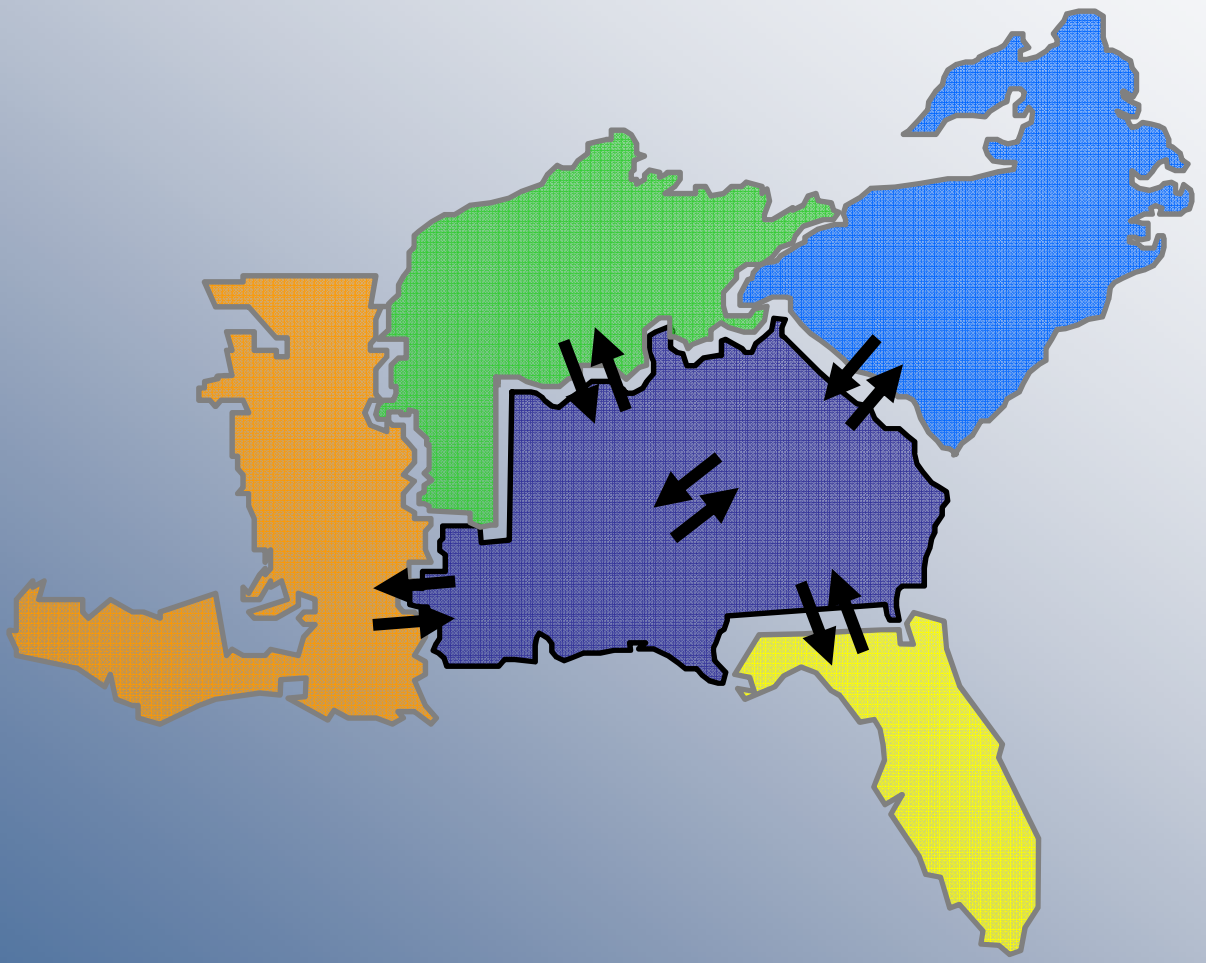
Southeastern Regional TRANSMISSION PLANNING

2011 SERTP

Annual SERTP Summit



PowerSouth Energy Cooperative

Dalton Utilities

GeorgiaTransmission

MEAG POWER

South Mississippi Electric Power Association

Southern Company — Energy to Serve Your World

Southeastern Regional TRANSMISSION PLANNING

2011 SERTP

Welcome

2011 Annual SERTP Summit

10:00 AM – 5:00 PM EST

(Lunch served at approximately 11:30 PM)

Southeastern Regional TRANSMISSION PLANNING

2011 SERTP

- The SERTP process is a transmission planning process.
- Please contact the respective transmission provider for questions related to real-time operations or OATT transmission service.

Southeastern Regional TRANSMISSION PLANNING

2011 SERTP

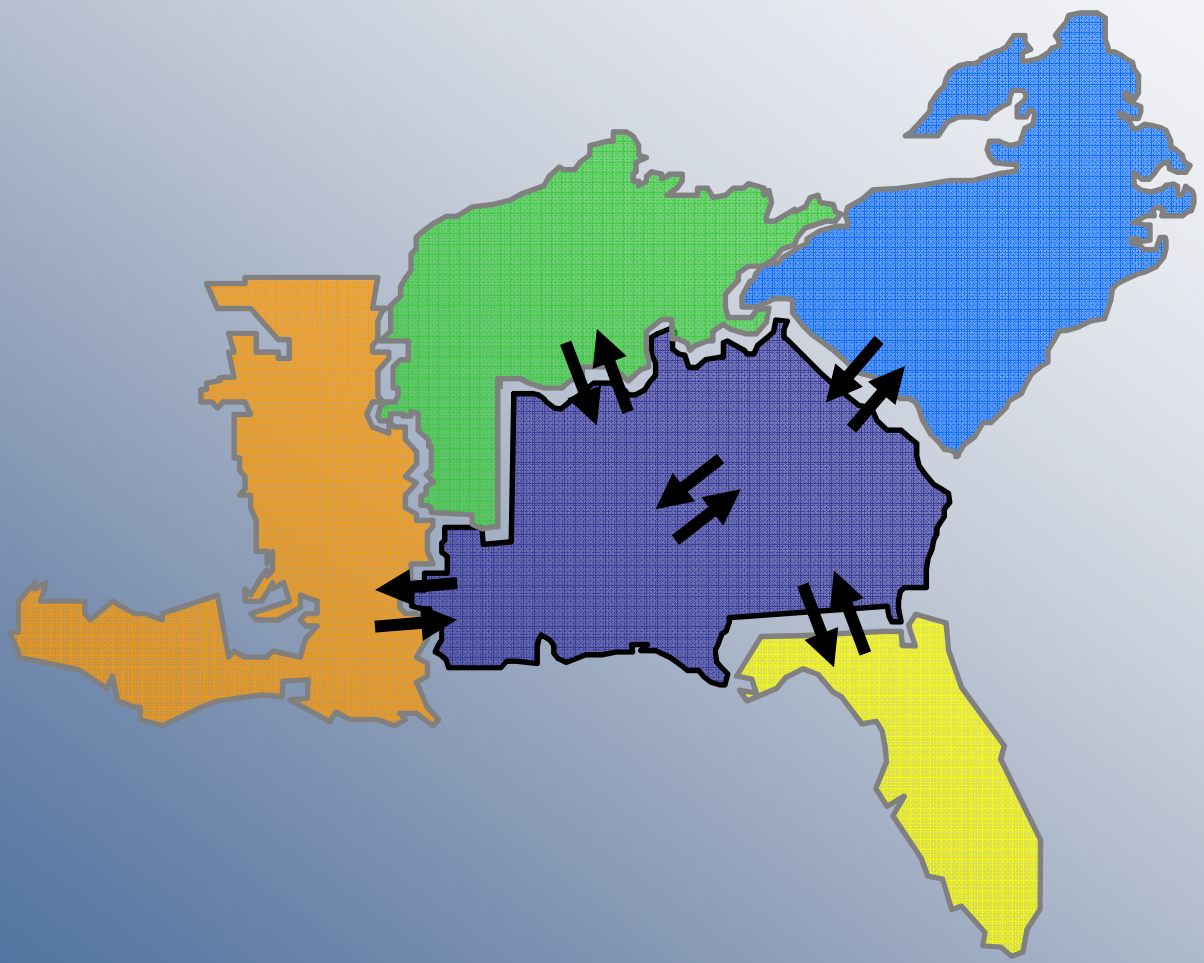
Purposes and Goals of the Meeting

- 2011 Economic Planning Study Results
- Miscellaneous Updates
- Ten Year Expansion Plan
  - East
  - West
- Preliminary 2012 Modeling Assumptions
  - Load Forecast
  - Generation Assumptions
- Stakeholder Feedback / Input
- Order 1000 Implementation Process & Timeline
- Projected 2012 SERTP Process

Southeastern Regional TRANSMISSION PLANNING

2011 SERTP

Economic Planning Studies



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Dalton Utilities

GeorgiaTransmission

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South Mississippi Electric Power Association

Southern Company — Energy to Serve Your World

2011 SERTP

Three Economic Planning Studies

- TVA Border to Southern Balancing Authority
  - 3500 MW
- EES Border to Southern Balancing Authority
  - 1500 MW
- SCPSA Border to Southern Balancing Authority
  - 1000 MW

Power Flow Cases Utilized

- Study year: 2016
- Load Flow Cases:
  - 2011 Series Version 2A
    - Summer Peak
    - Shoulder

Economic Planning Studies

- Final Report Components:
  - Thermal Analysis
    - Contingency Analysis to identify constrained elements/contingency pairs
  - Interface Transfer Capability Impacts
  - Stability Impacts
  - Potential Solutions
    - Transmission Enhancements and Cost Estimates

Southeastern Regional TRANSMISSION PLANNING

2011 SERTP

- The following information does not represent a commitment to proceed with the recommended enhancements nor implies that the recommended enhancements could be implemented by the study date of 2016.

- These potential solutions only address constraints identified within the SERTP Sponsors' areas that are associated with the proposed transfers. Other Balancing Areas were not monitored which could result in additional limitations and required system enhancements.

TVA Border

to

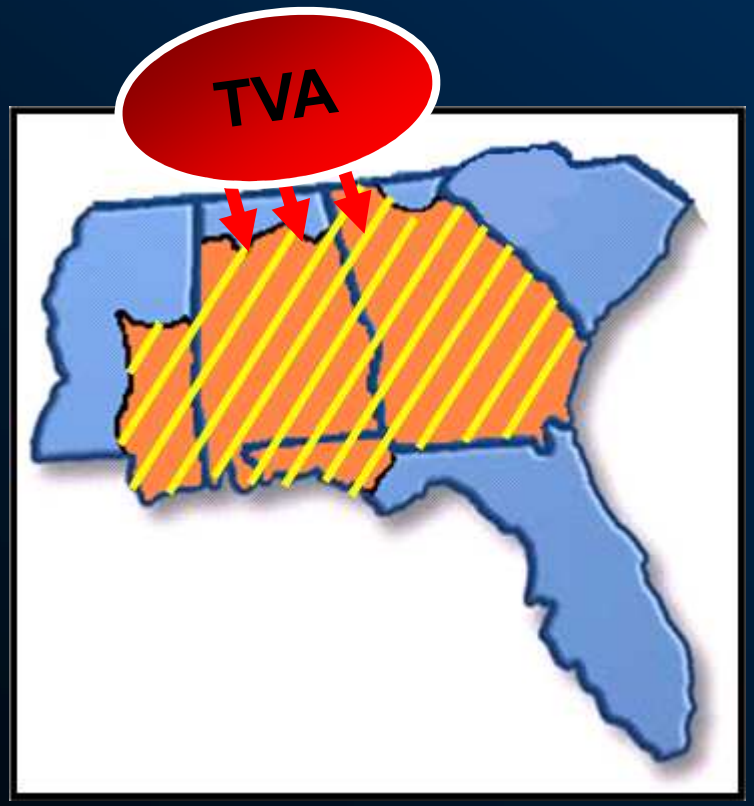
SBA

3500 MW

Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW

- Transfer Type: Generation to Generation
- Source: New generator interconnecting to the Shelby 500 kV substation (TVA) near Memphis, TN
- Sink: Generation within the SBA

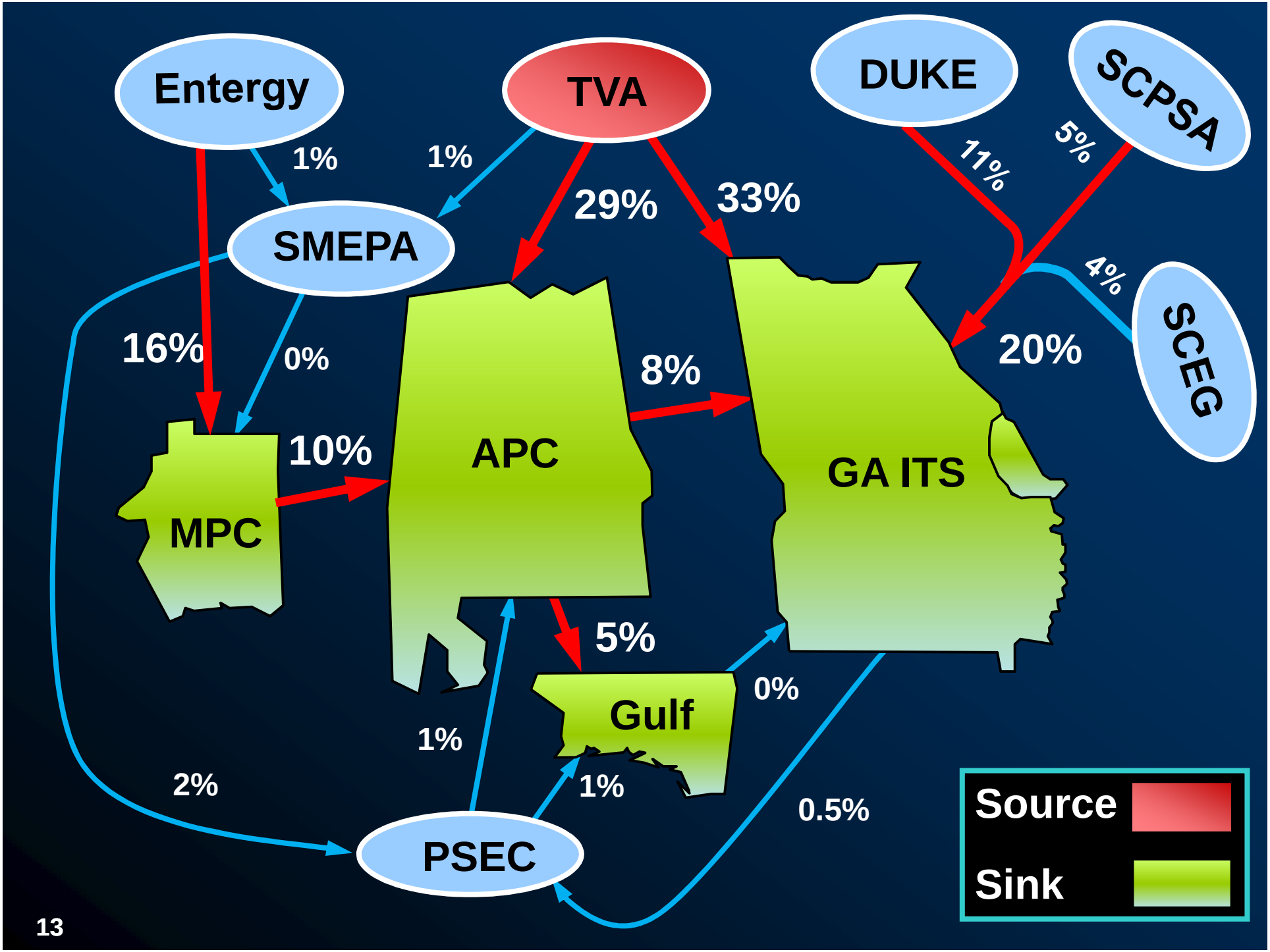


Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW

- **System improvements added to the TVA model**

	Project Description
1	Constructed a new, parallel 500 kV T.L. from Shelby to Cordova
2	Constructed a new 500 kV T.L. from Johnsonville to Maury
3	Constructed a new 500 kV T.L. from Jackson to Lagoon Creek
4	Uprated the Pleasant Hill – Benton 500 kV T.L.
5	Uprated the Pleasant Hill – Union 500 kV T.L.
6	Uprated the Shelby – Cordova 500 kV T.L. #1
7	Uprated the Jackson – Haywood 500 kV T.L.


Entergy
TVA
DUKE
SCPSA
SMEPA
SCEG
MPC
APC
GA ITS
Gulf
PSEC
1%
1%
29%
33%
11%
5%
4%
16%
0%
8%
20%
10%
5%
0%
1%
1%
2%
0.5%
Source
Sink

Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW

Transmission System Impacts

- Thermal Constraints Identified:
  - Five (5) 230 kV Lines
  - Two (2) 161 / 115 kV Transformers
  - Four (4) 161 kV Lines
  - Twenty (20) 115 kV Lines

Total Cost (2011$) = $193,600,000

Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW

Southern Balancing Authority

Screen Results

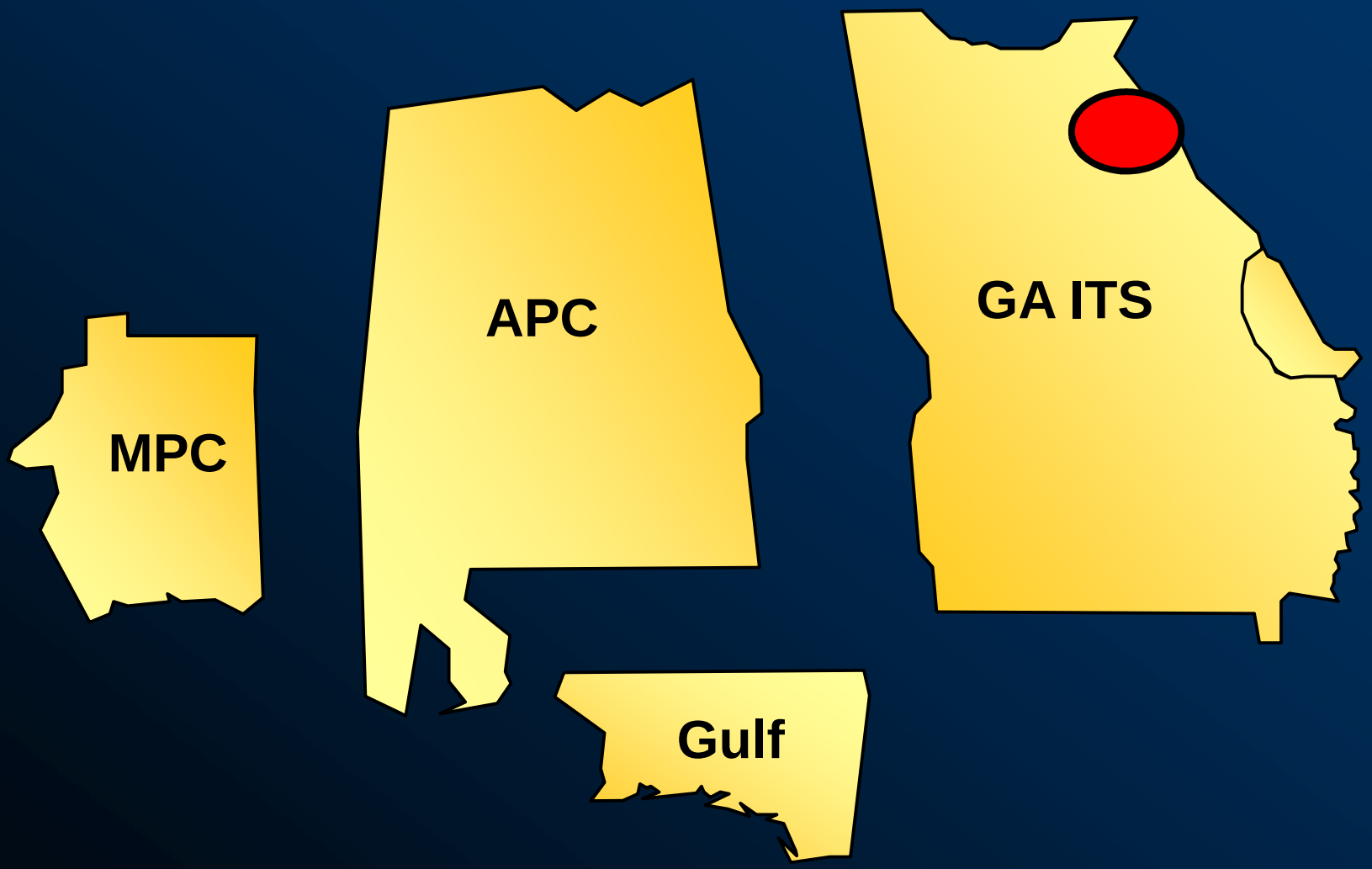
TVA Border to SBA 3500 MW

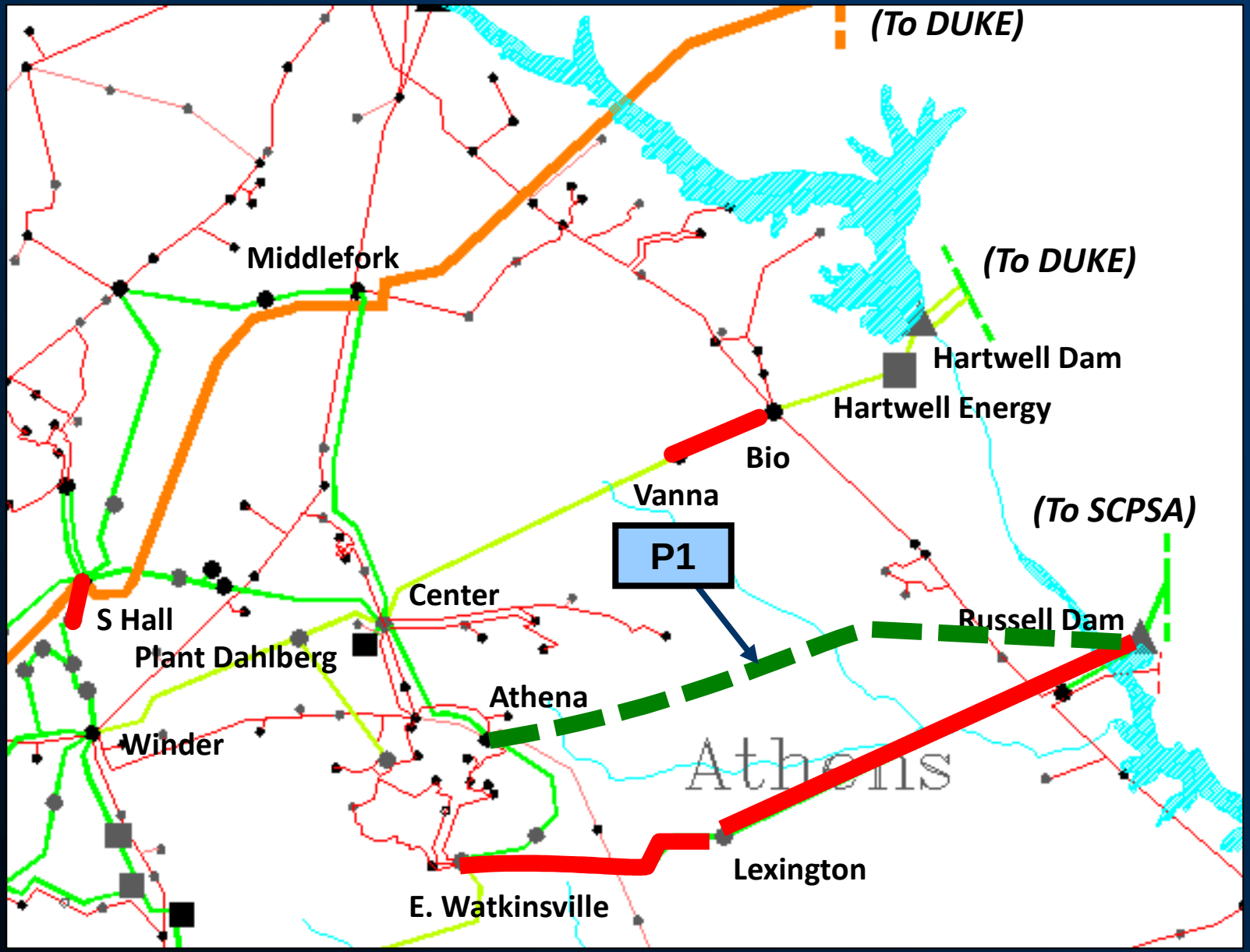
Significant Constraints – PASS 0

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Lexington – East Watkinsville 230 kV TL	602	93.7	105.8
Bio – Vanna 230 kV TL	433	96.2	106.9
Russell – Lexington 230 kV TL	596	98.0	110.3

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




(To DUKE)
(To DUKE)
Middlefork
Hartwell Dam
Hartwell Energy
Bio
Vanna
(To SCPSA)
P1
Center
S Hall
Plant Dahlberg
Russell Dam
Athena
Winder
Athens
Lexington
E. Watkinsville

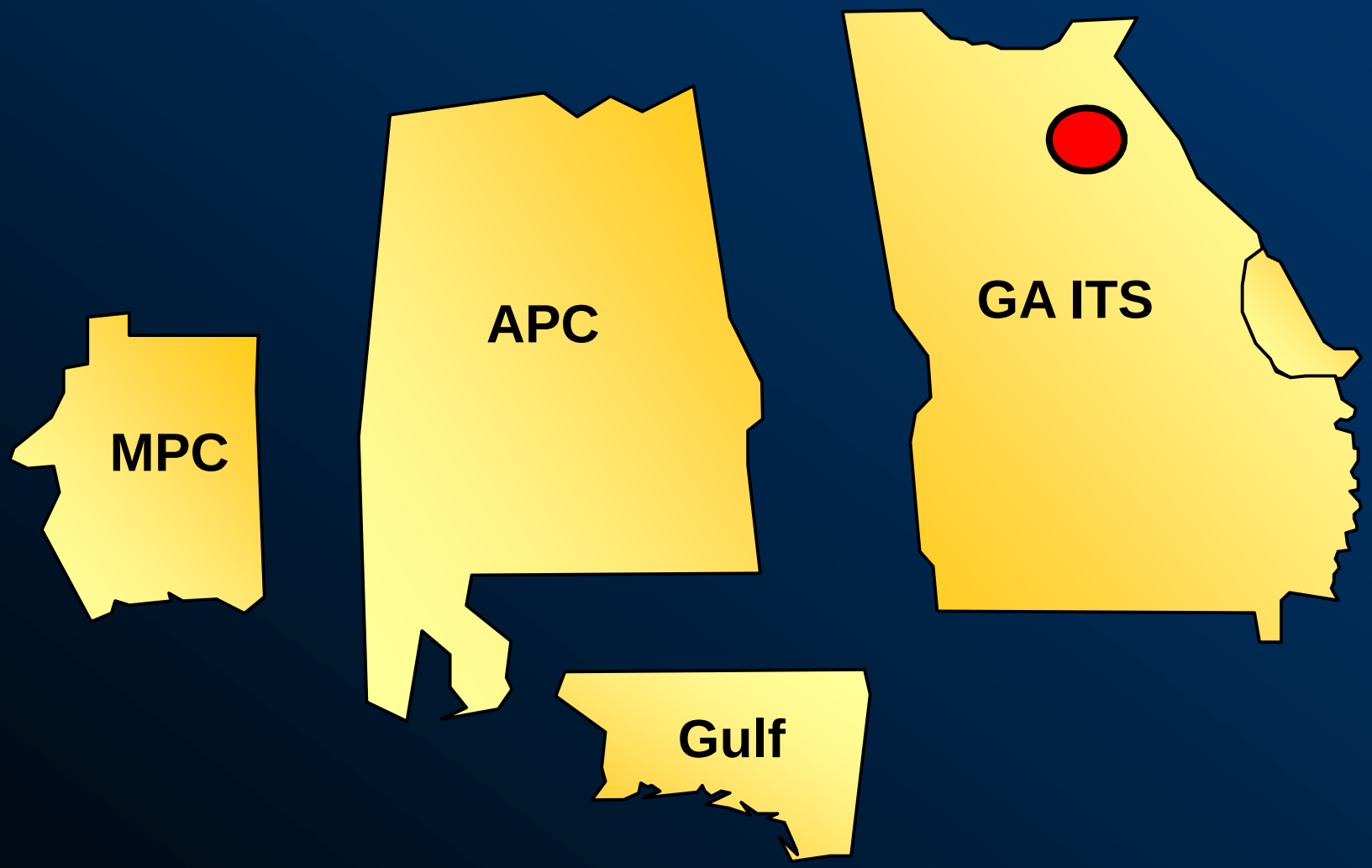
TVA Border to SBA 3500 MW

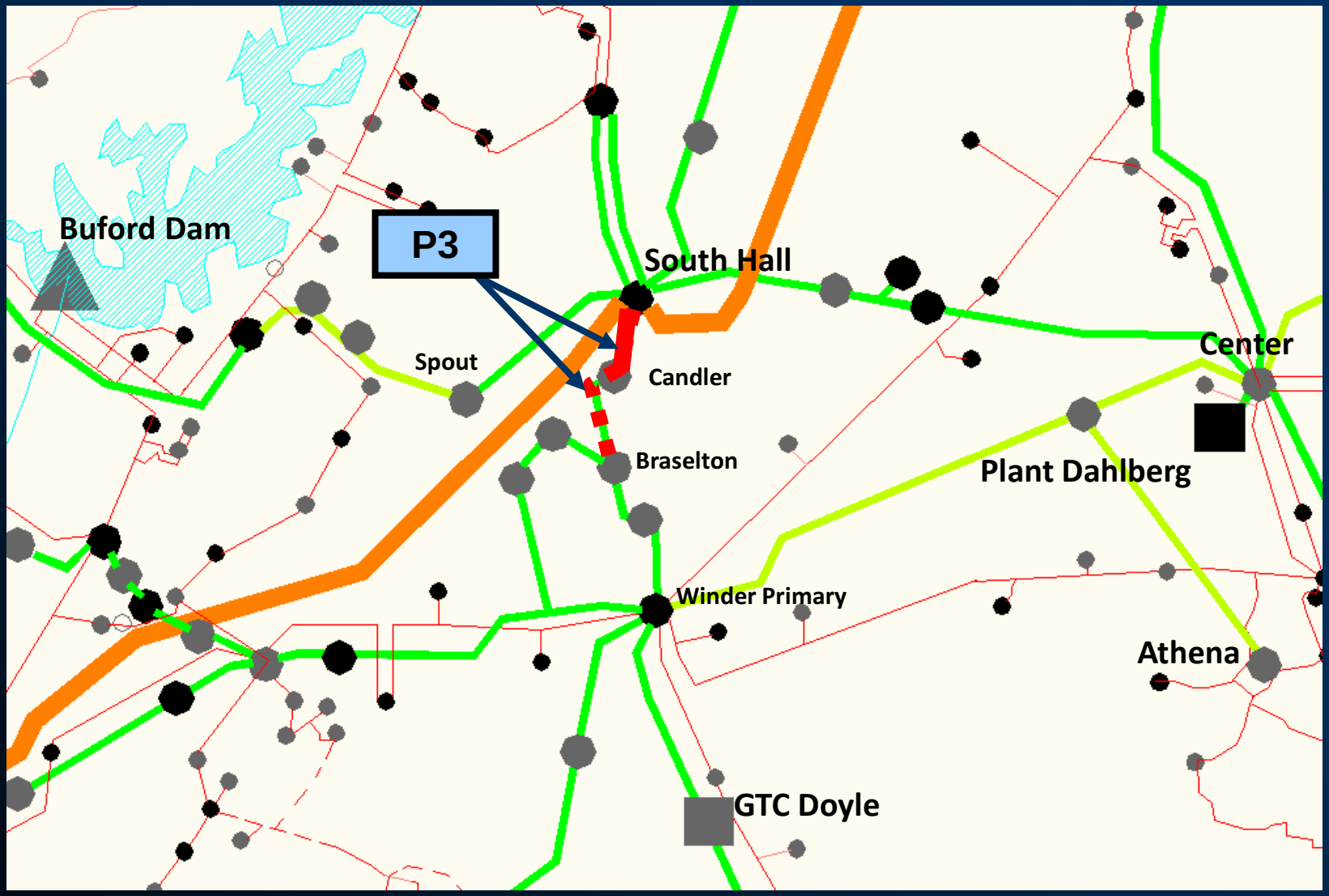
Significant Constraints – PASS 1

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
South Hall – Candler 230 kV TL	509	94.9	105.7

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




Buford Dam
P3
South Hall
Spout
Candler
Center
Braselton
Plant Dahlberg
Winder Primary
Athena
GTC Doyle

TVA Border to SBA 3500 MW

Significant Constraints – PASS 1 (Cont.)

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Gaston – Power Systems 230 kV TL	602	92.9	108.4
Power Systems – Fayetteville DS 230 kV TL	577	96.6	112.8
Fayetteville DS – Co. Line Rd 230 kV TL	577	95.7	111.9
Mitchell Dam – Clanton Tap 115 kV TL	138	97.0	104.6

TVA Border to SBA 3500 MW

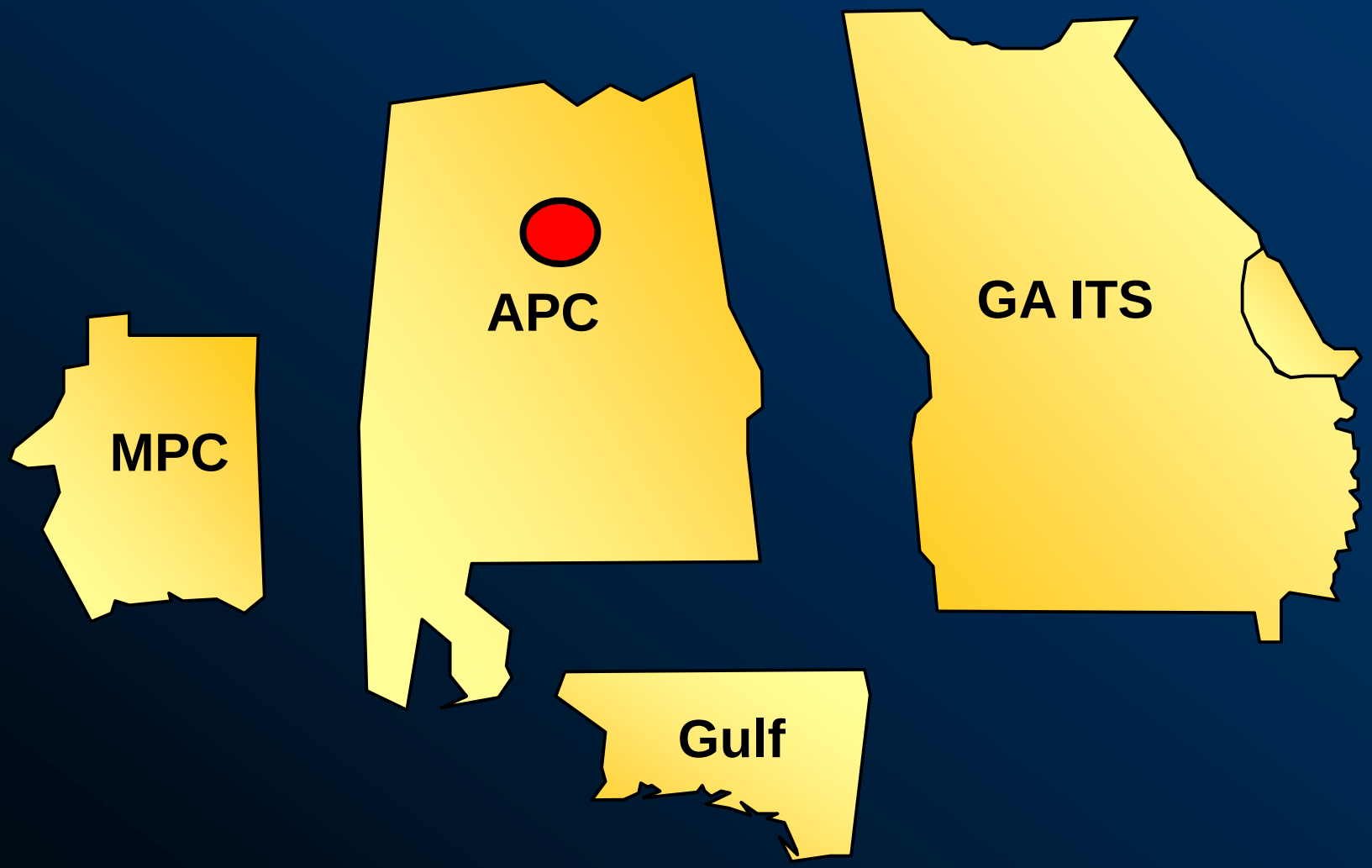
Significant Constraints – PASS 1 (Cont.)

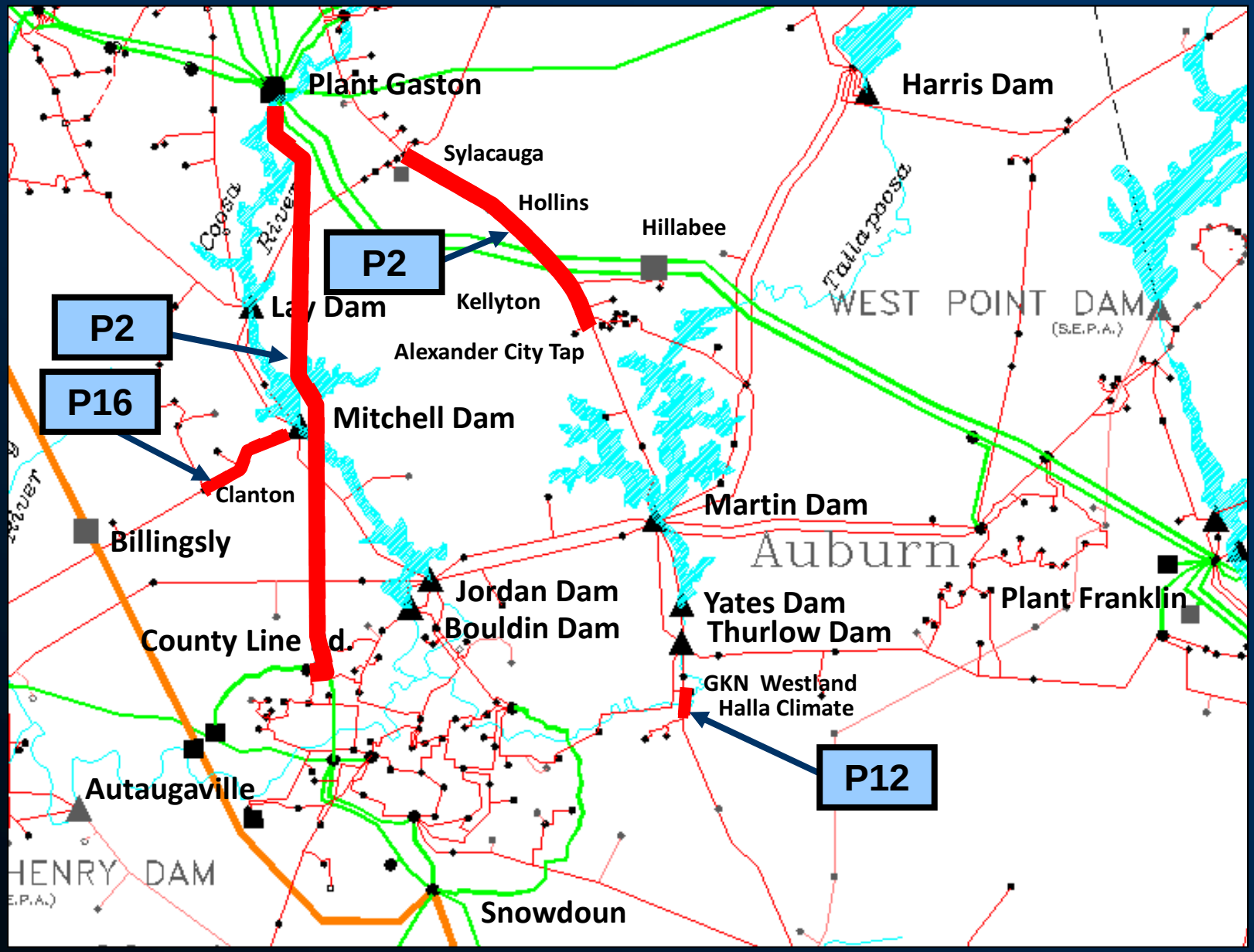
Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
GKN Westland Aerospace – Halla Climate Control 115 kV TL	107	92.6	106.0
Alex City Tap – Kellyton 115 kV TL	113	97.1	106.0
Kellyton – Sunny Level Tap 115 kV TL	113	99.0	107.8
Hollins – Sunny Level Tap 115 kV TL	113	99.8	114.1
Sylacauga – Hollins 115 kV TL	113	104.6(1)	119.1

(1) A current operating procedure is sufficient to alleviate this constraint without the addition of the proposed transfer. However, the additional transfer exacerbates the loading on this facility such that the operating procedure becomes insufficient.

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




Plant Gaston
Harris Dam
Sylacauga
Hollins
Hillabee
P2
Kellyton
Lay Dam
P2
Alexander City Tap
P16
Mitchell Dam
Clanton
Martin Dam
Billingsly
Auburn
Jordan Dam
Bouldin Dam
Yates Dam
Thurlow Dam
Plant Franklin
County Line Rd.
GKN Westland
Halla Climate
P12
Autaugaville
Snowdoun
WEST POINT DAM
(S.E.P.A.)
Coosa River
Tallapoosa

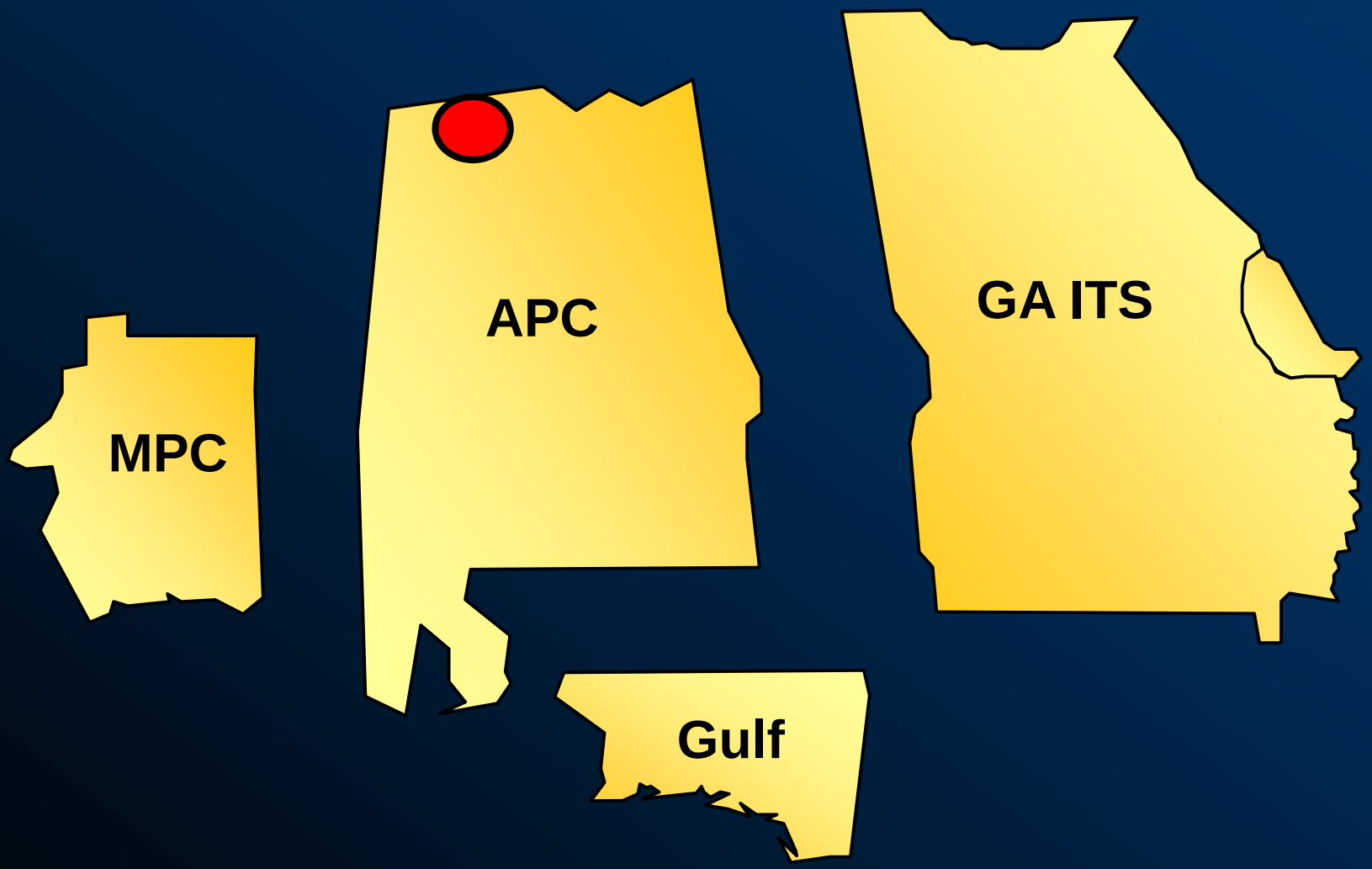
TVA Border to SBA 3500 MW

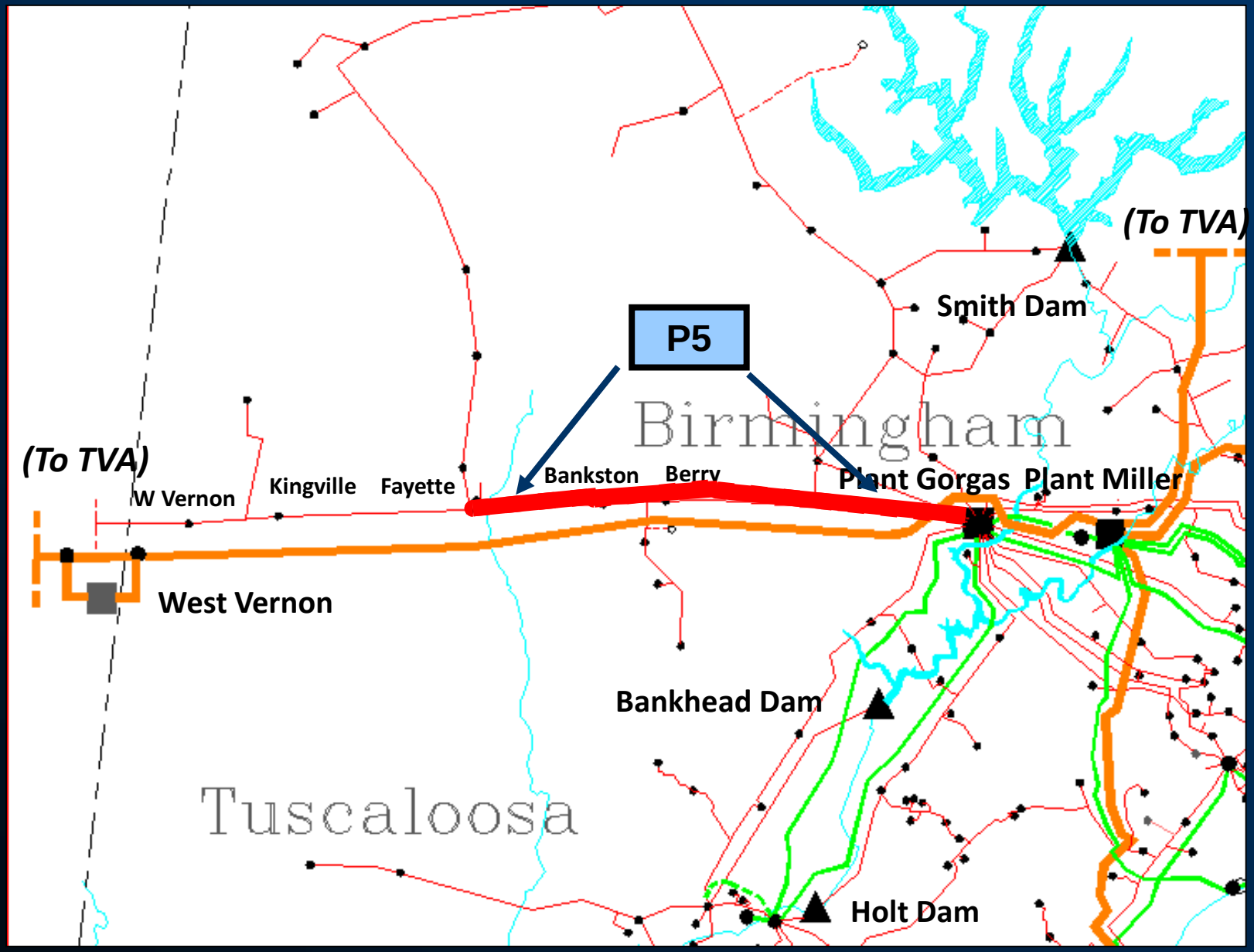
Significant Constraints – PASS 1 (Cont.)

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Oakman Tap – Gorgas 161 kV TL	193	80.7	122.6
Oakman Tap – Berry 161 kV TL	193	81.2	123.0
Pitts & Midway Tap – Berry 161 kV TL	193	83.4	125.2
Pitts & Midway Tap – Bankston 161 kV TL	193	92.0	133.9
Fayette CS – Bankston 161 kV TL	193	93.8	135.8
Fayette TS – Fayette CS 161 kV TL	193	93.8	135.8

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




(To TVA)
(To TVA)
Smith Dam
P5
Birmingham
W Vernon
Kingville
Fayette
Bankston
Berry
Plant Gorgas
Plant Miller
West Vernon
Bankhead Dam
Tuscaloosa
Holt Dam

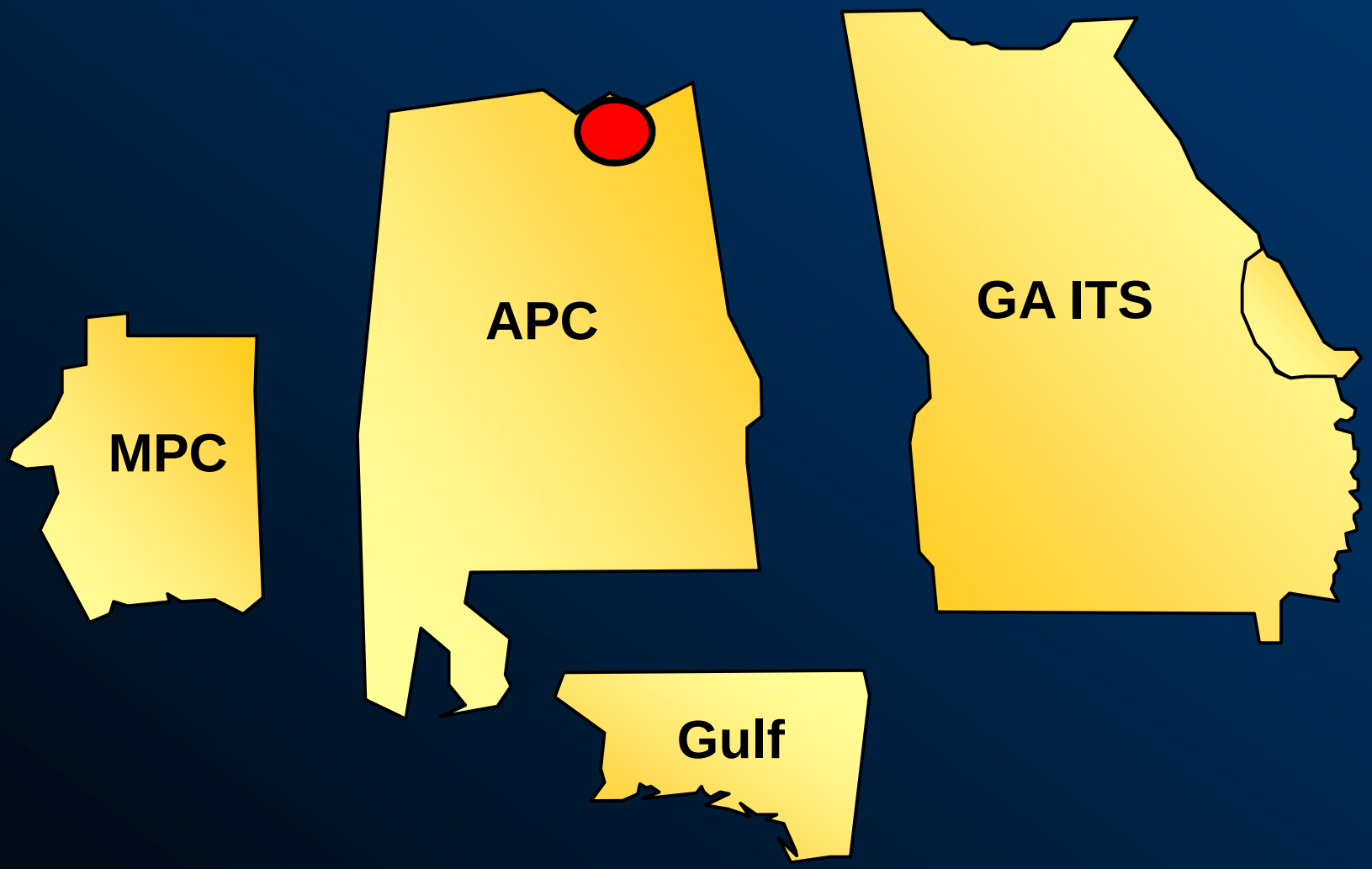
TVA Border to SBA 3500 MW

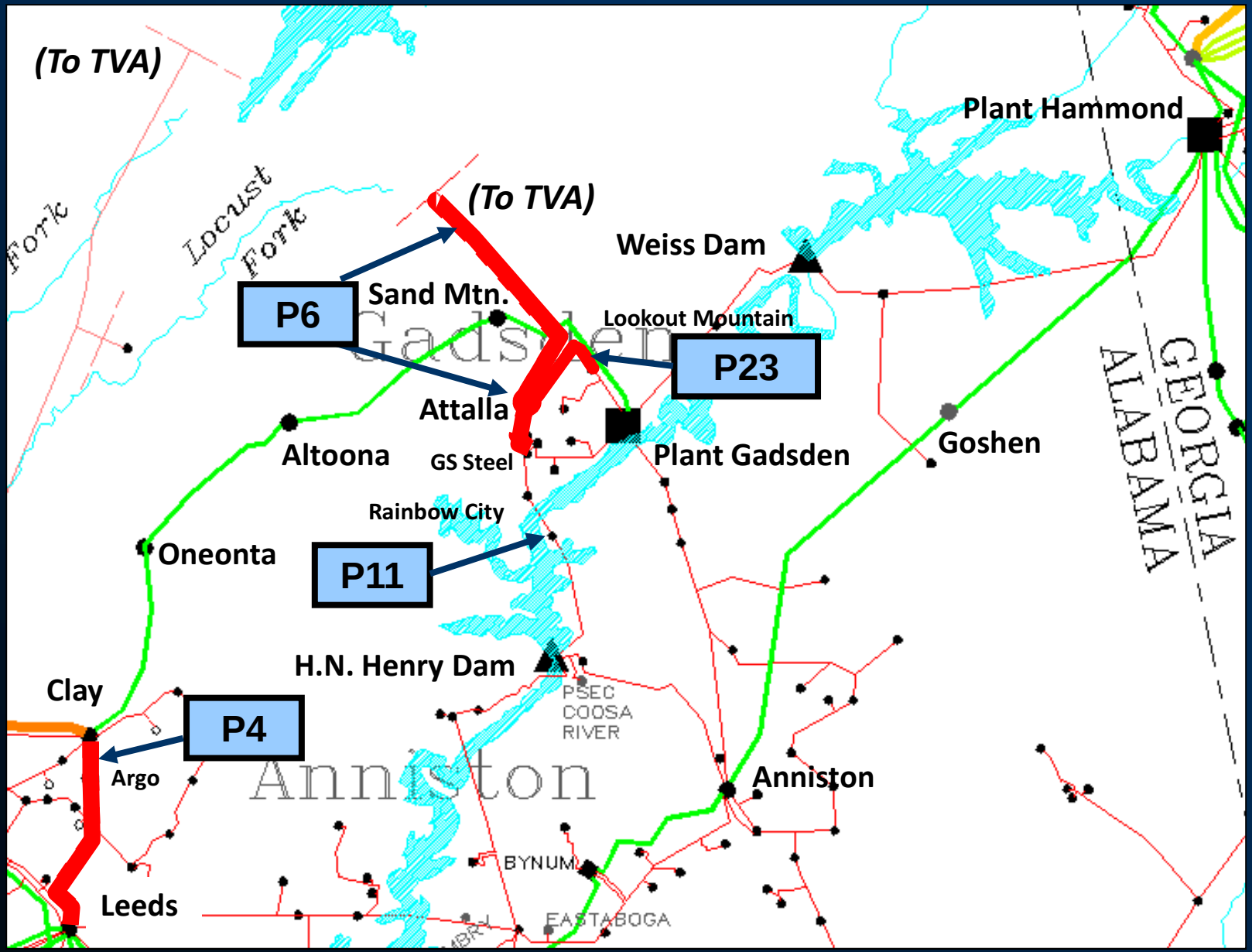
Significant Constraints – PASS 1 (Cont.)

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
GS Steel – North Rainbow 115 kV TL	112	81.7	103.8
GS Steel – Attalla 115 kV TL	138	71.5	106.8
Leeds TS – Argo DS 230 kV TL	602	75.8	107.0
Clay – Argo DS 230 kV TL	602	78.2	109.5
Attalla 161 / 115 kV Transformer 1	99	89.4	122.9
Attalla 161 / 115 kV Transformer 2	111	88.4	121.4
Attalla – Albertville 161 kV TL	193	96.7	132.9

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




(To TVA)
(To TVA)
Plant Hammond
Weiss Dam
P6
Sand Mtn.
Lookout Mountain
P23
Attalla
Altoona
GS Steel
Plant Gadsden
Goshen
Rainbow City
Oneonta
P11
H.N. Henry Dam
PSEC
COOSA
RIVER
Clay
P4
Argo
Anniston
BYNUM
Leeds
EASTABOGA
GEORGIA
ALABAMA
Locust
Fork
Fork

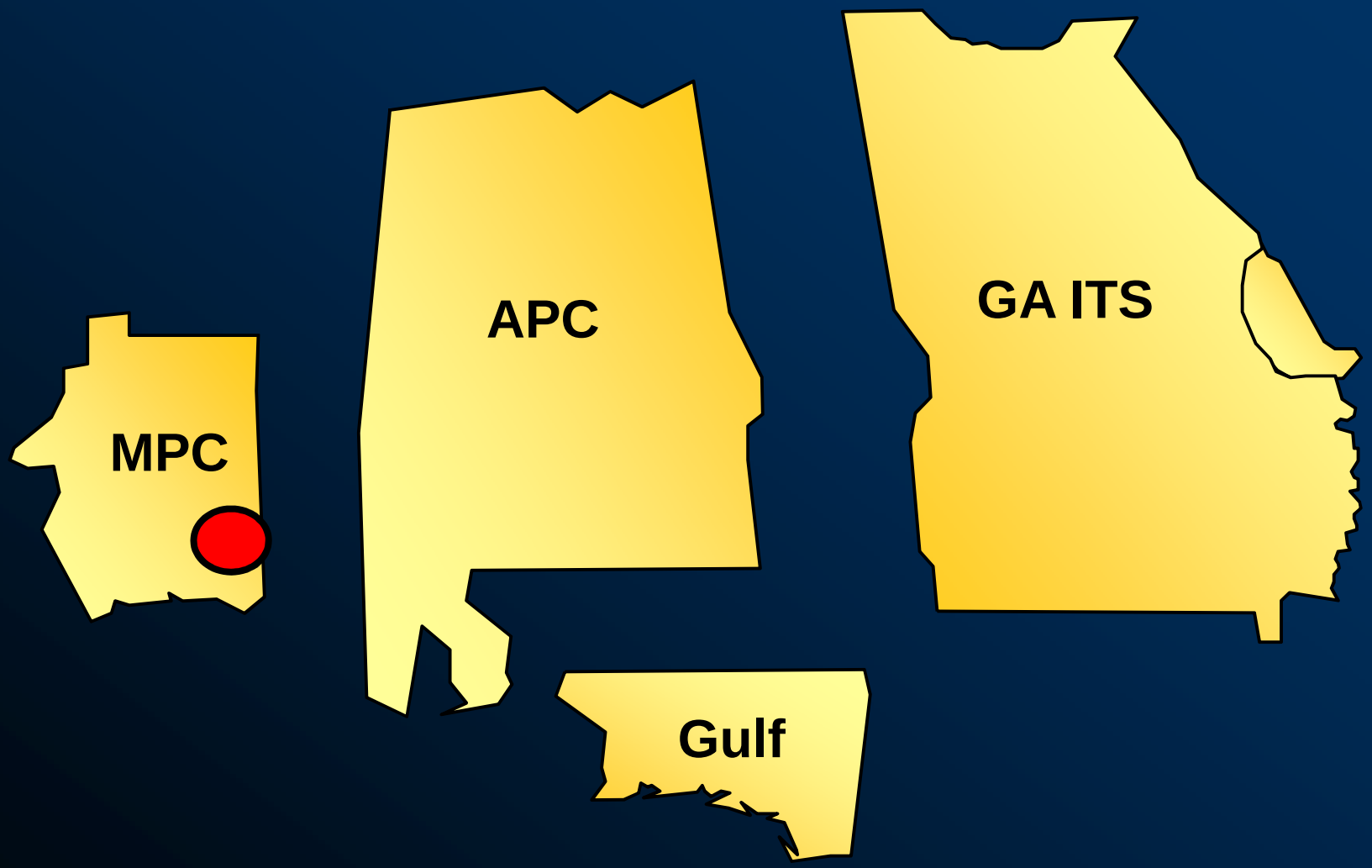
TVA Border to SBA 3500 MW

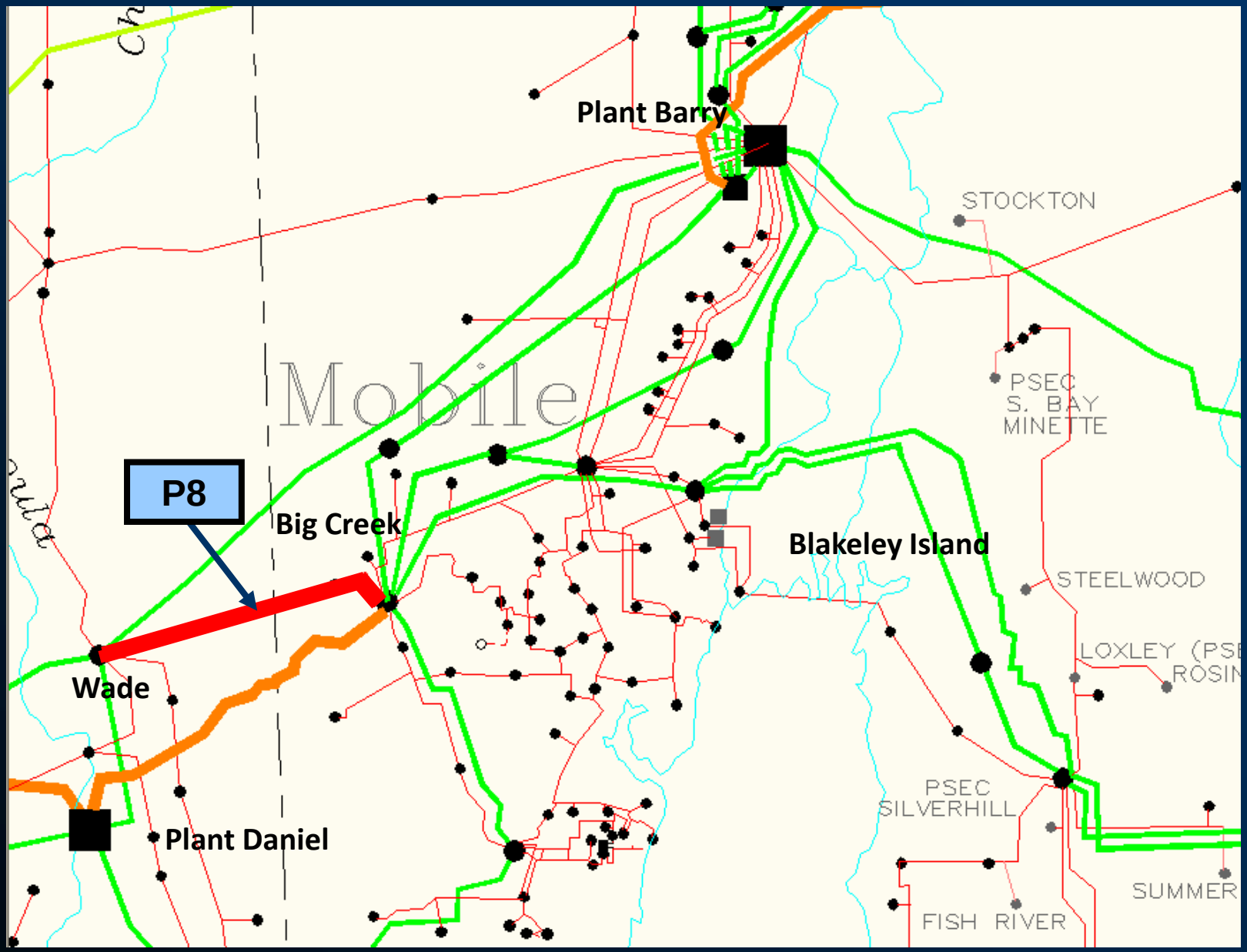
Significant Constraints – PASS 1 (Cont.)

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Tanner Williams – Harleston 115 kV TL	107	80.7	105.1
Wade SS – Harleston 115 kV TL	104	89.3	114.4

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




Plant Barry
STOCKTON
Mobile
PSEC
S. BAY
MINETTE
P8
Big Creek
Blakeley Island
STEELWOOD
LOXLEY (PSE
ROSIN
Wade
PSEC
SILVERHILL
Plant Daniel
SUMMER
FISH RIVER

Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW

Projects Identified

Item	Proposed Enhancements	Cost ($)
P1	Russell Dam – Athena 230 kV TL	$61,000,000
P2	Gaston – County Line Road 230 kV TL	$12,200,000(2)
P3	South Hall – Winder Primary 230 kV TL	$10,000,000
P4	Clay TS – Leeds TS 230 kV TL	$18,600,000
P5	Fayette – Gorgas 161 kV TL	$29,000,000
P6	Attalla 161 / 115 kV Transformers Attalla – Albertville 161 kV TL	$18,700,000(1)
P7	Sylacauga – Martin 115 kV TL	$8,300,000
P8	Wade – Big Creek 115 kV TL	$6,300,000
-	- Continued -	-

(1) Cost provided is for the portion of the solution located within the participating Transmission Owners' territory

(2) Advancement cost associated with a project in the latest Ten Year Expansion Plan

TVA Border to SBA 3500 MW

Projects Identified

Item	Proposed Enhancements	Cost ($)
-	- Continued -	-
P9	Logtown West - NASA 115 kV TL	$2,900,000
P10	Jesup – Ludowici 115 kV TL	$250,000(2)
P11	Henry Dam – Attalla 115 kV TL	$1,600,000
P12	Thurlow Dam – Union Springs 115 kv TL	$1,100,000
P13	Kathleen – Bonaire 115 kV TL	$1,500,000
P14	South Park DS – Pratt City 115 kV TL	$1,500,000
P15	Bessemer – South Bessemer 115 kV TL	$100,000
P16	Mitchell Dam – North Selma 115 kV TL	$3,600,000
P17	Hattiesburg North – Eaton 115 kV TL	$1,500,000
-	- Continued -	-

(2) Advancement cost associated with a project in the latest Ten Year Expansion Plan

Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW

Projects Identified

Item	Proposed Enhancements	Cost ($)
-	- Continued -	-
P18	Hattiesburg County – Highway 11 115 kV TL	$1,200,000
P19	East Point – Morrow 115 kV TL	$150,000(2)
P20	Blankets Creek – Woodstock 115 kV TL	$500,000
P21	Collins – Magee 115 kV TL	$3,000,000(1)
P22	Morton – Forest Industrial 115 kV TL	$1,300,000
P23	Attalla – Lookout Mountain 115 kV TL	$1,800,000

(1) Cost provided is for the portion of the solution located within the participating Transmission Owners' territory

(2) Advancement cost associated with a project in the latest Ten Year Expansion Plan

SBA Total Cost (2011$) = $186,200,000

Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW

PowerSouth

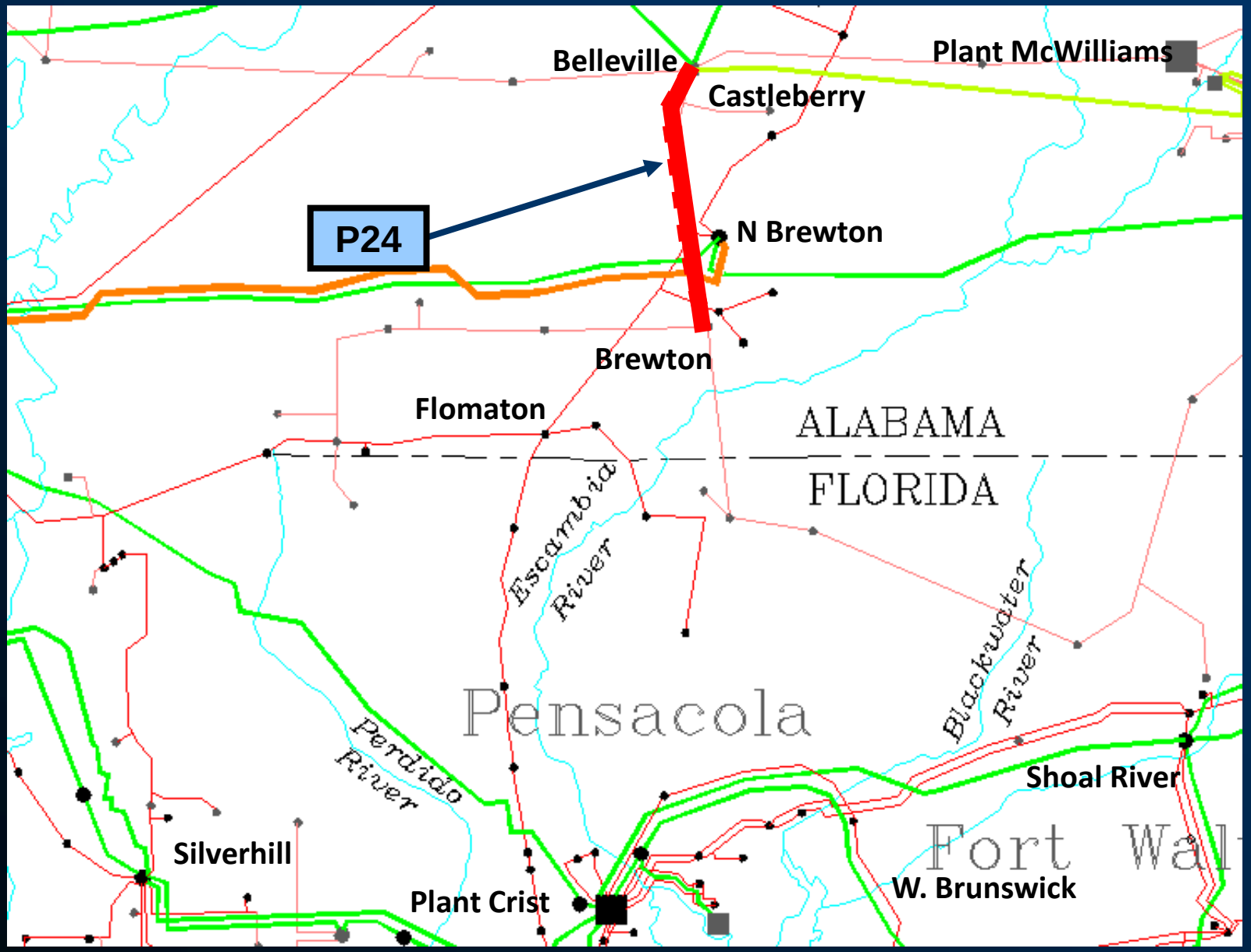
Screen Results

Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW

Significant Constraints – PASS 0

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Brewton – Castleberry Junction 115 kV TL	142	84.8	101.0
Belleville – Castleberry Junction 115 kV TL	142	87.5	103.8


Belleville
Plant McWilliams
Castleberry
P24
N Brewton
Brewton
Flomaton
ALABAMA
FLORIDA
Escambia River
Blackwater River
Pensacola
Perdido River
Shoal River
Silverhill
Plant Crist
W. Brunswick
Fort Wal

Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW

Projects Identified

Item	Proposed Enhancements	Cost ($)
P24	Belleville – Brewton 115 kV TL	$3,600,000

PS Total Cost (2011$) = $3,600,000

Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW

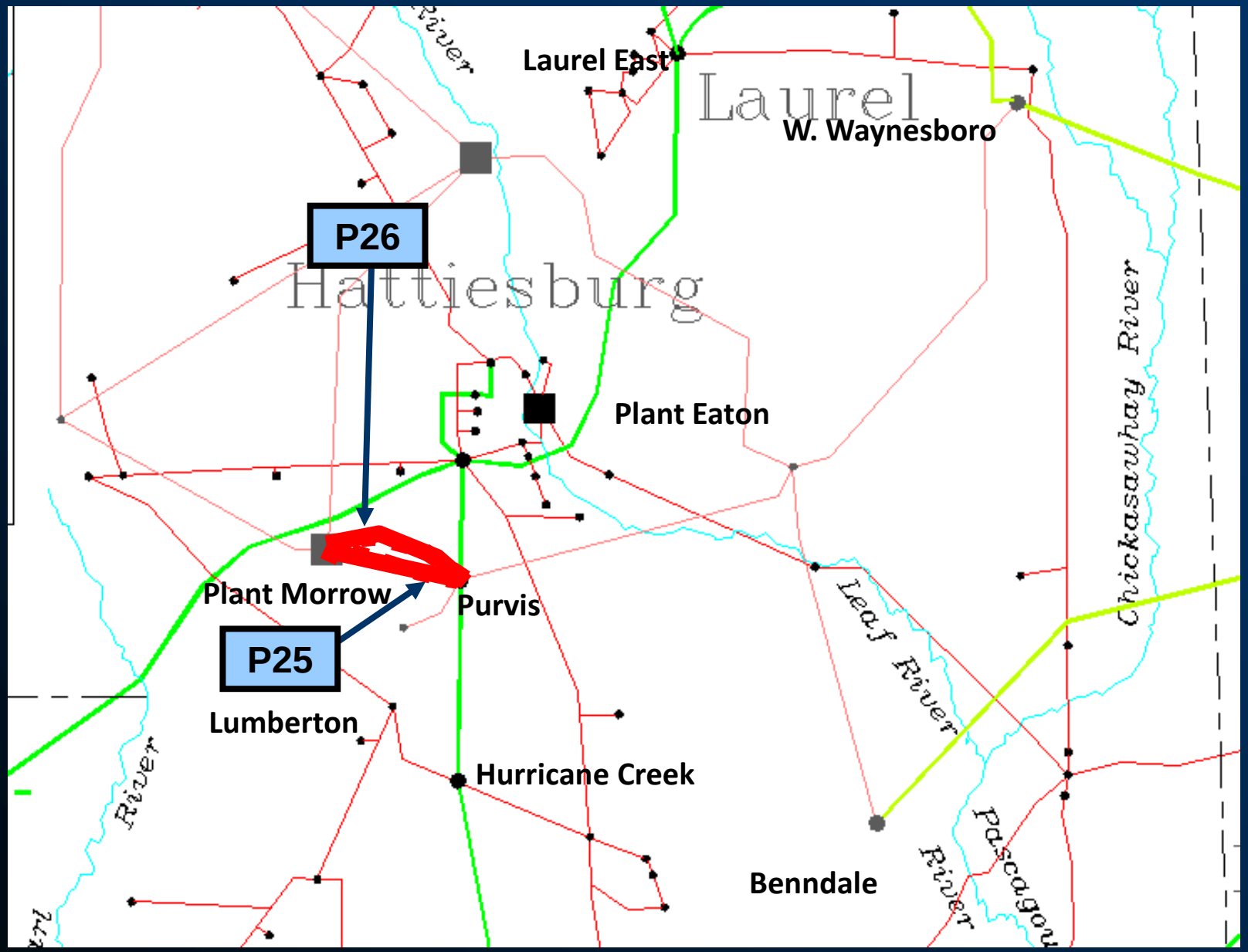
South Mississippi Electric

Screen Results

TVA Border to SBA 3500 MW

Significant Constraints – PASS 0

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Purvis – Morrow 161 kV TL 1	296	58.0	108.5
Purvis – Morrow 161 kV TL 2	296	57.5	108.3


Laurel East
Laurel
W. Waynesboro
P26
Hattiesburg
Plant Eaton
Chickasawhay River
Plant Morrow
Purvis
P25
Leaf River
Lumberton
Hurricane Creek
Benndale
Pascagoula River

Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW

Projects Identified

Item	Proposed Enhancements	Cost ($)
P25	Purvis Bulk – Morrow 161 kV TL Circuit 1	$1,900,000
P26	Purvis Bulk – Morrow 161 kV TL Circuit 2	$1,900,000

SME Total Cost (2011$) = $3,800,000

Southeastern Regional TRANSMISSION PLANNING

TVA Border to SBA 3500 MW (80%)

80% of Summer Peak Screen

- An additional screen at 80% of Summer Peak load was also evaluated per stakeholder request
- No additional constraints were identified
  - A subset of the constraints found in the Summer Peak and Shoulder analysis were identified.

Questions on the TVA Border to SBA Transfer?

EES Border

to

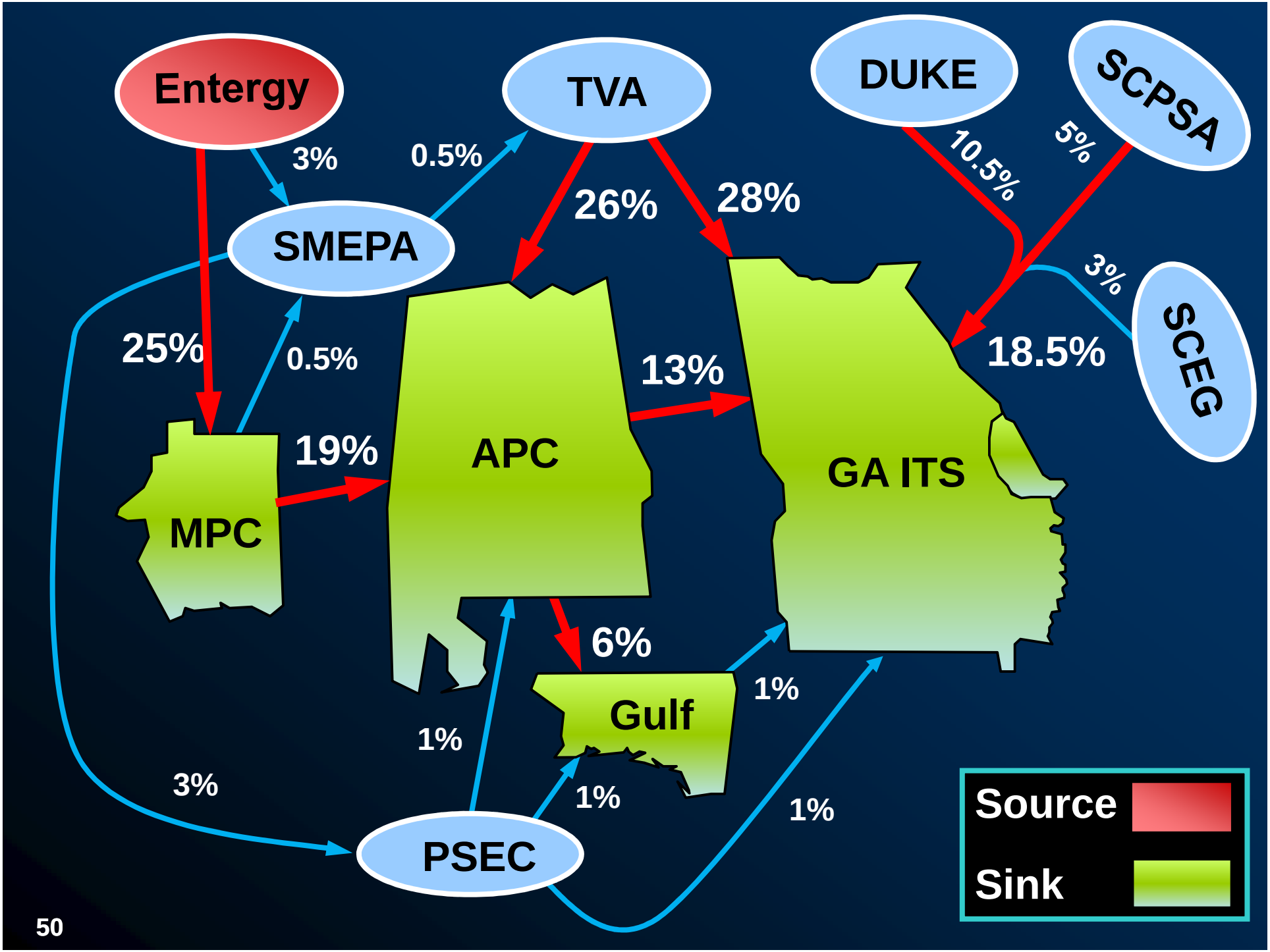
SBA

1500 MW

Southeastern Regional TRANSMISSION PLANNING

EES Border to SBA 1500 MW

- Transfer Type: Generation to Generation
- Source: New generator interconnecting to the El Dorado 500 kV substation (EES) near El Dorado, AR
- Sink: Generation within the SBA


Entergy
TVA
DUKE
SCPSA
SMEPA
SCEG
MPC
APC
GA ITS
Gulf
PSEC
3%
0.5%
26%
28%
10.5%
5%
3%
25%
0.5%
18.5%
13%
19%
6%
1%
1%
3%
1%
1%
Source
Sink

Southeastern Regional TRANSMISSION PLANNING

EES Border to SBA 1500 MW

Transmission System Impacts

- Thermal Constraints Identified:
  - Three (3) 230 kV Lines
  - One (1) 230 / 115 kV Transformer
  - Two (2) 161 / 115 kV Transformers
  - Two (2) 161 kV Lines
  - Twelve (12) 115 kV Lines

Total Cost (2011$) = $197,650,000

EES Border to SBA 1500 MW

Southern Balancing Authority

Screen Results

Southeastern Regional TRANSMISSION PLANNING

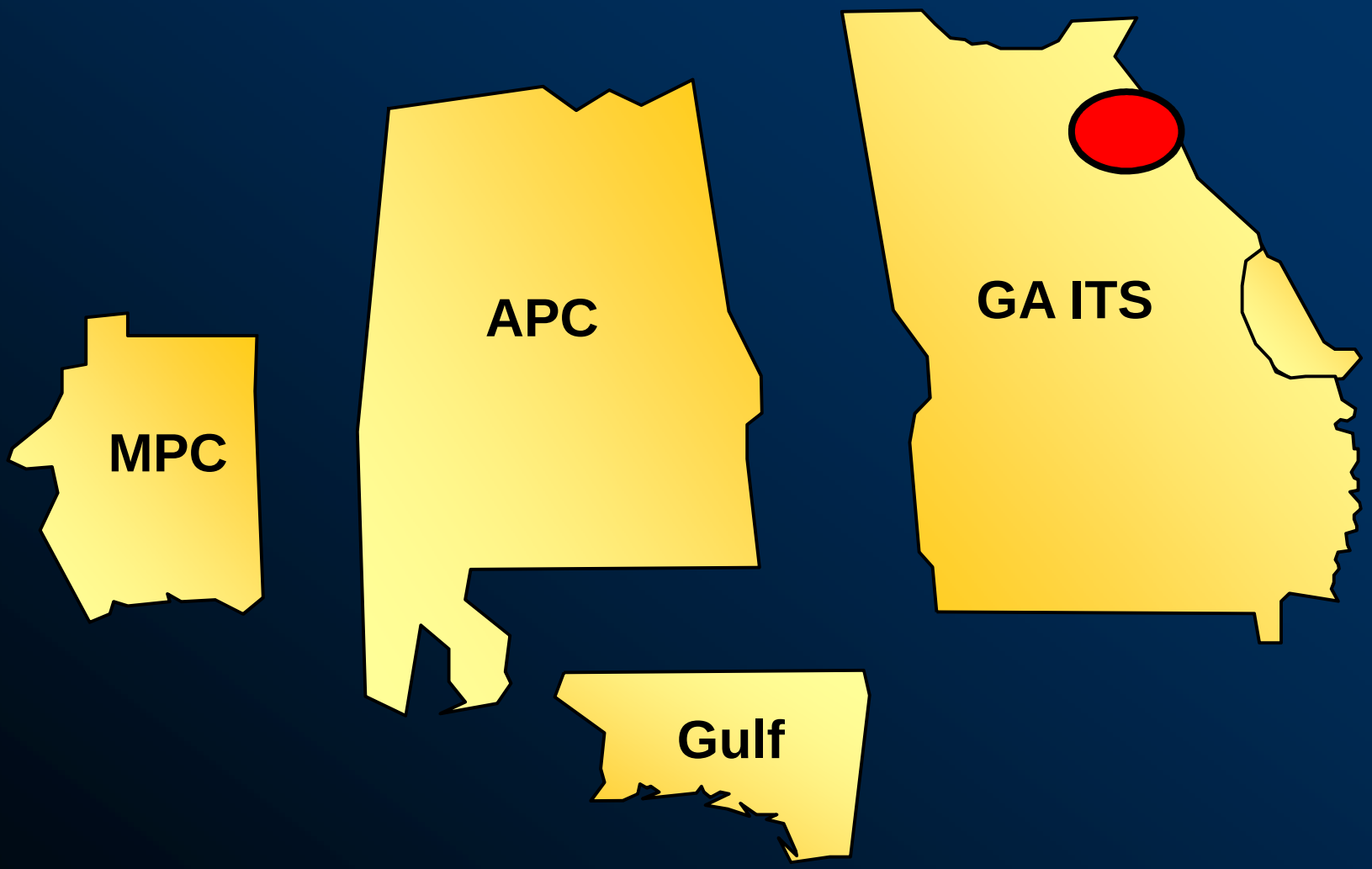
EES Border to SBA 1500 MW

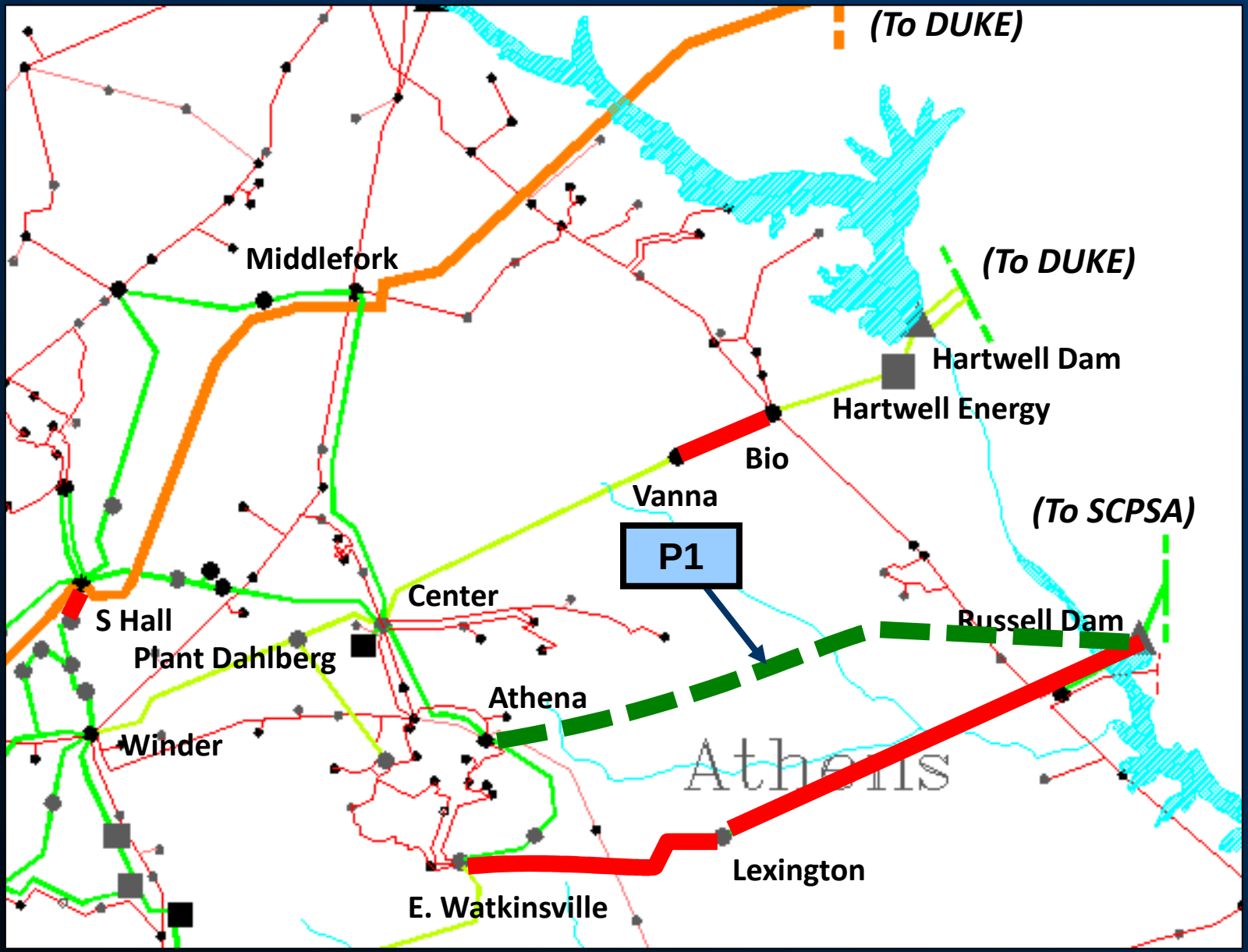
Significant Constraints – PASS 0

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Lexington – East Watkinsville 230 kV TL	602	93.7	102.5
Bio – Vanna 230 kV TL	433	96.2	104.5
Russell – Lexington 230 kV TL	596	98.0	107.0

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




(To DUKE)
Middlefork
(To DUKE)
Hartwell Dam
Hartwell Energy
Bio
Vanna
(To SCPSA)
P1
Center
S Hall
Plant Dahlberg
Russell Dam
Athena
Winder
Athens
Lexington
E. Watkinsville

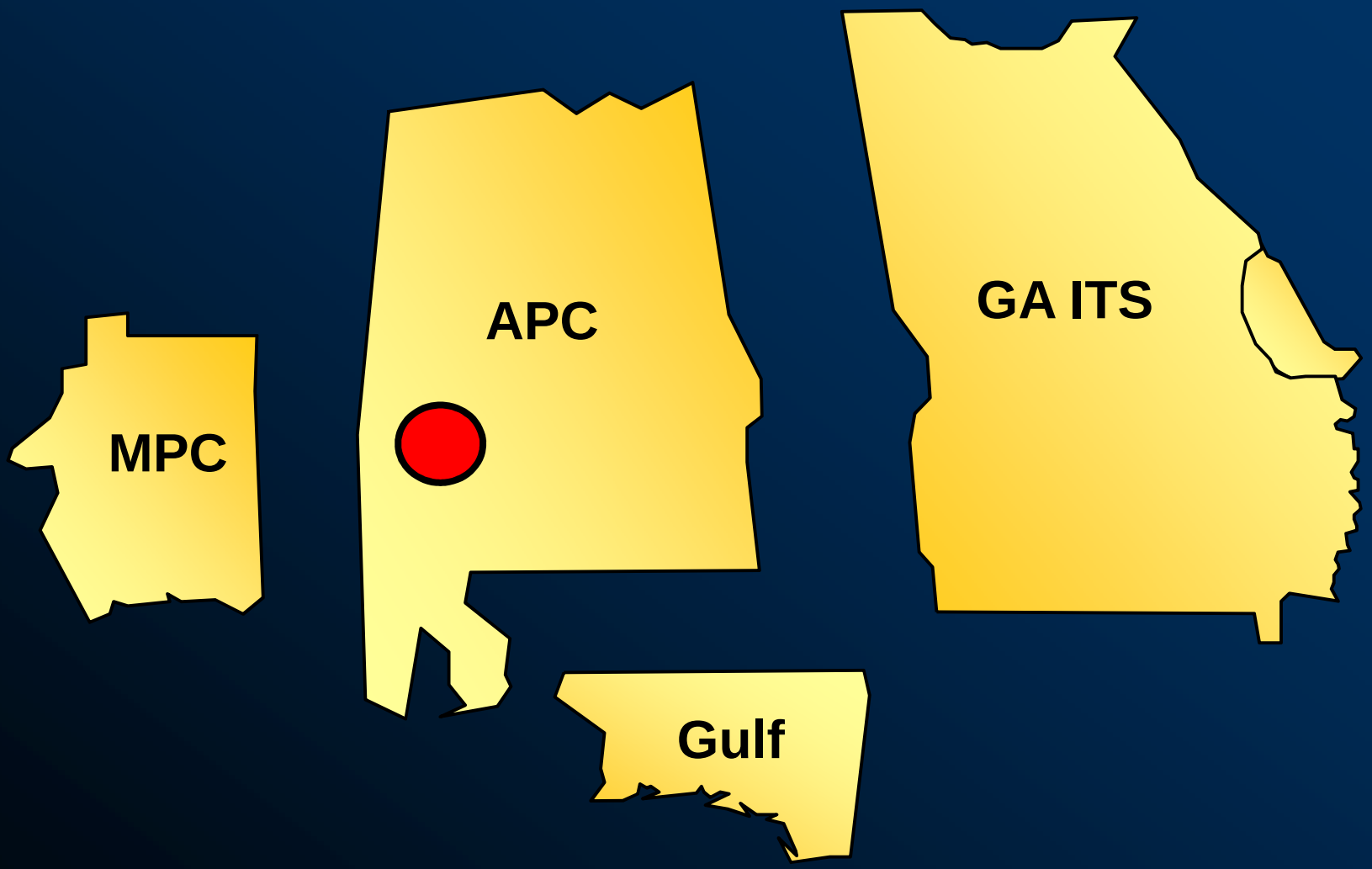
EES Border to SBA 1500 MW

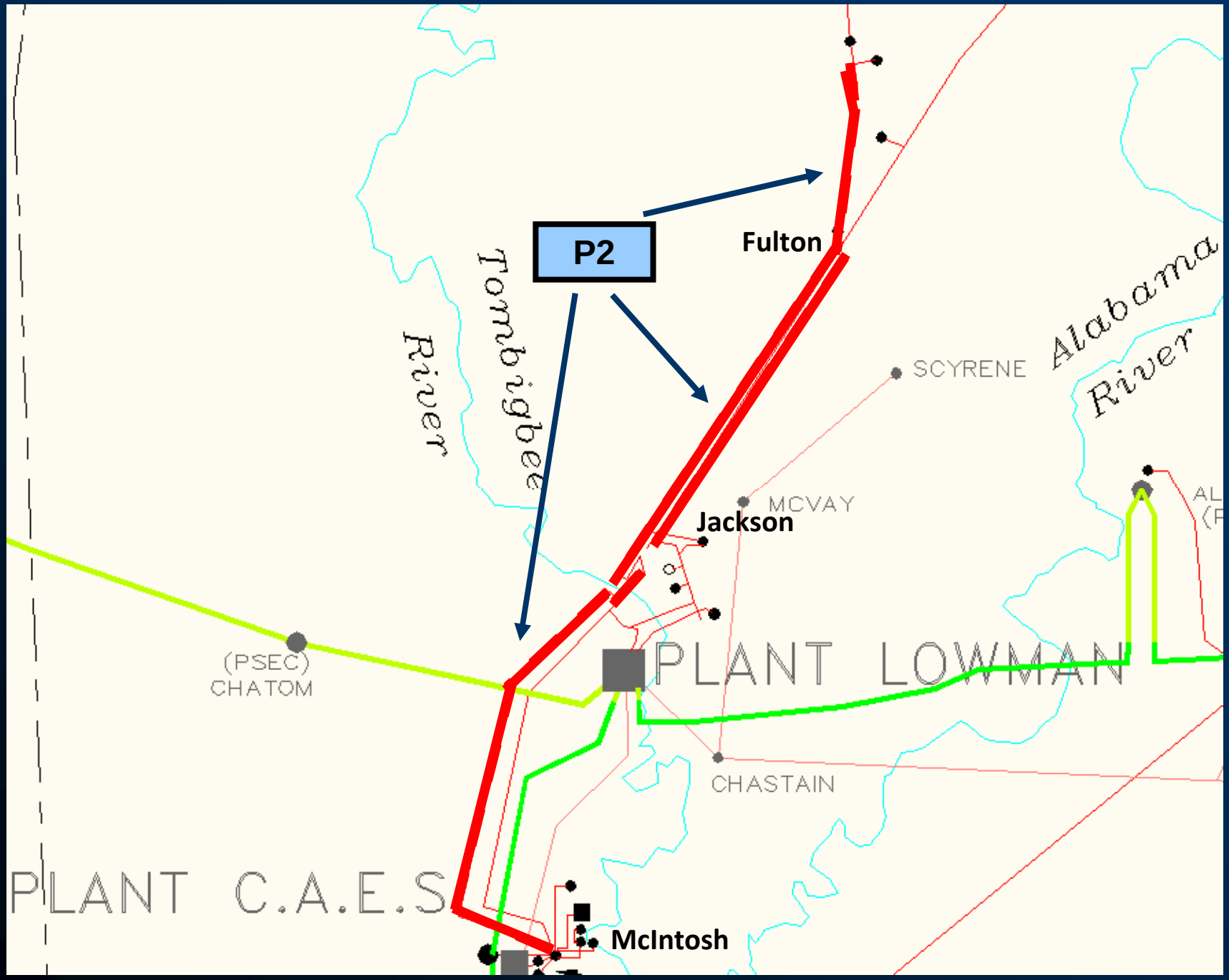
Significant Constraints – PASS 1

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
LSA Tap – GDC Tap 115 kV TL	112	86.4	100.2
Fulton – Jackson Tap B 115 kV TL	138	88.9	103.8
Jackson Tap B – Lowman Tap B 115 kV TL	138	88.9	103.8
Fulton – GDC Tap 115 kV TL	112	92.1	105.9
Fulton – Jackson Tap A 115 kV TL	112	92.6	109.3
Lowman Tap A - McIntosh 115 kV TL	112	92.7	109.4

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




P2
Fulton
Jackson
McIntosh
SCYRENE
MCVAY
CHASTAIN
(PSEC)
CHATOM
PLANT LOWMAN
PLANT C.A.E.S
Tombigbee River
Alabama River

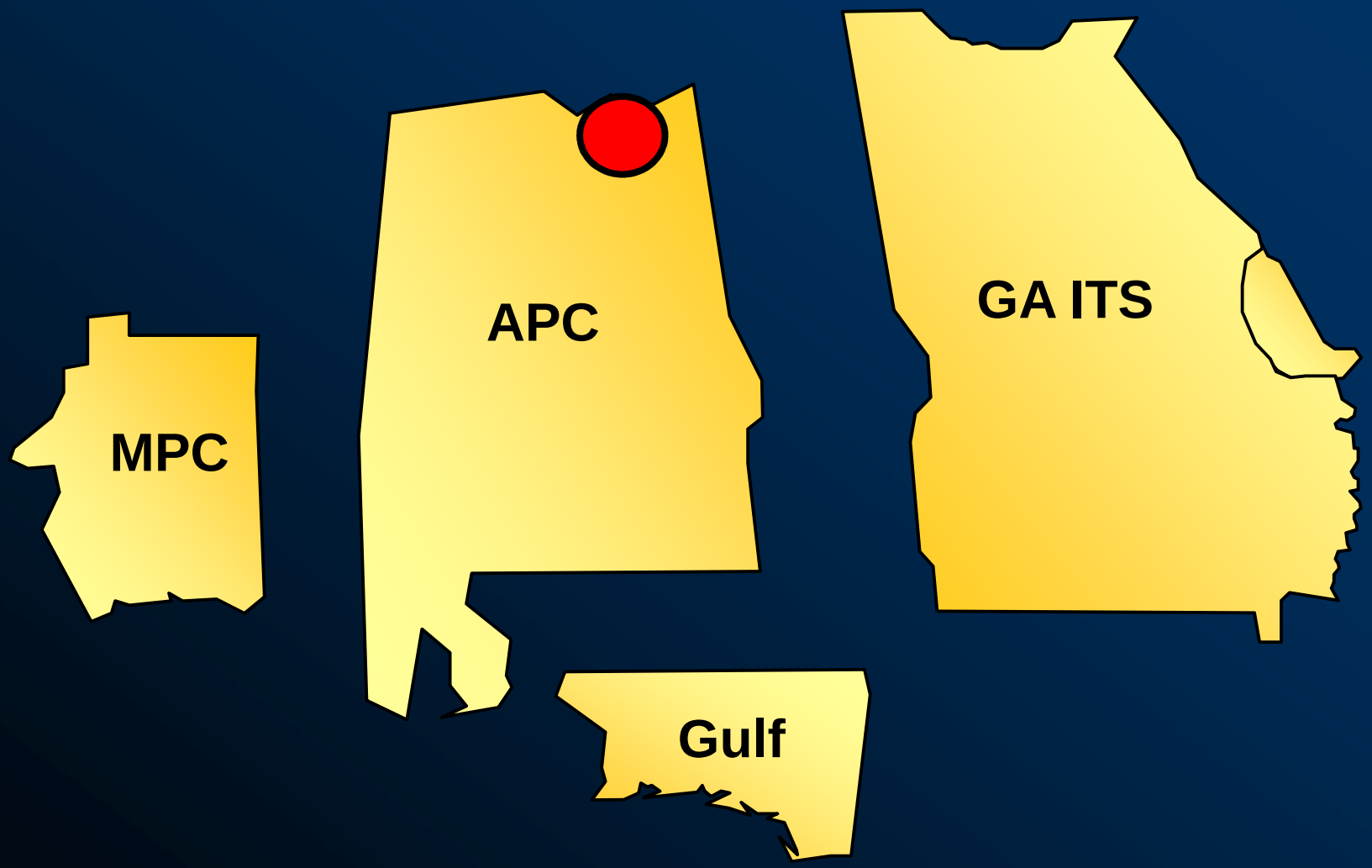
EES Border to SBA 1500 MW

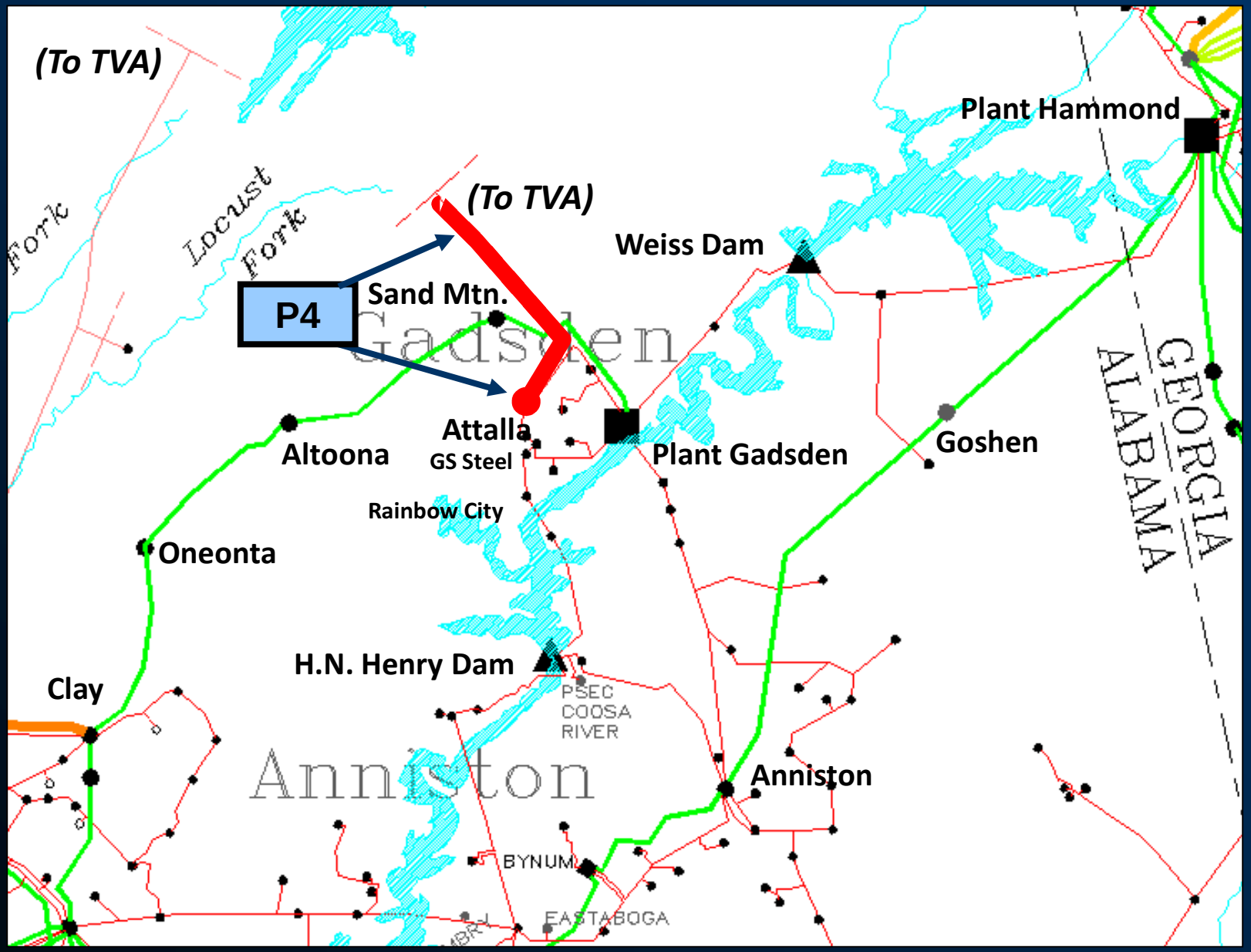
Significant Constraints – PASS 1 (Cont.)

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Attalla 161 / 115 kV Transformer 1	111	88.4	106.9
Attalla 161 / 115 kV Transformer 2	99	88.4	108.2
Attalla – Albertville 161 kV TL	193	96.7	117.0

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




(To TVA)
Plant Hammond
(To TVA)
Weiss Dam
Fork
Locust
Fork
P4
Sand Mtn.
Gadsden
Attalla
GS Steel
Altoona
Plant Gadsden
Goshen
GEORGIA
ALABAMA
Rainbow City
Oneonta
H.N. Henry Dam
Clay
PSEC
COOSA
RIVER
Anniston
Anniston
BYNUM
EASTABOGA

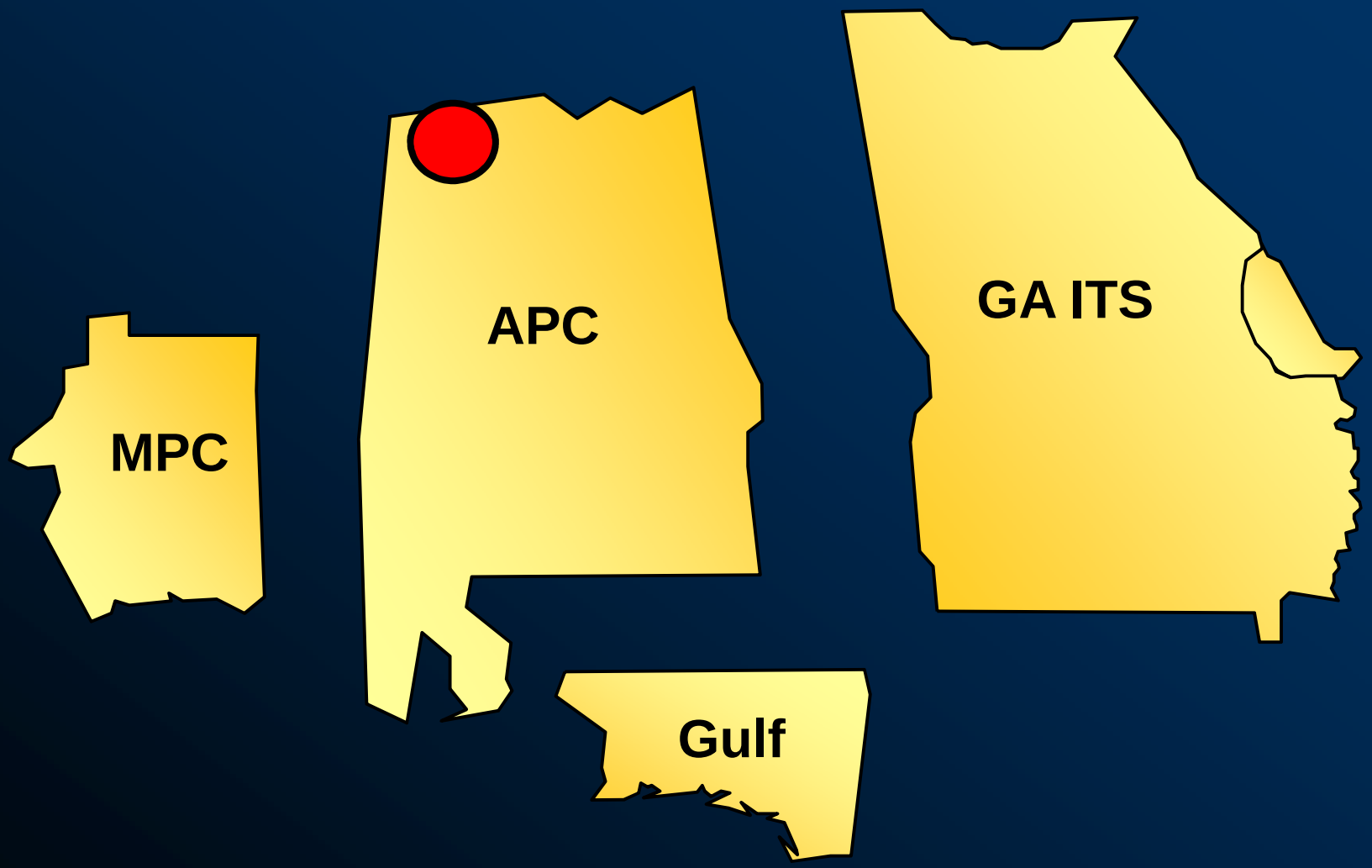
EES Border to SBA 1500 MW

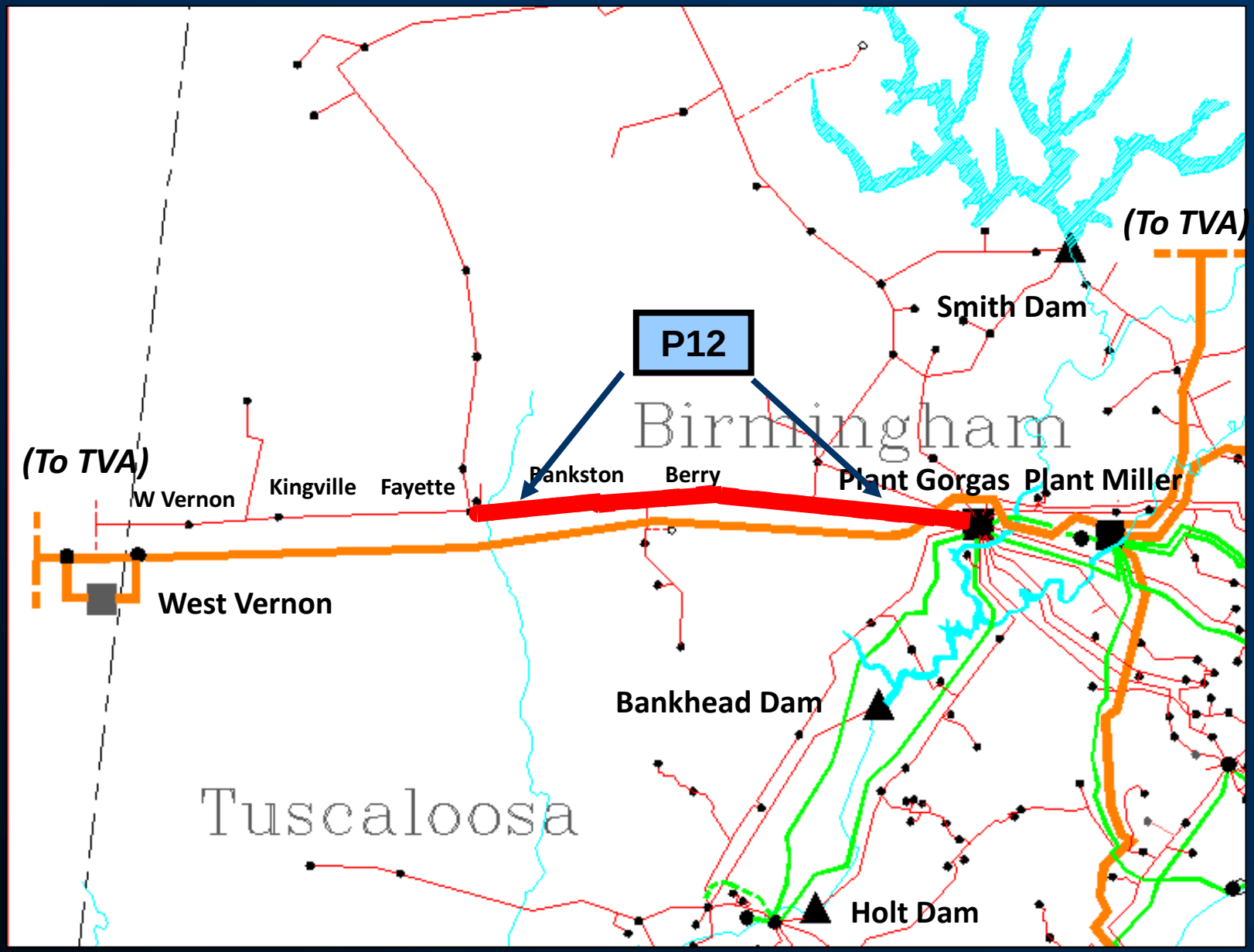
Significant Constraints – PASS 1 (Cont.)

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Oakman Tap – Gorgas 161 kV TL	193	80.7	116.0
Oakman Tap – Berry 161 kV TL	193	81.2	116.4
Berry – Pitts &Midway Tap 161 kV TL	193	83.4	118.6
Bankston – Pitts & Midway Tap kV TL	193	92.0	127.3
Fayette CS – Bankston 161 kV TL	193	93.8	129.1
Fayette TS – Fayette TS 161 kV TL	193	93.8	129.1

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




(To TVA)
W Vernon
Kingville
Fayette
Pankston
Berry
Plant Gorgas
Plant Miller
(To TVA)
Smith Dam
P12
Birmingham
West Vernon
Bankhead Dam
Tuscaloosa
Holt Dam

EES Border to SBA 1500 MW

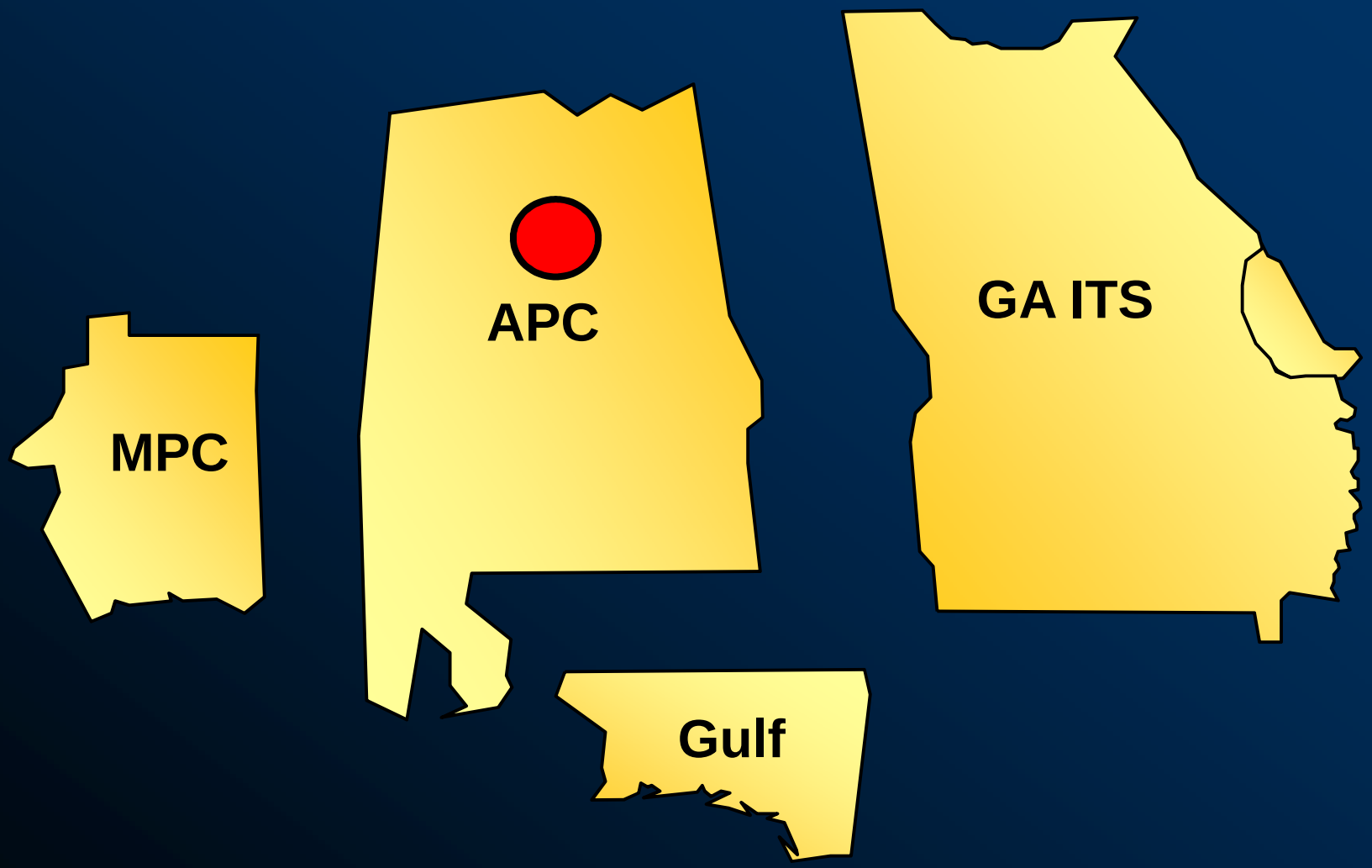
Significant Constraints – PASS 1 (Cont.)

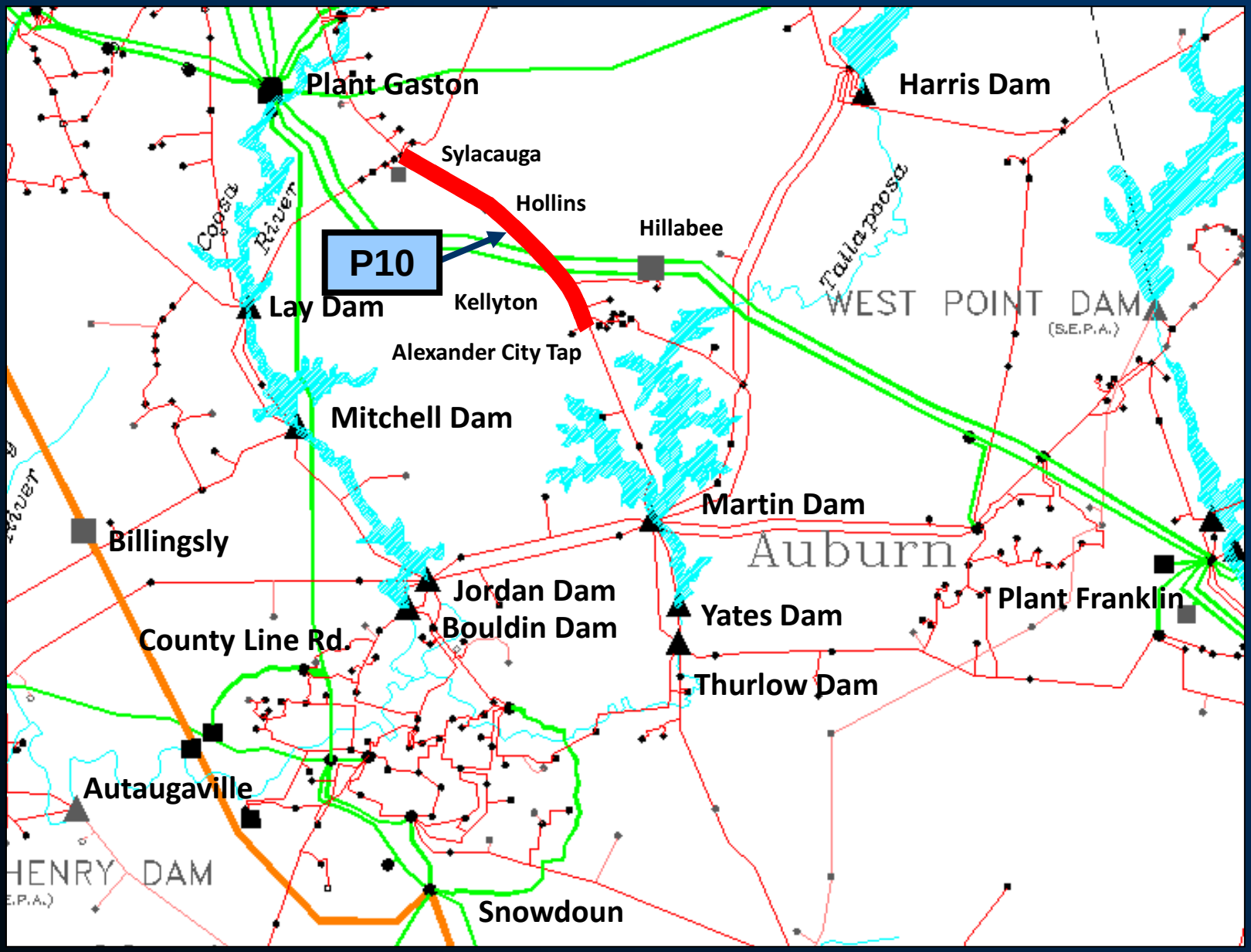
Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Sylacauga – Hollins 115 kV	113	104.6(1)	118.0
Hollins – Sunny Level Tap 115 kV	113	99.4	113.1
Sunny Level Tap – Kellyton 115 kV	113	93.2	106.9
Kellyton – Alexander City Tap 115 kV	113	91.3	105.0

(1) A current operating procedure is sufficient to alleviate this constraint without the addition of the proposed transfer. However, the additional transfer exacerbates the loading on this facility such that the operating procedure becomes insufficient.

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




Plant Gaston
Harris Dam
Sylacauga
Hollins
Hillabee
P10
Coosa River
Talapoosa
Lay Dam
Kellyton
WEST POINT DAM
(S.E.P.A.)
Alexander City Tap
Mitchell Dam
Martin Dam
Billingsly
Auburn
Jordan Dam
Plant Franklin
Yates Dam
Bouldin Dam
County Line Rd.
Thurlow Dam
Autaugaville
HENRY DAM
(S.E.P.A.)
Snowdoun

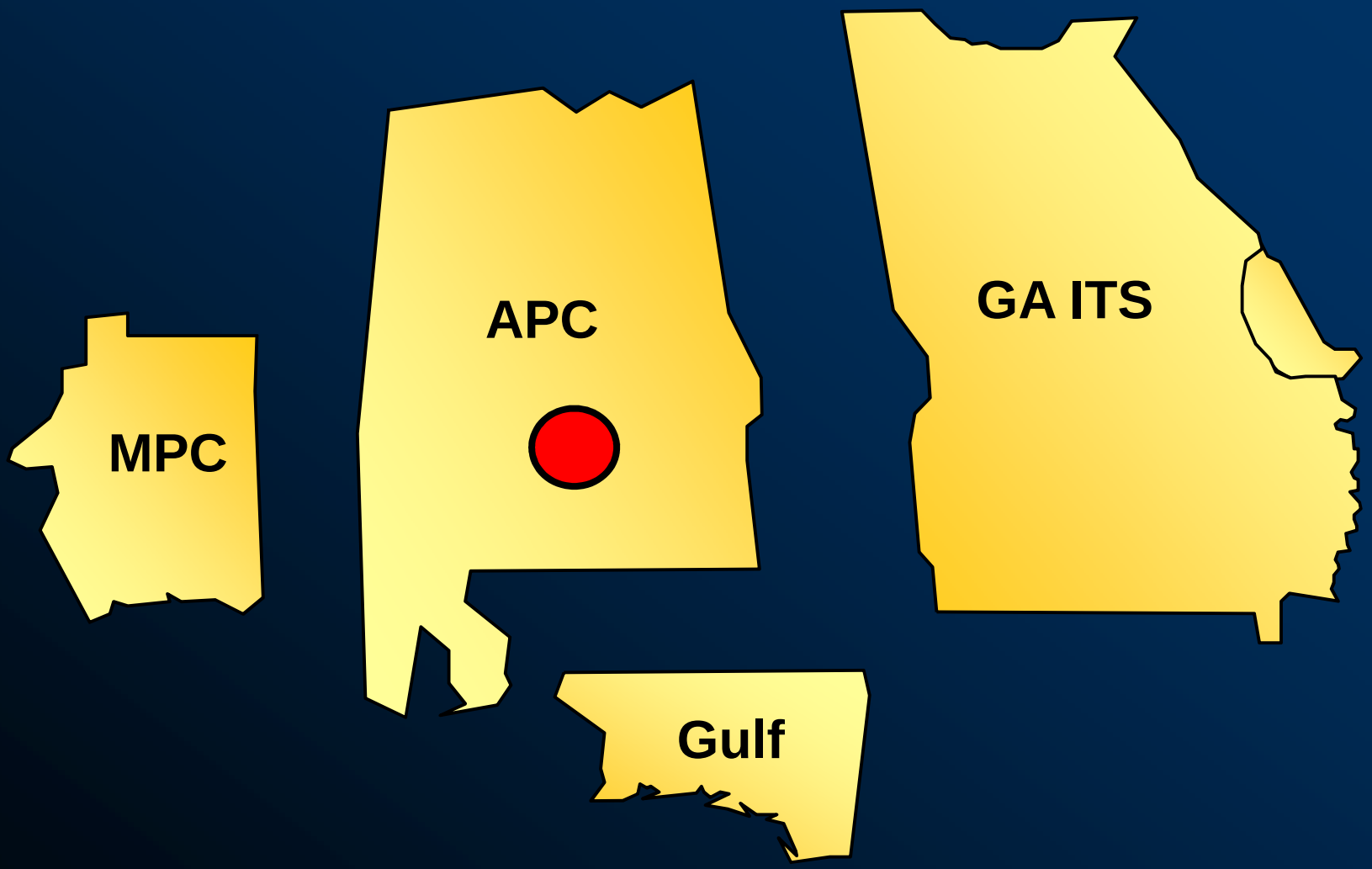
EES Border to SBA 1500 MW

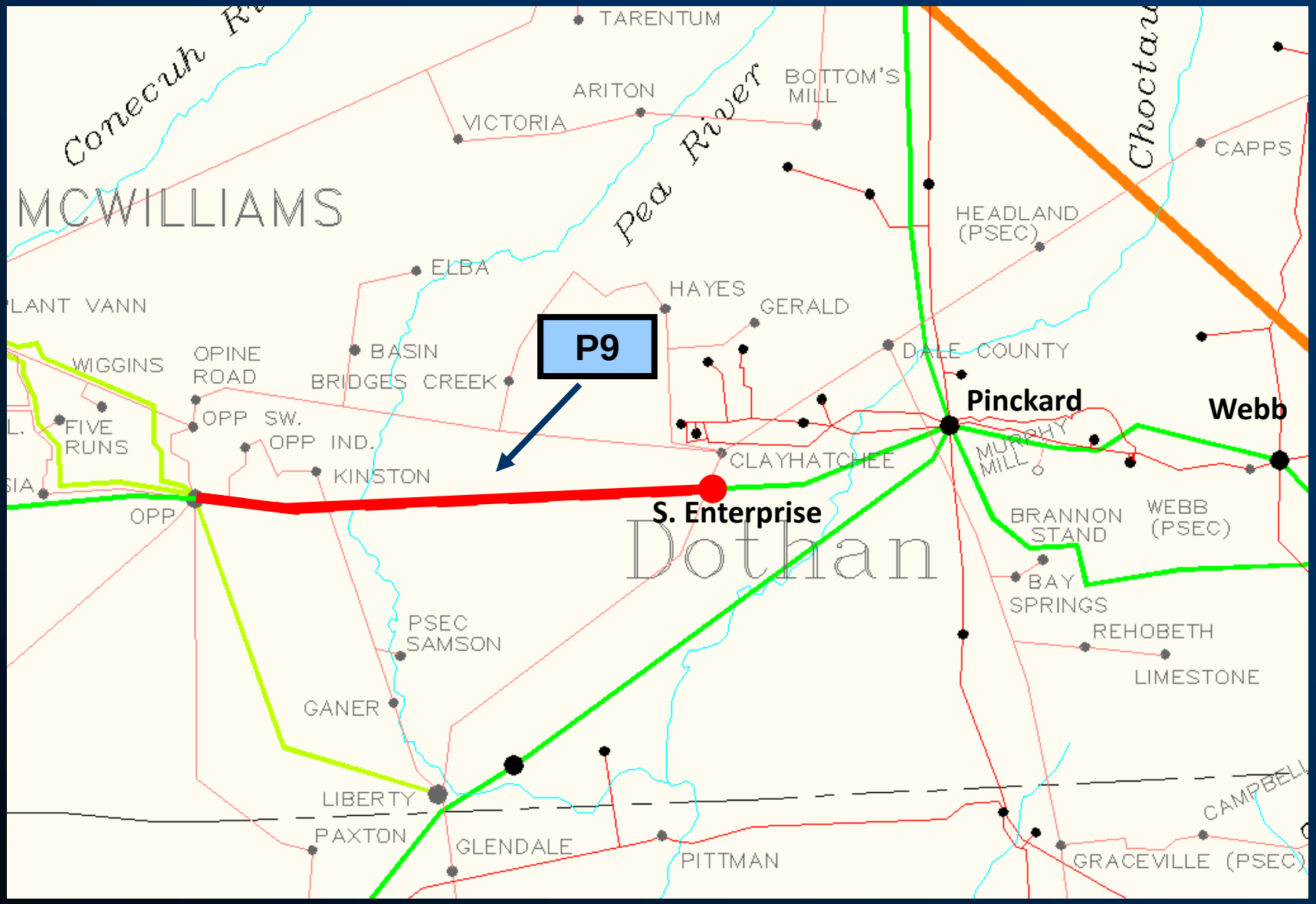
Significant Constraints – PASS 1 (Cont.)

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Opp – S. Enterprise 230 kV TL	498	96.7	104.8
S. Enterprise XFMR 230/115 kV	250	96.1	106.9

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




TARENTUM
ARITON
VICTORIA
BOTTOM'S MILL
Pea River
Choctaw
CAPPS
MCWILLIAMS
HEADLAND (PSEC)
ELBA
HAYES
GERALD
P9
DALE COUNTY
WIGGINS
OPINE ROAD
BASIN
BRIDGES CREEK
Pinckard
Webb
FIVE RUNS
OPP SW.
OPP IND.
KINSTON
CLAYHATCHEE
MURPHY MILL
S. Enterprise
OPP
BRANNON STAND
WEBB (PSEC)
Dothan
BAY SPRINGS
REHOBETH
LIMESTONE
PSEC SAMSON
GANER
LIBERTY
PAXTON
GLENDALE
PITTMAN
GRACEVILLE (PSEC)

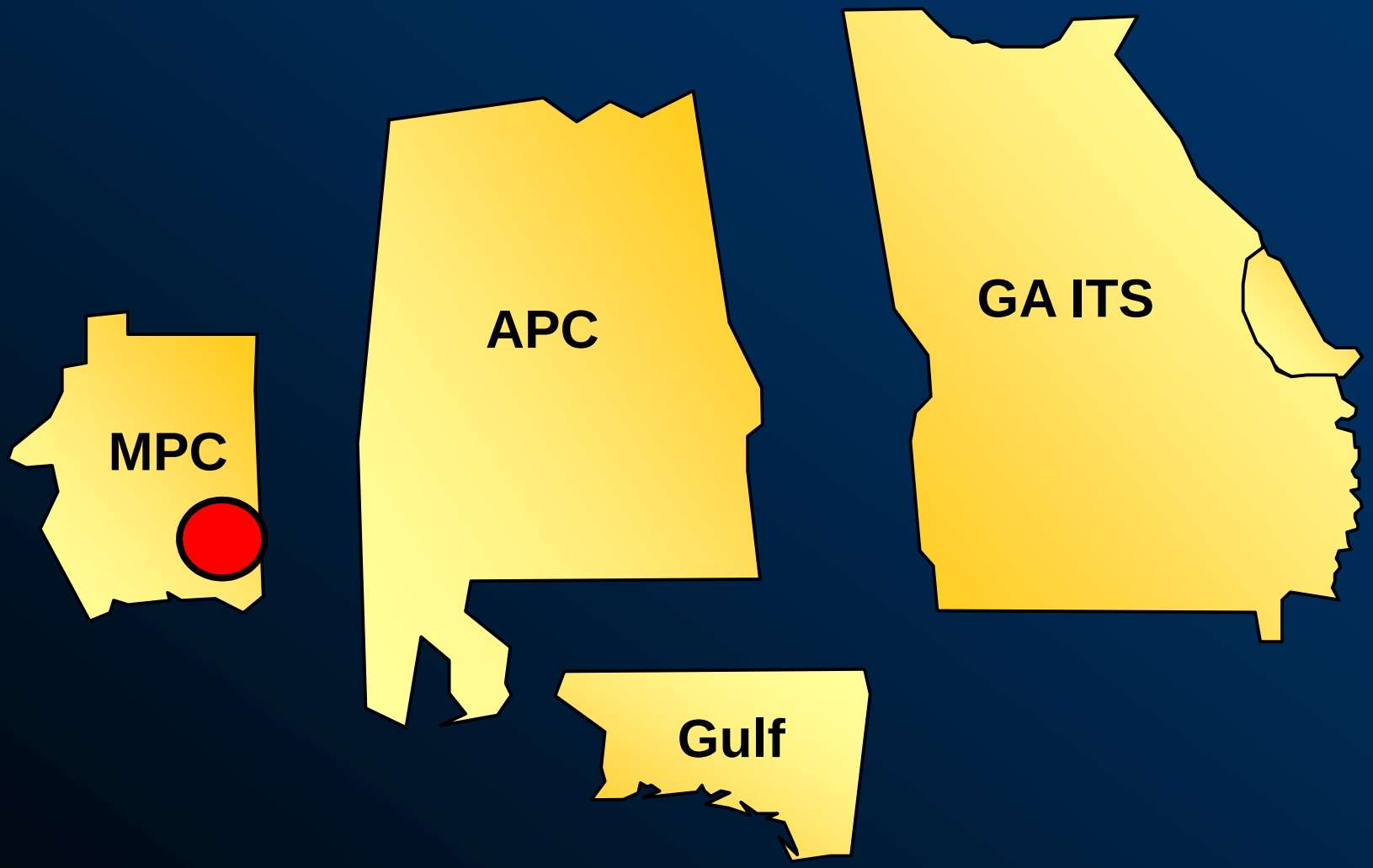
EES Border to SBA 1500 MW

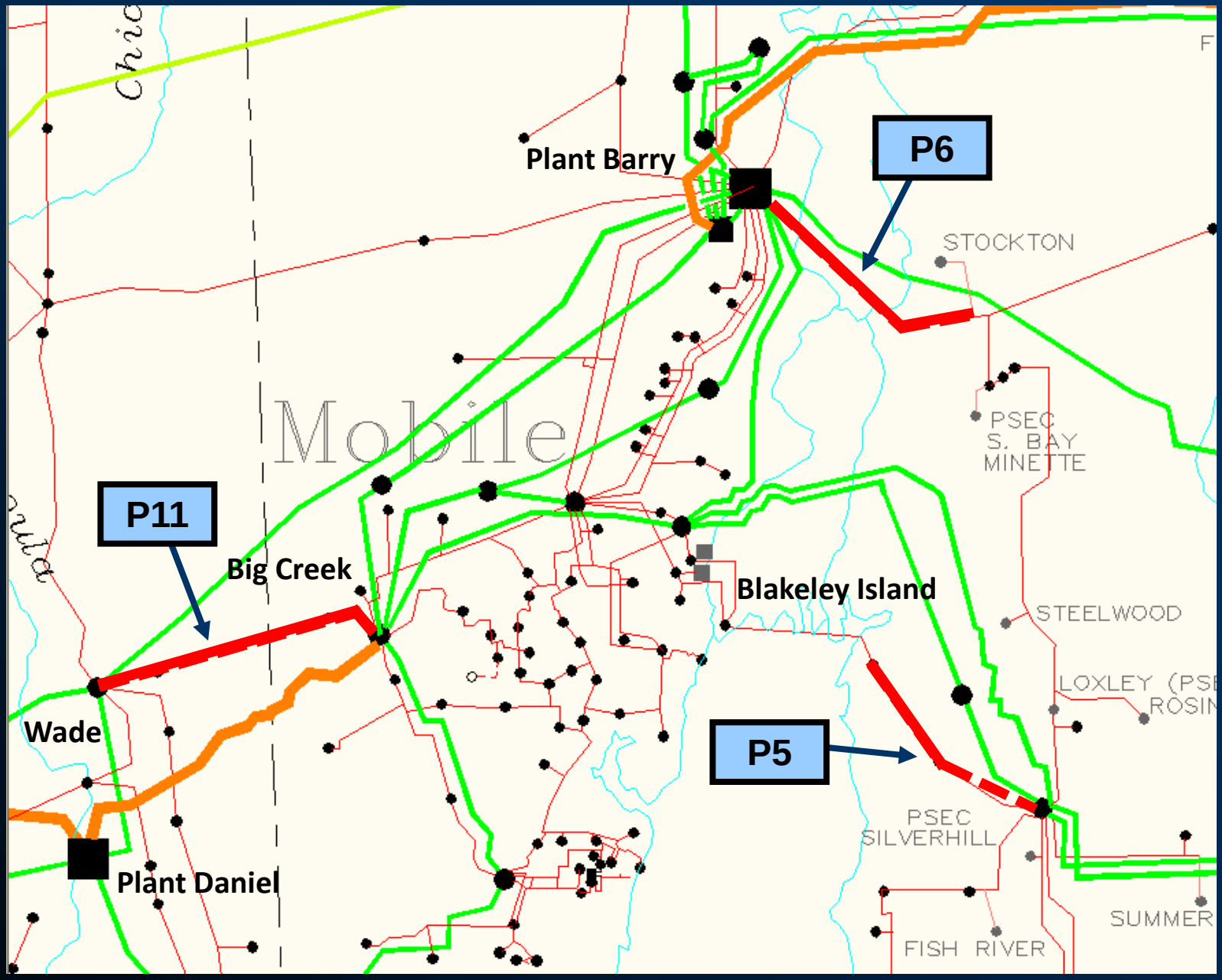
Significant Constraints – PASS 1 (Cont.)

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Spanish Fort – Belforest 115 kV	212	96.9	102.8
Barry – Stockton 115 kV	212	97.7	103.1
Wade – Harleston 115 kV	104	87.5	105.7

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




Plant Barry
P6
STOCKTON
Mobile
PSEC
S. BAY
MINETTE
P11
Big Creek
Blakeley Island
STEELWOOD
LOXLEY (PSE
ROSIN
Wade
P5
PSEC
SILVERHILL
Plant Daniel
SUMMER
FISH RIVER

Southeastern Regional TRANSMISSION PLANNING

EES Border to SBA 1500 MW

Projects Identified

Item	Proposed Enhancements	Cost ($)
P1	Russell Dam – Athena 230 kV TL	$61,000,000
P2	Fulton Area Improvements	$27,600,000
P3	Jesup – Ludowici 115 kV TL	$250,000(2)
P4	Attalla 161 / 115 kV Transformers	$18,700,000(1)
	Attalla – Albertville 161 kV TL	
P5	Blakeley Island - Silverhill 115 kV TL	$11,100,000
P6	Barry - Atmore 115 kV TL	$6,300,000
P7	Logtown West - NASA 115 kV TL	$1,100,000
P8	Morton – Forest Industrial 115 kV TL	$1,400,000(1)
P9	South Enterprise – Opp 230 kV TL	$22,100,000
-	- Continued -	-

(1) Cost provided is for the portion of the solution located within the participating Transmission Owners' territory

(2) Advancement cost associated with a project currently in the latest Ten Year Expansion Plan

Southeastern Regional TRANSMISSION PLANNING

EES Border to SBA 1500 MW

Projects Identified

Item	Proposed Enhancements	Cost ($)
-	- Continued -	-
P10	Sylacauga – Martin 115 kV TL	$8,300,000
P11	Wade – Big Creek 115 kV TL	$6,300,000
P12	Fayette – Gorgas 161 kV TL	$29,000,000
P13	Collins – McGee 115 kV TL	$3,000,000(1)

(1) Cost provided is for the portion of the solution located within the participating Transmission Owners' territory

SBA Total Cost (2011$) = $196,150,000

Southeastern Regional TRANSMISSION PLANNING

EES Border to SBA 1500 MW

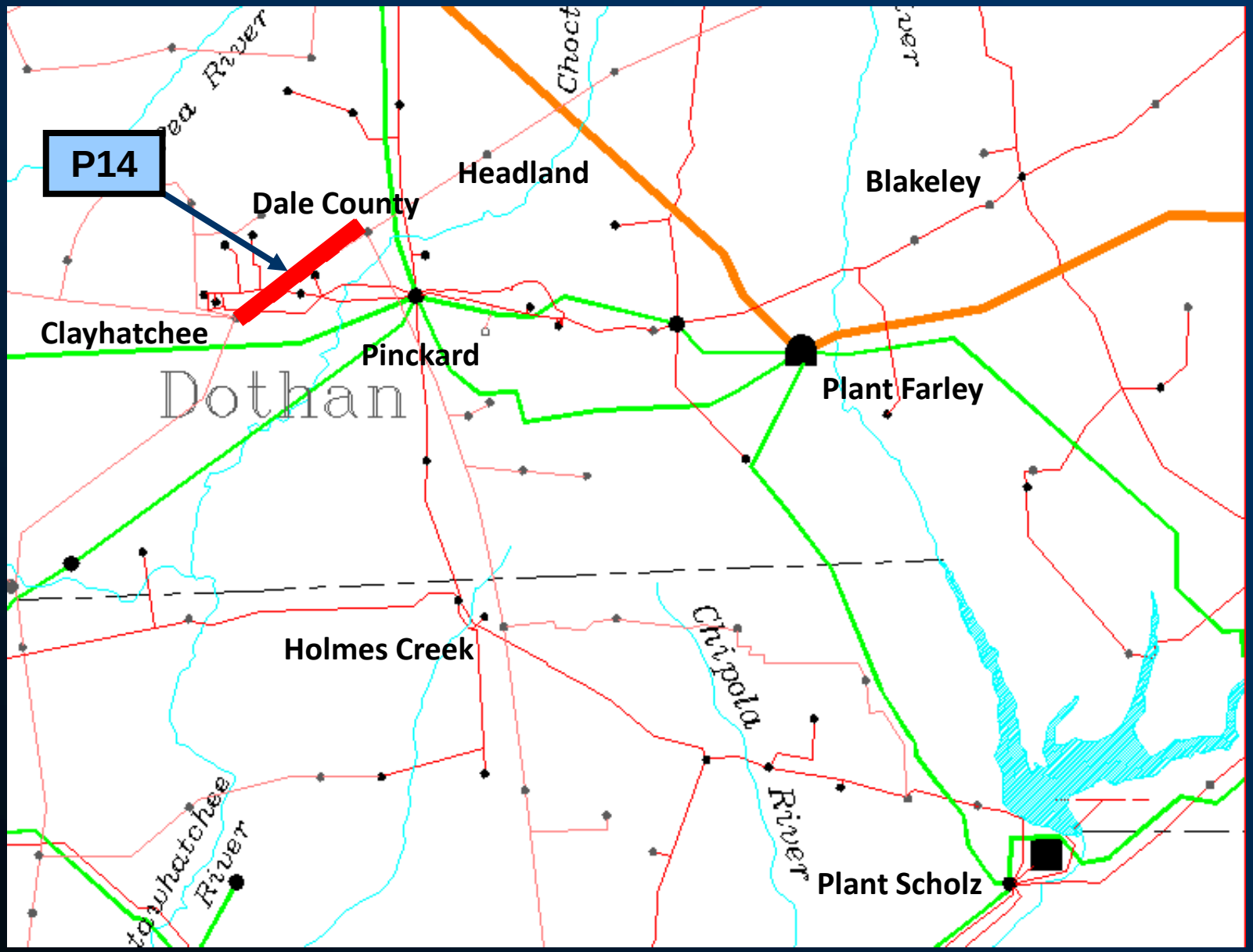
PowerSouth

Screen Results

EES Border to SBA 1500 MW

Significant Constraints – PASS 0

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Clayhatchee – Dale County 115 kV TL	157	83.0	105.0


P14
Dale County
Headland
Blakeley
Clayhatchee
Pinckard
Dothan
Plant Farley
Holmes Creek
Chipola River
Plant Scholz

Southeastern Regional TRANSMISSION PLANNING

EES Border to SBA 1500 MW

Projects Identified

Item	Proposed Enhancements	Cost ($)
P24	Clayhatchee – Dale County 115 kV TL	$1,500,000

PS Total Cost (2011$) = $1,500,000

Southeastern Regional TRANSMISSION PLANNING

EES Border to SBA 1500 MW (80%)

80% of Summer Peak Screen

- An additional screen at 80% of Summer Peak load was also evaluated per stakeholder request
- No additional constraints were identified
  - A subset of the constraints found in the Summer Peak and Shoulder analysis were identified.

Questions on the EES Border to SBA Transfer?

SCPSA Border

to

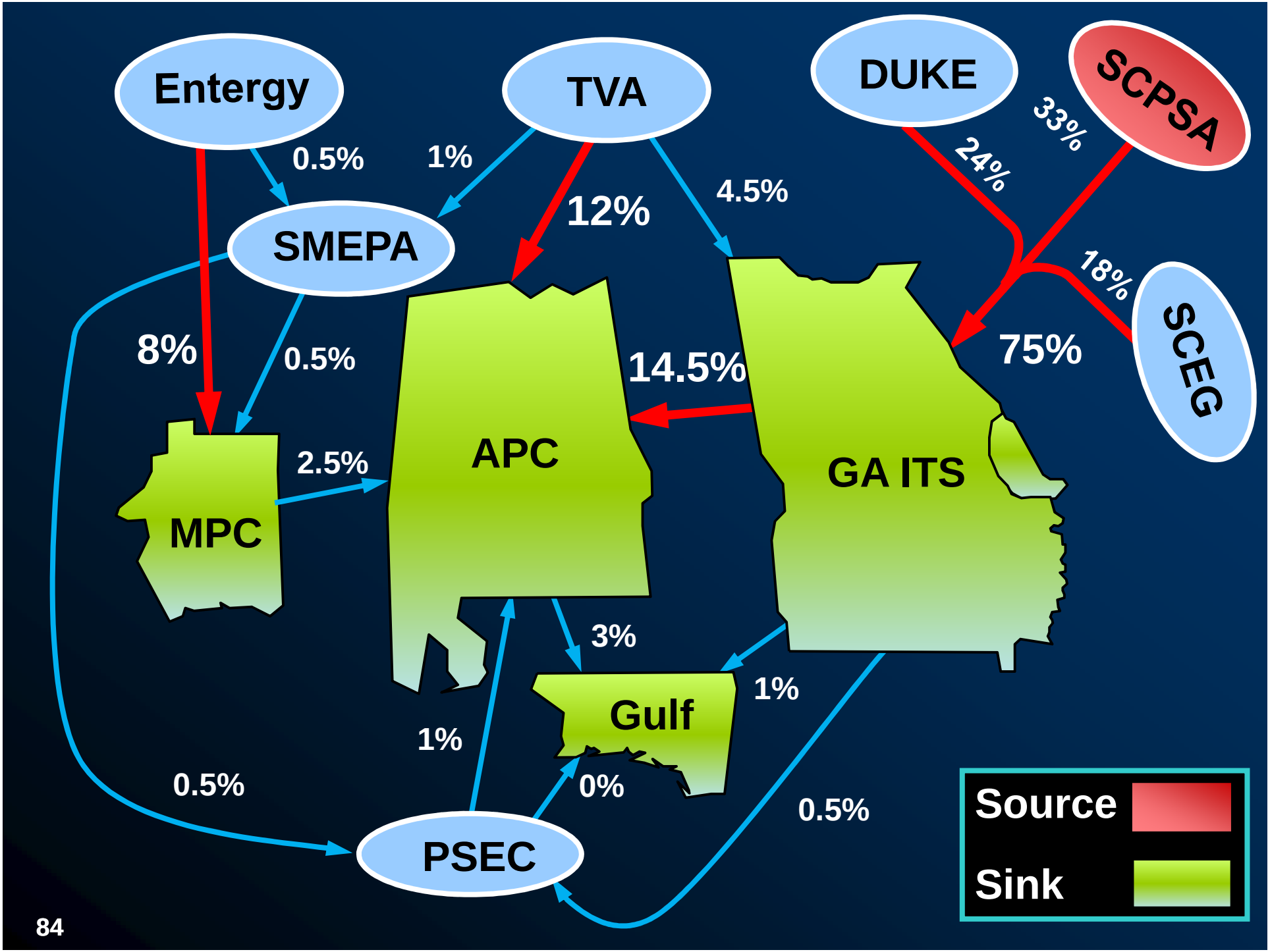
SBA

1000 MW

Southeastern Regional TRANSMISSION PLANNING

SCPSA Border to SBA 1000 MW

- Transfer Type: Load to Generation
- Source: Uniform load reduction in SCPSA
- Sink: Generation within the SBA


Entergy
TVA
DUKE
SCPSA
SMEPA
SCEG
APC
GA ITS
MPC
Gulf
PSEC
0.5%
1%
12%
4.5%
24%
33%
18%
8%
0.5%
14.5%
75%
2.5%
3%
1%
1%
0.5%
0%
0.5%
Source
Sink

Southeastern Regional TRANSMISSION PLANNING

SPCSA Border to SBA 1000 MW

Transmission System Impacts

- Thermal Constraints Identified:
  - Two (2) 230 kV Lines
  - Two (2) 161 / 115 kV Transformers
  - Two (2) 161 kV Lines
  - Eight (8) 115 kV Lines

Total Cost (2011$) = $95,260,000

SCPSA Border to SBA 1000 MW

Southern Balancing Authority

Screen Results

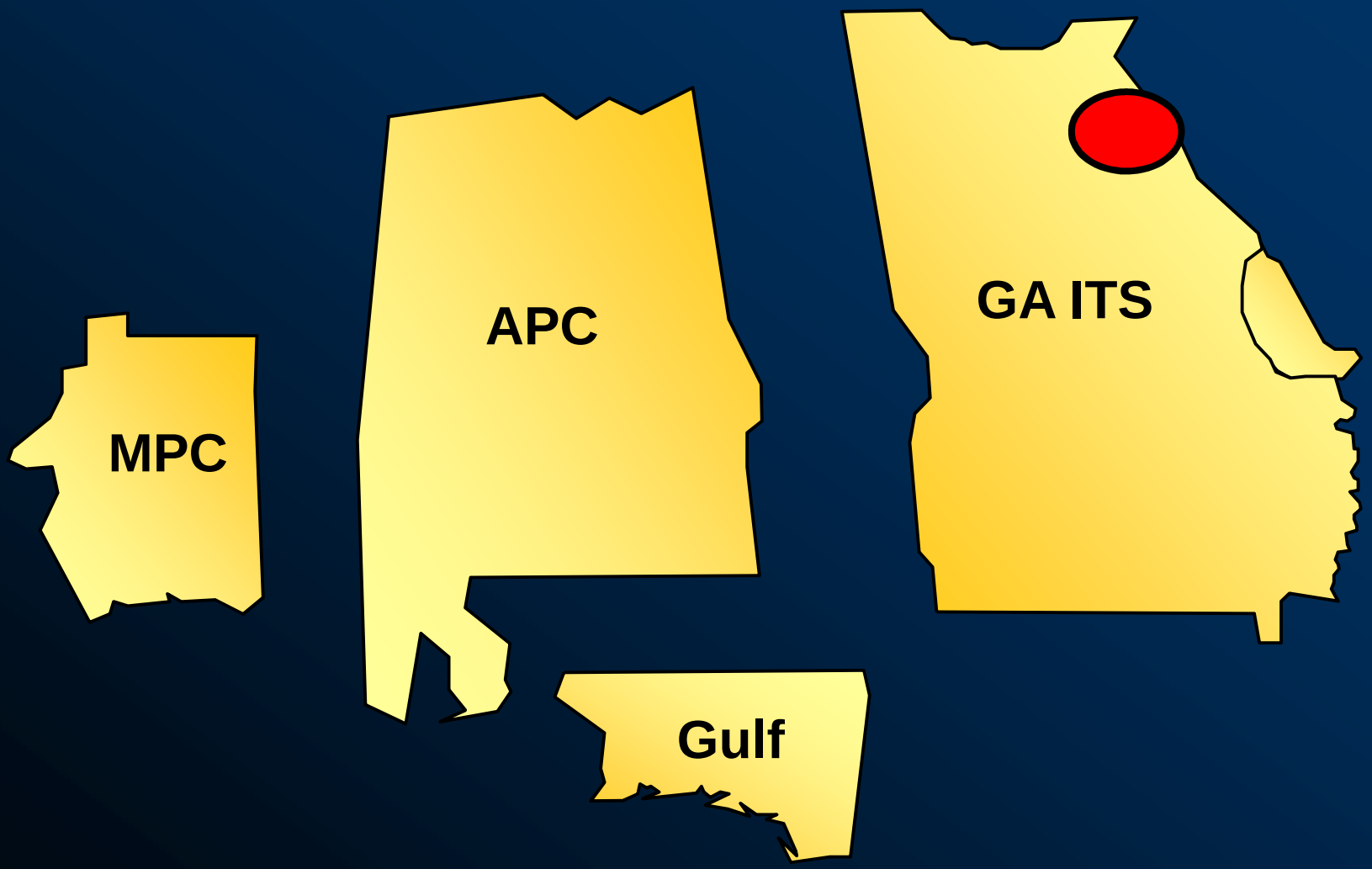
SCPSA Border to SBA 1000 MW

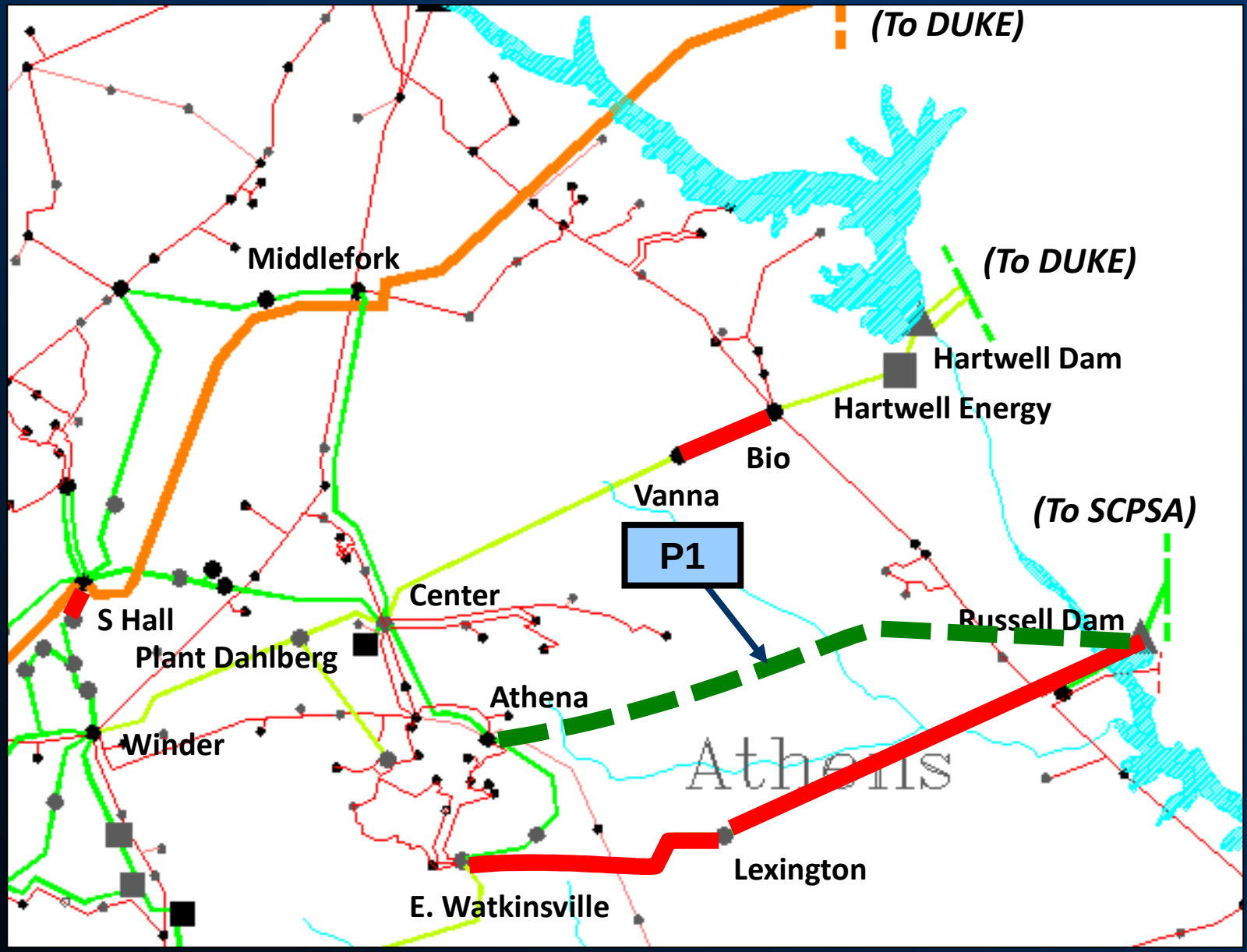
Significant Constraints – PASS 0

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Lexington – East Watkinsville 230 kV TL	602	93.7	103.3
Bio – Vanna 230 kV TL	433	96.2	104.0
Russell – Lexington 230 kV TL	596	98.0	107.8

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




(To DUKE)
Middlefork
(To DUKE)
Hartwell Dam
Hartwell Energy
Bio
Vanna
(To SCPSA)
P1
Center
S Hall
Plant Dahlberg
Russell Dam
Athena
Winder
Athens
Lexington
E. Watkinsville

SCPSA Border to SBA 1000 MW

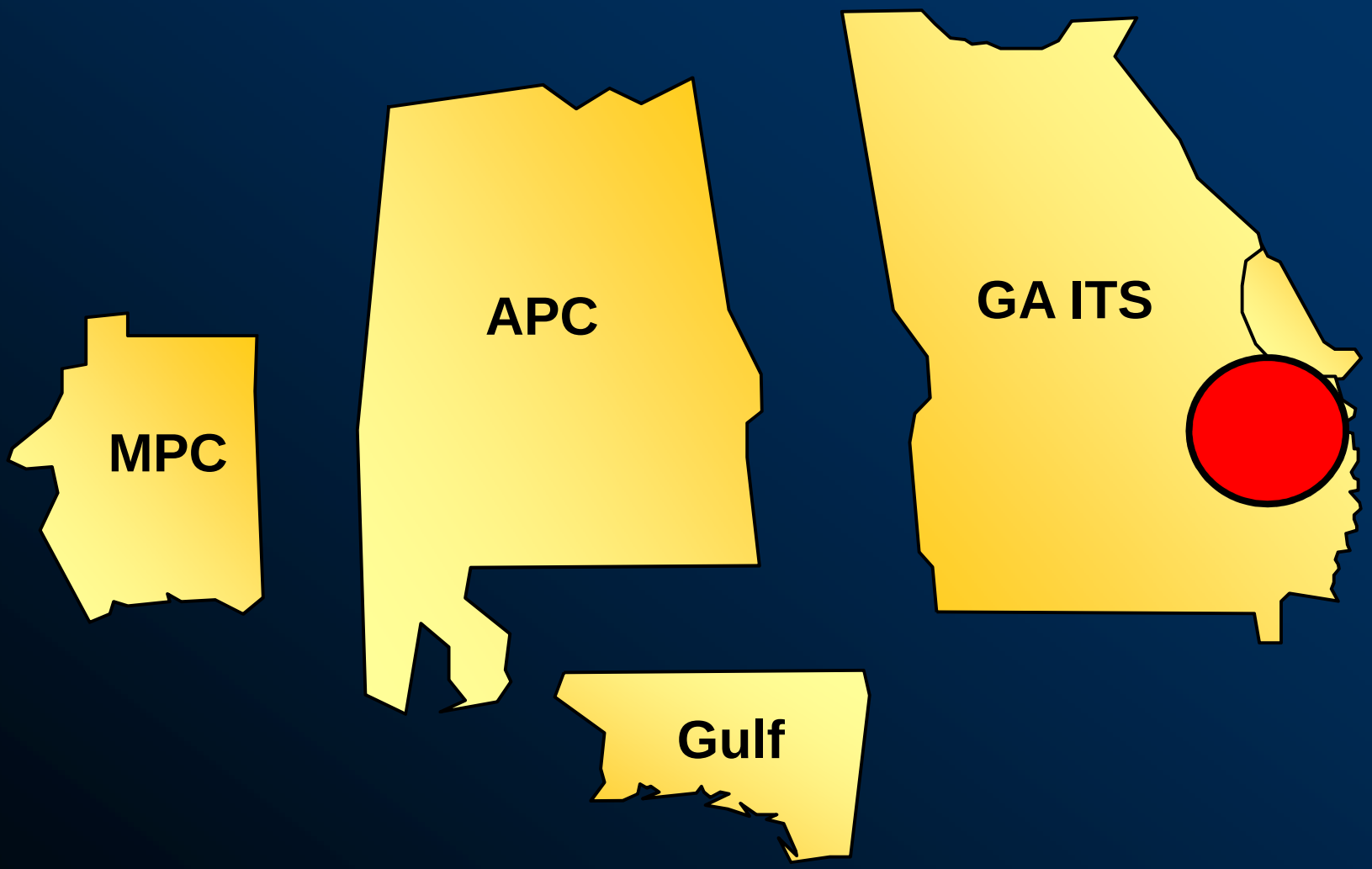
Significant Constraints – PASS 1

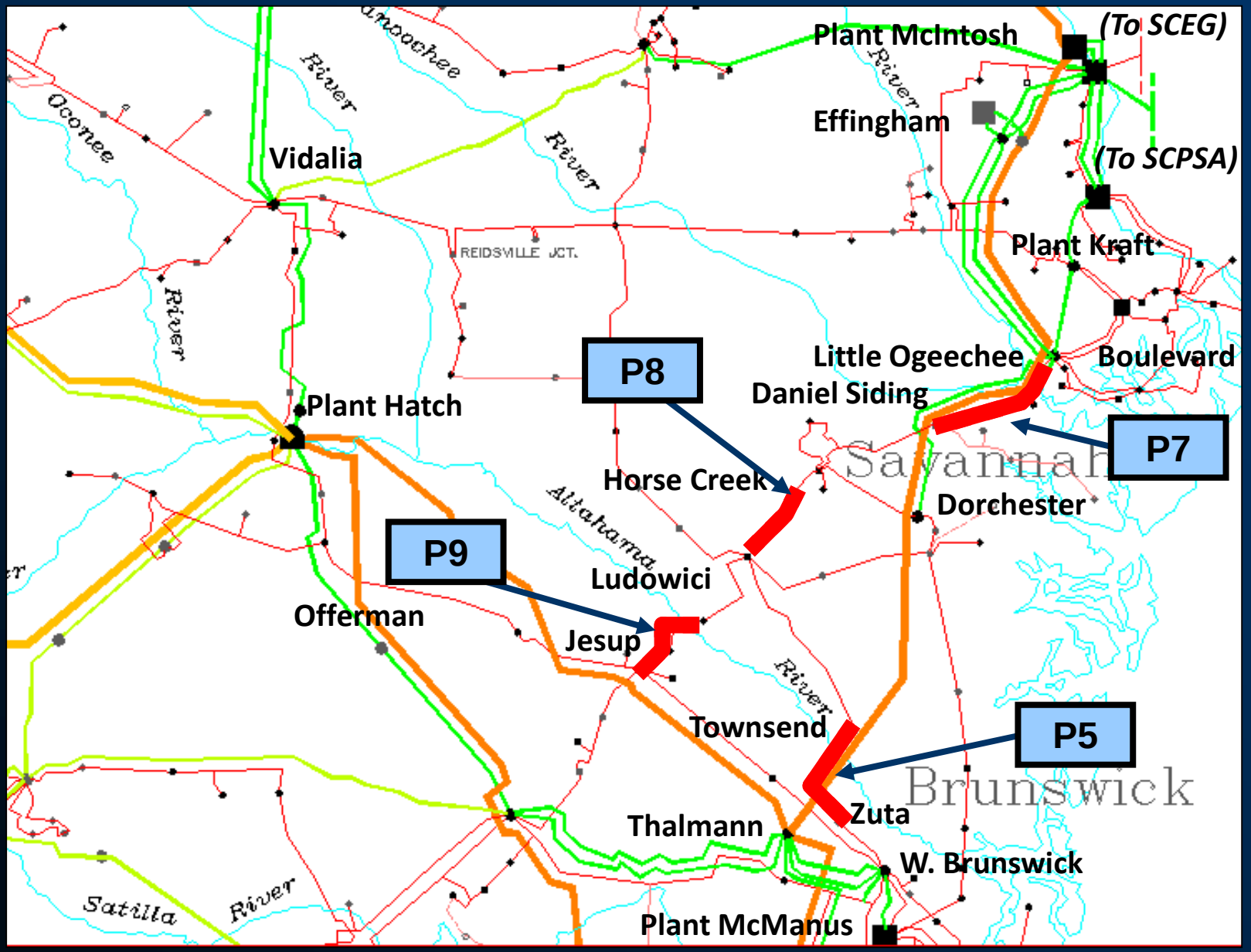
Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Daniel Siding – Rich Hill Tap 115 kV TL	255	95.8	102.1
Rich Hill Tap – Little Ogeechee 115 kV TL	255	105.2(1)	111.5
Horse Creek – Elam Chapel 115 kV TL	155	88.2	102.3
Zuta – Townsend 115 kV TL	114	87.1	101.4
Jesup – North Jesup 115 kV TL	124	87.7	106.0
North Jesup – Rayonier 115 kV TL	124	98.6	116.6

(1) A current operating procedure is sufficient to alleviate this constraint without the addition of the proposed transfer. However, the additional transfer exacerbates the loading on this facility such that the operating procedure becomes insufficient.

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




Plant McIntosh
(To SCEG)
Effingham
(To SCPSA)
Vidalia
Plant Kraft
REIDSVILLE JCT.
Little Ogeechee
Boulevard
Daniel Siding
P8
P7
Plant Hatch
Horse Creek
Savannah
Dorchester
Altahama
P9
Ludowici
Offerman
Jesup
Townsend
P5
Brunswick
Zuta
Thalmann
W. Brunswick
Plant McManus
Satilla
River
Ocoonee

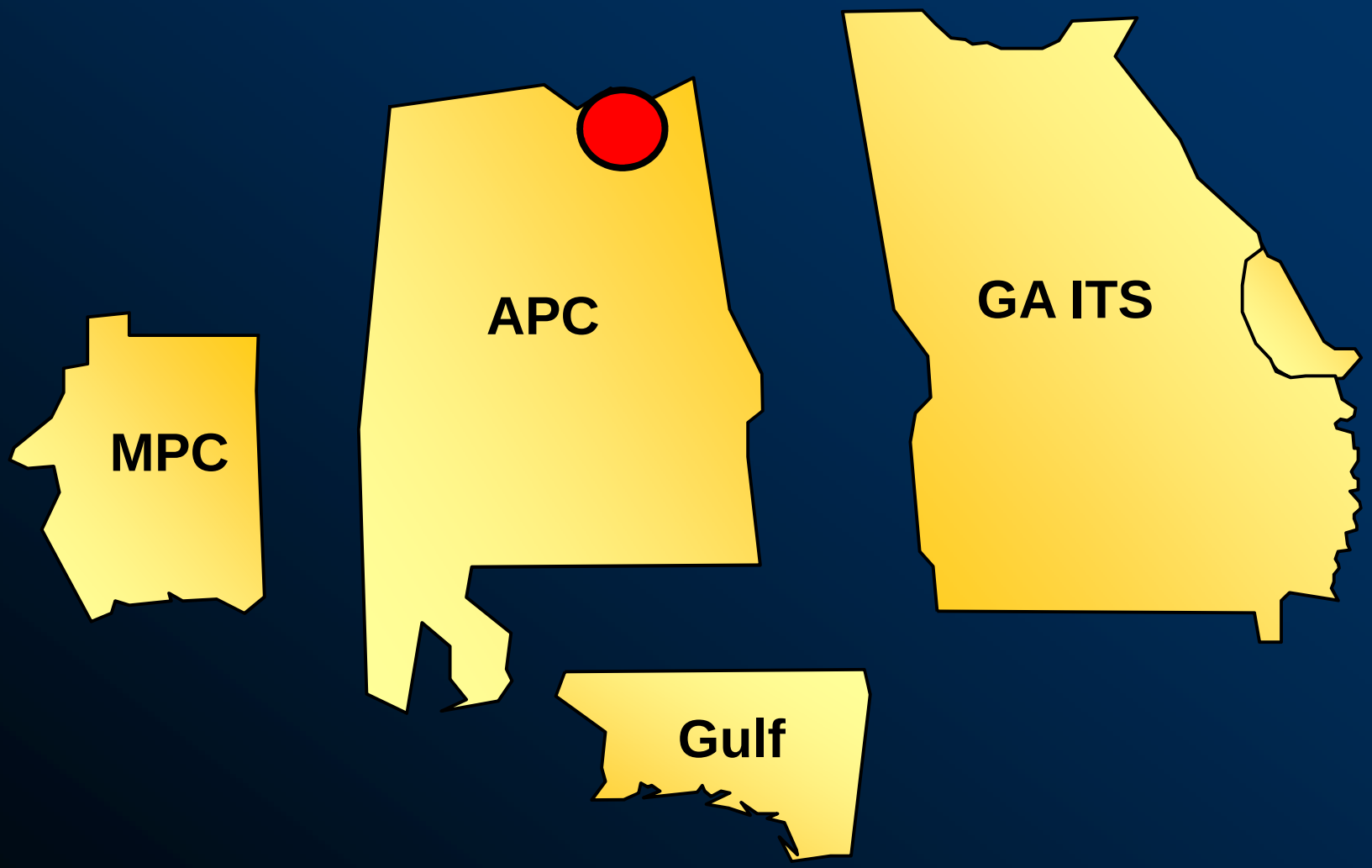
SCPSA Border to SBA 1000 MW

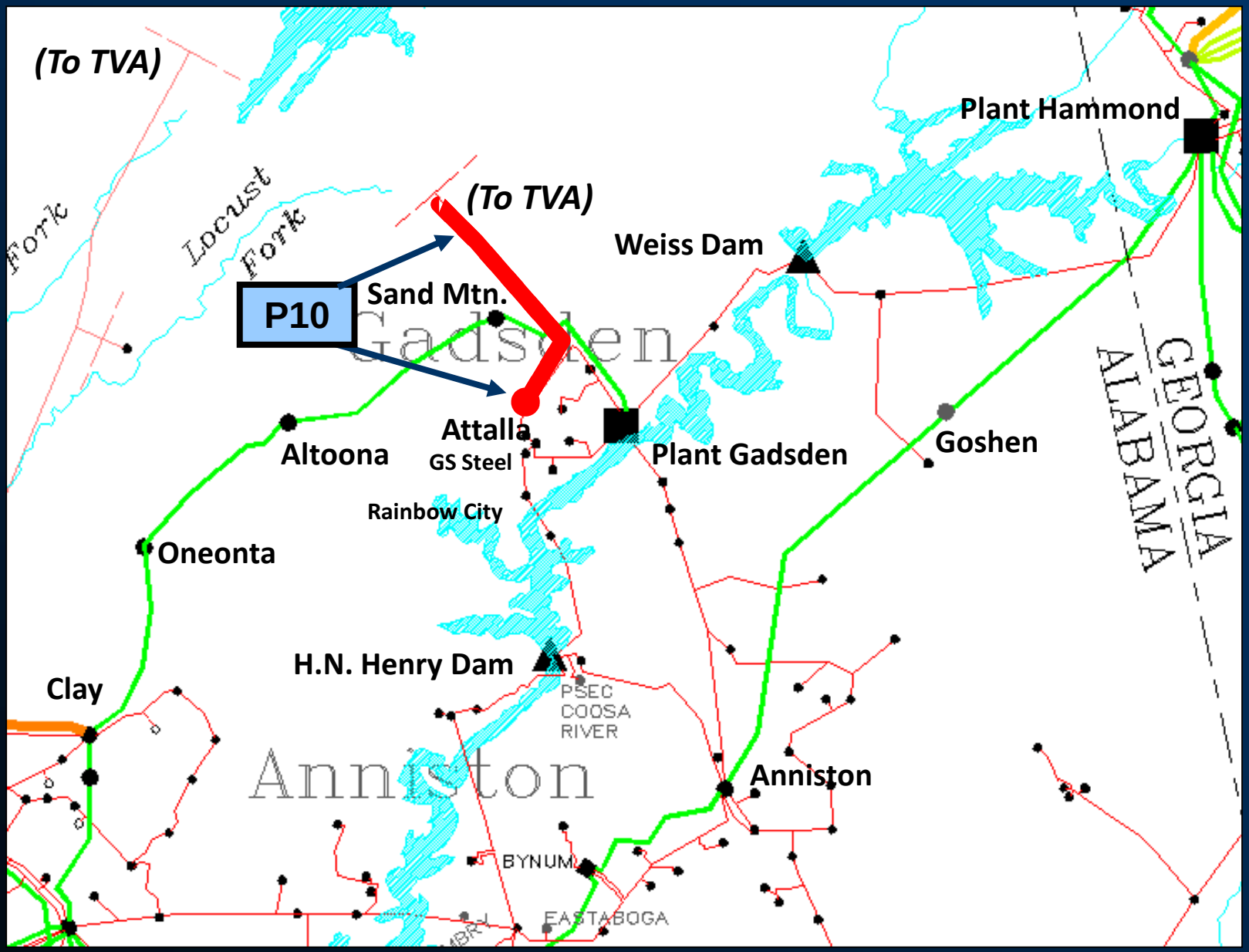
Significant Constraints – PASS 1 (Cont.)

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Attalla 161 / 115 kV Transformer 1	111	88.4	100.4
Attalla 161 / 115 kV Transformer 2	99	88.4	101.6
Attalla – Albertville 161 kV TL	193	96.7	109.9

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




(To TVA)
(To TVA)
Plant Hammond
Weiss Dam
P10
Sand Mtn.
Gadsden
Attalla
GS Steel
Altoona
Plant Gadsden
Goshen
GEORGIA
ALABAMA
Rainbow City
Oneonta
H.N. Henry Dam
Clay
PSEC
COOSA
RIVER
Anniston
Anniston
BYNUM
EASTABOGA

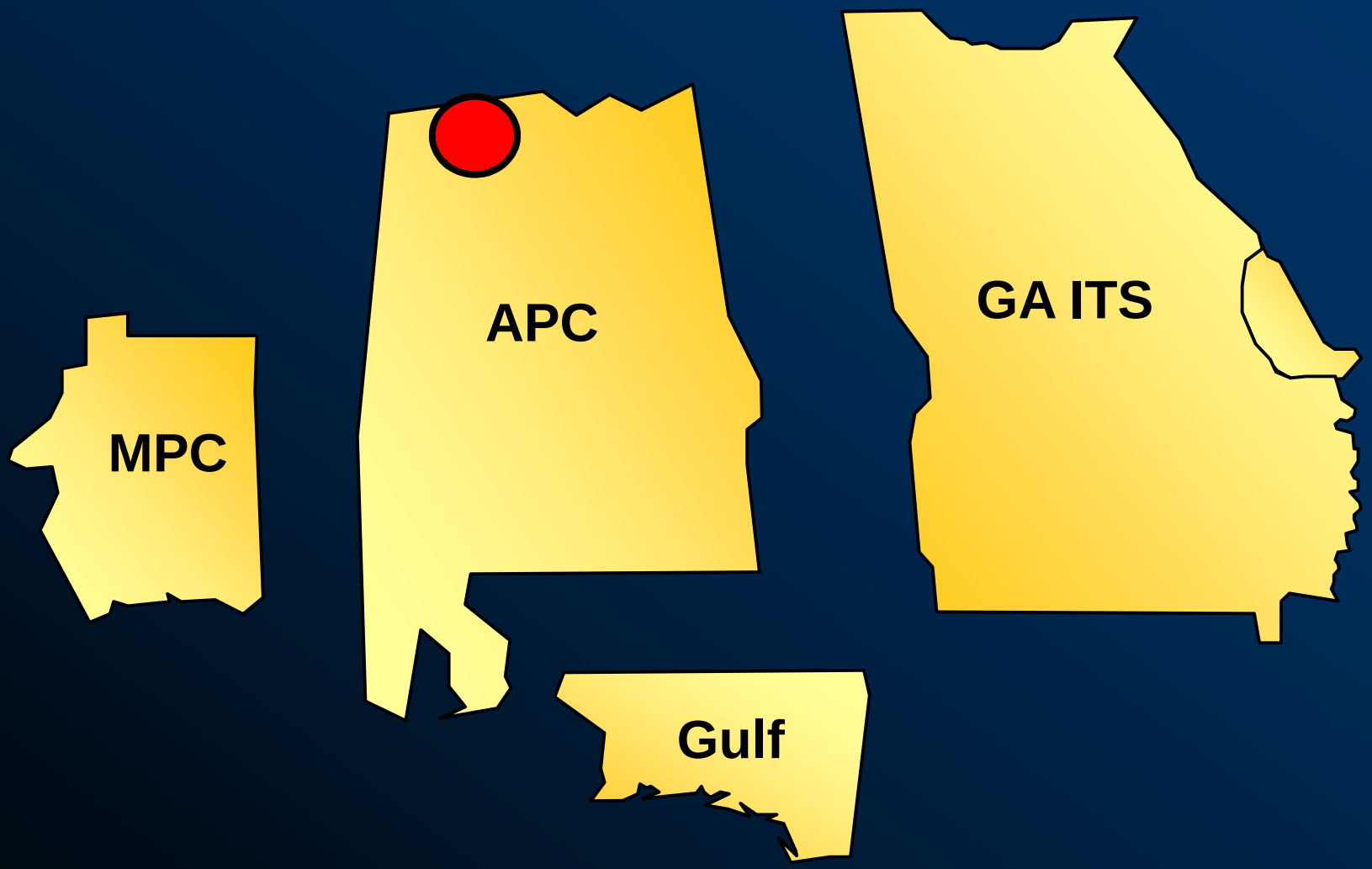
SCPSA Border to SBA 1000 MW

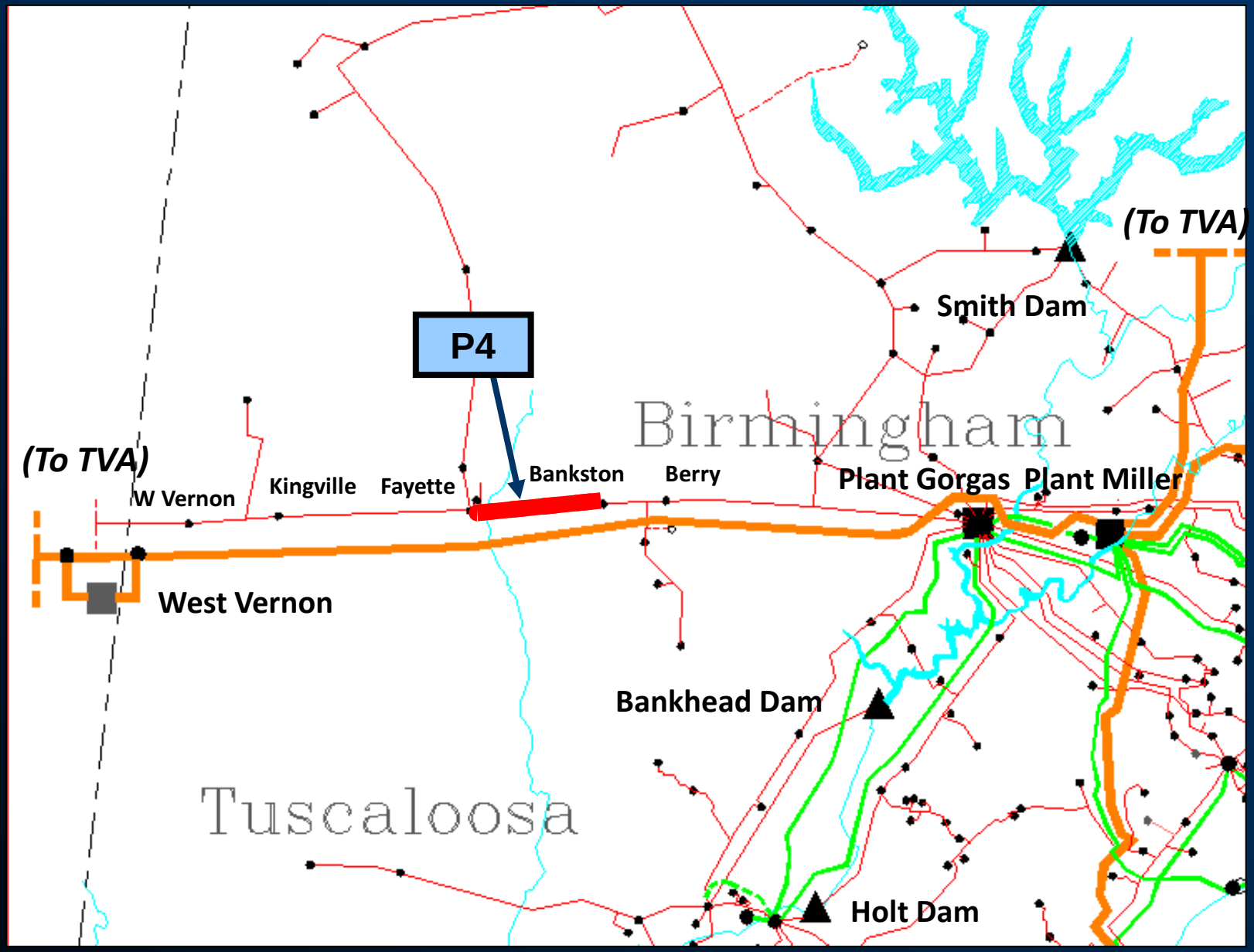
Significant Constraints – PASS 1 (Cont.)

Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Fayette CS – Bankston 161 kV TL	193	93.8	101.3
Fayette TS – Fayette TS 161 kV TL	193	93.8	101.4

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




(To TVA)
W Vernon
Kingville
Fayette
P4
Bankston
Berry
Birmingham
Plant Gorgas
Plant Miller
(To TVA)
Smith Dam
West Vernon
Bankhead Dam
Tuscaloosa
Holt Dam

SCPSA Border to SBA 1000 MW

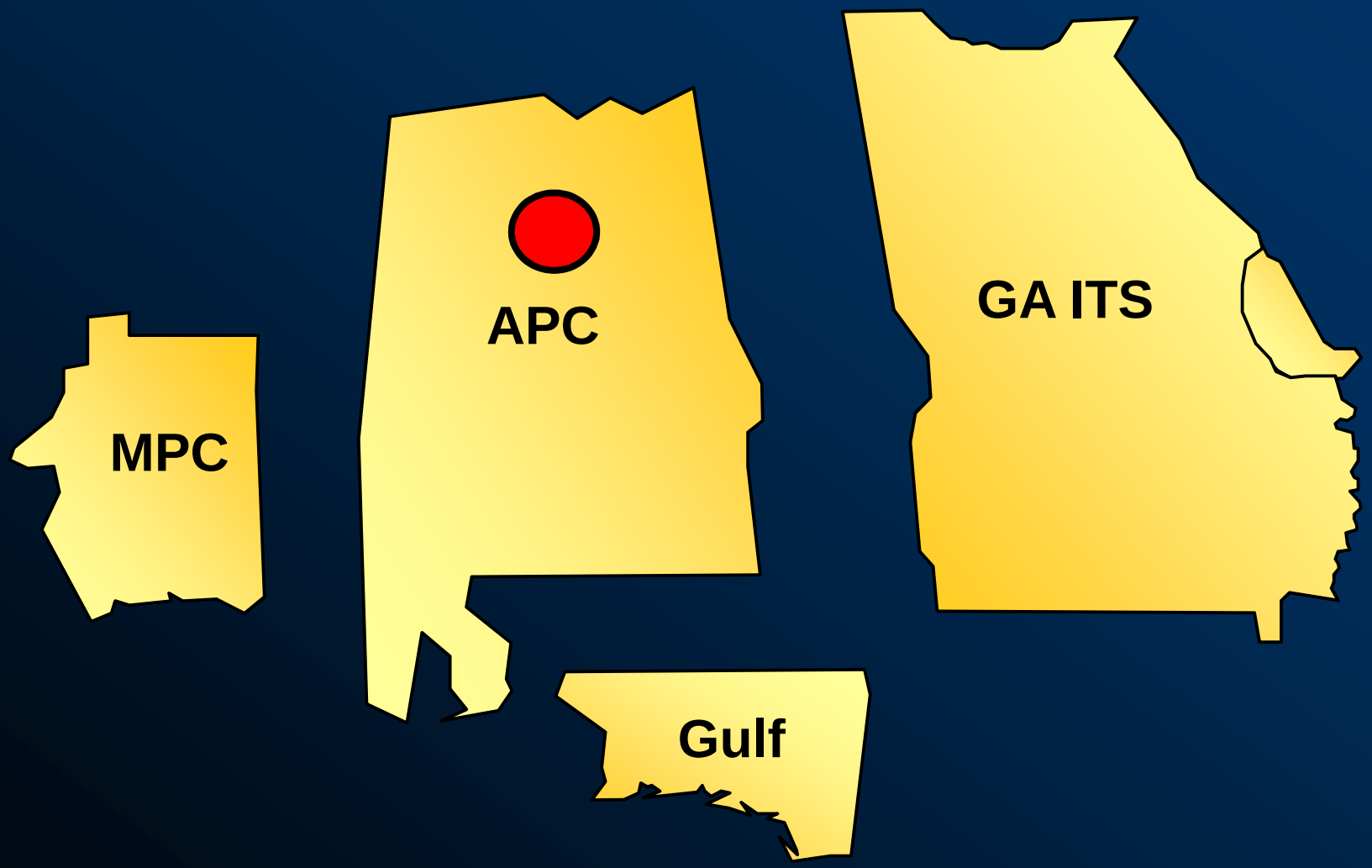
Significant Constraints – PASS 1 (Cont.)

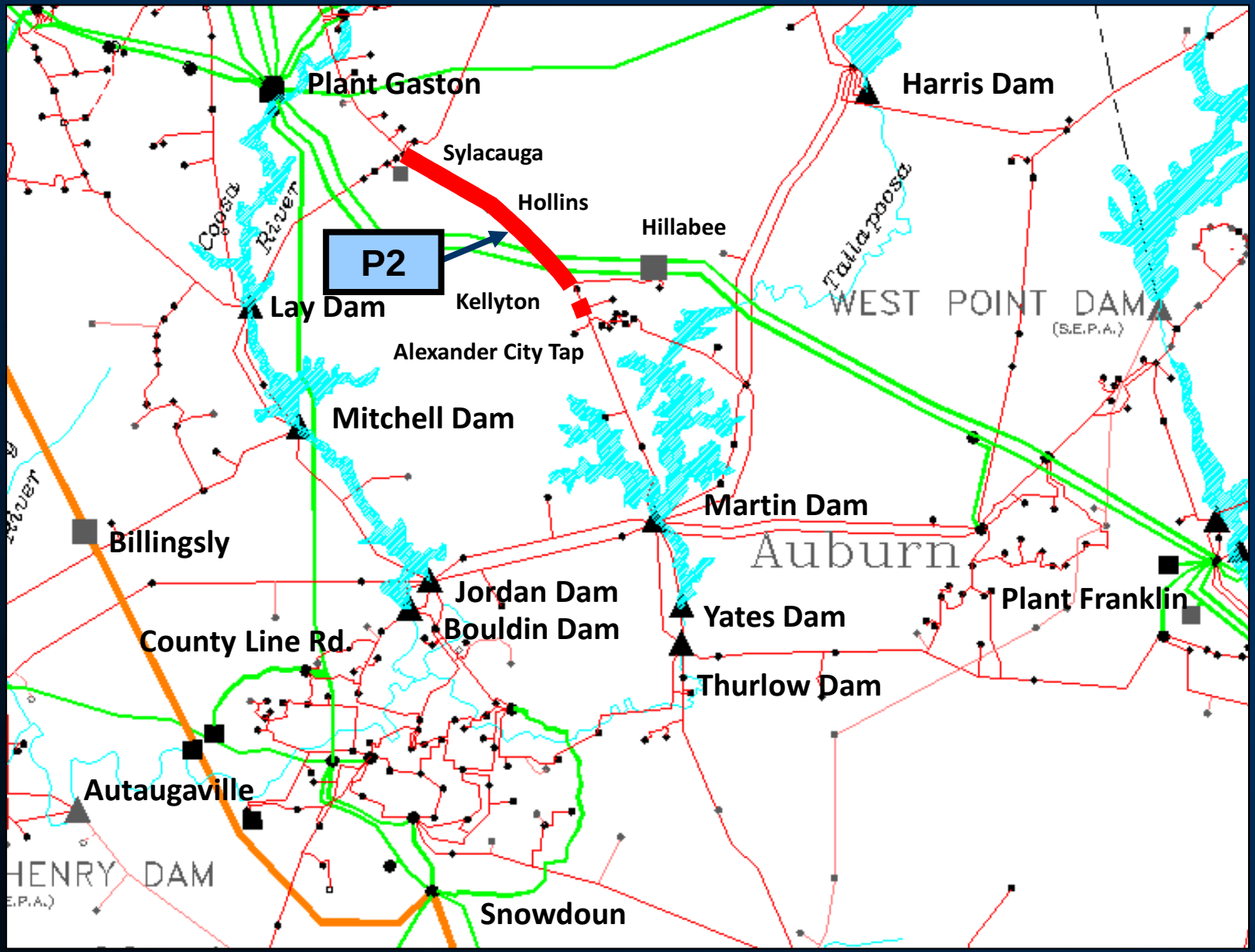
Limiting Elements	Rating (MVA)	Thermal Loading (%)	
		Without Request	With Request
Sylacauga – Hollins 115 kV	113	104.6(1)	111.4
Hollins – Sunny Level Tap 115 kV	113	99.8	106.5
Sunny Level Tap – Kellyton 115 kV	113	93.5	100.3

(1) A current operating procedure is sufficient to alleviate this constraint without the addition of the proposed transfer. However, the additional transfer exacerbates the loading on this facility such that the operating procedure becomes insufficient.

Southeastern Regional
TRANSMISSION PLANNING

Significant Constraints




Plant Gaston
Harris Dam
Sylacauga
Hollins
Hillabee
P2
Coosa River
Talapoosa
WEST POINT DAM
(S.E.P.A.)
Lay Dam
Kellyton
Alexander City Tap
Mitchell Dam
Martin Dam
Billingsly
Auburn
Jordan Dam
Plant Franklin
Yates Dam
Bouldin Dam
County Line Rd.
Thurlow Dam
Autaugaville
HENRY DAM
Snowdoun

Southeastern Regional TRANSMISSION PLANNING

SCPSA Border to SBA 1000 MW

Projects Identified

Item	Proposed Enhancements	Cost ($)
P1	Russell Dam – Athena 230 kV TL	$61,000,000
P2	Sylacauga – Martin 115 kV TL	$8,300,000
P3	Wade Substation	$50,000
P4	Fayette – Gorgas 161 kV TL	$4,800,000
P5	Zuta Substation	$10,000(2)
P6	Kathleen – Bonaire 115 kV TL	$1,500,000
P7	Daniel Siding – Little Ogeechee 115 kV TL	$400,000(2)
P8	Hinesville – Ludowici 115 kV TL	$250,000(2)
P9	Jesup – Ludowici 115 kV TL	$250,000(2)
-	- Continued -	-

(2) Advancement cost associated with a project currently in the latest Ten Year Expansion Plan

SCPSA Border to SBA 1000 MW

Projects Identified

Item	Proposed Enhancements	Cost ($)
-	- Continued -	-
P10	Attalla 161 / 115 kV Transformers Attalla – Albertville 161 kV TL	$18,700,000(1)

(1) Cost provided is for the portion of the solution located within the participating Transmission Owners' territory

SBA Total Cost (2011$) = $95,260,000

Questions on the SCPSA Border to SBA Transfer?

FRCC Coordination Update

❖FRCC Coordination Update

- Exchanged the latest transmission models for the ten year planning horizon
- Models will be incorporated into subsequent base cases

SIRPP Update

The Five Economic Planning Studies

- ❖SCE&G to AEP (200 MW)
  - Study Year: 2017
- ❖Southern Co. to Progress Energy Carolinas (50 MW)
  - Study Year: 2017
- ❖SCRTP to FRCC (200 MW)
  - Study Year: 2017
- ❖LGE & KU to Southern Co. (200 MW)
  - Study Year: 2013
- ❖Southern Co. to LGE & KU (200 MW)
  - Study Year: 2013

2010 – 2011 SIRPP Update

- More detailed information concerning these studies is available on the Southeast Inter-Regional Participation Process website at the following link:
  - http://www.southeastirpp.com/
- 2nd Inter-regional Stakeholder Meeting
  - April / May of 2012.

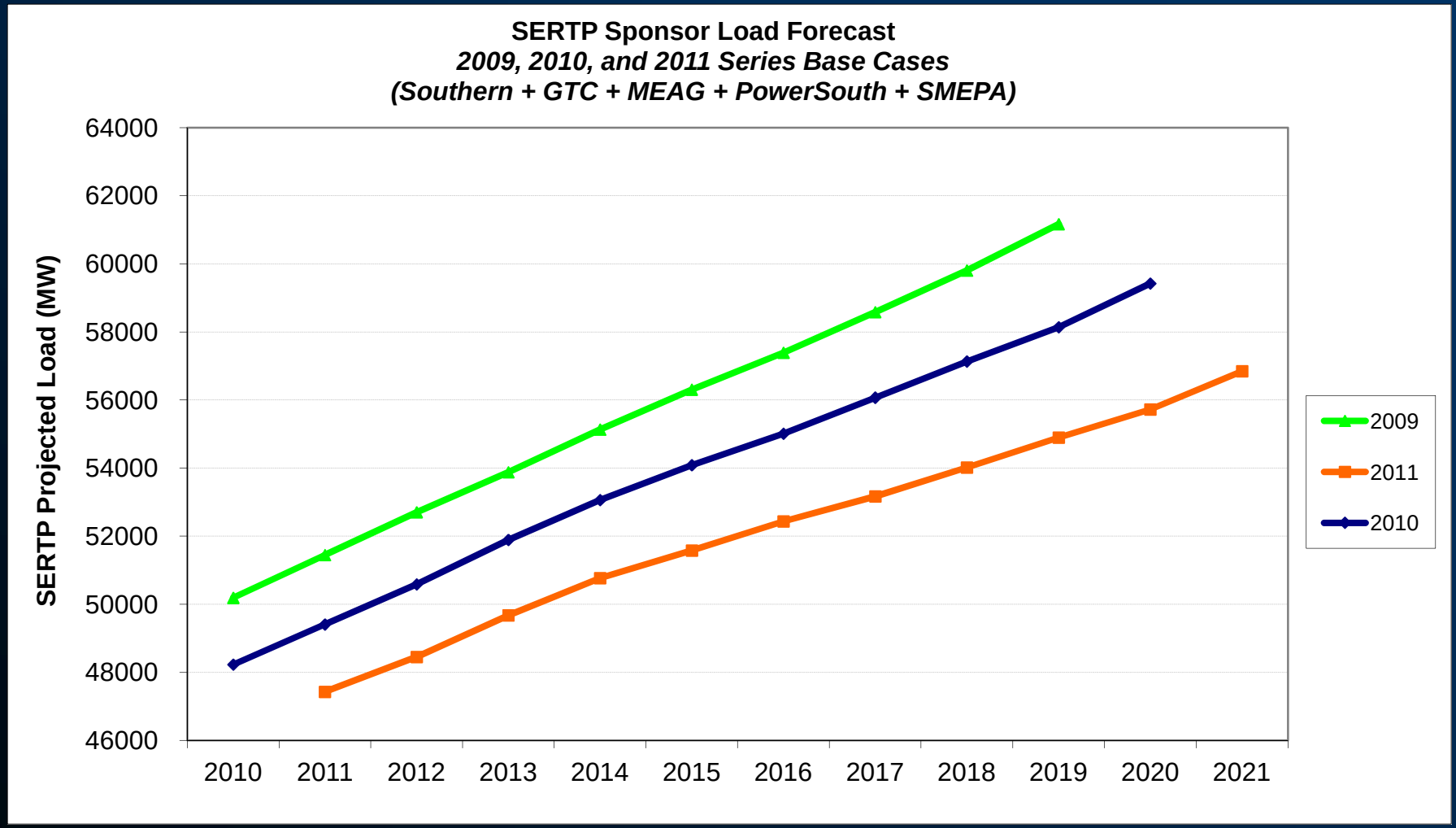
Southeastern Regional
TRANSMISSION PLANNING

2011 SERTP

2011 Modeling Assumptions

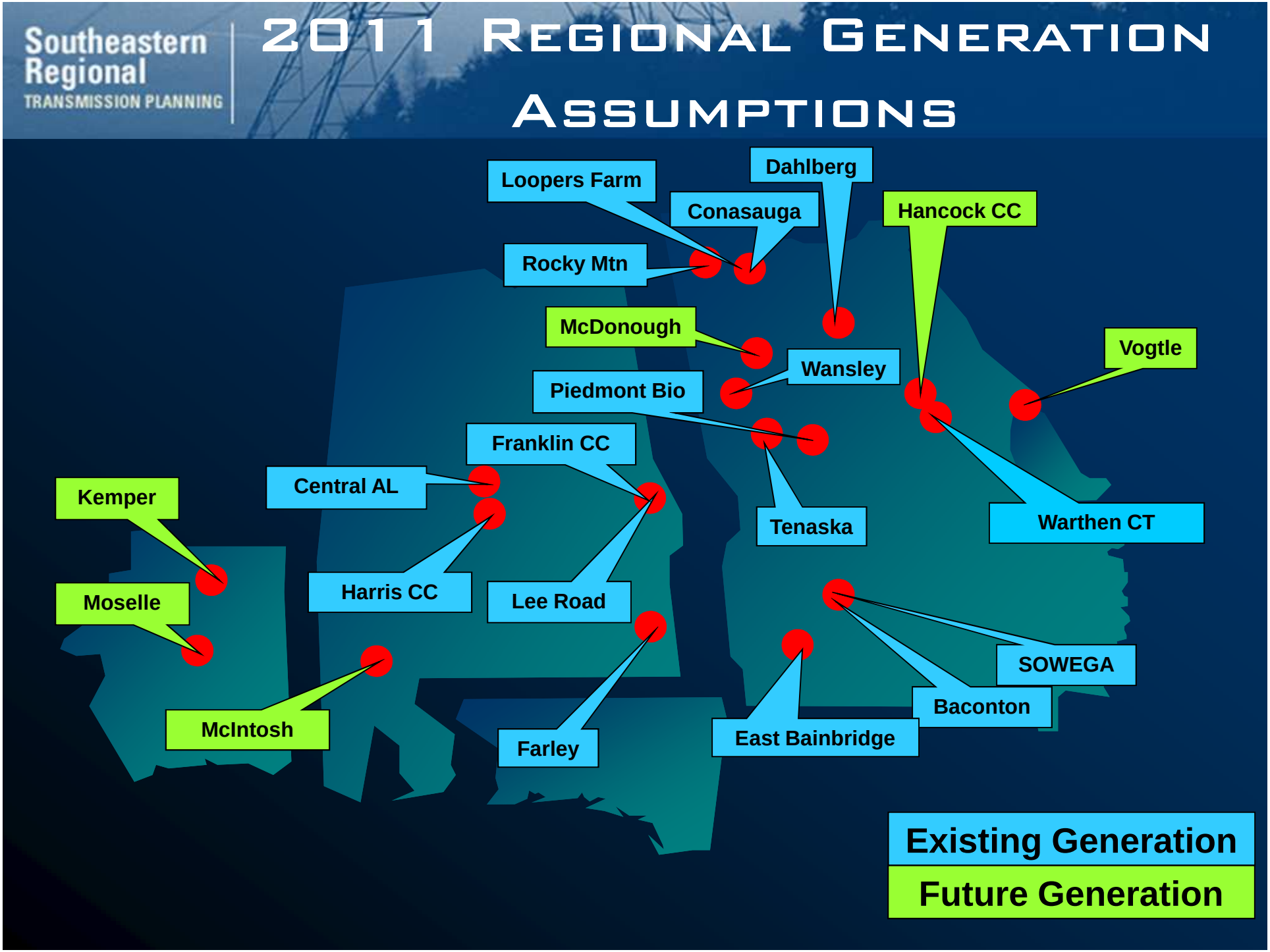
Southeastern Regional TRANSMISSION PLANNING

2011 Load Forecast



Southeastern Regional TRANSMISSION PLANNING

2011 Regional Generation Assumptions



Southeastern Regional TRANSMISSION PLANNING

2011 SERTP

Generation Assumptions for the 2011 Transmission Expansion Planning Process

Year		Site	MW
2011	GTC	Dahlberg CT	-100
		Dynergy Heard CTs	-100
		East Bainbridge	-72
		Loopers Farm	146
		Franklin 3	-280
		McDonough 2 Coal	-51
		Rocky Mountain	44
		Wansley CC7	-152
		Warthen CT	600
	MEAG	Crisp Co Hydro	-20
		Calhoun Cogen	-20
	PS	McIntosh 4 & 5	448
	SoCo	Farley 1 Uprate	35
		Franklin 2	-625
		McDonough 2 Coal	-200

Year		Site	MW
2012	GTC	McDonough 1 Coal	-49
		Conasauga	630
		Loopers Farm	206
		Wansley CC7	152
	SMEPA	Moselle	150
	SoCo	Conasauga	-630
		Farley 2 Uprate	35
		McDonough 1 Coal	-202
		McDonough CC4	841
		McDonough CC5	841
		Piedmont Bio	50

Southeastern Regional TRANSMISSION PLANNING

2011 SERTP

Generation Assumptions for the 2011 Transmission Expansion Planning Process

Year		Site	MW
2013	GTC	East Bainbridge	78
		Lee Road CT	100
		Loopers Farm	268
		Franklin 2	625
	MEAG	Vogtle 1	44
	SoCo	Central Alabama CC	885
		McDonough CC6	841
		Vogtle 1	-44

Year		Site	MW
2014	GTC	Dahlberg CT	75
		SOWEGA	90
	SoCo	Baconton CT	-197
		Dahlberg CT	-292
		Kemper IGCC	600

Generation Assumptions for the 2011 Transmission Expansion Planning Process

Year		Site	MW
2015	GTC	Dahlberg CT	187
		Franklin 3	280
		Santa Rosa	-225
		SOWEGA	-90

Year		Site	MW
2015 (cont.)	GTC	Branch	-45
		Gaston 1&2	-52
		Hammond 2	-11
		McManus CT	-17
		Mitchell	-25
		Scherer 3	-62
		Wilson 5 CT	-21
		Yates	-122
	MEAG	Vogtle 2	44
	SoCo	Vogtle 2	-44

Generation Assumptions for the 2011 Transmission Expansion Planning Process

Year	Site		MW
2016	Dalton	Vogtle 3	16
	GTC	Dahlberg CT	113
		Vogtle 3	330
		Warthen CT	-280
	MEAG	Vogtle 3	250
	SoCo	Vogtle 3	504

Year	Site		MW
2017	Dalton	Vogtle 4	16
	GTC	Vogtle 4	330
		Wansley CC6	561
	MEAG	Vogtle 4	250
	SoCo	Vogtle 4	504
		Wansley CC6	-561

Generation Assumptions for the 2011 Transmission Expansion Planning Process

Year	Site	MW
2018	N/A	

Year	Site		MW
2019	PS	McIntosh 6	187
	SoCo	Harris 2	-628

Year	Site	MW
2020	N/A	

Year	Site		MW
2021	SoCo	Hancock CC1	940

Southeastern Regional TRANSMISSION PLANNING

2011 SERTP

Generation Assumptions for the 2011 Transmission Expansion Planning Process

PTPs preserved through the planning horizon

Starting in Year		Site	MW
2012	PTP	Dahlberg	255
2012		Franklin	535
2012		Harris 1	584
2012		Hillabee	700
2012		Lindsay Hill	500
2012		Scherer 3	235
2012		Scherer 4	850
2015		Vogtle	103
2016		Vogtle	103

PTPs ending within the planning horizon

Year		Site	MW
2012 – 2014	PTP	Scherer 3	42
2012 – 2014		Miller	164
2015**		Miller	103

**Point to Point is assumed for the stated year only

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TRANSMISSION PLANNING

2011 SERTP

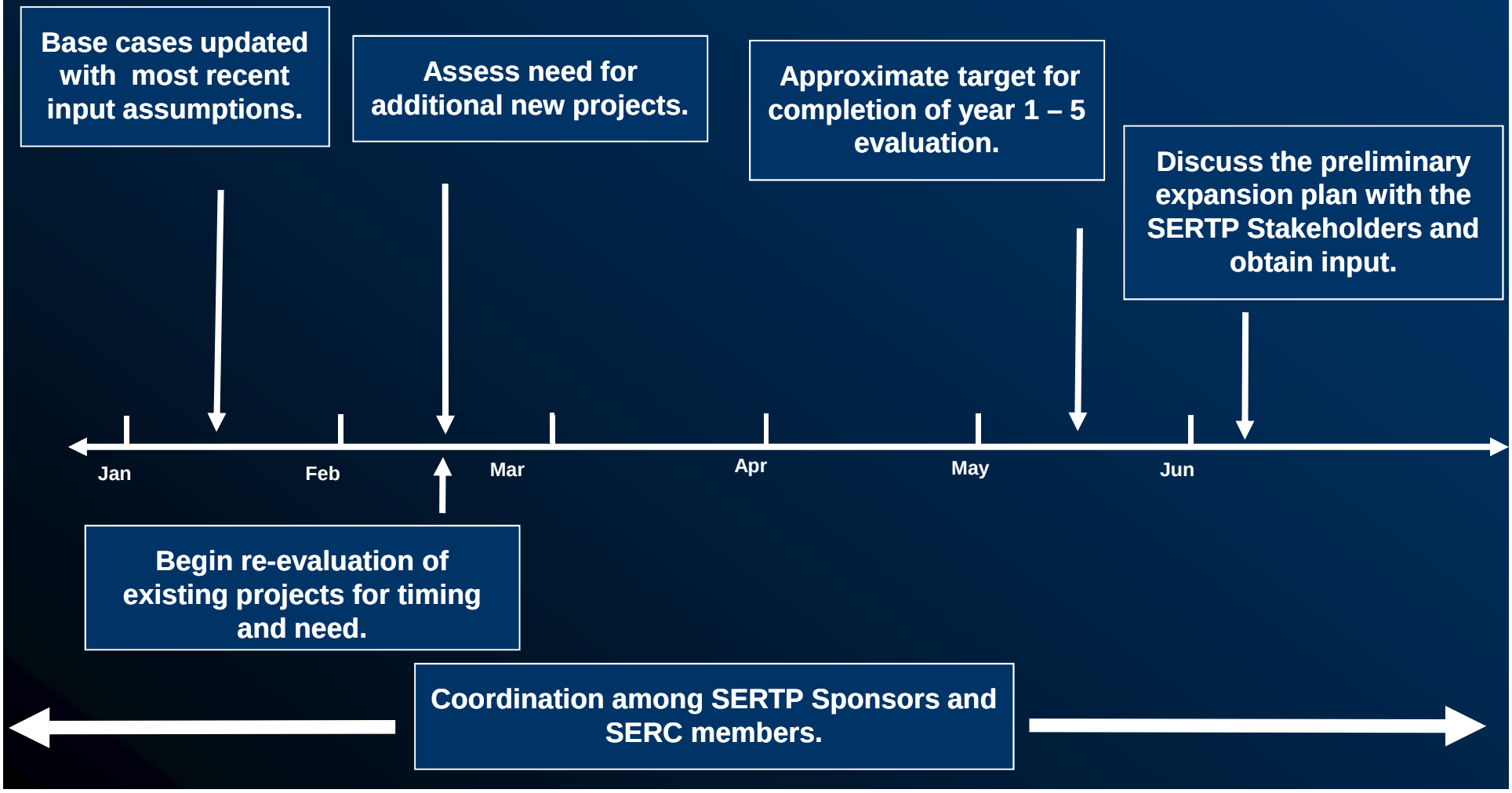
Ten Year Expansion Plan

Southeastern Regional TRANSMISSION PLANNING

10 Year Expansion Plan

Approximate Time Line for Area Planning

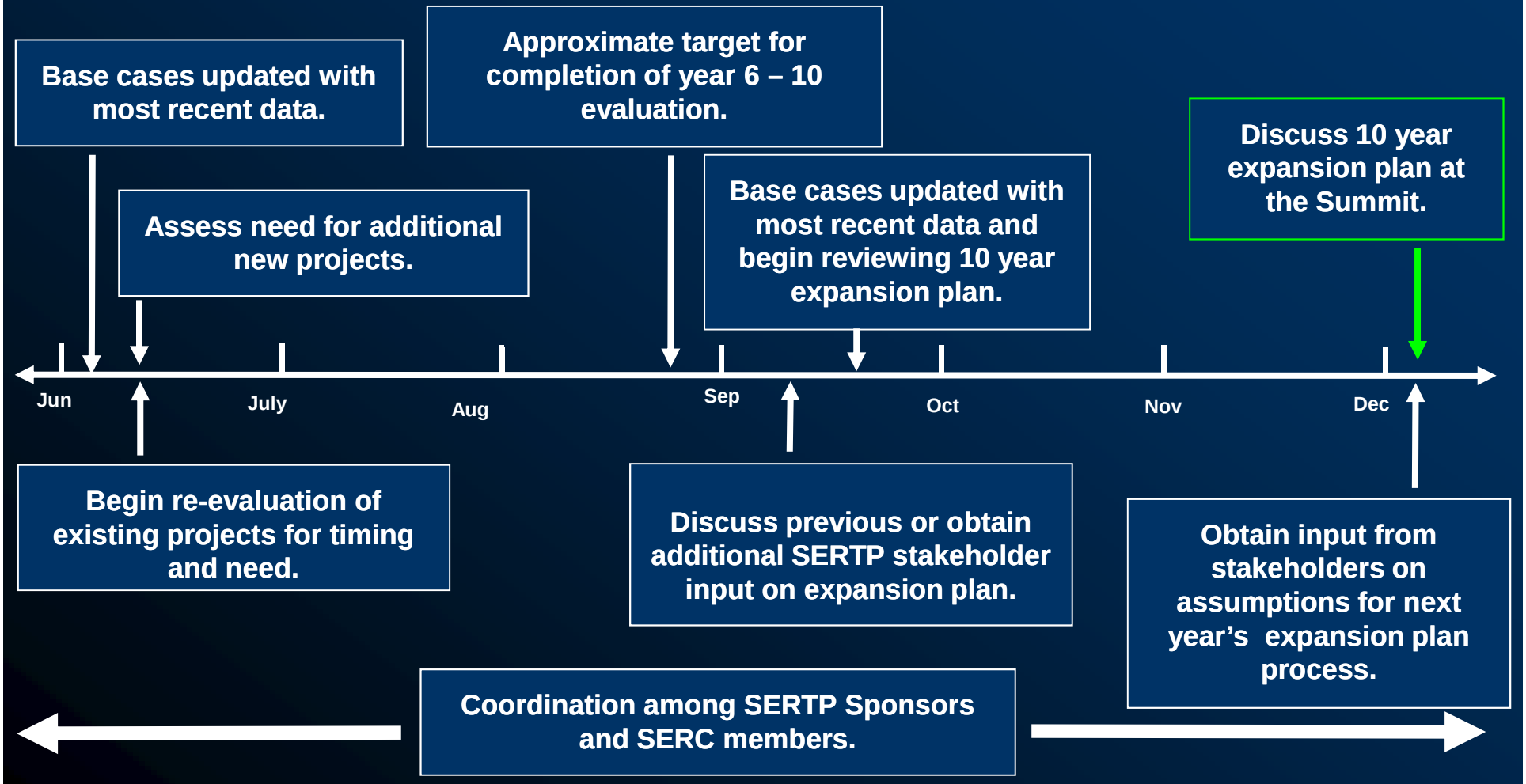
(Years 1 – 5)



Southeastern Regional TRANSMISSION PLANNING

10 Year Expansion Plan

Approximate Time Line for Area Planning (Years 6 – 10)



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2011 SERTP

- The expansion plan is periodically reviewed and may be revised due to changes in assumptions.
- This presentation does not represent a commitment to build for projects listed in the future.
- The in-service date of each project is June 1st of the stated project year, unless otherwise specified.
- The need date of each project is the same as the in-service date, unless otherwise specified.

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2011 SERTP

East

West

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2011 SERTP

Order 1000

Implementation Process & Potential Timeline

Southeastern Regional TRANSMISSION PLANNING

ORDER 1000

- On July 21, 2011, FERC issued Order 1000 on "Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities"
- The effective date of the Order is October 11, 2011
- Each public utility transmission provider must submit a compliance filing by October 11, 2012
  - A compliance filing for the requirements set forth with respect to interregional transmission coordination procedures and an interregional cost allocation method or methods must be submitted by April 11, 2013

Southeastern Regional TRANSMISSION PLANNING

Order 1000 Implementation Process & Timeline

- The "Interim Meetings" shown are tentative. The actual meeting frequency will be dependent on need and stakeholder feedback.

SERTP 1st Qtr Mtg:
- Discuss Order 1000 requirements
- Share "strawman" for discussion purposes

SERTP 2nd Qtr Mtg:
- Continue to discuss Order 1000 requirements
- Discuss and revise latest proposal

SERTP 3rd Qtr Mtg:
- Review Order 1000 Final Proposal
- Share interregional "strawman" for discussion purposes

2012

Interim Meeting:
- Conference Call and/or Face-to-Face
- Discuss "strawman" revisions
- Discuss requirements and resulting additions to "strawman"

Interim Meeting:
- Conference Call and/or Face-to-Face
- Discuss latest "strawman"

Interim Meeting:
- Conference Call and/or Face-to-Face
- Discuss latest proposal

October 11th, 2012:
- Compliance Filing on Regional Requirements

Southeastern Regional TRANSMISSION PLANNING

Order 1000 Implementation Process & Timeline

- The "Interim Meetings" shown are tentative. The actual meeting frequency will be dependent on need and stakeholder feedback.

SERTP 4th Qtr Mtg:

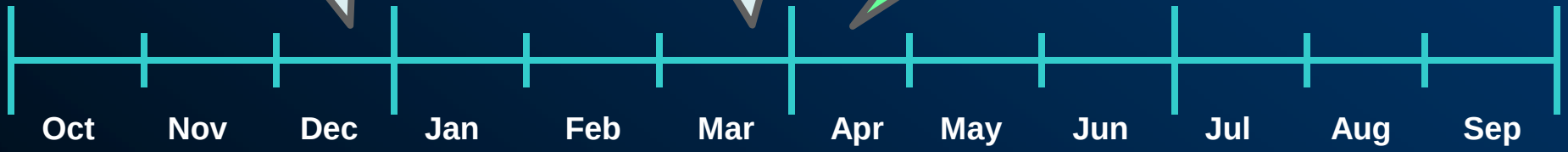
- Discuss latest proposal

SERTP 1st Qtr Mtg:

- Review Order 1000 Final Proposal with respect to interregional requirements

April 11th, 2013:

- Compliance Filing on Interregional Requirements



Interim Meeting:

- Conference Call and/or Face-to-Face
- Discuss requirements and resulting additions to "strawman"
- Discuss "strawman" revisions

Interim Meeting:

- Conference Call and/or Face-to-Face
- Discuss latest proposal

Southeastern Regional TRANSMISSION PLANNING

ORDER 1000

- Order 1000 – Implementation Process & Timeline
  - "Strawmen"/Proposals associated with the Order 1000 requirements will be made available to stakeholders prior to all SERTP meetings (including ad hoc meetings)
  - Stakeholders can submit questions or comments at anytime throughout the process
    - www.southeasternrtp.com/contactus.asp
    - In-person / Conference-call meetings

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Upcoming 2012 SERTP Process

Upcoming 2012 SERTP Process

- 1st "RPSG" Meeting*
  - March 2012
  - Select Five Economic Planning Studies
- Preliminary Expansion Plan Meeting*
  - June 2012
  - Preliminary 10 Year Expansion Plan
- 2nd "RPSG" Meeting*
  - September 2012
  - Preliminary Economic Planning Study Results
- Annual Transmission Planning Summit*
  - December 2012
  - Ten Year Expansion Plan / 2013 Input Assumptions
  - Final Economic Planning Study Results

*Order 1000 will be discussed at the above meetings as previously described.

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2011 SERTP

Questions?