



# Inter-Regional and External Transmission Planning in the Southeast

Joseph T Pokalsky, CFA  
Senior Project Manager  
Energy Consulting Group

## FERC Criteria for Determining Planning Regions

“527. Finally, the Commission acknowledges the importance of identifying the appropriate size and scope of the regions over which regional planning will be performed. We agree that transmission providers, customers, affected state authorities, and other stakeholders should be involved in developing those regions. We decline to mandate the geographic scope of particular planning regions at this time. *The scope of a particular planning region should be governed by the integrated nature of the regional power grid and the particular reliability and resource issues affecting individual regions and subregions.* In very large regions, there may well be both sub-regional and regional processes. For example, in the West there are various sub-regional processes in addition to a WECC regional planning process. We believe that such an approach can work, provided that there is adequate scope to the sub-regional processes and adequate coordination between sub-regions. We expect sub-regions to coordinate as necessary to share data, information and assumptions as necessary to maintain reliability and allow customers to consider resource options that span the sub-regions.” \*

\* FERC Order 890, paragraph 527

# Integrated Nature of the Regional Power Grid and Reliability



## About the Region \*

The SERC Reliability Corporation (SERC) is a nonprofit corporation responsible for *promoting and improving the reliability, adequacy, and critical infrastructure of the bulk power supply systems in all or portions of 16 central and southeastern states*. Owners, operators, and users of the bulk power system in these states cover an area of approximately 560,000 square miles and comprise what is known as the SERC Region.

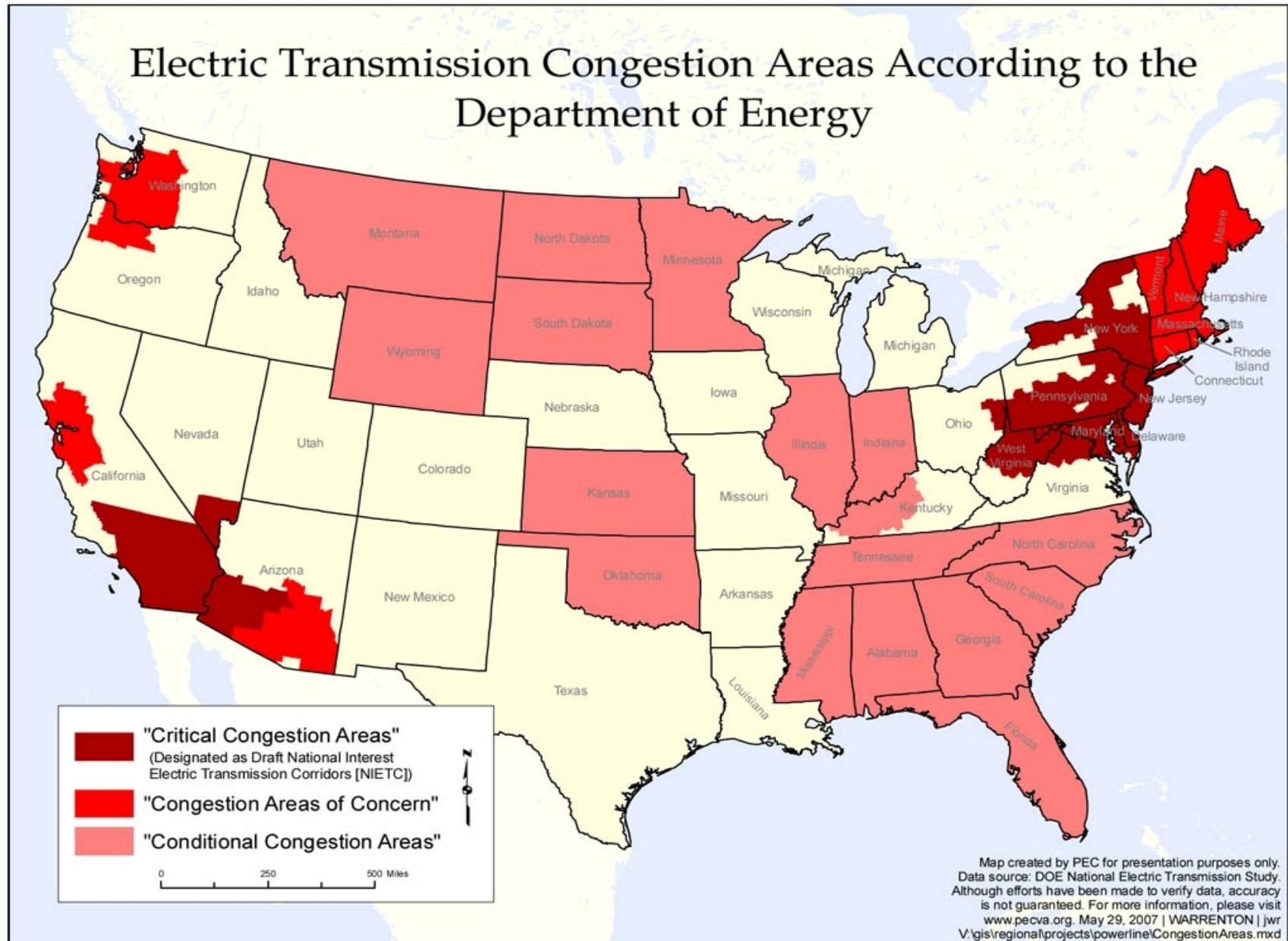
On July 20, 2006, the North American Electric Reliability Corporation (NERC) was certified as the Electric Reliability Organization (ERO) in the United States, pursuant to Section 215 of the Federal Power Act. Included in this certification was a provision for the ERO to delegate authority for the purpose of proposing and enforcing reliability standards in particular regions of the country by entering into delegation agreements with regional entities.

SERC serves as a regional entity with delegated authority from NERC for the purpose of proposing and enforcing reliability standards within the SERC Region. *SERC is divided geographically into five diverse sub-regions that are identified as Entergy, Gateway, Southern, TVA, and VACAR.*

SERC is one of eight regional entities with delegated authority from NERC; the regional entities and all members of NERC work to safeguard the reliability of the bulk power systems throughout North America.

\* SERC Website

# Integrated Nature of the Regional Power Grid and Resources



## Integrated Nature of the Regional Power Grid and Resources cont'd

<b>Conditional Congestion Areas:</b>	<b>Locations</b>
Areas where future congestion would result if large amounts of new generation resources were to be developed without simultaneous development of associated transmission capacity	<p>Montana-Wyoming (coal and wind)</p> <ul style="list-style-type: none"><li>• Dakotas-Minnesota (wind)</li><li>• Kansas-Oklahoma (wind)</li><li>• Illinois, Indiana and Upper Appalachia (coal)</li><li>• The Southeast (nuclear and natural gas)</li></ul>

## Southeastern Conditional Constraint Area

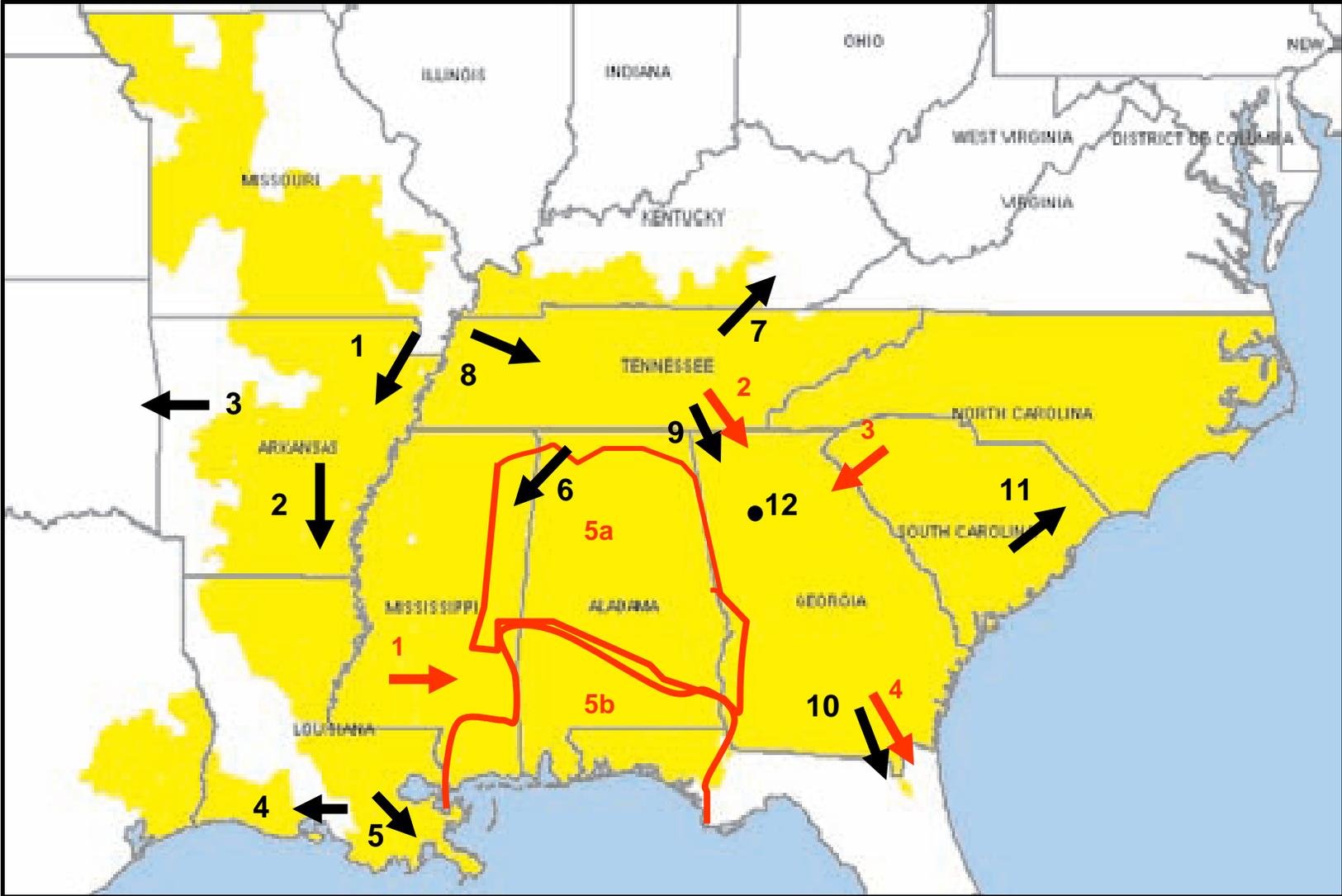
“There is growing interest in developing a new generation of nuclear power plants in the Nation as sources of low-cost base-load electricity without air emissions. To date most of the applications for new nuclear power plants involve locations in the southeastern United States.

Any one new nuclear power plant is likely to require interconnection and some system upgrades; *a large regional concentration of new nuclear capacity would require regional or inter-regional transmission planning to determine what new transmission facilities would be required to move large amounts of electricity to potential buyers over a wide geographic area.*” \*

This concern is also applicable to concentrations of new clean coal and natural gas fired generation capacity

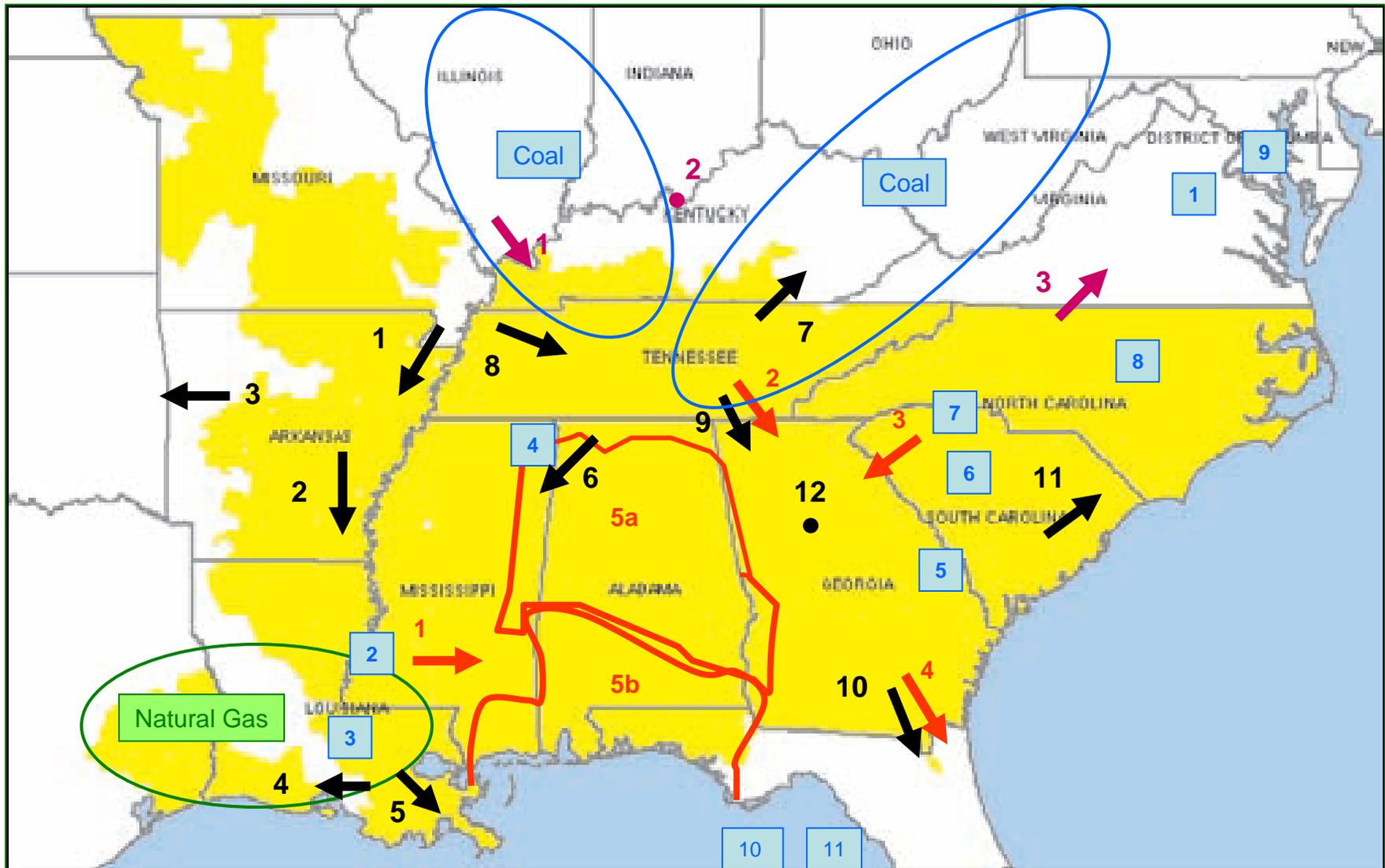
\* U.S. Department of Energy / National Electric Transmission Congestion Study / 2006

# Intra Regional Transmission Constraints in the Southeast



➡ National Electric Transmission Congestion Study,  
➡ Southeastern Sub-Regional Stakeholders Group Economic Planning Studies

# Inter and Intra Regional Transmission Constraints in the Southeast and Locations of Proposed New Nuclear, Coal and Gas Capacity in SE US



- →
→
- 
- National Electric Transmission Congestion Study,  
 Southeastern Sub-Regional Stakeholders Group Economic Planning Studies  
 U.S. Department of Energy, Office of Nuclear Energy, 2006

# FERC Guidance on Regional and Sub-Regional Planning

“527.... *In very large regions, there may well be both sub-regional and regional processes. For example, in the West there are various sub-regional processes in addition to a WECC regional planning process.* We believe that such an approach can work, provided that there is adequate scope to the sub-regional processes and adequate coordination between sub-regions. We expect sub-regions to coordinate as necessary to share data, information and assumptions as necessary to maintain reliability and allow customers to consider resource options that span the sub-regions. \*

## “ 7. Regional Participation (P 523-528)

The *regional participation principle provides that, in addition to preparing a system plan for its own control area on an open and nondiscriminatory basis, each transmission provider is required to coordinate with interconnected systems* to (i) share system plans to ensure that they are simultaneously feasible and otherwise use consistent assumptions and data and (ii) identify system enhancements that could relieve congestion or integrate new resources. The Commission stated that the specific features of the regional planning effort should take account of and accommodate, where appropriate, existing institutions, as well as physical characteristics of the region and historical practices.....

... In drafting their Attachment K, Staff recommends that transmission providers address the following issues:

*Identify the entities with which the transmission provider engages in regional planning and the responsibilities of each entity in the planning process.*

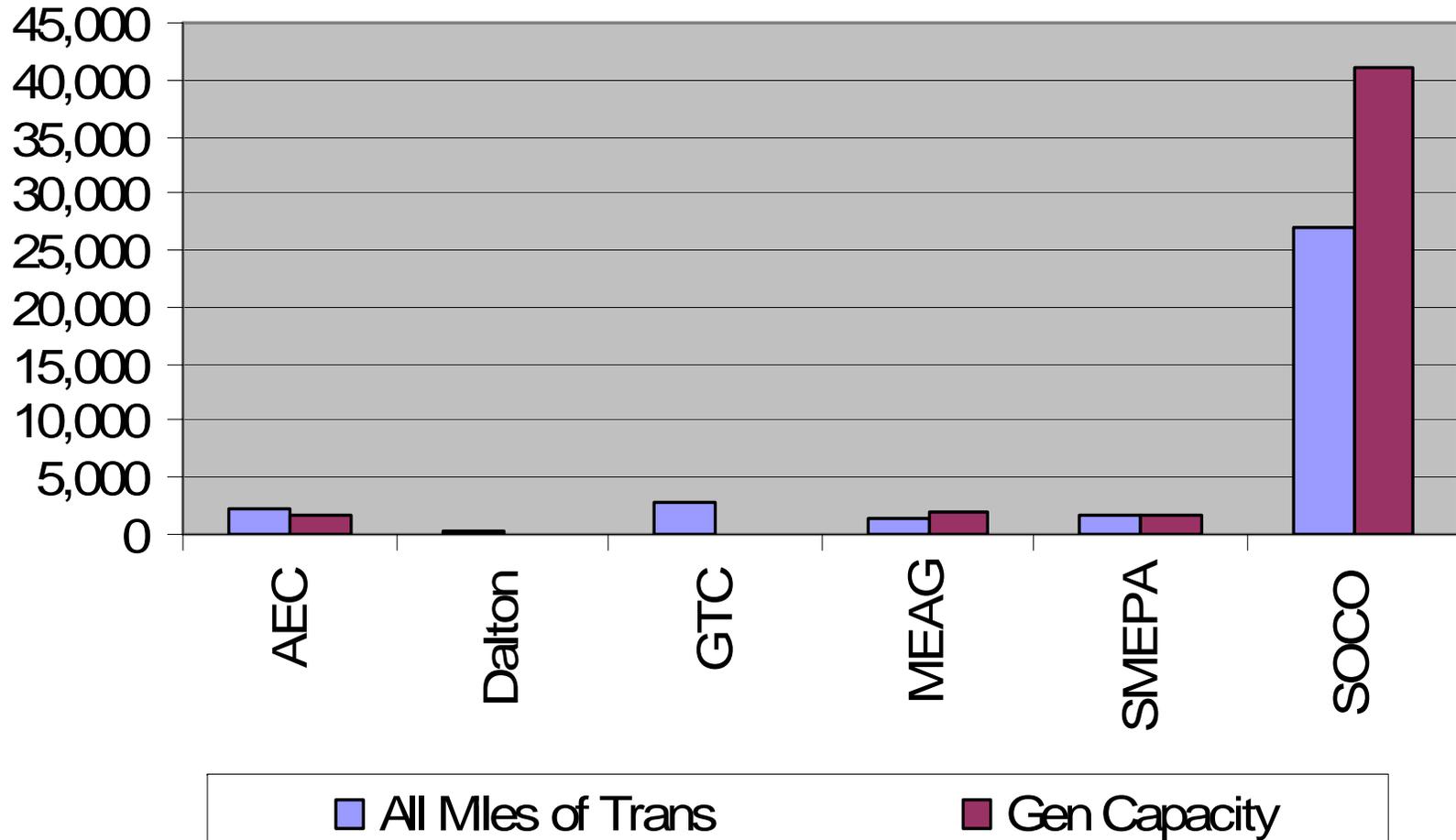
*Transmission providers should identify the interconnected systems with which they will coordinate regional plans.....”\*\**

\* FERC Order 890, paragraph 527

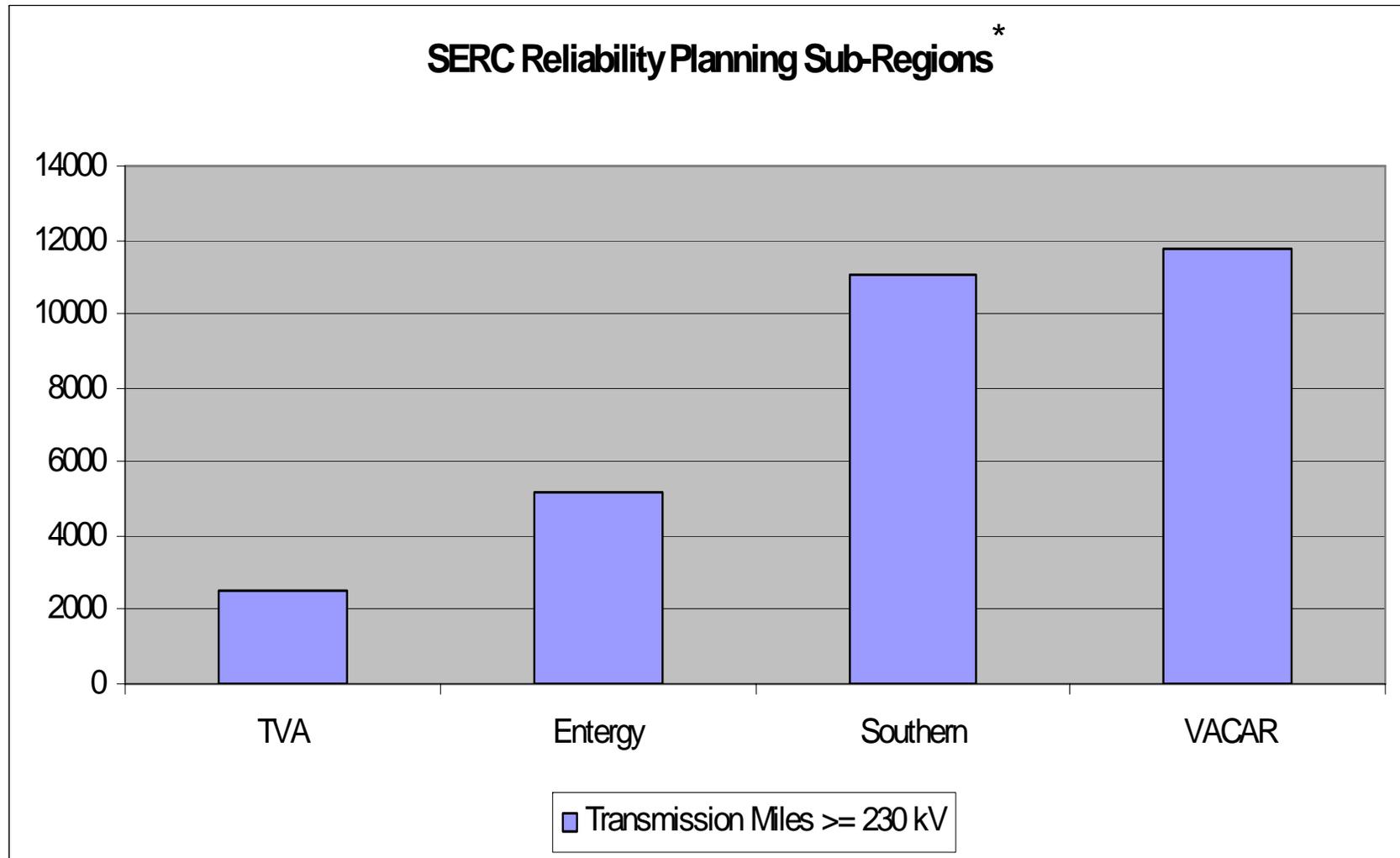
\*\*Order No. 890 Transmission Planning Process Staff White Paper, August 2, 2007 pp 12-13

# It's Business as Usual; System Planning

## Newly Defined "Southern Region" Size Comparison



# Peer Planning Sub-Regions within SERC

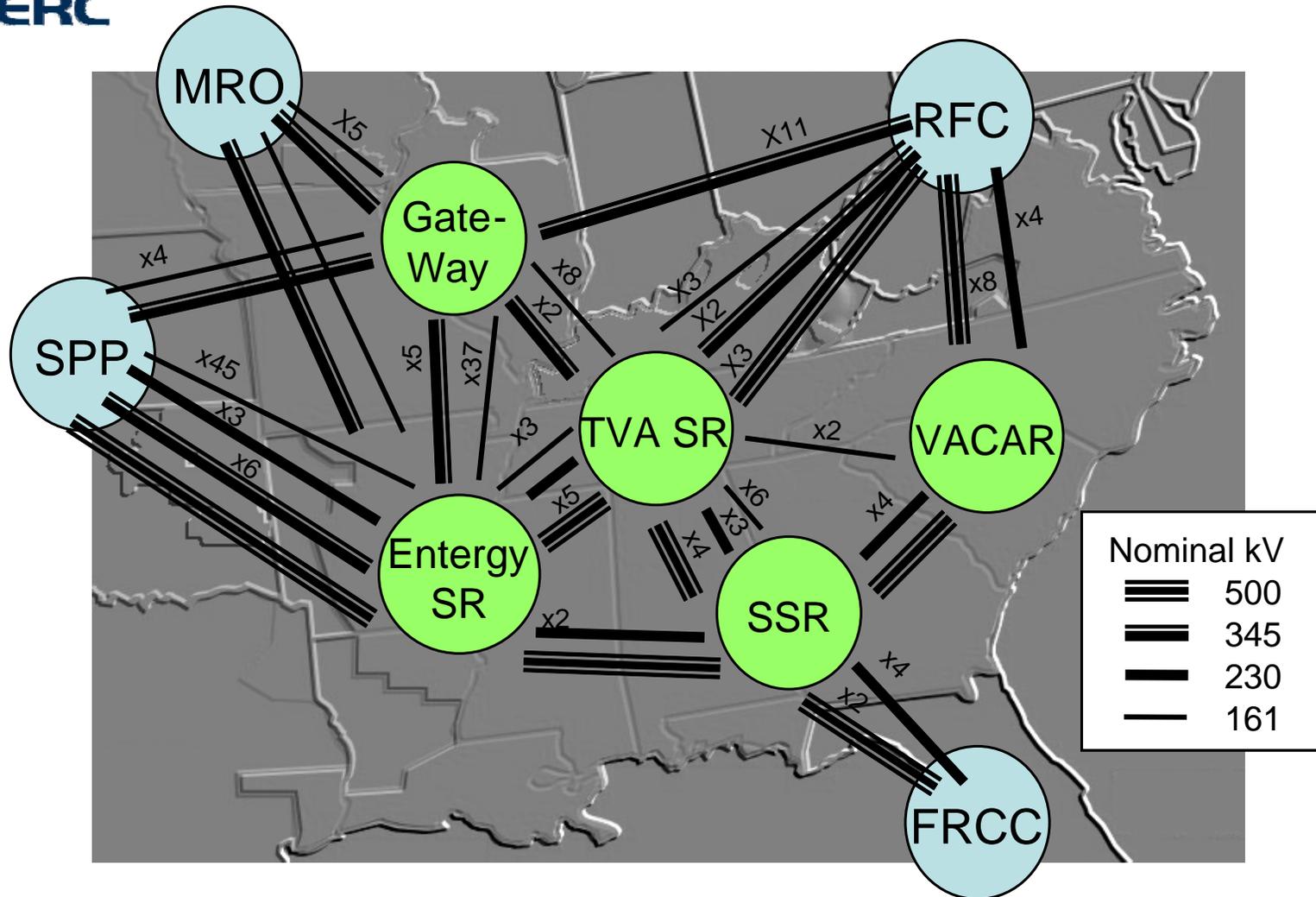


\* Does not include Gateway Sub-Region

From "SERC INFORMATION SUMMARY", July 2007



SERC Inter- and Intra-Regional Interconnections



# Promotion of Sub Regions to Regions Creates Safe Harbor from 9 Principals

Inter-Regional Participation White Paper	FERC Guidance Re: Regional Planning
<p>“The Inter-Regional Participation Process will be conducted over a <b>two year cycle.</b>”</p>	<p><u>Order 890</u>            494. ....develop a <b>transmission system plan</b> that (1) meets the specific service requests of its transmission customers and (2) <b>otherwise treats similarly-situated customers (e.g., network and retail native load) comparably in transmission system planning.</b></p>
<p>“These Economic Planning Studies <b>shall be confined to sensitivity requests for bulk power transfers.</b> In addition, these Economic Planning Studies shall also be <b>for a future year that is at least five years or more from the then-current year,</b> based upon the assumption that the upgrades necessary to accommodate such bulk power transfers would require at least five years to construct.”</p>	<p><u>White Paper</u>            Transparency;            Pg 7. Staff recommends identifying in Attachment K the frequency of transmission plans and the planning study horizons used. <b>Study periods should be consistent with those used to plan the system for native load customers</b></p>
<p>“ The purpose of these training and interactive sessions is to facilitate Stakeholders’ ability <b>to produce similar transmission</b> planning study results to those of the Transmission Provider”</p>	<p><u>Order 890</u>            P 471 This information should enable customers, other stakeholders, or an independent third party to <b>replicate the results of planning studies</b> and thereby reduce the incidence of after-the-fact disputes regarding whether planning has been conducted in an unduly discriminatory fashion.</p>
<p>“<b>Study results that are inter-regional in nature will be reported to the RPSG and interested Stakeholders and posted as they become available from the Inter-Regional Participation Process.</b>”</p>	<p><u>White Paper</u>            Coordination;            Pg 4. Describe the frequency of meetings to be held and other planning-related communications....            ...Staff recommends that <b>the schedule for such meetings, or other planning-related communication, provide an opportunity for input regarding:</b></p> <ul style="list-style-type: none"> <li>•data gathering and customer input into study development;</li> <li>•<b>review of study results;</b></li> <li>•review of draft transmission plans; and</li> <li>•coordination of draft plans with those of neighboring transmission providers.</li> </ul>

## We're Moving Backwards!

- Inter-Regional Participation White Paper

“The Inter-Regional Participation Process will be conducted over a two year cycle.”

- Recent RPSG Planning Cycle

March 7<sup>th</sup>, 2007 RPSG selected 5 congestion points to study.

1. Entergy to Southern Company
2. TVA to Georgia ITS
3. VACAR to Georgia ITS
4. Georgia ITS to Florida (FRCC)
5. NWW to Georgia ITS

April 6<sup>th</sup>, 2007 TPs responded with Draft of Sensitivity Assumptions for review

August 15<sup>th</sup>, 2007 TPs responded with Potential Solutions

- Three of these studies would be deemed inter-regional and one would be deemed external if the new regional definitions are accepted.
- What took less than 6 months would now take two years for three congestion points and an indeterminate time for another as there are no specified time frames for external studies.

## Promotion of Sub Regions Exempts Economic Projects from Regional Cost Allocation

A Regional Reliability Project on system of two TPs solves reliability issue for both TPs*							
(1) Transmission Provider	(2) Total Project Cost to Meet Reliability Needs on a Stand Alone Basis (MM)	(3) Cost of Regional Reliability Project (MM)	(4) Avoided Stand alone Transmission Project Cost (MM)	(5) Project Costs to Meet Reliability Needs on a Regional Basis (MM) <b>(2) + (3) - (4)</b>	(6) TP True Up	(7) Final Cost Responsibility (MM)	
Company A	\$500	\$25	\$30	\$495	\$2	\$497.00	
Company B	\$400	\$20	\$20	\$400	(\$2)	\$398.00	
Total	\$900	\$45	\$50	\$895	\$0	\$895.00	
<b>(7) Final Cost Responsibility (MM)</b>		<b>(2) - 4 + [(4) / Sum (4)]*SUM (3) or;</b>					
		Your cost, minus your avoided cost plus your percentage of total avoided costs,					
		times the total costs of regional reliability projects					

\* Adapted from North Carolina Transmission Planning Collaborative TAG Meeting, 9/17/07

## Comparable Cost Allocation for Economic Project Benefits All

<b>Economic Transmission Project Contributes to Regional Reliability</b>						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Transmission Provider	Total Project Cost to Meet Reliability Needs on a Stand Alone Basis (MM)	Cost of Regional Reliability Project (MM)	Avoided Stand alone Transmission Project Cost (MM)	Project Costs to Meet Reliability Needs on a Regional Basis (MM) <b>(2) - (4)</b>	TP True Up	Final Cost Responsibility (MM)
Duke	\$500.0	<del>\$25.0</del>	\$30.0	\$470.0	\$24.0	\$494.0
Progress	\$400.0	<del>\$20.0</del>	\$20.0	\$380.0	\$16.0	\$396.0
<b>Total Reliability</b>	<b>\$900.0</b>	<b><del>\$45.0</del></b>	<b>\$50.0</b>	<b>\$850.0</b>	<b>\$40.0</b>	<b>\$890.0</b>
Economic Project	\$300.0				-\$40.0	\$260.0
<b>Total</b>	<b>\$1,200.0</b>				<b>\$0.0</b>	<b>\$1,150.0</b>
<b>(7) Final Cost Responsibility (MM);</b>						
<b>TPs</b>	(2) - 4 + [(4) / Sum(4)] * ( lesser of total of reliability projects or reliability component of economic upgrade) or;					
	Your cost, minus your avoided cost plus your percentage of total avoided costs, times least cost of reliability.					
<b>Economic Project</b>	(2) - (6) or;					
	Project Cost minus Payment from TPs					

# Rationale for Regional Definitions from the “Inter-Regional Participation White Paper”?

## FERC White Paper

### Regional Participation, P14

“..Describe any **inter-regional planning** activities in which the transmission provider or regional entity participates.

- Staff encourages parties to identify planning activities that can be performed on an inter-regional basis. Among other things, inter-regional coordination should strive for consistency in planning data and assumptions and address system enhancements that could relieve transmission congestion across multiple regions could be identified. For example, **long-range studies can be used to identify multi-state backbone projects to enhance reliability and address shifting load and generation patterns..”**

## Incorrect Inference?

Inference: is the act or process of deriving a conclusion based solely on what one already knows.

Known: All cows are animals

Correct inference: Some animals are cows

Incorrect inference: All animals are cows

Even if all “ inter-regional projects” are “ multi-state backbone transmission projects”

Caveats; Generation, Re-Dispatch, Demand Resources

Not all “ multi-state backbone projects” are “inter-regional projects”

## Need to See Transmittal Letter Accompanying Schedule K

“Staff therefore recommends that each transmission provider describe, as part of the **transmittal letter** to its compliance filing:

- The forms of subregional or regional planning that occur today in the transmission provider's region;
- The modifications or improvements to such processes that are being proposed as part of compliance with Order No. 890;
- **The reasons why a particular subregion or region was chosen to address compliance with Principle No. 7;**
- The process by which the proposed subregional or regional planning processes can evolve over time as stakeholders gain experience with them..”\*

\*Order No. 890 Transmission Planning Process Staff White Paper, August 2, 2007 p15

## Need Further Clarification From FERC

- Are Southern Company, Entergy, Duke/Progress, TVA, etc. considered individual Regions under 890?
- Is the SERC footprint a Region under 890 as it is for Reliability Planning?
- Do Inter-Regional Planning Processes have to adhere to the nine Principals of 890?
- Do External Planning Processes have to adhere to the nine Principals of 890?
- Are Economic Planning Studies limited to those for Bulk Power Transfers?