



TAG Meeting

March 27, 2012

ElectriCities Office
Raleigh, North Carolina



TAG Meeting Agenda

- 1. Administrative Items – Rich Wodyka**
- 2. FERC Order 1000 Report – Sam Waters**
- 3. LS Power Discussion on FERC Order 1000 – Sharon Segner**
- 4. NCTPC 2012 Study Activities and Study Scope Report – Denise Roeder**
- 5. Regional Studies Update – Bob Pierce**
- 6. 2012 TAG Work Plan Update – 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 1000 Discussion Agenda

- Order 1000 Compliance Filings Timeline
- Order 1000 Draft Concepts
 - Regional Projects
 - Cost Allocation for Regional Projects
- LS Power Presentation
- Wrap-up, Review of Next Steps



Order 1000 Compliance Filings

- Regional Compliance Filing – Oct. 11, 2012
 - Regional Transmission Planning
 - Cost Allocation for Regional Transmission Projects
 - Non-incumbent Transmission Providers
 - Transmission Needs Driven by Public Policy

- Interregional Compliance Filing – Apr. 11, 2013
 - Interregional Transmission Coordination
 - Cost Allocation for Interregional Transmission Projects



Regional Compliance Filing 2012 Timeline

➤ Q2

- NCTPC members continue to develop and refine compliance concepts based on stakeholder input
- NCTPC members review compliance direction with the state commissions
- June 19th TAG meeting - review/discuss compliance concepts



Regional Compliance Filing 2012 Timeline (cont.)

➤ Q3

- NCTPC members develop and distribute drafts of compliance filing documents
- 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 submitted to FERC



Order 1000 Draft Concepts Areas of Focus Today

- Modifications to Existing Planning Process:
 - Identification of Cost-Effective Regional Transmission Solutions (i.e., “Regional Projects”)
 - Allow for Non-Incumbent Transmission Developers of Regional Projects
 - Cost Allocation for Regional Projects



Regional Projects - *Draft Concepts*

- Regional Projects
 - As a general rule, encompass multiple Transmission Providers' service territories
 - Voltage level of 230 kV or above
 - Project cost must be at least \$10 million
 - Cost allocation will be determined in accordance with "Attachment K" of the Duke/Progress OATT
 - Anyone may propose a Regional Project (becomes a Project Sponsor)
 - May be developed and owned by incumbents or non-incumbents (subject to state commission approvals)
 - Owner of project will turn over operational control for open access purposes to the Transmission Provider(s), integrating facility into their Transmission Systems



Regional Projects - *Draft Concepts*

- Planning process will provide opportunity for Regional Projects to be included in Transmission Plan
 - Incumbents and Stakeholders (which includes non-incumbents), may sponsor Alternatives to NCTPC-proposed solutions
 - Incumbents and Stakeholders (which includes non-incumbents) may sponsor “Blue Sky” Projects
- Project Sponsors need not be developers
- Steps that follow will be integrated into framework of the existing planning process, in which NCTPC identifies potential transmission solutions and seeks input as to alternatives.



Regional Projects - *Draft Concepts*

Steps in the proposal/evaluation process

1. Project Sponsors Submit Proposed Regional Project(s) with the following info:

- Transmission project technical and cost information
- Identify any potential impacts to other transmission projects in the plan
- Reliability impact assessment
- Project benefits, beneficiaries, and proposed allocation of costs to the beneficiaries based on benefits.
- Identify if one or more transmission developers is proposing to build the project(s)



Regional Projects - *Draft Concepts*

Steps in the proposal/evaluation process (cont.)

2. NCTPC Facilitates Regional Discussion of the Proposed Regional Project(s)

- NCTPC facilitates meetings to discuss the proposed regional project to vet both the technical and benefit aspects of the proposed project.
- All stakeholders may offer modifications to the proposal that could be considered by the project sponsor.
- Project modifications based on these meetings and stakeholder input can be made.



Regional Projects - *Draft Concepts*

Steps in the proposal/evaluation process (cont.)

3. NCTPC Performs Evaluation of the Proposed Regional Project(s)

- NCTPC evaluation focus will be on the transmission and reliability aspects of the project.
- NCTPC evaluation will determine if the project should move forward to the next steps.
- Project beneficiaries must agree that the project benefits are sufficient and that the allocation of the costs/benefits is acceptable to them and report such decision to NCTPC.
- In order to move the project to the next step, at least one potential developer must be identified; Project Sponsors without developers can ask NCTPC to request whether interest exists.
- If there is disagreement as to whether project should be moved to next step, then Dispute Resolution can be triggered, as long as there is a developer who is willing to proceed with the project.



Regional Projects - *Draft Concepts*

Steps in the proposal/evaluation process (cont.)

4. Regional Project Developer Determination Process

- If Project Sponsor is developer, it is the developer.
- If project has no developer, and a single developer (or single group of developers) stepped forward in Step 3, it is the developer.
- If project has no developer, and if multiple developers stepped forward in Step 3, then NCTPC will facilitate discussions among the developers to determine if a joint project could be proposed. If no agreement can be reached, then each of the project developers would proceed in the process.



Regional Projects - *Draft Concepts*

Steps in the proposal/evaluation process (cont.)

5. Regional Project Developer Qualification Evaluation

- The NCTPC will perform an evaluation of the qualifications and determine if the developer meets the qualification criteria.
- There will be process for remedying deficiencies.
- There will not be a pre-qualification process.
- Qualification criteria will allow for the possibility that an incumbent already satisfies qualification criteria.



Regional Projects - *Draft Concepts*

Steps in the proposal/evaluation process (cont.)

6. Interconnection, Operating, and Cost Recovery Agreement for Non-Incumbent Transmission Owners Receiving Regional Cost Allocation

- MOU must be entered into by the non-incumbent and NCTPC Transmission Providers (Duke/Progress) committing to principle terms of a final agreement.



Regional Projects - *Draft Concepts*

Steps in the proposal/evaluation process (cont.)

7. Conclusion of the Process

- If the proposed Regional Project passes each of the above Steps 1 – 6, then the project will be included in the NCTPC transmission plan.
- If as a result of Steps 4, 5 and 6 there are multiple project developers requesting to build a particular Regional Project, then the Regional Project would be included within the NCTPC transmission plan with appropriate notations that the project developer would be selected through the relevant state commission approval processes.



Cost Allocation for Regional Projects

Draft Concepts

- **Replace existing Regional Reliability and Regional Economic Project cost allocations with this new Order 1000-compliant Regional Cost Allocation methodology.**
- **New Regional Cost Allocation methodology is applicable to following category of regional projects:**
 - Reliability
 - Economic
 - Public Policy
 - Multiple Categories



Cost Allocation for Regional Projects – Methodology

Draft Concepts

- **Allocate the cost of the project to the entities that benefit from the project in proportion to the benefits received.**
 - Duke and Progress, in their roles as Transmission Providers, would be the project beneficiaries.
 - Costs allocated to Duke and Progress would in turn be recovered through their retail and wholesale transmission rates.
 - Cost allocation would be reflected in an agreement among developer and Transmission Providers.
 - Cost allocation examples follow

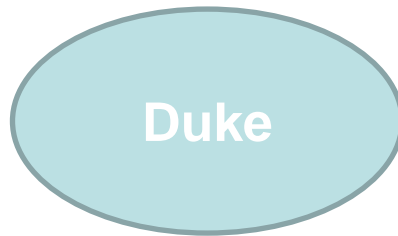


Regional Cost Allocation – Example 1

Draft Concepts

Regional Reliability Project

- Regional reliability project where Progress is the sole project beneficiary
- Duke and Progress are the Transmission Project Developers



Example Assumptions:

- Progress estimated cost to solve their reliability issue solely on their system = \$100 M
- Estimated cost of the alternative Regional Reliability Project(s) = \$80 M
 - Progress transmission system upgrade cost = \$70 M
 - Duke transmission system upgrade cost = \$10 M
- Project beneficiaries: Progress = 100%

Regional Cost Allocation:

- Progress cost responsibility = \$80 M

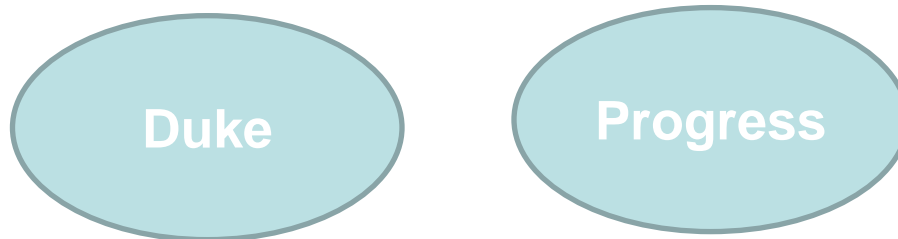


Regional Cost Allocation – Example 2

Draft Concepts

Regional Public Policy Project

- Regional Public Policy Project where Duke and Progress benefit
- Non-incumbent Transmission Project Developer



Example Assumptions:

- Total project cost = \$1 B; Non-incumbent transmission developer cost = \$1 B
- Project beneficiaries: Duke = 40%; Progress = 60%

Regional Cost Allocation:

- Duke cost responsibility = \$400 M
- Progress cost responsibility = \$600 M



Questions ?





LS Power Discussion on FERC Order No. 1000 Rule

**Sharon Segner
LS Power**



LS Power Transmission Presentation to North Carolina Transmission Planning Collaborative: FERC Order 1000 and New Entrants

March 27, 2012

Bringing Energy Forward



LS Power

- LS Power is a power generation and transmission group

Power Generation

- Over 25,000 MW of development, construction, or operations experience
- Active development of renewable and fossil generation resources

Transmission

- 235-mile, 500 kV ON Line Transmission Project under construction
- 235-mile, 2-345 kV Cross Texas Transmission facilities under construction
- Advanced development of 275-mile, 500 kV Southwest Intertie Project

Acquisition

- Over \$4 billion in private equity capital dedicated to energy sector
- Acquired ~ 17,000 MW of power generation

Functional Expertise

Project Development

Licensing & Environmental

Regulatory & Transmission

Power Marketing

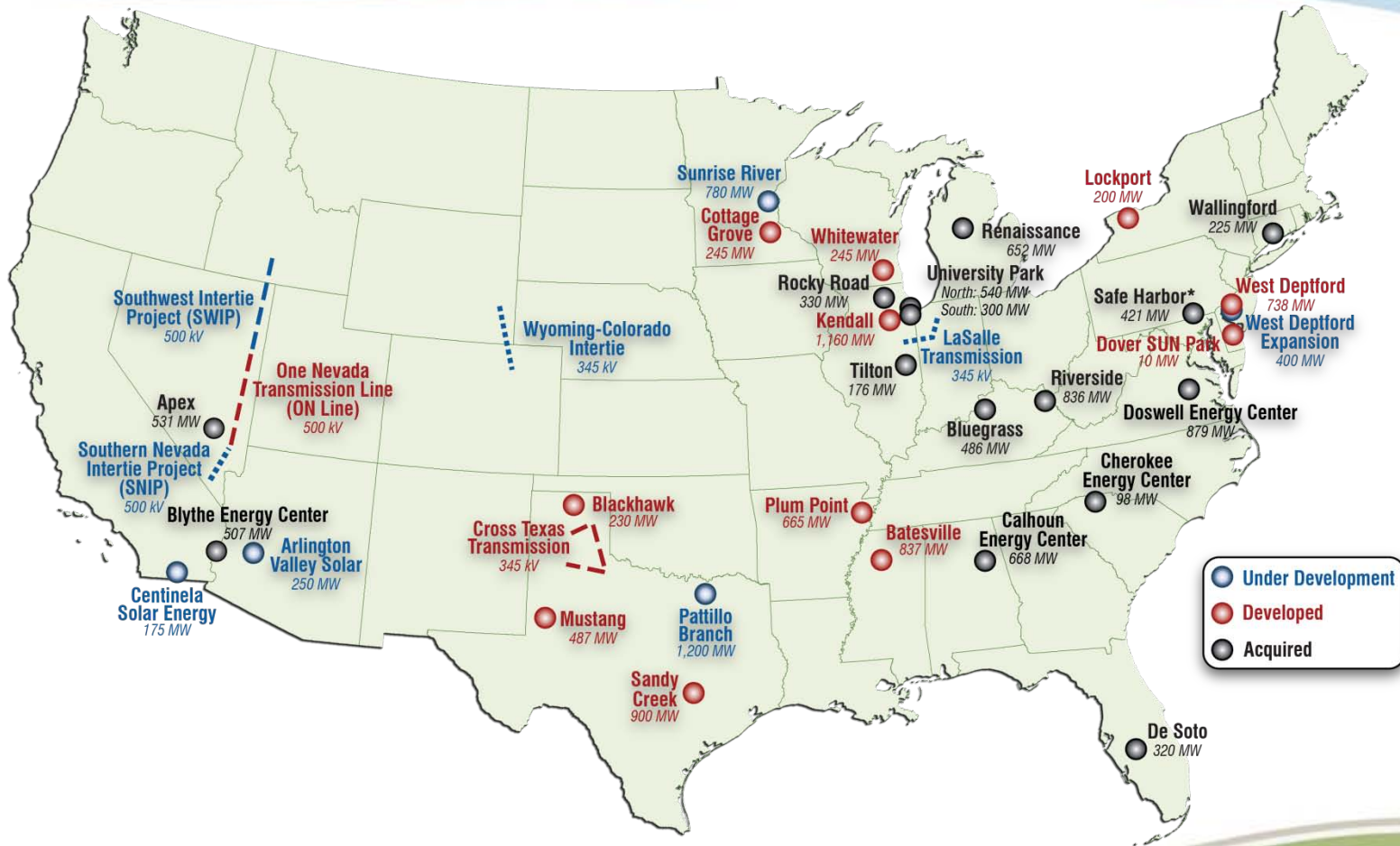
Project Finance

Construction & Operations

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Project Portfolio



- Under Development
- Developed
- Acquired

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* One-third ownership interest in Safe Harbor

FERC Order 1000 Requires Significant Compliance Related to New Entrants

- **Elimination of any provisions** that establish a federal right of first refusal for incumbent transmission provider with respect to projects selected in a regional transmission plan for purposes of cost allocation (Order No. 1000 ¶ 313);
 - LS Power's position is that this elimination of ROFR includes ANY project for which ANY of its costs are allocated regionally, including reliability, public policy, economic projects
- **Tariff revisions required** to establish appropriate qualification criteria for new entrants. Such qualification criteria must not be unduly discriminatory or preferential (Order No. 1000 ¶¶ 323-324);
- **Tariff revisions required** to outline information required in order to submit a project proposal (Order No. 1000 ¶ 325).



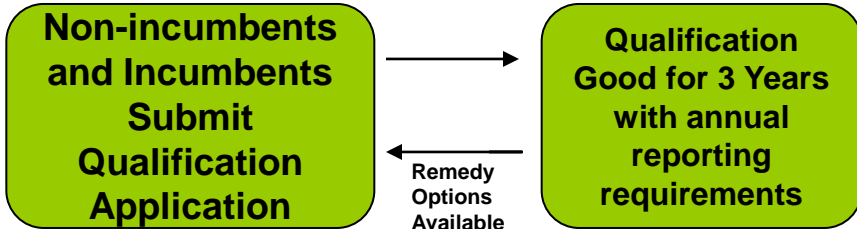
FERC Order 1000 Requires Significant Compliance Related to New Entrants

- **Tariff revisions required** to outline a transparent and not unduly discriminatory or preferential process in evaluating whether to include a proposed transmission facility in the regional plan (Order No. 1000 ¶ 328);
- **Tariff revisions required** to outline the Timing, Process, and Circumstances when a Transmission Project should be Reevaluated (Order No. 1000 ¶ 329).
- **Tariff revisions required** to provide for comparable opportunity for incumbent and non-incumbent to recover the cost of a transmission facility through regional cost allocation (Order No. 1000 ¶ 332).

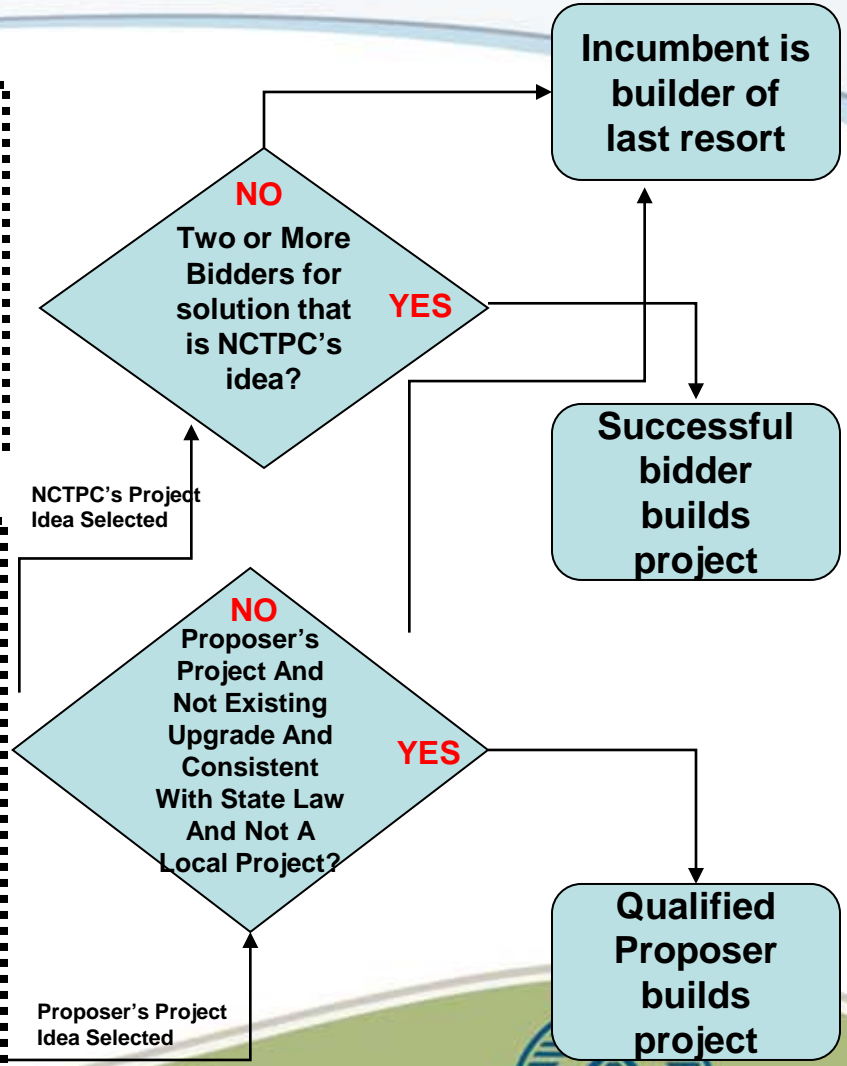
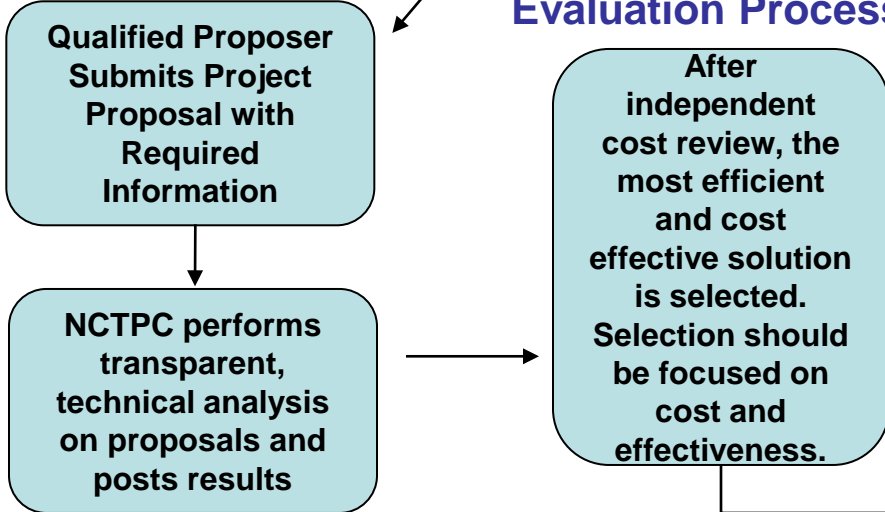


FERC Order 1000 Process

Pre-Qualification Process Starting in Fall 2012



Evaluation Process



Bringing Energy Forward



Proposed Qualifications to be a Transmission Developer in North Carolina Transmission Planning Collaborative Region

- FERC Order 1000 is clear on Qualification Ground Rules
 - Financial and Technical Criteria Must be established
 - FERC Order 1000 was clear that the criteria must not be unduly discriminatory or preferential.
 - The qualification criteria should be fair and not unreasonably stringent, applying to existing utilities, their affiliates, and new entrants.
 - Qualification criteria should allow for the possibility that an existing public utility transmission owner already satisfies the financial and technical criteria, and should allow any transmission developer the opportunity to remedy any deficiency.
- LS Power's Proposed Pre-Qualification Process



Transmission Developer Qualification Criteria

Proposed qualification criteria should be:

- Demonstration of entity's ability to meet financial criteria
 - Demonstrated capability of a parent company, affiliate, or project company financing U.S. energy projects equal or greater than the lesser of \$500 million dollars or the capital cost of the proposed transmission project
 - Material degradation of the financial condition of the entity once qualified can be grounds for termination of qualification status and project re-assignment.



Transmission Developer Qualification Criteria

Proposed qualification criteria should be:

- **Demonstration of entity's technical ability**
 1. Demonstrated capability of a parent company, affiliate, or project company developing, constructing, operating and maintaining U.S. energy projects of similar or larger complexity, size, and scope of the proposed project
 2. Must show that applicant has the ability to construct and operate the project, which includes the ability to hire contractors to construct and operate
- **FERC Qualification Criteria on Hydroelectric Facilities and Natural Gas Pipeline is helpful in this regard:**
 - » Exact FERC standard: "Must show that applicant has the ability to construct and operate the project, which includes the ability to hire contractors to construct and operate"
 - » FERC's regulations on qualifications related to natural gas pipelines are found at 18 C.F.R. Part 157, Subpart A and FERC's regulations on qualifications related to hydroelectric facilities are found at 18 C.F.R. Part 4, Subparts D and E.



Transmission Developer Qualification Criteria (cont.)

Proposed qualification criteria should be:

- Willingness of entity to join North Carolina Transmission Planning Collaborative when eligible;
- Willingness of entity to register with NERC when required and eligible under the applicable NERC regulations;
- Willingness of entity to apply for state public utility status if assigned a project. Generally part of the CPCN application.
- Willingness of entity to apply for eminent domain authority at appropriate time under state law for the project



Information Required to Be Submitted with Project Proposal

- **Information required to be submitted with any Project Submittal by any Qualified Developer include:**
 - Contact Information
 - Date of Completion of Pre-Qualification Process
 - Name of Project Entity to Be Assigned Project
 - Project Description
 - » Scope of Project
 - » Capital Cost Estimate
 - » All projects, including incumbent proposals, passing initial screens should be subject to independent cost estimate review for capital costs
 - » Estimated revenue requirement, including the proposed ROE
 - » Proposed Schedule for Development, Construction, and Operation Date
 - » Identification of Internal Organizational Expertise
 - » Plan for post construction, maintenance, and operation of the proposed line.
 - » Intention of Joining RTO and Becoming a Transmission Owner must be clearly stated
 - » Identification of applicable CPCN requirements and applicable state jurisdiction requirements
 - Deposit Required with Each Project submittal (Incumbents and New Entrants)
 - \$25,000



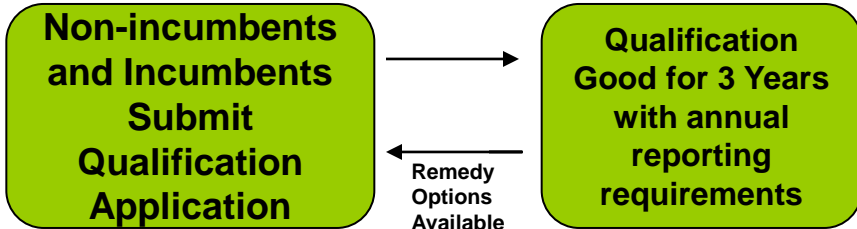
Requirements necessary for Project Evaluation

- Two basic options exist to award transmission projects:
 1. Project Sponsorship ; and
 2. Competitive Solicitation
- Sponsorship/Competitive Solicitation Combinations also exist;
- LS Power recommends a hybrid approach to awarding transmission projects proposed in NCTPC process.
 - Project Sponsorship for transmission projects submitted into NCTPC for approval; and
 - Competitive Solicitation for projects approved for regional cost allocation but no project sponsor
 - Competitive Solicitation for projects proposed by NCTPC.

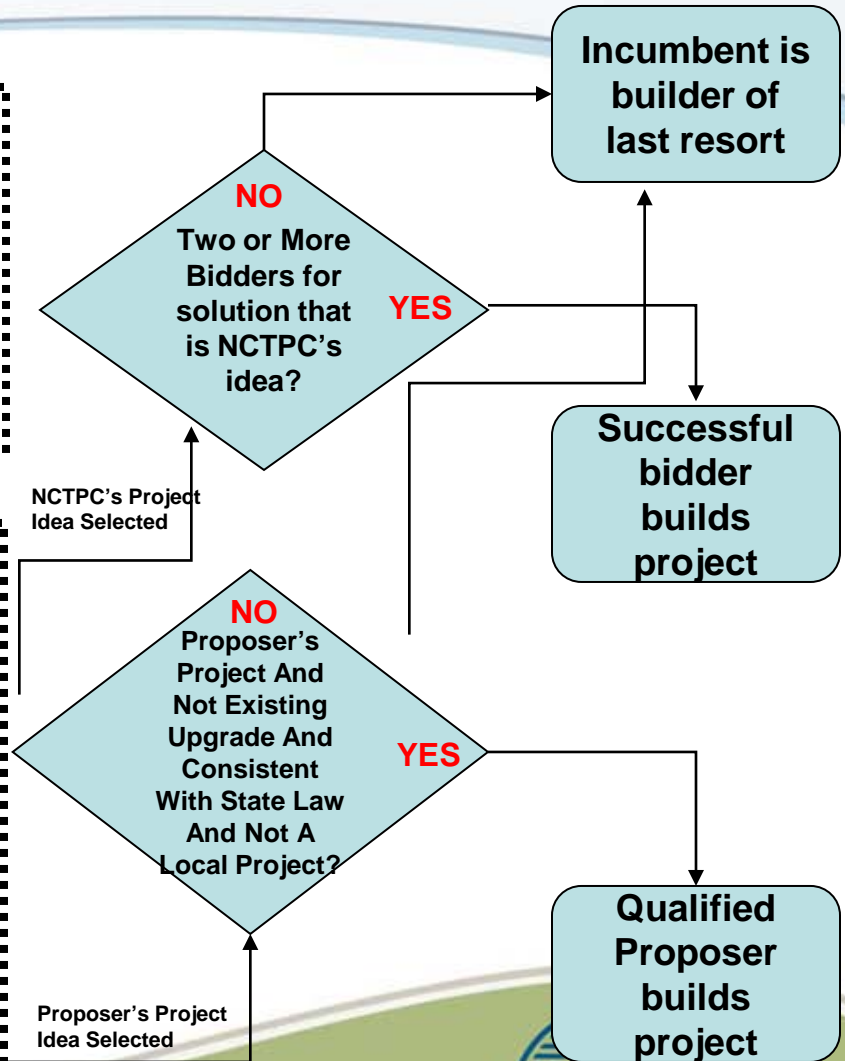
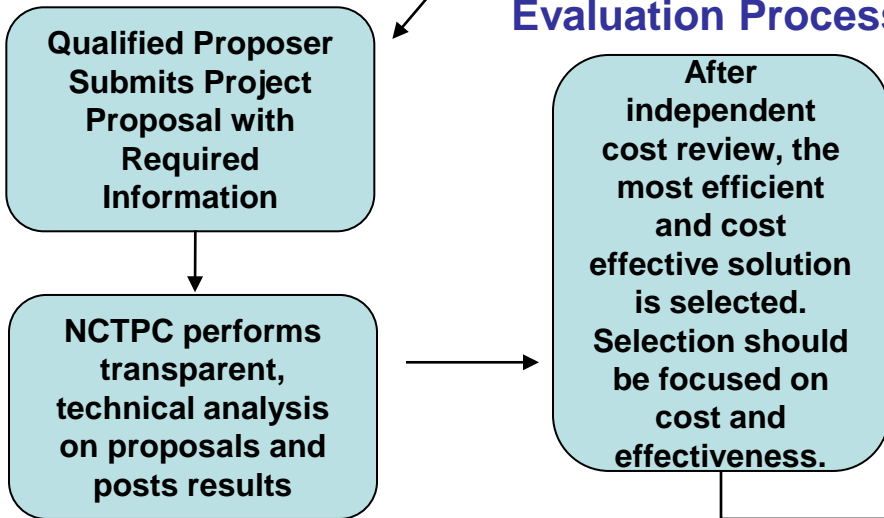


FERC Order 1000 Process

Pre-Qualification Process Starting in Fall 2012



Evaluation Process



Bringing Energy Forward



Requirements necessary for Project Evaluation

- NCTPC filing should reflect a not unduly discriminatory or preferential process for evaluation and inclusion in NCTPC process;
 - Additionally, solution shall include sufficient details for stakeholders to understand why a particular solution was selected.
 - Information on system needs should be transparent.
- Efficient and Cost-Effective Solutions should be the most important component and the FOCUS of the ultimate evaluation mix
- LS Power notes that it is imperative that the cost estimates included as a part of the selection criteria be uniformly applied to all utility (incumbent and non-incumbent) proposals.
- LS Power recommends the use of an external transmission project selection administrator
- Additional Assignment Criteria



Key Market Structure Comments

- **If NCTPC adopts competitive bidding, the efficiency and cost-effectiveness of the competing solutions should make up the VAST majority of the decision points.**
 - **NOTE: Paragraph 331 of FERC Order 1000. “Whether or not public utility transmission providers within a region select a transmission facility in the regional plan for purposes of cost allocation will depend in part of their combined view of whether the transmission facility is an efficient or cost-effective solution to their needs. Footnote 307: As noted above, for one solution to be chosen over another in the regional transmission planning process, there should be an evaluation of the relative efficiency and cost-effectiveness of each solution...”**
 - **COST and EFFECTIVENESS of solutions must be majority-weighted in selection**



Key Market Structure Comments

- **NCTPC must develop a process to handle unsponsored projects, or projects that NCTPC comes up with, if NCTPC pursues a sponsorship model.**
 - **Paragraph 336, FERC Order 1000: “..The mechanism a regional planning process implements could also allow the sponsor of a transmission project selected in the regional transmission plan for purposes of cost allocation to use the regional cost allocation method associated with the transmission project.**
 - **In that case, however, the regional transmission planning process would need to have a fair and not unduly discriminatory mechanism to grant an incumbent transmission provider or non-incumbent transmission developer the right to use the regional cost allocation method for unsponsored transmission facilities selected in the regional plan for purposes of cost allocation.”**
- ***LS Power view in light of Paragraph 336, FERC Order 1000: Unsponsored projects (i.e. Projects that NCPTC comes up with) should not automatically be assigned to the incumbent utility. There must be a fair and not unduly discriminatory mechanism for these projects.***



Contact Information

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Questions ?





FERC Order 1000 Discussion

Wrap-up, Review of Next Steps



Questions ?





NCTPC 2012 Study Activities and Study Scope

**Denise Roeder
ElectriCities**



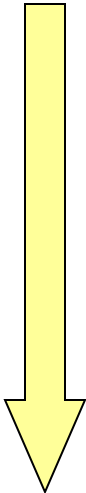
Purpose of Study

- **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: 2017 Summer, 2017/2018 Winter
 - Longer-term: 2022 Summer
 - Inter-regional study: 2027 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 2011 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 2011 Plan were included in models**



Resource Supply Options Selected

- **Last year**
 - Hypothetical import/export scenarios
 - Hypothetical new base load generation
 - Offshore wind
- **This year**
 - Hypothetical new base load generation
 - NCTPC-PJM inter-regional wind study



Hypothetical New Generation

- **Davidson County**
- **500 MW Base Load**
- **Sink/Source in Duke**



NCTPC-PJM Inter-regional Wind Study

- **Renewable wind generation located off the North Carolina and Virginia coasts**
- **Study Year 2027**
- **Three scenarios that vary:**
 - **Total MWs**
 - **Allocation of MWs to Injection Points**
 - **Allocation of MWs sinking in Duke, PEC, and PJM**



Offshore Wind Scenarios

Location	Scenario #1	Scenario #2	Scenario #3
	MWs by Injection Point		
PJM / Dominion	1,000	2,000	4,500
NCTPC / Morehead City	1,000	1,500	3,500
NCTPC / Southport	1,000	1,500	2,000
TOTAL MWs Injected	3,000	5,000	10,000
	MWs by Sink Location		
PJM	0	2,000	6,000
NCTPC (40% PEC / 60% Duke)	3,000	3,000	4,000

*These MW levels are assumed to occur during the off-peak period.
On-peak MW assumptions are approximately 40% of these values.*



Enhanced Transmission Access Requests

- **TAG memo was distributed on January 19, 2012 requesting input**
- **The deadline for input was February 10, 2012**
- ***No requests were received for 2012***



Technical Analysis

- **Conduct thermal screenings of the 2017 and 2022 base cases**
- **Conduct thermal screenings of the 2022 hypothetical generation Resource Supply Option**
- **Conduct thermal screenings of the 2027 Offshore Wind Scenarios**



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 ?





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

- **2012 Series LTSG models for 2016S and 2019S are being used to represent external systems**
- **Models will be 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**
- **Final report in September timeframe**



Eastern Interconnection Planning Collaborative (EIPC)



EIPC background

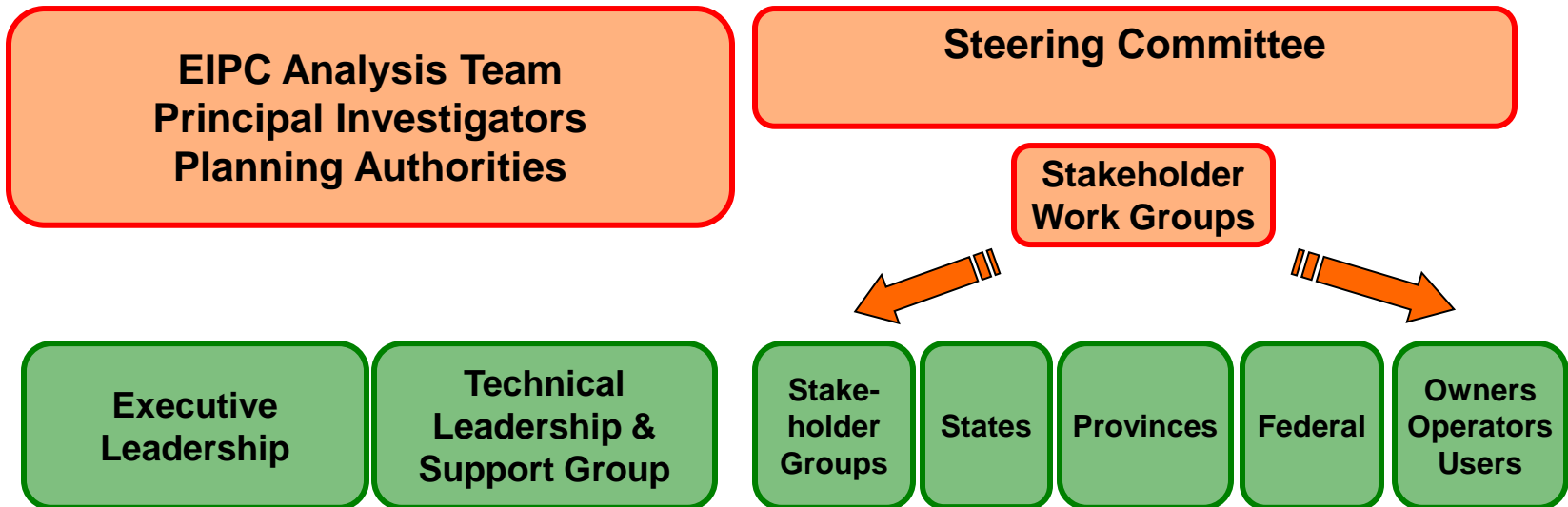
➤ EIPC Objectives

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 Focus between now and end of 2012

- Perform analysis under the Department of Energy Topic A award for Transmission Planning Analysis for the Eastern Interconnection

- **Phase I - complete**
 - Report available on EIPC website (<http://www.eipconline.com/>)

- **Phase II - ongoing**
 - Scenario models have been completed
 - Performing reliability screening of each scenario
 - Identifying proposed transmission upgrades to meet reliability requirements of each scenario



EIPC Phase 2 Scenarios

- **Scenario 1: Combined Federal Climate & Energy Policy - Carbon constrained**
- **Scenario 2: National RPS – State/ Regional Implementation - High wind penetration**
- **Scenario 3: Business As Usual**



Load Flow Models

Scenario 1 – Block 1 & Block 13

- Scenario 1 will be analyzed first

Scenario 2 – Block 1 & Block 13

Scenario 3 – Block 1

Each Scenario with multiple blocks will be analyzed together and not independently



Initial Screening Results for Scenario 1

- DC analysis only
- Single contingencies only
- No investigation of possible errors in ratings or other data anomalies
- Completed to show scenario 1 case can produce results
- 944 limiting constraints above 345kV



Initial Screening Results for Scenario 1

- Sample map of overloaded facilities





Inter-Regional Transmission Analysis Example – Southern Company

Loading %	Estimated Loading (MVA)	Rate B (MVA)	Limiting Constraint	Contingency
112.1	3844.5	3429.0	380020 8BOWEN 500 380021 8MOSTELLER 500 1	C:380021 8MOSTELLER 500 380025 8MCGRAU FORD 500 1
120.8	4143.8	3429.0	380021 8MOSTELLER 500 382499 8CONASAUGA 500 1	Base Case
130.3	4466.6	3429.0	380021 8MOSTELLER 500 382499 8CONASAUGA 500 1	C:382500 8RACCOON CK 500 383021 8LONGLEAF 500 1
130.4	4471.9	3429.0	380021 8MOSTELLER 500 382499 8CONASAUGA 500 1	C:383021 8LONGLEAF 500 384600 8FARLEY 8 500 1
131.8	4518.8	3429.0	380021 8MOSTELLER 500 382499 8CONASAUGA 500 1	C:380023 8WANSLEY 500 382496 8WANSLEY 6&7 500 1
157.6	4094.5	2598.0	382499 8CONASAUGA 500 383045 8CONASAUG CC 500 1	C:306105 8OCONEE 500 380006 8MIDDLE FORK 500 1
159.9	4153.2	2598.0	382499 8CONASAUGA 500 383045 8CONASAUG CC 500 1	Base Case
172.5	4481.3	2598.0	382499 8CONASAUGA 500 383045 8CONASAUG CC 500 1	C:383021 8LONGLEAF 500 384600 8FARLEY 8 500 1
174.3	4528.2	2598.0	382499 8CONASAUGA 500 383045 8CONASAUG CC 500 1	C:380023 8WANSLEY 500 382496 8WANSLEY 6&7 500 1



Modeling Data Now Available

- SSI capacity by type by region
- Deactivated capacity by type by region
- Specific unit deactivations for larger units
- New capacity by type by region
- Dispatch by type by region for peak and less-than-peak load block
- Regional demand
- Regional interchange



North Carolina Transmission Planning Collaborative

Cumulative Deactivations for EIPC through 2030 for Scenario 1									
NEEM Region	Combined Cycle	Combustion Turbine	Coal	Nuclear	PeakG	PeakO	Steam Oil/Gas	STWD	Total MW Deactivated
ENTERGY	209	0	8309	0	1684	174	14865	0	25241
FRCC	9557	0	9463	0	8431	2283	9833	0	39567
IESO	5943	0	6416	0	584	175	2126	0	15244
MAPP_CA	731	0	1746	0	559	4	126	0	3166
MAPP_US	0	8	3547	0	0	292	36	0	3883
MISO_IN	0	0	14747	0	238	361	279	0	15625
MISO_MI	646	0	10792	0	760	534	2852	0	15584
MISO_MO_IL	0	0	13964	0	217	766	592	0	15539
MISO_W	62	0	13135	0	504	2154	172	0	16027
MISO_WUMS	0	0	7545	0	297	490	360	0	8692
Nebraska	0	0	3196	0	0	0	270	0	3466
New England ISO	10288	10	2570	0	1200	1183	6237	417	21905
Non_RTO_Midwest	0	0	10437	0	313	12	0	0	10761
NYISO_A-F	3594	0	2252	621	221	39	1701	86	8514
NYISO_GHI	0	0	368	0	0	87	2431	0	2886
NYISO_J & K	0	0	0	0	0	812	5432	0	6243
PJM_Eastern_MAAC	523	26	3853	615	774	2752	3252	0	11794
PJM_Rest_of_MAAC	0	0	16381	0	0	1836	4109	0	22326
PJM_Rest_of_RTO	0	0	59868	867	528	1761	2122	0	65147
SOCO	347	0	25335	0	10923	1139	854	0	38598
SPP_N	0	0	7883	0	0	0	1749	0	9632
SPP_S	0	0	13140	0	0	0	10223	0	23363
TVA	0	0	15159	0	4863	83	0	0	20105
VACAR	185	656	20136	0	8308	1268	92	0	30645
Total Deactivated Capacity (MW):	32,085	700	270,240	2,103	40,403	18,205	69,712	503	433,950

Cumulative New Capacity Additions for EIPC through 2030 for Scenario 1

NEEM Region	Biomass	Combined Cycle	Combustion Turbine	Coal	Hydro	Landfill Gas	Nuclear	Photo Voltaic	Onshore Wind	IGCC	Offshore Wind	Total MW Installed
ENTERGY	0	2734	0	720	0	107	170	85	100	0	0	3916
FRCC	0	10635	2480	0	0	198	17301	0	0	0	0	30614
IESO	326	1263	368	0	0	15	0	1067	2106	0	0	5145
MAPP_CA	0	265	0	0	3414	0	0	0	302	0	0	3981
MAPP_US	0	0	308	0	0	72	0	0	8597	0	0	8977
MISO_IN	0	8219	0	0	0	80	0	336	10833	618	0	20085
MISO_MI	0	5172	0	0	0	160	0	0	9027	0	0	14360
MISO_MO_IL	0	4531	0	1790	280	223	0	0	13430	0	0	20254
MISO_W	0	3511	0	0	0	72	94	0	67512	0	0	71190
MISO_WUMS	0	3727	0	615	1	223	235	0	3051	0	0	7852
Nebraska	0	0	0	232	0	72	0	0	15580	0	0	15883
New England ISO	252	2050	334	0	0	119	0	264	5280	0	468	8766
Non_RTO_Midwest	0	5512	0	0	746	160	0	0	0	0	0	6419
NYISO_A-F	0	639	0	0	0	74	168	0	6111	0	0	6992
NYISO_GHI	0	0	0	0	0	74	0	0	292	0	0	366
NYISO_J_&_K	0	1175	0	0	0	74	0	32	0	0	0	1282
PJM_Eastern_MA AC	30	4634	26	27	0	142	38	25	1150	0	1100	7173
PJM_Rest_of_MA AC	18	1679	16	33	678	284	0	2081	1230	0	0	6018
PJM_Rest_of_RT O	385	21878	29	2164	503	571	38	0	11912	0	0	37480
SOCO	55	12276	0	0	0	107	8698	0	0	0	0	21136
SPP_N	0	0	0	465	0	95	0	0	41683	0	0	42243
SPP_S	0	0	713	988	0	95	0	0	41097	0	0	42893
TVA	0	6494	0	0	27	107	1698	0	0	0	0	8327
VACAR	443	11286	717	825	0	107	8058	119	3500	0	1	25057
Total Installed Capacity (MW):	1,510	107,681	4,992	7,859	5,649	3,234	36,498	4,009	242,792	618	1,569	416,410

Dispatch by Capacity Type for Scenario 1, Block 1

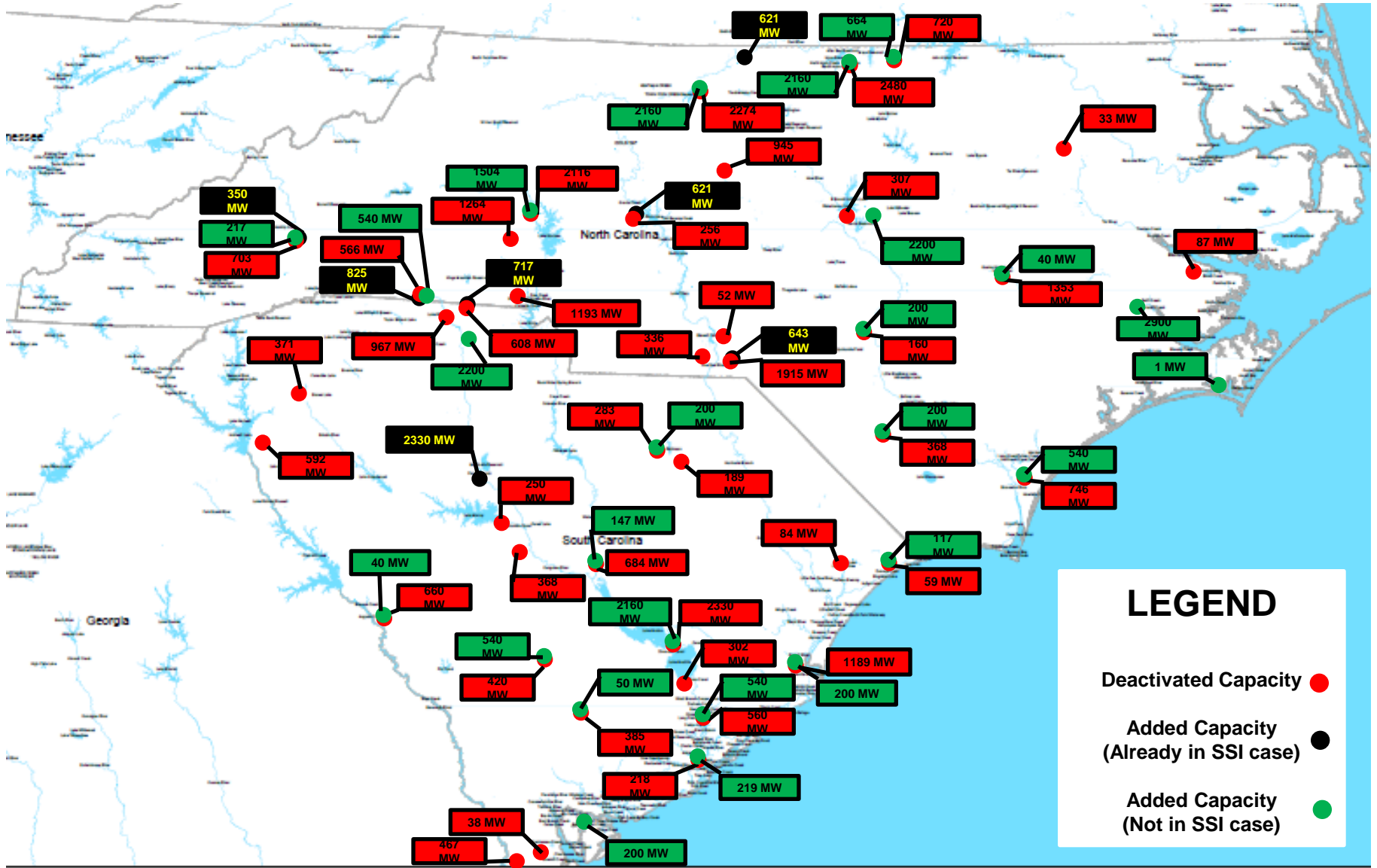
NEEM Region	Biomass	CC	CT	Coal	Geo-Thermal	Hydro	Landfill Gas	Nuclear	Pumped Storage	Photo Voltaic	PeakG	PeakO	Steam Oil/Gas	STWD	Onshore Wind	IGCC	Demand Response	Offshore Wind	Total MW Dispatched
ENTERGY	0	15409	0	0	0	0	110	5246	59	30	0	0	0	185	29	0	0	0	21068
FRCC	0	21467	2317	0	0	52	650	20516	0	20	0	0	0	176	0	0	2404	0	47602
IESO	0	736	0	0	0	8343	106	11449	123	9	0	0	0	125	1524	0	0	0	22415
MAPP_CA	0	0	0	0	0	8815	0	0	0	0	0	0	0	0	260	0	0	0	9075
MAPP_US	0	271	280	0	40	2102	70	0	0	0	615	0	0	0	1874	0	0	0	5253
MISO_IN	0	9028	0	0	0	71	111	0	0	118	857	0	0	0	4119	556	0	0	14861
MISO_MI	0	8324	0	0	0	134	307	1828	1872	0	729	0	0	147	5199	0	0	0	18539
MISO_MO_IL	0	5248	0	1726	0	464	229	2161	440	0	4015	0	0	0	5360	0	0	0	19643
MISO_W	0	6080	0	599	0	473	263	2285	0	0	3685	0	0	282	20460	0	0	0	34124
MISO_WUMS	0	6057	0	0	0	320	280	1758	0	0	0	0	0	95	1909	0	0	0	10418
Nebraska	0	336	0	805	0	159	74	1211	0	0	0	0	0	0	3930	0	0	0	6516
New England ISO	233	3028	303	0	0	3040	618	4495	1674	93	0	0	0	174	1974	0	0	346	15977
Non_RTO_Midwest	0	5176	0	155	0	288	166	0	0	0	2788	0	0	0	3	0	0	0	8576
NYISO_A-F	0	600	0	0	0	4099	228	2655	0	0	0	0	0	0	3888	0	0	0	11470
NYISO_GHI	0	1086	0	0	0	30	131	1979	0	0	65	0	0	0	128	0	0	0	3420
NYISO_J_&_K	0	4539	0	0	0	0	188	0	0	11	2778	676	1276	0	0	0	0	0	9469
PJM_Eastern_MAAC	28	11043	0	26	0	257	574	7640	400	18	2882	0	0	0	144	0	0	627	23637
PJM_Rest_of_MAAC	17	5319	15	31	0	1479	591	4873	1513	730	1691	0	0	63	333	0	0	0	16656
PJM_Rest_of_RT	355	30442	27	2087	0	1930	1000	18550	3081	10	17053	0	0	175	4991	0	0	0	79700
SOCO	51	25110	0	0	0	3741	137	14000	1675	0	0	0	0	601	0	0	0	0	45314
SPP_N	0	1260	0	0	0	20	97	1122	0	0	0	0	0	0	25746	0	0	0	28246
SPP_S	0	5293	0	0	0	2005	108	0	0	0	0	0	0	76	27772	0	0	0	35254
TVA	0	10289	0	0	0	4867	114	8123	1743	0	919	0	0	5	1	0	0	0	26061
VACAR	409	13734	57	796	0	1996	162	18857	2616	48	0	0	0	253	546	0	2812	0	42286
Total Dispatched Capacity (MW):	1,091	189,875	2,999	6,225	40	44,684	6,315	128,747	15,196	1,087	38,077	676	1,276	2,354	110,190	556	5,216	974	555,581



North Carolina Transmission Planning Collaborative

Net Region Interchange for Scenario 1		
NEEM Region	Block 1	Block 13
ENTERGY	-6009	-10102
FRCC	-393	0
IESO	2643	3493
MAPP_CA	2679	2652
MAPP_US	1068	2708
MISO_IN	-1718	-1229
MISO_MI	-146	-2838
MISO_MO_IL	1724	546
MISO_W	11951	17774
MISO_WUMS	-688	-1630
Nebraska	1395	4647
New England ISO	-6458	-3752
Non_RTO_Midwest	-1404	-1116
NYISO_A-F	2079	2123
NYISO_GHI	-294	-362
NYISO_J & K	-5259	-6542
PJM_Eastern_MAAC	-1005	-1053
PJM_Rest_of_MAAC	-7165	-7947
PJM_Rest_of_RTO	-5686	-13210
SOCO	-4731	-1183
SPP_N	12254	8673
SPP_S	5720	1768
TVA	-5363	-950
VACAR	-4626	0
Net Interchange of EIPC:	(9,432)	(7,530)

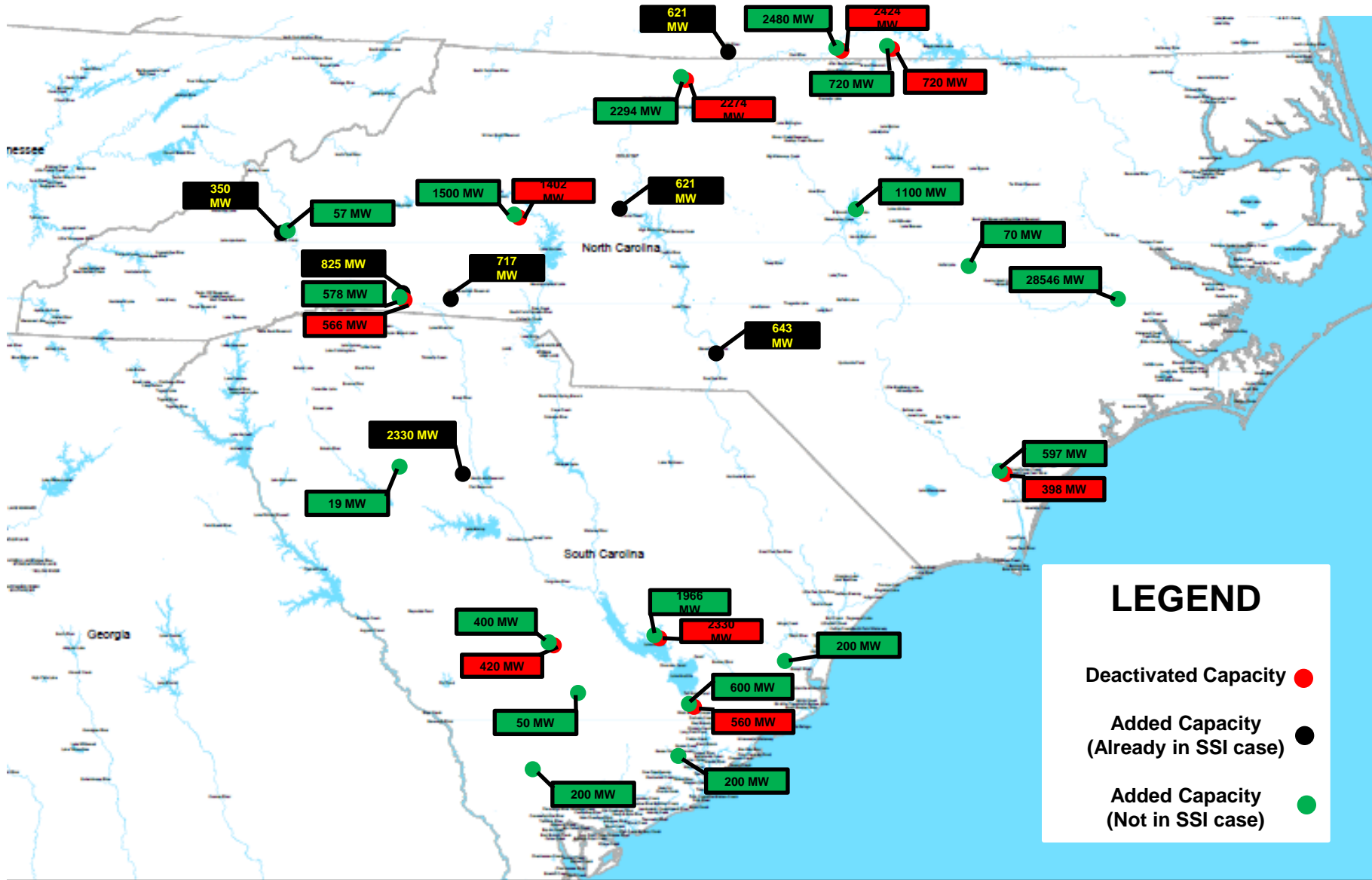
SCENARIO 1



LEGEND

- Deactivated Capacity ●
- Added Capacity (Already in SSI case) ●
- Added Capacity (Not in SSI case) ●

SCENARIO 2





Next Steps

EIPC will continue Inter-Regional Transmission Analysis (>345kV)

- Will post Scenario 1 Load Flow Model for TOTF to begin Inter-Regional Transmission Analysis
- EIPC will coordinate together on the Inter-Regional Transmission Projects

EIPC will coordinate Inter-Regional Transmission Analysis Results with the TOTF at the next TOTF Meeting (3/28-3/29)



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



Southeast Inter-Regional Planning Process (SIRPP) Update



SIRPP

- **5 Economic studies to be performed**
- **Use 2011 MMWG models for 2013 Summer and 2017 Summer conditions**
- **Detailed internal models update of MMWG models**
- **Running screenings with preliminary results expected mid-April**



SIRPP

- **SCE&G to PEC – 200 MW (2017, Step 1 Evaluation)**
 - Type of Transfer: Generation to Generation
 - Source: Generation within the SCE&G area
 - Sink: Uniform scale of the PEC area generation
 - This transfer is a replacement of an existing transfer from AEP to PEC



SIRPP

- **Southern Company to DEC – 50 MW (2017, Step 1 Evaluation)**
 - Type of Transfer: Generation to Generation
 - Source: Generation within the Southern Company area
 - Sink: Generation within the DEC area
 - This transfer is a replacement of an existing transfer from PEC to DEC



SIRPP

- **South Carolina Regional Transmission Planning Participants (“SCRTP”) to FRCC – 200 MW (2017)**
 - Type of Transfer: Generation to Generation
 - Source: Generation within the SCRTP area
 - The generation to source the transfer will be based upon the load serving ratio of SCE&G and SCPSA provided that there is sufficient existing generation “on-peak” to supply the transfer amount.
 - Sink: Generation within FRCC’s area.



SIRPP

- **LG&E/KU to Southern Company – 200 MW (2013, Step 1 Evaluation)**
 - Type of Transfer: Generation to Generation
 - Source: Generation within LG&E/KU area
 - Sink: Generation within Southern Company area



SIRPP

- **Southern Company to LG&E/KU – 200 MW (2013, Step 1 Evaluation)**
 - Type of Transfer: Generation to Generation
 - Source: Generation within Southern Company area
 - Sink: Generation within LG&E/KU area



SIRPP

- **Next SIRPP stakeholder meeting is Thursday --
April 26th**



<http://www.southeastirpp.com/>



SERC Long-term Study Group (LTSG)



SERC LTSG

- **2012 Series LTSG models being developed**
- **Complete by June 1**
- **2017S Study approved & publicly available after FERC 715 filings**



NERC Reliability Standards Update



NERC Reliability Standards Update

- **Order 754, Protection System Single Point of Failure/Redundancy Survey**
- **TPL-001-2, Transmission System Planning Requirements and Footnote b, Non-consequential Load Loss**



Dominion Offshore Wind Interconnection Study



Dominion Offshore Wind Interconnection Study

- **Performed by ABB**
- **Evaluates options for offshore interconnection of wind generation**
- **Follow-up to DVP's evaluation of onshore impacts**



Dominion Offshore Wind Interconnection Study

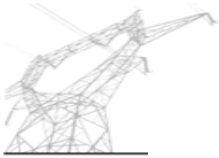
- **Evaluated AC and DC cable options at different voltage levels.**
- **Technical evaluation of the options presented**
- **Two 230 kV cables from each platform is the best solution**



Dominion Offshore Wind Interconnection Study

- **Estimate for one platform:**
 - Offshore platform (topside and offshore substation) -- \$250 million
 - 230-kV cable system, 2x72 km – \$389 million
 - 230-kV onshore variable shunt reactors (2 x 300 MVARs) including installation, -- \$9 million
 - Two three-breaker bays in a breaker and a half scheme to terminate two cables and two shunt reactors -- \$ 4 million

- **TOTAL \$652 million – 648 MWs**



North Carolina Transmission Planning Collaborative

CONCEPT

- Four Platforms
- Two cable circuits from each platform to the onshore system



Figure S-2: Proposed Wind farm Zones



**[http://www.dom.com/news/2012/pdf/
dominion_offshore_public_report_3-13-2012.pdf](http://www.dom.com/news/2012/pdf/dominion_offshore_public_report_3-13-2012.pdf)**



Questions ?





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

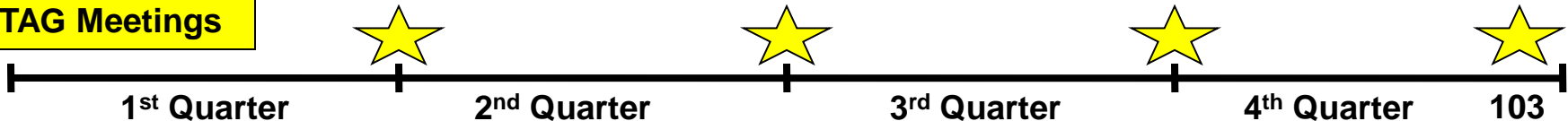
- *No requests were received for 2012*

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 -
No requests were received for 2012



March

TAG Meeting

➤ 2012 Study Update

- ✓ **Receive a progress report on the Reliability Planning study activities**

➤ 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 – Tuesday - June 19th

➤ 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?