



# SERC CENTRAL SUBREGION

FERC Order No. 890  
Report on Transmission Planning  
Regional Technical Conference  
Little Rock, Arkansas  
June 5, 2007

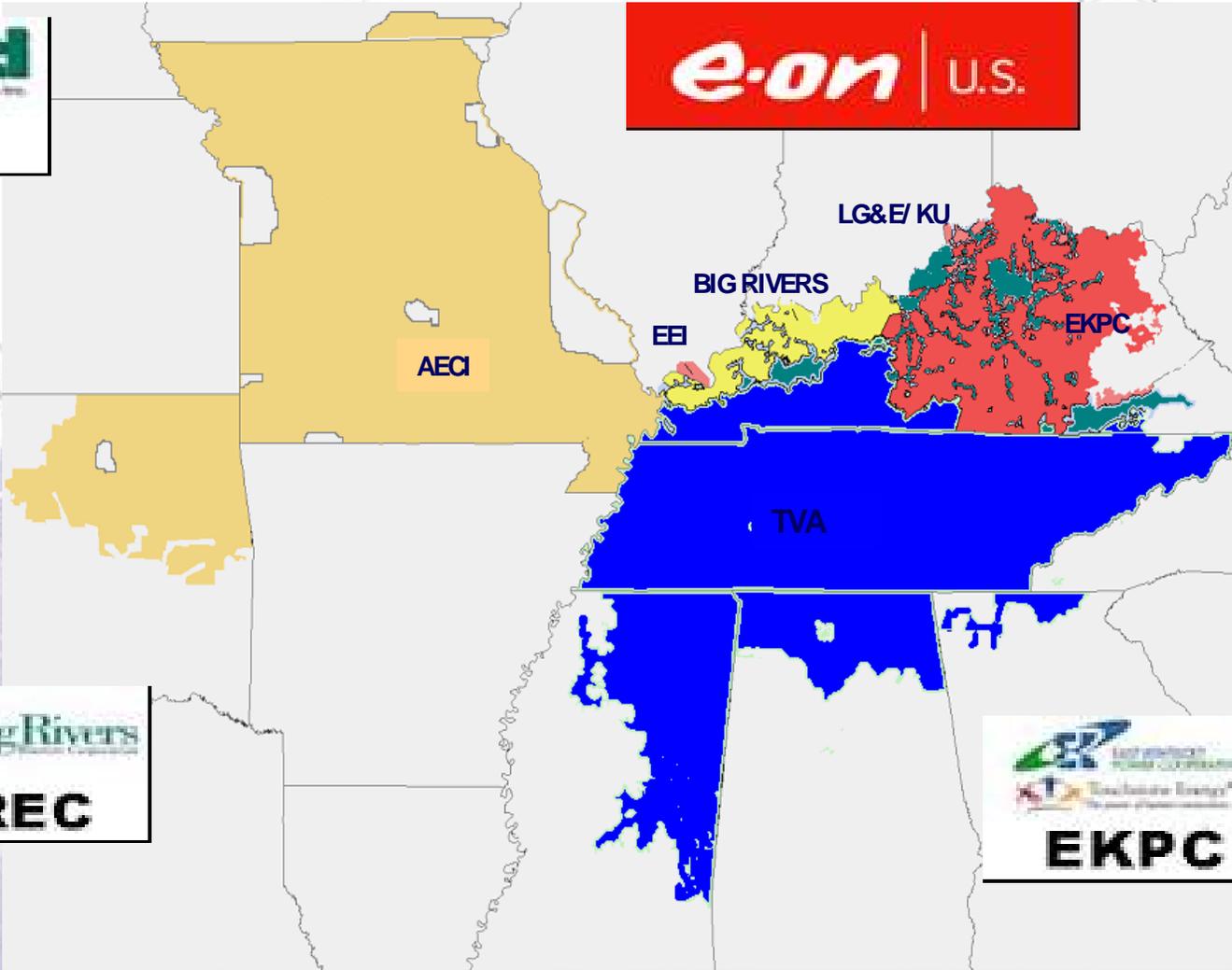


# CENTRAL SUBREGION

with extended RC area



**AECI**



**BREC**



**EKPC**



# Central Subregion Members

(owning transmission)

- Big Rivers Electric Corporation
- East Kentucky Power Cooperative
- E.ON
- Tennessee Valley Authority
- All members participate in regional planning



# Big Rivers Electric Corporation

- G&T cooperative headquartered in Henderson, Kentucky
- Supplies the wholesale power needs of three member-systems
- The three member-systems provide retail service to 110,000 customers in 22 western Kentucky counties



# East Kentucky Power Cooperative

- G&T cooperative; headquarters in Winchester, KY
- Supplies wholesale power needs of 16 member-owned distribution cooperatives
- About 2,800 miles of transmission lines in 89 counties
- Generation Capacity ~2,500MW
- Interconnects with AEP, TVA, E.ON, Duke, DP&L



# E.ON

- Headquartered in Louisville, Kentucky
- A regulated electric utility
- Supplies electric power to 908,000 customers in 98 counties covering 27,000 sq. miles
- Regulated generation capacity of 7600 MW; operates 1700 MW unregulated



# Tennessee Valley Authority

- G&T federal utility
- Supplies the wholesale power needs of 158 distribution companies & 62 direct serve customers
- Approximately 17,000 miles of transmission lines in 7 states
- Generation Capacity ~38,000 MW
- 13 interconnections within SERC and RFC



# Concentric Compliance

- Describe common planning practices utilized by all member companies
- Describe the roll-up of these practices from the members to the Eastern Interconnection
- Describe unique planning initiatives



# Common Planning Practices

## Bulk Power System

- Grid assessments ensure internal compliance with ERO planning standards TPL-001 thru TPL-004
- CAP's implement solutions to prevent on-peak deficiencies prior to need – sometimes employing interim operating guides
- Evaluation of operational flexibility vs. capital project cost to prevent off-peak (maintenance outage related) deficiencies



# Common Planning Practices

## Bulk Power System

- Sensitivity studies are performed to ensure system is adequately stressed
- Greater volume of sensitivity studies is anticipated with currently un-sited network & market resource additions to Central Subregion systems



# Common Planning Practices

## Native Load

- Meetings conducted with native load customers on request to jointly plan local improvements including new delivery points
- Meetings conducted periodically with multiple native load customers to ensure consistent, synergistic planning within the overall service area



# Common Planning Practices

## Joint Planning

- All Transmission Owner equipment ratings honored
- Joint planning initiated with peer Transmission Planners when forecast deficiencies could affect multiple systems
- Joint planning selection of economic/technical alternative



# Common Planning Practices

## Resource Impact

- Interconnection and/or transmission request studies are performed for new market & network resources to identify direct connection & transmission upgrade requirements
- Studies are queued & performed in a nondiscriminatory & comparable manner

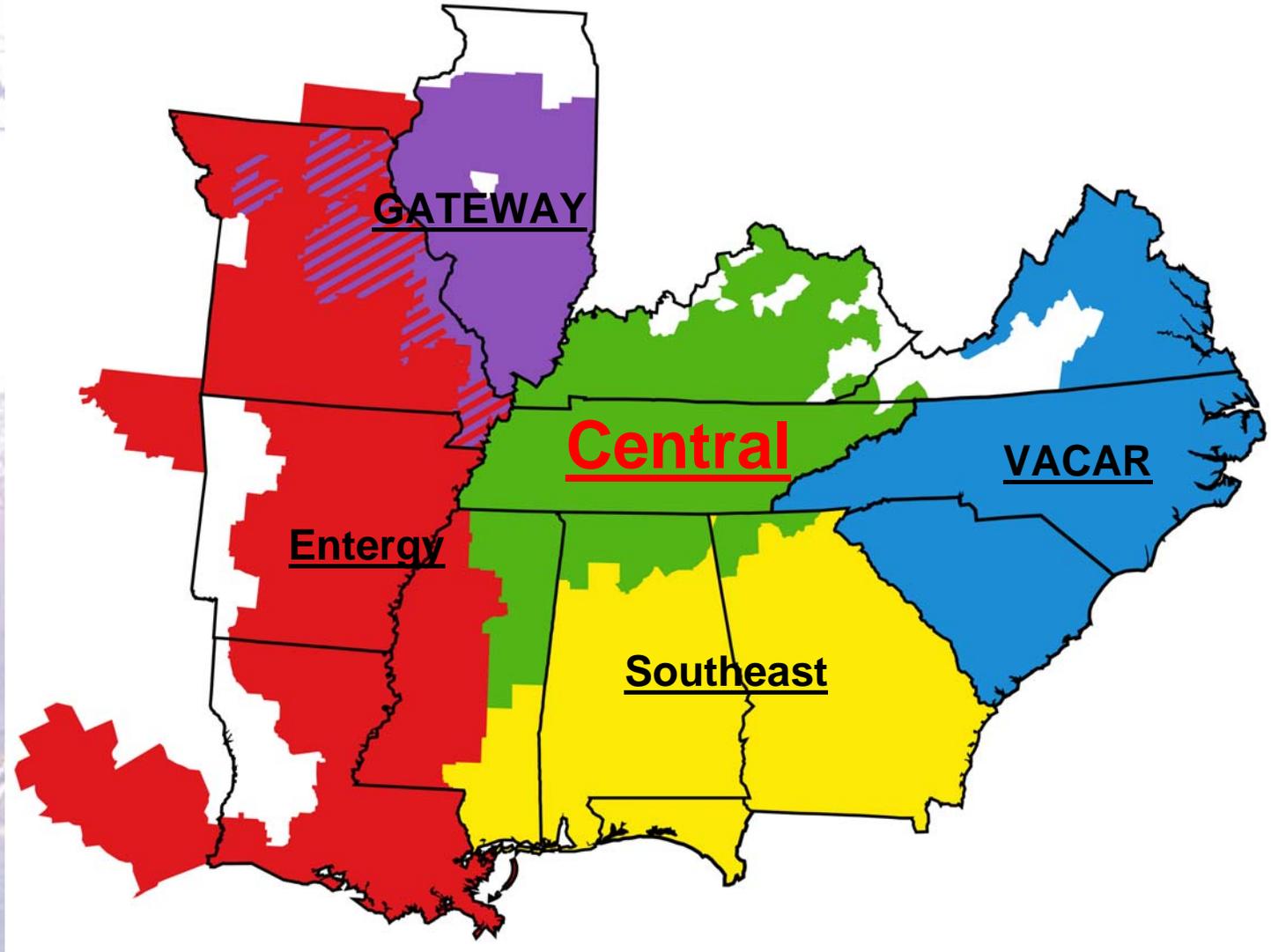


# Common Planning Practices

## Dispute Resolution

- Dispute resolution is through informal, non-binding meetings progressive to senior management
- This is true for all transmission plans: native load growth, joint transmission, & resource

# SERC





# Common Planning Practices

## SERC Reliability Studies

- All members conduct regional reliability studies within the SERC framework of intra-regional near-term & long-term studies
- Member system models are combined into a SERC reliability study model annually
- Model coordinates any conflicting ratings to the most conservative value
- Model is iteratively updated as necessary for case study purposes

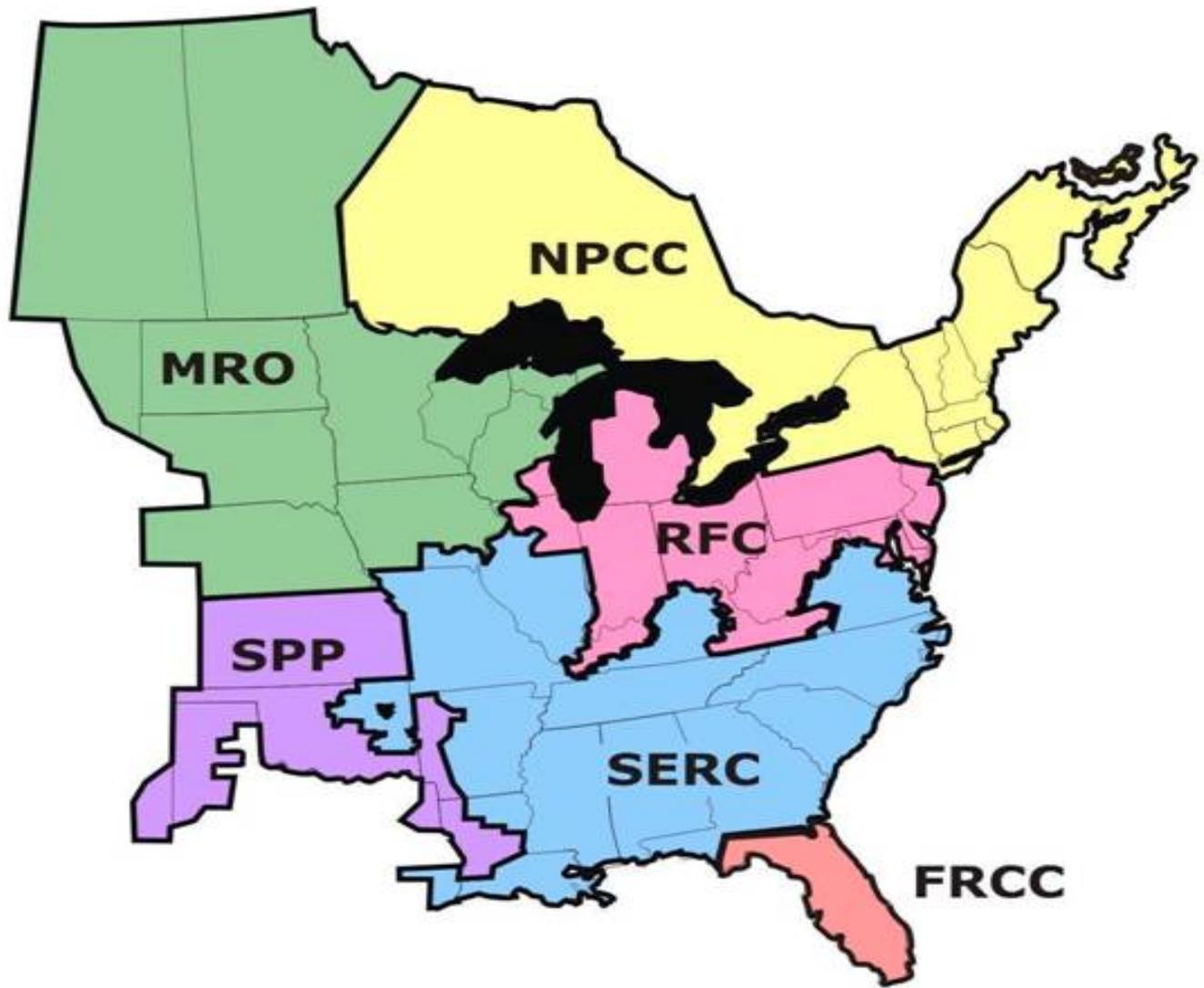


# Common Planning Practices

## SERC Reliability Studies

- All members participate in the SERC Dynamic Study Group which supports regional requirements for under-frequency load shed & any special stability studies
- All members participate in the SERC Short Circuit Data Working Group which maintains a regional model to coordinate system relay protection

# ERAG





# Common Planning Practices

## ERAG Reliability Studies

- SERC assigns appropriate members to conduct inter-regional studies with peer regions through the Eastern Interconnection Reliability Assessment Group (ERAG) agreement
- SERC's designated liaison to the ERAG (formerly NERC) Multiregional Modeling Working Group updates the Eastern Interconnection study model



# TVA Initiatives

## Vision & Consistent Direction

- TVA spending \$1B every 4 years
- Development of conceptual “pole star” system for 60 GW demand (2 x present peak)
- Development of conceptual plan to transfer an additional 10,000 MW across the service area



# TVA Initiatives

Long term, Inclusive, & Integrated Planning

- Initiating inclusive long term plan for service area to include all identified customer needs as well as bulk power system requirements
- Developing bulk power system indicators to provide internal measure of system strength & potentially serve a wide range of customer needs



# TVA Initiatives

## Expanding the Planning Reference

- Joint Reliability Coordination Agreement with MISO & PJM
- Further develop the Reliability Coordination Umbrella & Related Services Agreement with Associated Electric Cooperative to include Regional Planning services
- Annual Transmission Customer & Power Marketers' Meeting for wheeling & IPP customers
- Participation in ENTERGY & Southeastern Subregions' regional planning summits



# TVA Initiatives

- Piloting technology transfer of FAWG system database to native customer for modeling & ratings methodology use (translation issue)
- Intend to offer use of this tool over the full Planning Coordinator footprint to facilitate regional planning & information exchange upon successful pilot completion
- TVA-NERC workshop on stability included Entergy - Southern - TVA issues and solutions (NERC using as pilot)



# FERC ORDER NO. 890

## Principles of Regional Planning

- The preceding slides describe Central Subregion's current regional planning practices
- These have been evaluated against our understanding of the nine principles as well as SEARUC's vision for SE regional planning
- Each will now be individually addressed noting:
  - Opportunities and barriers
- We anticipate mutual discovery of even greater opportunities for improvement

# 1 - Coordination

- FERC's stated intent is met
- Nondiscriminatory transmission plans are developed with input from all customers & neighbors
- However, member efforts though effective are loosely linked
- Opportunity: a more formalized & cohesive Central Subregion approach to enhance regional planning

## 2 - Openness

- FERC's stated intent is met
- All affected parties (including all transmission & interconnection customers & state authorities) have access to open meetings
- Barrier: customer confidentiality concerns require multiple meetings to meet this principle

# Openness

- For example, at a recent transmission customer conference attendees were asked where TVA should build capacity for their benefit
- There was no feedback
- Informal discussions later revealed that none of the marketers wanted to tip off the others about their business interests

# 3 - Transparency

- FERC's stated intent is met
- Basic criteria, assumptions, & data that underlie transmission plans are disclosed
- Barrier: provision of models for third-party study replication is difficult given the degree of embedded confidential information

# 4 - Information Exchange

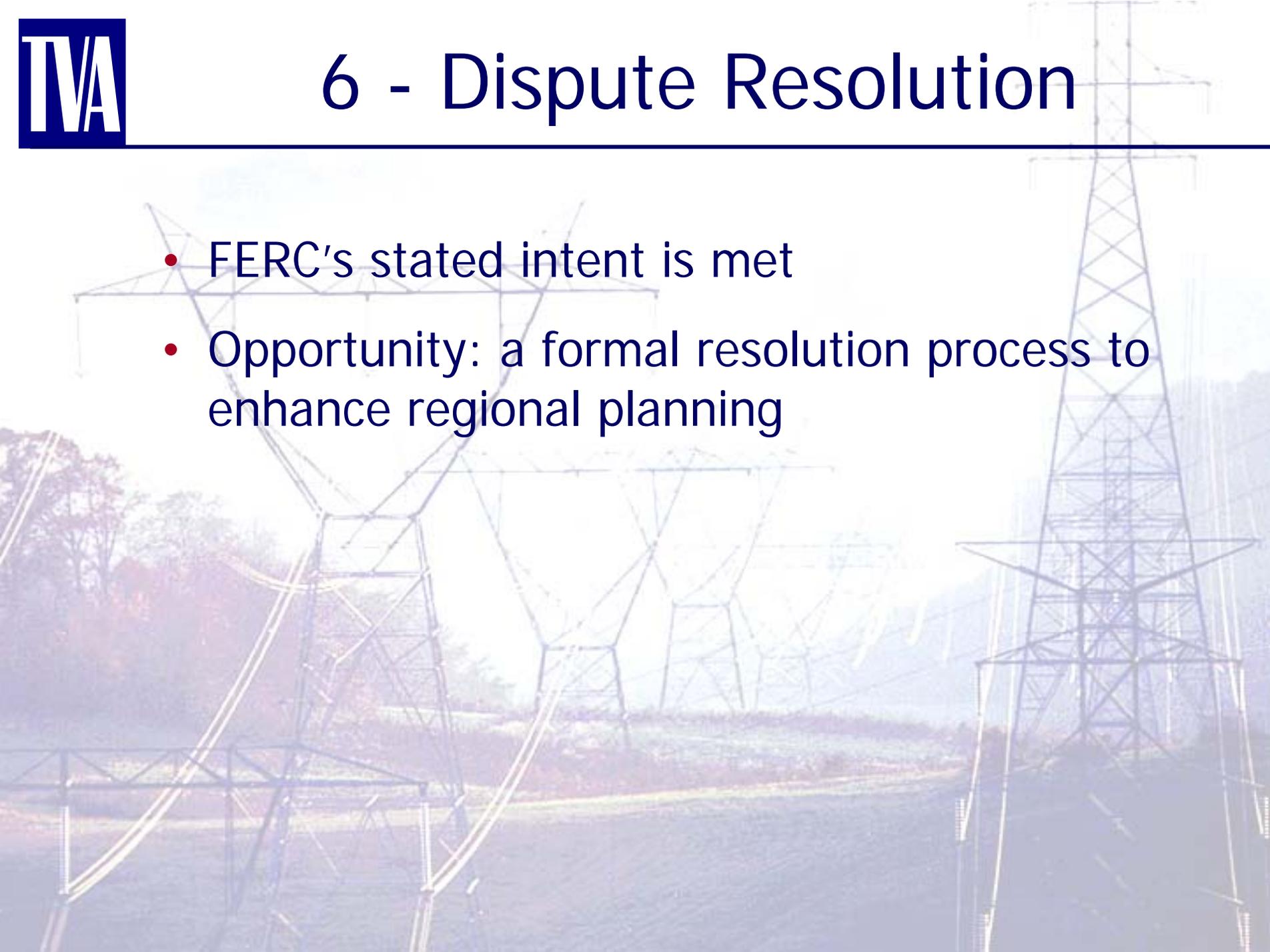
- FERC's stated intent is met
- Network transmission customers submit information on their projected loads & resources on comparable bases used by transmission providers in planning their native loads
- Point-to-point customers submit projections with receipt & delivery points

# 5 - Comparability

- FERC's stated intent is met
- Each transmission provider develops transmission plans that:
  - Meet the specific service requests of its transmission customers
  - Treat similarly-situated customers comparably in transmission system planning

# 6 - Dispute Resolution

- FERC's stated intent is met
- Opportunity: a formal resolution process to enhance regional planning





# 7 - Subregional Participation

- FERC's stated intent is met
- Members share system plans to ensure they are simultaneously feasible & use consistent assumptions & data
- Opportunity: sensitivity studies also serve to identify potential congestion relief projects for posting



# 8 - Economic Planning Studies

- FERC's stated intent is essentially met
- Flowgates for the regional planning area are identified & posted on OASIS
- TLR data is maintained & submitted by the Interchange Distribution Calculator to NERC's public website



# Economic Planning Studies

- Opportunity: sensitivity studies also serve to identify potential congestion relief projects & costs for posting
- Barrier: congestion costs are determined as a function of market structure

# 9 - Cost Allocation

- FERC's stated intent is met
- Cost allocation principles address the recovery of costs associated with new transmission projects.
- Costs are allocated to those entities that benefit



# Evaluation Summary

- We believe that the SERC Central Subregion generally meets the stated intent of FERC Order No. 890
- We anticipate mutual discovery of even greater opportunities for improvement

# Conclusions

- Central Subregion members have benefited from the run-up to this technical conference
- The Central Subregion anticipates improved regional planning through evolving application of FERC Order 890