021 Hypothetical Generation Scenario Studied in DEC

Primary Alternative Investigated	Issue Identified	TO	Lead Time (years)	Davidson County 1,000 MW	
				Date Needed[1]	($M)
Beckerdite 230/100 kV transformer, replacement	Transformer overloads for loss of parallel transformer	DEC	2	2021	3.7
Beckerdite - Davidson County 230 kV line, bundle conductor	Line overloads for loss of parallel line	DEC	4	2021	16.8
Beckerdite - High Point City 4 100 kV line, bundle conductor	Line overloads for loss of parallel line	DEC	2	2021	9.3
Buck 230/100 kV transformer, addition 2 banks	Transformer overloads under N-0 conditions as a result of the new generation	DEC	2	2021	10.4
Buck - Davidson County 230 kV line, bundle conductor	Line overloads for loss of parallel line	DEC	4	2021	5.0
Total Estimated Cost					**45.2**

[1] The tables in Appendix D reflect the date the project is needed in order to implement the resource supply option studied.

Questions ?

2010 NC Offshore Wind Results Review

Lee Adams

Progress Energy

2010 NC Offshore Wind Results Review

Summary of Last Year's Study

Accommodate 3,000 MW's into PEC Transmission network

- Four options were studied.
  - Option 1A – via 230 kV Network (Est. cost: $1.195B)
  - Option 1B – via 500 kV Network (Est. cost: $1.310B)
  - Option 2 – Accommodate 2,500 MW's (Est. cost: $1.155B)
  - Option 3 – Accommodate 2,000 MW's (Est. cost: $0.525B)

- **Last year** - Option 1B was considered to be the best option if considering a long-term build out of off-shore wind that might exceed the 3,000 MW test level.

2011 PWG Offshore Wind Scenario

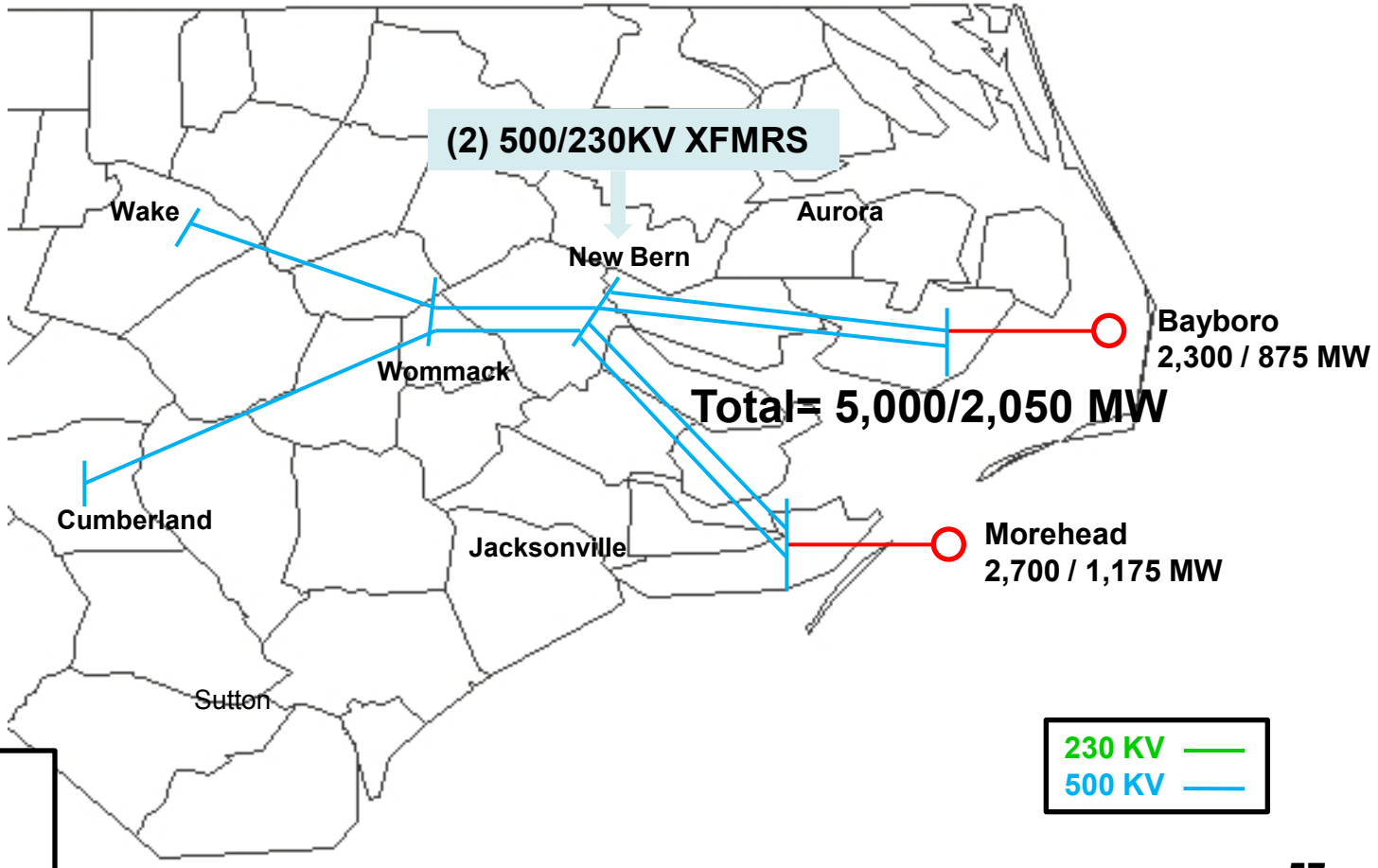
- **2021 Summer model with Option 1B built-in**
- **Approximately 5,000 MW total capacity in 2021**
- **Injected at two locations on Progress system**

Injection Point	On-peak MW (35-40% CF)	Off-peak MW (90% CF)
Morehead City	1,175	2,700
Bayboro	875	2,300
TOTAL	2,050	5,000

- **MW allocation – 40% (2,000 MW) SOCO, 36% (1,800 MW) Duke, 24% (1,200 MW) Progress**

2011 PWG Offshore Wind Scenario

Wind Generation Output 5,000 MW at New Bern Substation



Total Wind Output:
5,000 MW Off Peak
2,050 MW On Peak

2011 PWG Offshore Wind Study Results – Duke

- No thermal overloads identified for off-peak and on-peak loads.

2011 PWG Offshore Wind Results – Progress Energy

Thermal overload issues identified for both off-peak and on-peak loads.

- Off-peak system load with 5,000 MW
  - New Bern 500/230 kV transformer Overload
  - New Bern – Aurora 230 kV Line Overload
  - New Bern – Wommack 230 kV Line Overload
  - New Bern 230/115 kV transformer Overload
  - New Bern – Kinston Dupont 115 kV Line Overload
  - Rocky Mt. – (DVP) Battleboro 115 kV Line Overload
- On-peak system load with 2,050 MW
  - New Bern 230/115 kV transformer Overload
  - New Bern – Aurora 230 kV Line Overload

2011 PWG Offshore Wind Study Results – Progress Energy

- Off-peak system load with 4,000 MWs
  - New Bern – Aurora 230 kV Line Overload
- Off-peak system load with 3,500 MWs
  - None

The results have shown that the transmission identified in Option 1B will accommodate 3,500 MW's of wind generation without any additional upgrades.

2011 PWG Offshore Wind Study Results – Progress Energy

Modify Transmission in Option 1B to accommodate 5,000 MW's of generation during off peak.

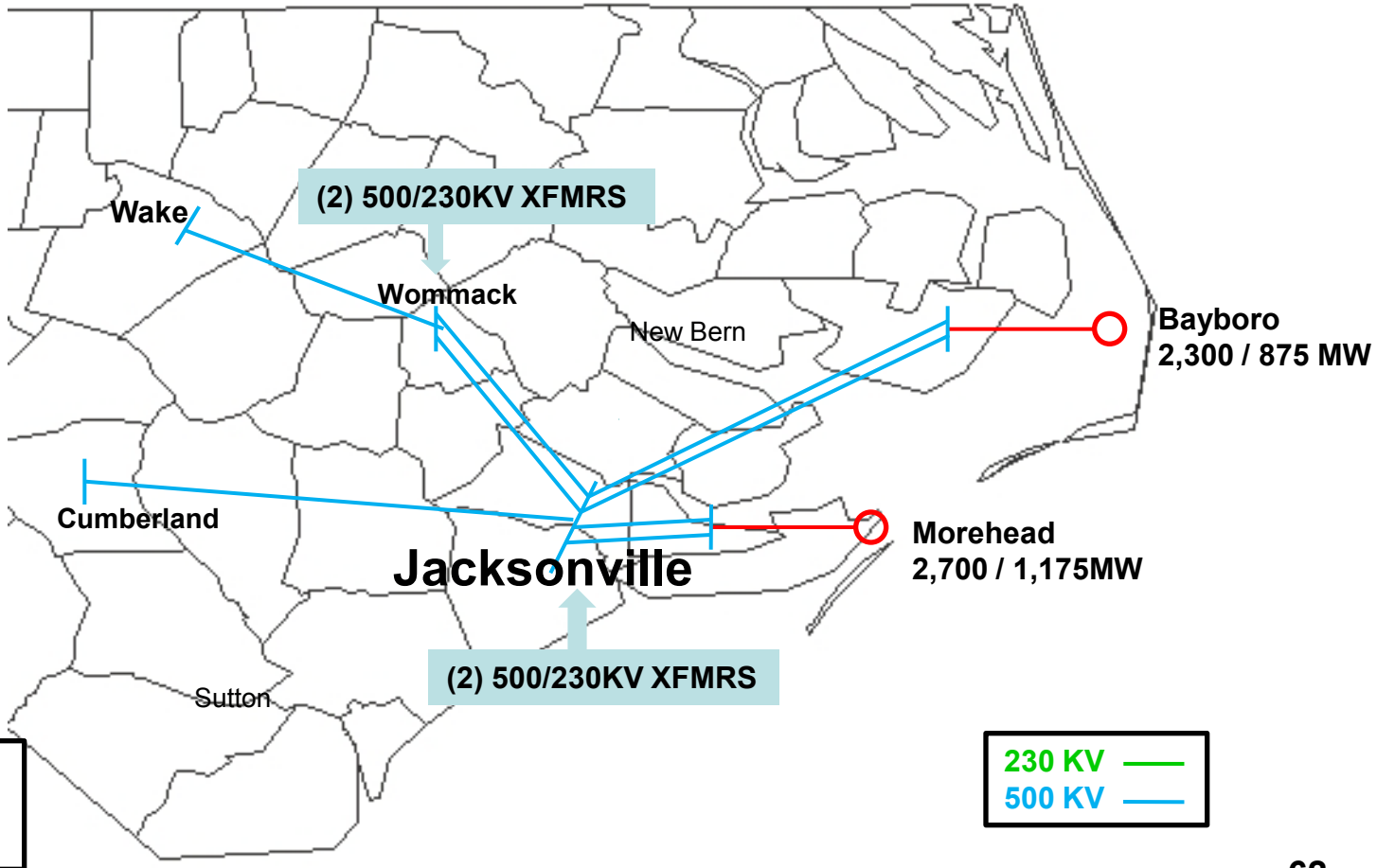
- Add Wommack 500/230 kV Transformers (w & w/o Xfmrs at New Bern).
- Add Clinton 500/230 kV Transformers.

Conclusion:

- No easy solution. Too much of power tries to flow toward North (Dominion).
- Move the generation connection to Jacksonville 230 kV substation.
- Some incremental transmission is still needed.

2011 PWG Offshore Wind Study Results – Progress Energy

Wind Generation Output 5,000 MW at Jacksonville Sub.



Total Wind Output:
5,000 MW Off Peak
2,050 MW On Peak

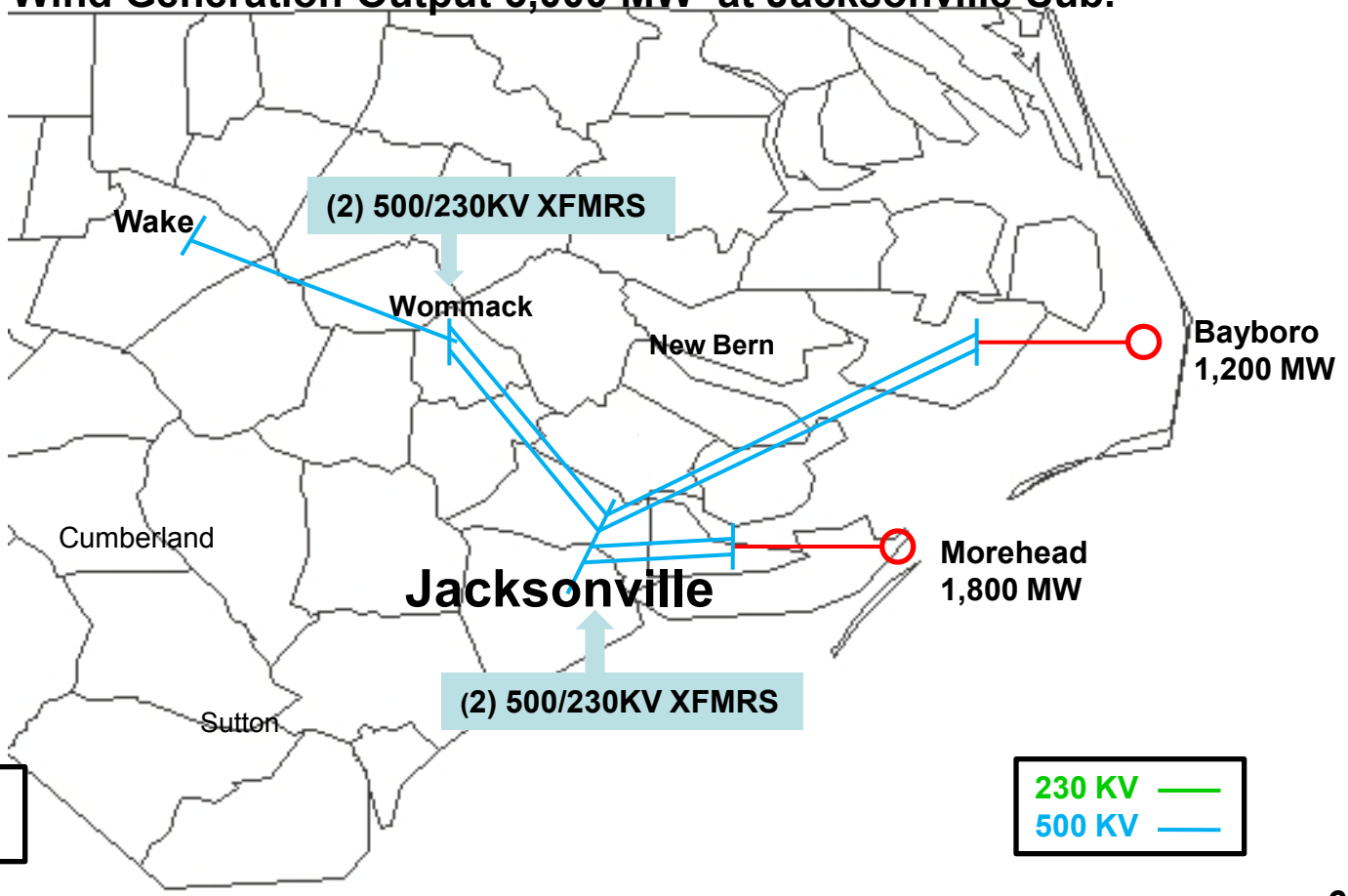
2011 PWG Offshore Wind Study Results – Progress Energy

New Bern vs. Jacksonville Side by Side Comparison

New Bern (3,000 MW)	Jacksonville (5,000 MW)
Morehead City area – New Bern 500 kV Lines (2 Lines = 100 Miles)	Morehead City area – Jacksonville 500 kV Lines (2 Lines = 80 Miles)
Bayboro – New Bern 500 kV lines (2 Lines = 50 Miles)	Bayboro – Jacksonville 500 kV Lines (2 Lines = 80 Miles)
New Bern 500KV Substation w/ 2 Banks	New Jacksonville 500KV Substation w/ 2 Banks
New Bern – Wommack 500 kV lines (2 Lines = 70 Miles)	Jacksonville – Wommack 500 kV Lines (2 Lines = 80)
Wake - Wommack 500 kV line (65 Miles)	Wake - Wommack 500 kV line (65 Miles)
Cumberland-Wommack 500 kV line (80 Miles)	Cumberland-Jacksonville 500 kV line (70 Miles)
SVC at Wommack	SVC at Wommack
Wommack 500 kV Switch Station	New Wommack 500KV Substation w/ 2 Banks
-----	Reconductor Wommack – Kinston DuPont 230 kV Line (17 Miles) and Rocky Mt – (DVP) Battleboro 115 kV Line (9 Miles)

2011 PWG Offshore Wind Study Results – Progress Energy

Wind Generation Output 3,000 MW at Jacksonville Sub.



Total Wind Output:
3,000 MW Off Peak

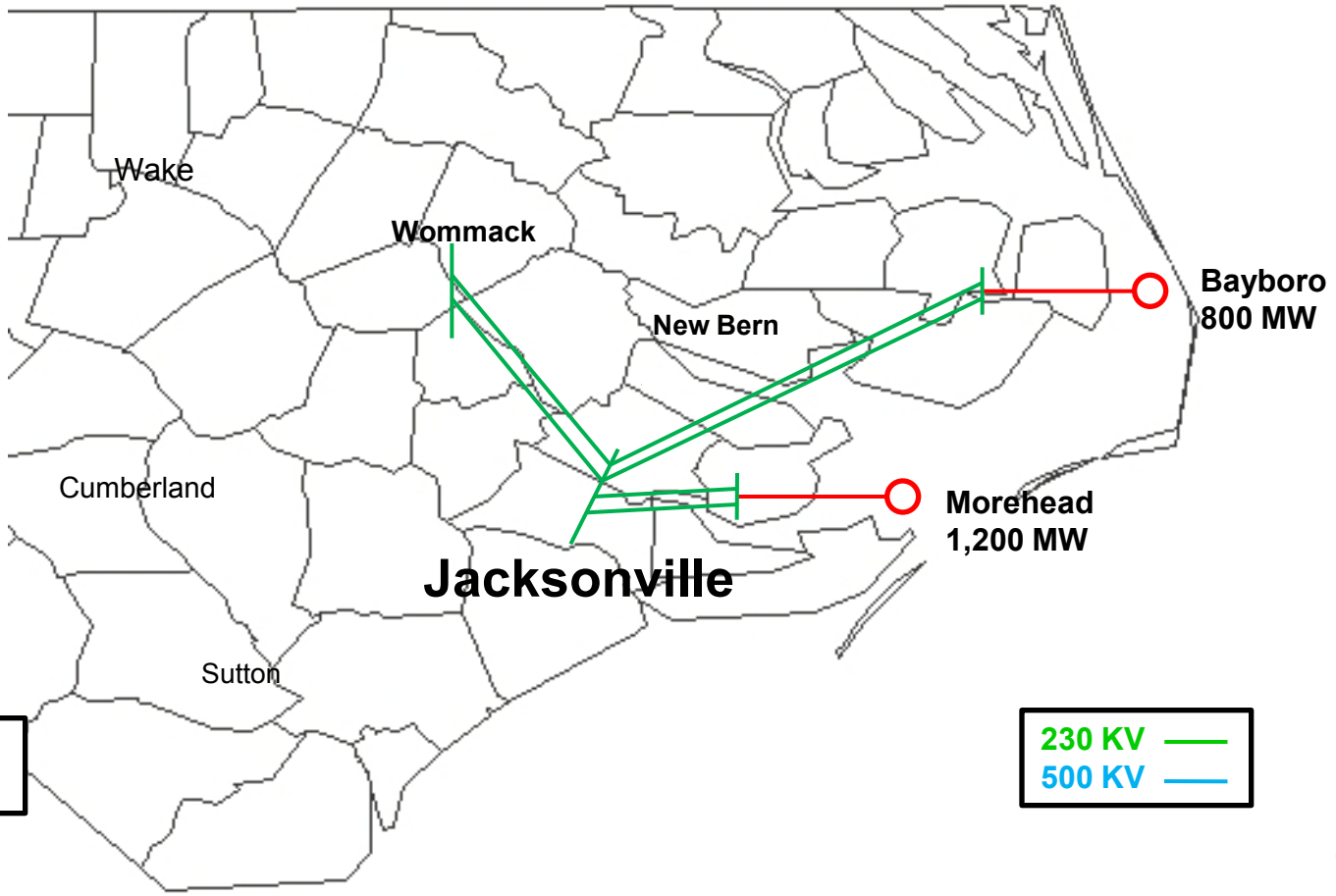
2011 PWG Offshore Wind Study Results – Progress Energy

New Bern vs. Jacksonville Side by Side Comparison

New Bern (3,000 MW)	Jacksonville (3,000 MW)
Morehead City area – New Bern 500 kV Lines (2 Lines = 100 Miles)	Morehead City area – Jacksonville 500 kV Lines (2 Lines = 80 Miles)
Bayboro – New Bern 500 kV lines (2 Lines = 50 Miles)	Bayboro – Jacksonville 500 kV Lines (2 Lines = 80 Miles)
New Bern 500KV Substation w/ 2 Banks	New Jacksonville 500KV Substation w/ 2 Banks
New Bern – Wommack 500 kV lines (2 Lines = 70 Miles)	Jacksonville – Wommack 500 kV Lines (2 Lines = 80)
Wake - Wommack 500 kV line (65 Miles)	Wake - Wommack 500 kV line (65 Miles)
Cumberland-Wommack 500 kV line (80 Miles)	~~Cumberland-Jacksonville 500 kV line (70 Miles)~~
SVC at Wommack	SVC at Wommack
Wommack 500 kV Switch Station	New Wommack 500KV Substation w/ 2 Banks
-----	Reconductor Wommack – Kinston DuPont 230 kV Line (17 Miles) & Rocky Mt – (DVP) Battleboro 115 kV Line (9 Miles)

2011 PWG Offshore Wind Study Results – Progress Energy

Wind Generation Output 2,000 MW at Jacksonville Sub.



Total Wind Output:
2,000 MW Off Peak

2011 PWG Offshore Wind Study Results – Progress Energy

New Bern vs. Jacksonville Side by Side Comparison

New Bern (2,000 MW)	Jacksonville (2,000 MW)
Morehead City area – New Bern 230 kV Lines (2 Lines = 100 Miles)	Morehead City area – Jacksonville 230 kV Lines (2 Lines = 80 Miles)
Bayboro – New Bern 230 kV lines (2 Lines = 50 Miles)	Bayboro – Jacksonville 230 kV Lines (2 Lines = 80 Miles)
Havelock – New Bern 230 kV line (30 Miles)	Jacksonville – Wommack 230 kV lines (2 Lines = 70 Miles)
Greenville West- New Bern 230 kV line (40 Miles)	-----
New Bern SVC	Wommack SVC

2011 PWG Offshore Wind Study Results – Progress Energy

Offshore Wind Scenario Estimated Cost Summary

Wind Output MW	Cost Estimate at Jacksonville Substation (Billions)	Cost Estimate at New Bern Substation (Billions)	Comment
Up to 5,000	$1.239	Not feasible	Additional infrastructure upgrades required at Jacksonville substation compared to New Bern substation.
Up to 3,500	Not evaluated	$1.115	Option 1B capacity
Up to 3,000	$1.029	$1.115	Do not need to build the 500 kV line between Jacksonville and Cumberland 500 kV substations.
Up to 2,000	$0.430	$0.525	Significant breakpoint in transmission upgrades. Removed 500 kV infrastructure.

Questions ?

TAG Input Request

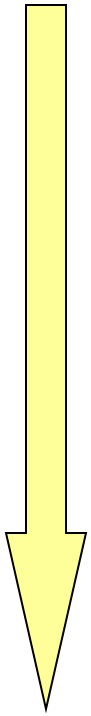
- TAG is requested to provide input to the OSC on the 2011 – 2021 Collaborative Plan DRAFT Report, as well as to propose alternative solutions to those study results identified
- Provide input by January 9, 2012 to Rich Wodyka - ITP (rawodyka@aol.com)

Questions ?

2012 NCTPC Study Scope

Bob Pierce
Duke Energy

Study Process 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

Collaborative Study Assumptions

- **Study years**
  - Short term (5 yr) and long term (10 yr) base reliability analysis
  - Alternate model scenarios
- **Thermal power flow analysis**
  - Duke & Progress contingencies
  - Duke & Progress monitored elements
    - Internal lines
    - Tie lines

Study Inputs

- LSEs provide:
  - Inputs for load forecasts and resource supply assumptions
  - Dispatch order for their resources
- Area interchange coordinated between Participants and neighboring systems

Enhanced Transmission Access Requests

- TAG request to be distributed in early February, 2012
- Requests can now include in, out and through transmission service

2012 Study - Base

- **Base reliability case analysis**
  - **2017 summer and winter**
  - **2022 summer**
- **An "All Firm Transmission" Case(s) will be developed which will include all confirmed long term firm transmission reservations with roll-over rights applicable to the study year(s).**
- **Duke and Progress will each create their respective generation down cases from the common Base Case and share the relevant cases with each other.**

2012 Study – Sensitivities

- **Study Year – 2022**
- **Resource Supply Options**
  - **Joint NCTPC – PJM evaluation of 3 Wind Scenarios**

2012 Study – Sensitivities

Scenario # 1

The joint NCTPC – PJM study will model and analyze the receipt of **3,000 MW of offshore wind** as follows:

- 2,000 MW of the 3,000 MW of offshore wind energy will be received at two NC injection points – 1,000 MW injected at Morehead City and 1,000 MW injected at Bayboro
- 1,000 MW of the 3,000 MW of wind energy from PJM offshore wind resources that are injected at the Dominion Landstown substation and are transmitted to NC using firm Point-to-Point transmission service
- The specific sink location(s) of the 1,000 MW of wind energy from PJM will be split with 40% sinking in Progress Energy (East) and 60% sinking in Duke

2012 Study – Sensitivities

Scenario # 2

The joint NCTPC – PJM study will model and analyze the receipt of **5,000 MW of offshore wind** as follows:

- 3,000 MW of this offshore wind energy will be received at two NC injection points – 1,500 MW injected at Morehead City and 1,500 MW injected at Bayboro with 40% sinking in Progress Energy (East) and 60% sinking in Duke
- 2,000 MW of this wind energy will be will be injected at the Dominion Landstown substation and will distributed within PJM with the specific sink location(s) within the PJM system to be determined by PJM

2012 Study – Sensitivities

Scenario # 3

The joint NCTPC – PJM study will model and analyze the receipt of **8,000 MW of offshore wind** as follows:

- 2,000 MW of this offshore wind energy will be received at two NC injection points – 1,000 MW injected at Morehead City and 1,000 MW injected at Bayboro
- 6,000 MW of this offshore wind will be injected at the Dominion Landstown substation and distributed as follows:
  - 1,000 MW of this wind energy will transmitted to NC with 40% sinking in Progress Energy (East) and 60% sinking in Duke; and
  - 5,000 MW will distributed within PJM with the specific sink location(s) within the PJM system to be determined by PJM

TAG Input Request

- TAG is requested to provide input to the OSC on the proposed 2012 Study Scope and any additional suggested study scenarios
- Provide input by **January 9, 2012** to Rich Wodyka - ITP (rawodyka@aol.com)

Questions?

Regional Studies Reports

Bob Pierce

Duke Energy

Carolinas Transmission Planning Coordination Arrangement (CTPCA)

CTPCA

STUDY PURPOSE:

- Assess the existing transmission expansion plans of DEC, PEC, SCEG, and SCPSA to ensure that the plans are simultaneously feasible.

- Evaluate any potential joint alternatives identified by the Steering Committee representatives which might improve the simultaneous feasibility of the participants' transmission expansion plans.

CTPCA

STUDY ASSUMPTIONS

- 2011 Series LTSG models for 2015S and 2018S used for external systems
- Models updated to include the detailed internal models for DEC, PEC, SCEG, and SCPSA
- Models include transmission additions planned to be in-service for the given year

CTPCA

STUDY ASSUMPTIONS

- Interchange was coordinated to include all confirmed long term firm transmission reservations with roll-over rights applicable to the study year(s).

- Contingency and monitored element files were exchanged so that the impact of the other systems' contingencies on each transmission system was evaluated.

CTPCA

STUDY ASSUMPTIONS

- Evaluated multiple generation down cases in each area

Duke: Belews Creek 1, Catawba 1, Cliffside 6, Dan River CC, McGuire 1, McGuire 2, Oconee 1, Oconee 3 replaced with internal generation redispatch

Progress: Brunswick 1, Brunswick 2, Robinson 2, Harris, Roxboro 4 replaced with TRM import

SCEG\SCPSA: VC Summer 1 (2015), VC Summer 2 (2018) replaced with internal generation redispatch and import

SCPSA: Rainey CC, Cross 3 replaced with internal generation redispatch and import

CTPCA

STUDY RESULTS

PROGRESS ENERGY CAROLINAS
SUMMARY OF POTENTIAL RELIABILITY ISSUES
2015 SUMMER PEAK

Element	Contingency	Potential Issue	Potential Solution
Folkstone-Jacksonville 115 kV Line	Base Case Folkstone-Jacksonville 230 kV Line	Loading (97.0 %)	Loop-in Brunswick Unit 1-Jacksonville 230 kV Line at Folkstone 230 kV Substation [2016]
Falls 230/115 kV Transformer	Harris Gd (TRM) Henderson-Franklinton and Henderson-Falls 115 kV Lines	Loading (96.0 %)	New Falls 230/115 kV Transformer [2016]
Raeford 230/115 kV Transformer 1/2	Brunswick 1 Gd (TRM) Raeford 230/115 kV Transformer 2/1	Loading (94.8 %)	New Arabia 230/115 kV Substation [2018]
Rockingham-West End 230 kV West Line	Harris Gd (TRM) Rockingham-West End 230 kV East Line	Loading (92.1 %)	Existing Operating Procedure [2019]

PROGRESS ENERGY CAROLINAS
SUMMARY OF POTENTIAL RELIABILITY ISSUES
2015 SUMMER PEAK

Element	Contingency	Potential Issue	Potential Solution
Folkstone-Jacksonville City 115 kV Line	Base Case Folkstone-Jacksonville 230 kV Line	Loading (97.0 %)	Loop-in Brunswick Unit 1-Jacksonville 230 kV Line at Folkstone 230 kV Substation [2016]
Weatherspoon-Marion 115 kV Line	Brunswick 1 Gd (TRM) Weatherspoon-Latta 230 kV Line	Loading (91.4 %)	Existing Operating Procedure [2019]

PROGRESS ENERGY CAROLINAS
SUMMARY OF POTENTIAL RELIABILITY ISSUES
2018 SUMMER PEAK

Element	Contingency	Potential Issue	Potential Solution
Rockingham-West End 230 kV West Line	Harris Gd (TRM) Rockingham-West End 230 kV East Line	Loading (101.8 %)	Existing Operating Procedure [2018]
Weatherspoon-Marion 115 kV Line	Brunswick 1 Gd (TRM) Weatherspoon-Latta 230 kV Line	Loading (99.8 %)	Existing Operating Procedure [2018]
Sutton-Delco 115 kV South Line	Brunswick 2 Gd (TRM) Sutton Terminal End of Sutton-Delco 115 kV South Line	Loading (94.0 %)	New Operating Procedure [2021]
Florence-Marion 115 kV Line	Brunswick 2 Gd (TRM) Marion PEC-Marion SCPSA 230 kV Tie Lines 1 and 2	Loading (92.4 %)	Existing Operating Procedure [2022]

PROGRESS ENERGY CAROLINAS
SUMMARY OF POTENTIAL RELIABILITY ISSUES
2018 SUMMER PEAK

Element	Contingency	Potential Issue	Potential Solution
Durham-RTP 230 kV Line	Harris Gd (TRM) Method-East Durham Duke and Method-Durham 230 kV Lines	Loading (92.3 %)	10.00 miles 2-1590 ACSR Reconductor [2021]
Sumter-Wateree (SCEG) 230 kV Tie Line	Darlington-South Bethune 230 kV Line	Loading (91.6 %)	Progress and SCEG are jointly investigating
Lumbee River EMC Rockfish 115 kV POD	Harris Gd (TRM) Richmond-Raeford 230 kV Line	Voltage (0.9153 pu)	New Arabia 230/115 kV Substation [2018]

DUKE ENERGY CAROLINAS
SUMMARY OF POTENTIAL RELIABILITY ISSUES
2015 SUMMER PEAK

Element	Contingency	Potential Issue	Potential Solution
McGuire-Riverbend 230 kV Line 1/2 (Norman)	Allen 4 Gm McGuire-Riverbend 230 kV Line 2/1 (Norman)	Loading (94.4 %)	Generation Redispatch [2019]
Mini Ranch-Lancaster-Red Rose 100 kV Line (Monroe)	McGuire 1 Gm Morning Star 230/100 kV Transformer and Morning Star-Newport 230 kV Line	Loading (92.6 %)	8.94 miles 2/0 Cu Reconductor [2020]
Central-Shady Grove Tap 230 kV Line 2/1 (Fisher)	Cliffside 5 Gm Central-Shady Grove Tap 230 kV Line 1/2 (Fisher)	Loading (88.8 %)	17.80 miles 954 ACSR Reconductor [2023]
Parkwood 500/230 kV Transformer 5	Roxboro 4 Gd (TRM) Parkwood 500/230 kV Transformer 6	Loading (89.0 %)	New Operating Procedure [2023] Trips Parallel Bank

DUKE ENERGY CAROLINAS
SUMMARY OF POTENTIAL RELIABILITY ISSUES
2015 SUMMER PEAK

Element	Contingency	Potential Issue	Potential Solution
McGuire 500/230 kV Transformer A1	McGuire 1 Gm Woodleaf-Pleasant Garden 500 kV Line	Loading (89.6 %)	New 500/230 kV Substation or 230 kV Switched Reactor [2026]

DUKE ENERGY CAROLINAS
SUMMARY OF POTENTIAL RELIABILITY ISSUES
2018 SUMMER PEAK

Element	Contingency	Potential Issue	Potential Solution
Lakewood 230/100 kV Transformer	Robinson 2 Gd (TRM) Lakewood 230/100 kV Transformer	Loading (104.6 %)	New Lakewood Transformer Capacity [2018]
Mini Ranch-Lancaster-Red Rose 100 kV Line (Monroe)	McGuire 1 Gm Morning Star 230/100 kV Transformer and Morning Star-Newport 230 kV Line	Loading (104.6 %)	8.94 miles 2/0 Cu Reconductor [2018]
Lakewood-Beatties Ford 100 kV Line (Long Creek)	Buck CC Gm Lakewood-Belhaven 100 kV Line (Riverbend)	Loading (98.4 %)	10.64 miles 336 ACSR Reconductor [2020]
Shelby-Transco Tap Black 100 kV Line (Earl)	Catawba 1 Gm Shelby-Transco Tap White 100 kV Line (Earl)	Loading (95.3 %)	5.01 miles 2-336 ACSR Reconductor [2022]

DUKE ENERGY CAROLINAS
SUMMARY OF POTENTIAL RELIABILITY ISSUES
2018 SUMMER PEAK

Element	Contingency	Potential Issue	Potential Solution
Parkwood 500/230 kV Transformer 5	Roxboro 4 Gd (TRM) Parkwood 500/230 kV Transformer 6	Loading (94.2 %)	New Operating Procedure [2022] Trips Parallel Bank
Sadler-Ernest2 230 kV Line 1/2 (Sadler)	Dan River CC Gm Sadler-Ernest2 230 kV Line 2/1 (Sadler)	Loading (92.7 %)	12.61 miles 1272 ACSR Reconductor [2023]
Beckerdite-Willow Creek 100 kV Line (Linden Street)	Harris Gd (TRM) Beckerdite-Linden St 100 kV Line (Linden Street)	Loading (95.1 %)	9.74 miles 477 ACSR Reconductor [2023]
Morning Star-Union EMC 9 100 kV Line (Indian Trail)	Robinson 2 Gd (TRM) Morning Star-Monroe Main 100 kV Line (Indian Trail)	Loading (88.7 %)	5.40 miles 2-366 ACSR Reconductor [2026]

DUKE ENERGY CAROLINAS
SUMMARY OF POTENTIAL RELIABILITY ISSUES
2018 SUMMER PEAK

Element	Contingency	Potential Issue	Potential Solution
Riverbend-Beatties Ford 100 kV Line (Long Creek)	Buck CC Gm Lakewood-Belhaven 100 kV Line (Riverbend)	Loading (89.2 %)	3.91 miles 336 ACSR Reconductor [2026]
Peach Valley-Riverview 230 kV Line 1 (London Creek)	Oconee 1 Gm Peach Valley-Riverview 230 kV Line 2 (London Creek)	Loading (87.4 %)	19.33 miles 795 ACSR Reconductor [2027]
Horseshoe-Asheville Hwy 100 kV Line (Echo)	Cliffside 5 Gm Horseshoe-Hendersonville 100 kV Line (Echo)	Loading (87.9 %)	5.38 miles 477 ACSR Reconductor [2027]

CTPCA

POTENTIAL ALTERNATIVE ASSESSMENT

- Study results indicate the Participants' current transmission expansion plans are simultaneously feasible.

- The SC did not identify the need to assess any potential joint alternatives based on the study results and a review of the Participants' current transmission expansion plans.

Eastern Interconnection Planning Collaborative (EIPC)

EIPC background

- EIPC Objectives
  1. Integration ("roll-up") and analysis of approved regional plans
  2. Development of possible interregional expansion scenarios to be studied
  3. Development of interregional transmission expansion options

EIPC Structure

Eastern Interconnection Planning Collaborative (EIPC)
(Open Collaborative Process)

EIPC Analysis Team
Principal Investigators
Planning Authorities

Steering Committee

Stakeholder Work Groups

Executive Leadership

Technical Leadership & Support Group

Stake-holder Groups

States

Provinces

Federal

Owners Operators Users

EIPC Focus between now and end of 2012

Phase I

- Lessons learned document being compiled.
- "Phase I Report: Formation of Stakeholder Process, Regional Plan Integration and Macroeconomic Analysis" is to be provided to the DOE by 12/15/11.

Phase II

- Analyze the 3 scenarios selected by the SSC.
  - Scenario 1 - Nationally Implemented Federal Carbon Constraint with Increased EE/DR
  - Scenario 2 - Regionally-Implemented National RPS Scenario
  - Scenario 3 - Business as Usual Scenario
- Perform contingencies at 230 kV and above and identify 230 kV and above fixes. Each PA has the flexibility of doing more but 230 kV and above is minimum.
- Tests performed are "consistent" with both new and old TPL standards.

Table 1: System Performance Tests

Test	Description	Minimum Criteria to Mitigate	
		Thermal	Voltage
T1	No Contingency	> 95% of Rate A	< 0.9 p.u. > 1.1 p.u.
T2	Loss of Single Element	> 95% of Rate B	
T3	Loss of Single Element in conjunction with a generator outage		
T4	Loss of Multiple Transmission Circuits that Share Common Towers/Structures		
T5	Loss of Multiple Transmission Circuits that result from a Bus Fault on Buses Greater than 300 kV		

http://www.eipconline.com/

SERC Long Term Study Group Update

SERC Long Term Study Group

- 2017 Summer Study Report soon to be approved
- ERAG MMWG powerflow models are complete
- ERAG MMWG stability models are being worked on
- Start model building process for 2012 in first quarter

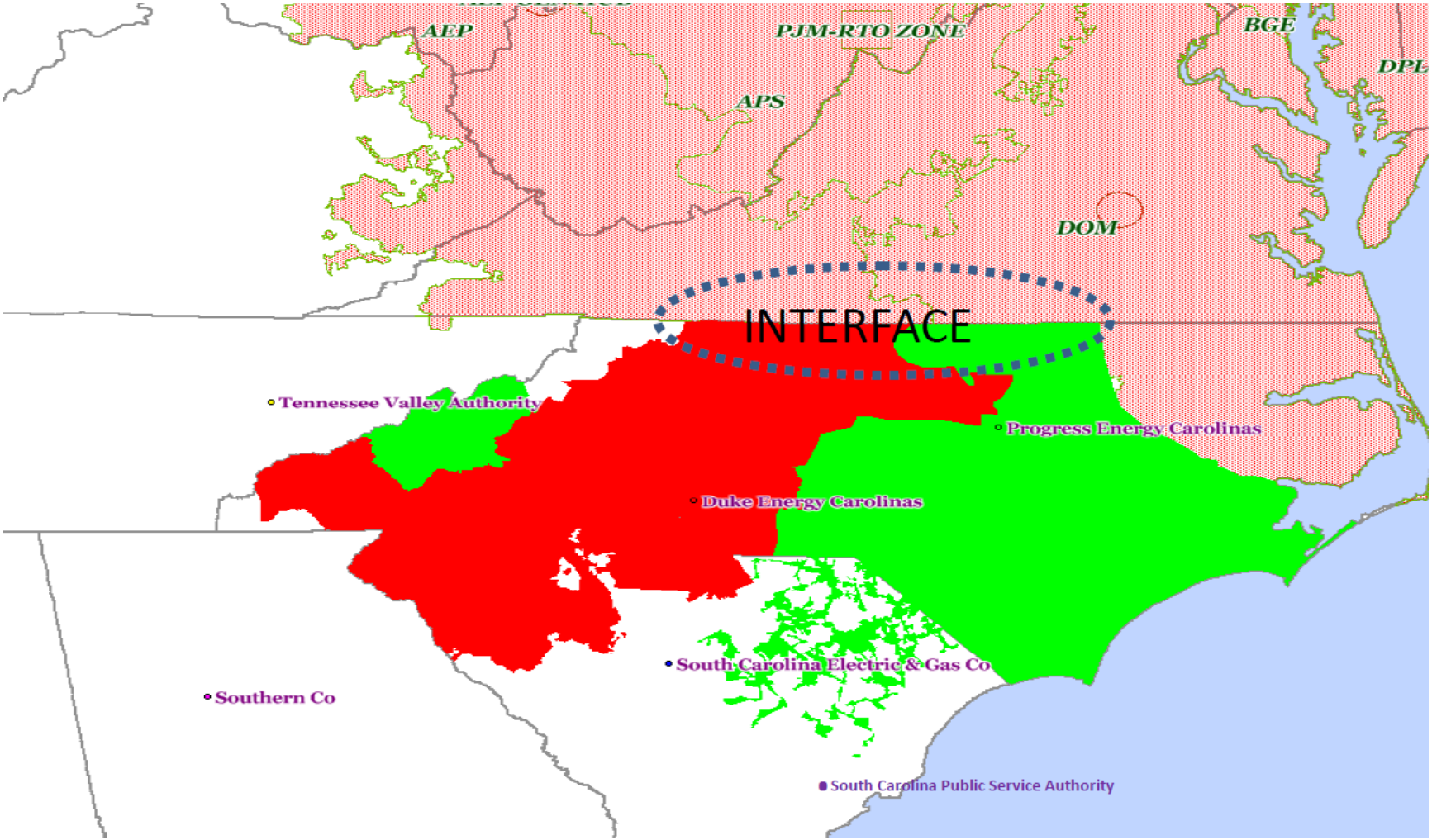
PJM / NCTPC Interface Study

PJM / NCTPC Interface Study

The study is a reliability analysis of the common interfaces between PJM Interconnection – American Electric Power (AEP) with Duke Energy Carolinas (DEC) and Progress Energy Carolinas (PEC).

Purpose

- to identify potential constraints in the Virginia and North Carolina transmission region.
- to ensure reliability of service in accordance with NERC, PJM and NCTPC requirements.


AEP
PJM-RTO ZONE
BGE
DPL
APS
DOM
INTERFACE
Tennessee Valley Authority
Progress Energy Carolinas
Duke Energy Carolinas
South Carolina Electric & Gas Co
Southern Co
South Carolina Public Service Authority

PJM / NCTPC Interface Study

SCOPE

- 2021 summer and 2016 winter
- Models based on 2010 NCTPC plan and 2010 PJM RTEP
- Expected generation retirements and additions included
- Models included dispatch representative of PJM market
- N-1 assessment of the impact of 4,000 MW transfers across the region in various directions was conducted
- NERC TPL contingencies on the base case were evaluated
  - Category B
  - Category C1, C2 & C5 for 100 kV and above
  - Category C3 for 230 kV and above

PJM / NCTPC Interface Study

RESULTS

- Study area demonstrated good performance
- Facilities identified as limiting transfer capability can be alleviated by ancillary equipment upgrades or operating guides
- Evaluation of the TPL contingencies did not identify any previously unknown issues
- The study does not propose any new corrective actions

NERC Reliability Standards Update

New TPL “footnote b”

An objective of the planning process should be to minimize the likelihood and magnitude of Non-Consequential Load Loss following Contingency events.

However, in limited circumstances Non-Consequential Load Loss may be needed to address BES performance requirements.

When Non-Consequential Load Loss is utilized within the planning process to address BES performance requirements, such interruption is limited to circumstances where the Non-Consequential Load Loss is documented, including alternatives evaluated; and where the utilization of Non-Consequential Load Loss is subject to review in an open and transparent stakeholder process that includes addressing stakeholder comments.

TPL “footnote b” remand – Non-consequential Load Loss

- NERC proposal
  - No criteria constraints on NCLL use
  - No technical justification, nor technical rigor
  - No mandate on stakeholder/governmental involvement

- FERC seeks comments on:
  - Quantitative limit with exception process through RE or ERO
  - Required technical criteria
  - Is stakeholder process appropriate vehicle
  - Should footnote b specify stakeholder process
  - Can an exception process be crafted
  - DOE reporting limits/NERC registration appropriate criteria
  - How might community/customer consent be demonstrated

Questions ?

2011 TAG Work Plan

Rich Wodyka
Independent Consultant

2011 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

Coordinated Plan Development

- Combine Reliability and Enhanced Results
- OSC publishes DRAFT Plan
- TAG review and comment

TAG Meetings

2011 TAG Work Plan

January - February

- **Finalize 2011 Study Scope of Work**
  - ✓ Receive final 2011 Reliability Study Scope for comment
  - ✓ Review and provide comments to the OSC on the final 2011 Reliability Study Scope including the Study Assumptions; Study Criteria; Study Methodology and Case Development
  - ✓ Receive request from OSC to provide input on proposed Enhanced Transmission Access scenarios and interfaces for study
  - ✓ Provide input to the OSC on proposed Enhanced Transmission Access scenarios and interfaces for study

April - June

TAG Meeting – June 13th

- ✓ **Receive a progress report on the 2011 Reliability Planning study activities and preliminary results**

June - July

- **2011 TECHNICAL ANALYSIS, PROBLEM IDENTIFICATION and SOLUTION DEVELOPMENT**
  - ✓ **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**
  - ✓ **Receive update status of the upgrades in the 2010 Collaborative Plan**
  - ✓ **TAG will be requested to provide input to the OSC and PWG on any proposed alternative solutions to the problems identified through the technical analysis**

August - October

TAG Meeting – September 16th

- **2011 STUDY UPDATE**
  - ✓ **Receive a progress report on the Reliability Planning**
- **2011 SELECTION OF SOLUTIONS**
  - ✓ **TAG will receive feedback from the OSC on any alternative solutions that were proposed by TAG members**

December

2011 STUDY REPORT

- ✓ Receive and comment on final draft of the 2011 Collaborative Transmission Plan report

TAG Meeting – December 15th

- ✓ Receive presentation on the draft report of 2011 Collaborative Transmission Plan
- – Provide feedback to the OSC on the 2011 NCTPC Process and DRAFT Report by **January 9, 2012**
- – Provide feedback to the OSC on the proposed 2012 Study Scope by **January 9, 2012**
- – Review and comment on the proposed 2012 TAG Work Plan Schedule by **January 9, 2012**

2012 TAG Work Plan

Rich Wodyka
Independent Consultant

2012 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

Enhanced Access Planning Process

- Propose and select enhanced access scenarios and interface
- Perform analysis, identify problems, and develop solutions
- Review Enhanced Access Study Results

Coordinated Plan Development

- Combine Reliability and Enhanced Results
- OSC publishes DRAFT Plan
- TAG review and comment

FERC Order 1000 Updates

TAG Meetings

2012 TAG Work Plan

January – February

- **2012 Study – Finalize Study Scope of Work**
  - **Receive final 2012 Reliability Study Scope for comment**
  - **Review and provide comments to the OSC on the final 2012 Study Scope**
  - **Receive request from OSC to provide input on proposed Enhanced Transmission Access scenarios and interfaces for study**
  - **Provide input to the OSC on proposed Enhanced Transmission Access scenarios and interfaces for study**

March

TAG Meeting

- **2012 Study Update**
  - **Receive a progress report on the Reliability Planning study activities and preliminary results**
- **Order 1000 Update**
  - **Receive report on the direction that the NCTPC is heading on the Order 1000 regional compliance**
  - **Receive an updated overall Compliance Timeline highlighting when continued stakeholder involvement in the process will occur**

April - May - June

- **2012 Study - Technical Analysis, Problem Identification, and Solution Development**
  - **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**
  - **TAG will be requested to provide input to the OSC and PWG on any proposed alternative solutions to the problems identified through the technical analysis**
- **Order 1000**
  - **NCTPC will release Draft #1 of regional compliance documents to TAG for comment**

April - May - June

TAG Meeting

- **2012 Study Update**
  - **Receive a progress report on the Reliability Planning study activities and preliminary results**
  - **Receive update status of the upgrades in the 2011 Collaborative Plan**
- **Order 1000 Update**
  - **Receive an update on the Order 1000 regional compliance work and the changes that will be coming in Draft #2 of the regional compliance documents**
  - **Receive an updated overall Compliance Timeline highlighting when continued stakeholder involvement in the process will occur**

July - August - September

- **2012 Study Update**
  - Receive a progress report on the Reliability Planning study activities and preliminary results
- **2012 Selection of Solutions**
  - TAG will receive feedback from the OSC on any alternative solutions that were proposed by TAG members
- **Order 1000 Update**
  - NCTPC will release Draft #2 of regional compliance documents to TAG for comment
  - Receive an updated overall Compliance Timeline highlighting when continued stakeholder involvement in the process will occur

July - August - September

TAG Meeting

- **2012 Study Update**
  - **Receive a progress report on the Reliability Planning study activities and preliminary results**
- **Order 1000 Update**
  - **Receive an update on the Order 1000 regional compliance work and the changes that will be coming in Draft #2 of the regional compliance documents**
  - **Receive an updated overall Compliance Timeline highlighting when continued stakeholder involvement in the process will occur**

October - November - December

- **2012 Study Update**
  - Receive and comment on final draft of the 2012 Collaborative Transmission Plan report

TAG Meeting

- **2012 Study Update**
  - Receive presentation on the draft report of 2012 Collaborative Transmission Plan

- **Order 1000 Update**
  - Receive update on the Order 1000 interregional compliance concepts and provide updated interregional Compliance Timeline highlighting when stakeholder involvement in the process will occur

Questions ?

TAG
Open Forum Discussion

Comments or Questions ?