

Regional Planning Stakeholders Group “RPSG”

August 15th, 2007

Economic Planning Studies

The intent of the sensitivity requests is to identify limits to regional bulk power transfer capability and possible solution options that enhance regional transfer capability

Requests

1. 3000 MW Entergy to Southern Company
2. 3000 MW TVA to Georgia ITS
3. 3000 MW VACAR to Georgia ITS
4. 3000 MW Georgia ITS to Florida (FRCC)
5. 3000 NWQ to Georgia ITS

2007 RPSG SENSITIVITY STUDIES - BASE CASE ASSUMPTIONS

Study Year – 2012

Region – Southeastern Region (AEC, Dalton Utilities, GTC, MEAG, SMEPA, Southern Company)

Load Levels – Summer Peak, Summer Shoulder, Winter, Spring Peak

Interface Reserve Margins

CBM	SOCO
Entergy	100
TVA	400
Duke	310
SCEG	120
SC	120

TRM	Total
Entergy	225
TVA	232
Duke	291
Florida	152

Transfer Methodology

Some Load to Load Shifts, Some Generation to Load Shifts, Some Combined (See transfer files)

2007 RPSG SENSITIVITY STUDIES - INTERCHANGE ASSUMPTIONS

2007 SERIES INTERCHANGE TABLE									
	FROM		TO	Firm	12Sum	12Hyd	12 Wint	12 Sp Pk	
1	SOCO	142	DUKE		-198	-198	0	0	
	SOCO	142	DUKE	x	150	150	150	150	
	SOCO	142	DUKE	x	-50	-50	-50	-50	
	SOCO	142	DUKE	x	250	250	250	250	
	SOCO	143	SCEG		-94	-94	0	0	
	SOCO	144	SCPSA		-55	-55	0	0	
	SOCO	153	SEHA	x	-280	0	-280	-280	
	SOCO	154	SERU	x	-258	0	-258	-258	
	SOCO	155	SETH	x	-143	0	-143	-143	
	SOCO	147	TVA	x	-303	-303	-295	-295	
	SOCO	147	TVA	x	48	48	44	44	
	SOCO	147	TVA		-74	-74	0	0	
	SOCO	147	TVA	x	-294	-294	-294	-294	
	SOCO	147	TVA	x	-425	-425	-425	-425	
	SOCO	150	AEC	x	-1098	-1019	-1139	-827	
	SOCO	150	AEC	x	100	0	100	100	
	SOCO	150	AEC	x	68	0	68	68	
	SOCO	150	AEC	x	99	0	99	99	
	SOCO	150	AEC	x	114	112	112	112	
	SOCO	150	AEC	x	230	210	210	210	
	SOCO	151	EES	x	-250	-250	-250	-250	
	SOCO	151	EES	x	300	300	300	300	
	SOCO	401	FPL	x	928	928	928	928	
	SOCO	401	FPL	x	649	649	649	649	
	SOCO	401	FPL		-161	-161	0	0	
	SOCO	402	FPC	x	407	407	407	407	
	SOCO	402	FPC	x	10	10	10	10	
	SOCO	402	FPC	x	-150	-150	0	0	
	SOCO	406	JEA	x	200	200	200	200	
	SOCO	406	JEA	x	201	201	201	201	
	SOCO	406	JEA	x	5	5	5	5	
NET SCHEDULE					1	Southern Control Area	245	716	918

Denotes transaction to be accounted for as rollover, but not built in case.

Notes

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1. Constraints identified may have acceptable operating guides that have not yet been tested.
2. Validity of all third party constraints have not been confirmed by affected parties. Some feedback and coordination has occurred but further input is desired if possible.
3. Cutoff response factor of 2% assumed.
4. If a generation unit is listed in the scenario field of the constraints identified, that indicates the unit was taken off-line in addition to the outage of a transmission element (N-2).
5. Identification of a solution does not indicate construction of the facilities can occur in the time-frame of this study year.
6. For the purpose of this study, enhancements that provide a significant increase in capacity were considered.

Notes

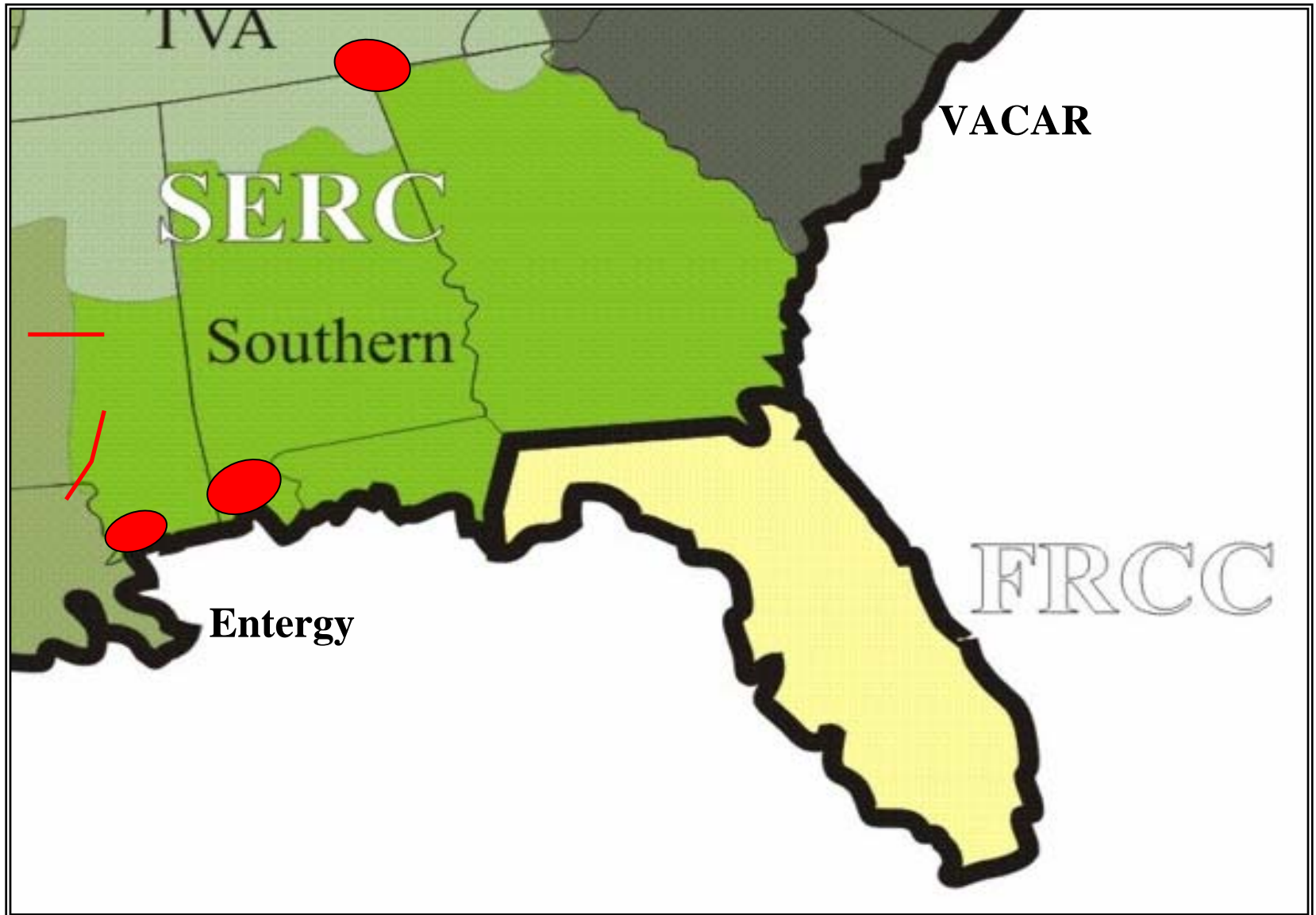
7. When solutions are finalized, rough-cut, non-binding cost estimates will be given.
8. When final solutions are finalized, rough timing for project in service dates will be provided.
9. Additional feedback is requested from the stakeholder. Any time over the next several weeks, if you have a solution option to discuss/add/change, please submit to Madden and Associates.
10. If the providers receive feedback, we will quickly schedule a conference call to discuss. If we have no feedback, we will continue to pursue the solution options identified thus far.
11. Cases and files necessary to run studies will be provided. We will have DVDs available with appropriate information. In the future, this type of information will be available via the regional planning web site.

Notes

12. Prior OASIS queued requests were not considered for this study.
13. Note that the NWQ stability limit is sensitive to generation location considered to transfers.

**2012 – 3000 MW Entergy to
Southern Company**

High Level Map of Constraints Identified



2012 – 3000 MW Entergy to Southern Company Initial Constraints

Constraint	Contingency	Rating (MVA)	TDF	Scenario
4332 ATTALLA5 161 53241 5ALBERTV 161 1	4234 CLAY 6 230 4247 ONEONTA6 230 1	193	-2.43%	Spring_NUO
4644 N THEO 6 230 8710 MOSSPT E 230 1	4642 BIG CK 6 230 8702 DANIEL 230 1	573	-7.55%	SumPeak_NUO
8110 FOREST 115 8112 NWFOREST 115 1	57339 8WOLFCRK 500 57446 8MCADAM 500 1	135	-2.23%	Spring_NUO
8110 FOREST 115 8112 NWFOREST 115 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	135	-2.09%	Shoulder_NUO
8110 FOREST 115 8112 NWFOREST 115 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	135	-2.09%	SumPeak_Gorgas10
8111 FORIND 115 8112 NWFOREST 115 1	57339 8WOLFCRK 500 57446 8MCADAM 500 1	155	2.25%	Spring_NUO
8111 FORIND 115 8112 NWFOREST 115 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	155	2.11%	Shoulder_NUO
8111 FORIND 115 8112 NWFOREST 115 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	155	2.11%	SumPeak_Gorgas10
8111 FORIND 115 52568 3MORTON 115 1	57339 8WOLFCRK 500 57446 8MCADAM 500 1	120	-2.27%	Spring_NUO
8111 FORIND 115 52568 3MORTON 115 1	57381 8WOLFCRK 500 57488 8MCADAM 500 1	120	-2.13%	Winter_Gorgas10
8111 FORIND 115 52568 3MORTON 115 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	120	-2.12%	Shoulder_NUO
8111 FORIND 115 52568 3MORTON 115 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	120	-2.12%	SumPeak_Gorgas10
8210 LAUREL E 230 8270 HATBG SW 230 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	466	-5.54%	Shoulder_NUO
8270 HATBG SW 230 58299 6ANGIE 230 1	8270 HATBG SW 230 8310 PURVIS 230 1	420	-5.61%	SumPeak_Gorgas10
8425 LOGTWN W 230 8426 LOGTWN W 115 1	8400 KILN 230 8425 LOGTWN W 230 1	246	4.27%	SumPeak_NUO
8430 LOGTOWN 115 8432 ANSLEY 115 1	8400 KILN 230 8425 LOGTWN W 230 1	124	2.44%	Spring_NUO
8432 ANSLEY 115 8433 CALGON 115 1	8400 KILN 230 8425 LOGTWN W 230 1	124	2.41%	Spring_NUO
8702 DANIEL 230 8705 MSPT EFR 230 1	4642 BIG CK 6 230 8702 DANIEL 230 1	828	5.81%	SumPeak_NUO
8705 MSPT EFR 230 8710 MOSSPT E 230 1	4642 BIG CK 6 230 8702 DANIEL 230 1	828	5.76%	SumPeak_NUO
52300 6WID CRK 230 53289 6CRAWFIS 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	631	4.75%	Shoulder_NUO
52568 3MORTON 115 57506 3PELAHE 115 1	57339 8WOLFCRK 500 57446 8MCADAM 500 1	120	-2.23%	Spring_NUO
52568 3MORTON 115 57548 3PELAHE 115 1	57381 8WOLFCRK 500 57488 8MCADAM 500 1	120	-2.08%	Winter_Gorgas10
52568 3MORTON 115 57549 3PELAHE 115 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	120	-2.06%	SumPeak_Gorgas10
52667 3MAGEE 115 57689 3N.HBRN 115 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	161	-2.08%	SumPeak_Gorgas10
52703 5SNP 161 52963 5CONCORD 161 1	52301 8SNP 500 54451 8BRADLEY 500 1	350	2.75%	SumPeak_Bowen4
53244 5OGLETHR 161 53313 6OGLETRP 230 1	52948 5CONCORD 161 53314 6CONCRD 230 1	335	4.38%	Spring_NUO
53244 5OGLETHR 161 53328 6OGLETRP 230 1	52963 5CONCORD 161 53329 6CONCRD 230 1	335	2.42%	Shoulder_NUO
53289 6CRAWFIS 230 53389 6KENSNGN 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	631	4.75%	Shoulder_NUO
53312 6W.RINGO 230 53318 3W.RINGG 115 1	53310 6ALPHA 2 230 53312 6W.RINGO 230 1	200	2.42%	Spring_NUO
53313 6OGLETRP 230 53629 6BATTLFD 230 1	52948 5CONCORD 161 53314 6CONCRD 230 1	370.9	4.38%	Spring_NUO
53328 6OGLETRP 230 53647 6BATTLFD 230 1	52963 5CONCORD 161 53329 6CONCRD 230 1	339	2.42%	Shoulder_NUO
56479 6HELBIG 230 56527 6GEOTOWN 230 1	56497 6CHINA 230 56499 6SABINE 230 1	402	-2.02%	Spring_NUO
57215 6FAIRVW 230 57263 6GYPSY 230 1	57204 8BOGALUS 500 57214 6ADMSCRK 230 1	454	-4.22%	Winter_Gorgas10
57216 6FAIRVW 230 57264 6GYPSY 230 1	52188 8MCKNT 500 57666 8FRKLIN 500 1	454	-5.51%	Shoulder_NUO
57216 6FAIRVW 230 57264 6GYPSY 230 1	52188 8MCKNT 500 57666 8FRKLIN 500 1	454	-5.51%	SumPeak_Gorgas10
57524 3JAX-S 115 57580 3FLRNCE 115 1	57339 8WOLFCRK 500 57446 8MCADAM 500 1	161	2.49%	Spring_NUO
57555 8R.BRAS 500 57562 8B.WLSN 500 1	57577 8G.GULF 500 57623 8FRKLIN 500 1	1732	-4.32%	Spring_NUO
57566 3JAX-S 115 57622 3FLRNCE 115 1	57381 8WOLFCRK 500 57488 8MCADAM 500 1	161	2.27%	Winter_Gorgas10
57567 3JAX-S 115 57623 3FLRNCE 115 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	161	2.24%	SumPeak_Gorgas10
57688 3SLV.CK 115 57689 3N.HBRN 115 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	161	2.08%	SumPeak_Gorgas10

Potential Solutions

Proposed Solution Option

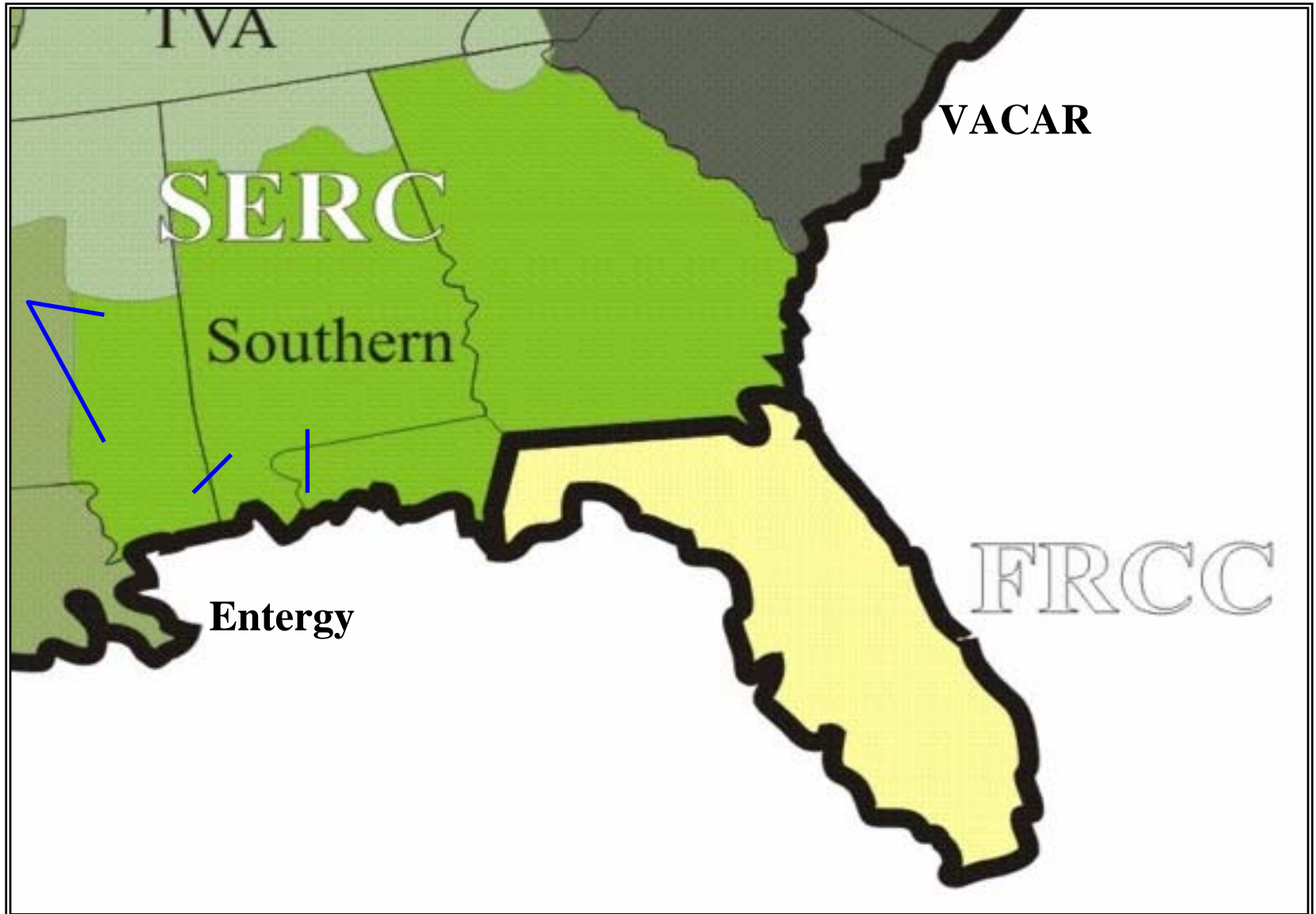
1. New Rankin (Entergy) to Sweatt (Southern) 230 kV line – 88 miles
(Route along current NW Forest 115 kV tie line)
2. New Rankin (Entergy) to Hattiesburg (Southern) 230 kV line – 75 miles
(Route along Collins to Mcgee 115 kV tie line)
3. New North Brewton to Crist (Southern) 230 kV line – 50 miles
(Route along current 115 kV Right of Way)
4. Second Daniel to Big Creek 230 kV line – 22 miles
(Route along current Daniel to Big Creek line)

Potential Solutions

Proposed Solution Option (cont'd)

5. Multiple 230 and 161 kV overloads still exist in TVA
6. Minimal 115 kV overloads exist in Southern
7. Minimal 115 kV overloads exist in Entergy

High Level Map of Solutions

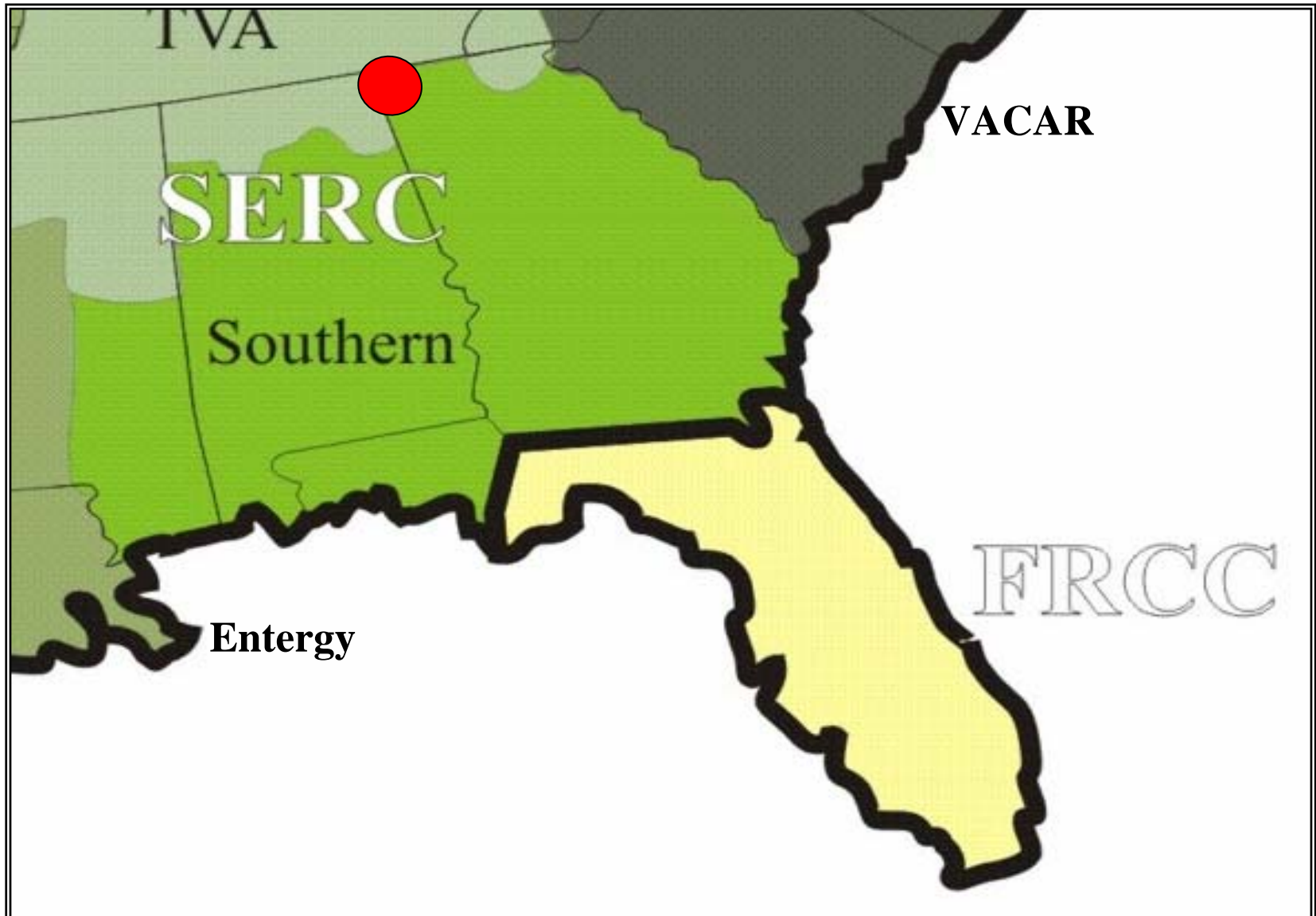


2012 – 3000 MW Entergy to Southern Company Constraints After Solution Implementation

Constraint	Contingency				Rating (MVA)	TDF	Scenario
4332 ATTALLA5 161 53241 5ALBERTV 161 1	4234 CLAY 6 230	4247 ONEONTA6 230 1			193	-2.38%	Spring_NUO
8025 MERIDIAN 115 8055 FLINTKTE 115 1	8025 MERIDIAN 115	8066 SWEATT 115 1			78	-2.28%	Spring_NUO
8025 MERIDIAN 115 8055 FLINTKTE 115 1	8025 MERIDIAN 115	8066 SWEATT 115 1			78	-2.10%	Shoulder
8025 MERIDIAN 115 8055 FLINTKTE 115 1	8025 MERIDIAN 115	8066 SWEATT 115 1			78	-2.10%	SumPeak_Gorgas10
8025 MERIDIAN 115 8066 SWEATT 115 1	8060 DELCO RE 115	8066 SWEATT 115 1			117	-2.53%	Spring_NUO
8025 MERIDIAN 115 8066 SWEATT 115 1	8060 DELCO RE 115	8066 SWEATT 115 1			117	-2.32%	Shoulder
8025 MERIDIAN 115 8066 SWEATT 115 1	8060 DELCO RE 115	8066 SWEATT 115 1			117	-2.32%	SumPeak_Gorgas10
8055 FLINTKTE 115 8060 DELCO RE 115 1	8025 MERIDIAN 115	8066 SWEATT 115 1			86	-2.28%	Spring_NUO
8055 FLINTKTE 115 8060 DELCO RE 115 1	8025 MERIDIAN 115	8066 SWEATT 115 1			86	-2.10%	Shoulder
8055 FLINTKTE 115 8060 DELCO RE 115 1	8025 MERIDIAN 115	8066 SWEATT 115 1			86	-2.10%	SumPeak_Gorgas10
8060 DELCO RE 115 8066 SWEATT 115 1	8025 MERIDIAN 115	8066 SWEATT 115 1			86	-2.30%	Spring_NUO
8060 DELCO RE 115 8066 SWEATT 115 1	8025 MERIDIAN 115	8066 SWEATT 115 1			86	-2.11%	Shoulder
8060 DELCO RE 115 8066 SWEATT 115 1	8025 MERIDIAN 115	8066 SWEATT 115 1			86	-2.11%	SumPeak_Gorgas10
8425 LOGTWN W 230 8426 LOGTWN W 115 1	8400 KILN 230	8425 LOGTWN W 230 1			246	4.27%	Winter_Crist7
8430 LOGTOWN 115 8432 ANSLEY 115 1	8400 KILN 230	8425 LOGTWN W 230 1			124	2.34%	Spring_NUO
52300 6WID CRK 230 53289 6CRAWFIS 230 1	21 MOSTELLER SP 500	3045 CONASAUG 500 1			631	4.68%	Shoulder
52703 5SNP 161 52963 5CONCORD 161 1	52301 8SNP 500	54451 8BRADLEY 500 1			350	2.71%	SumPeak_Bowen4
53244 5OGLETHR 161 53313 6OGLETRP 230 1	52948 5CONCORD 161	53314 6CONCRD 230 1			335	4.31%	Spring_NUO
53244 5OGLETHR 161 53328 6OGLETRP 230 1	52963 5CONCORD 161	53329 6CONCRD 230 1			335	2.39%	Shoulder
53289 6CRAWFIS 230 53389 6KENSNGN 230 1	21 MOSTELLER SP 500	3045 CONASAUG 500 1			631	4.68%	Shoulder
53312 6W.RINGO 230 53318 3W.RINGG 115 1	53310 6ALPHA 2 230	53312 6W.RINGO 230 1			200	2.39%	Spring_NUO
53313 6OGLETRP 230 53629 6BATTLFD 230 1	52948 5CONCORD 161	53314 6CONCRD 230 1			370.9	4.31%	Spring_NUO
53328 6OGLETRP 230 53647 6BATTLFD 230 1	52963 5CONCORD 161	53329 6CONCRD 230 1			339	2.39%	Shoulder
56479 6HELBIG 230 56527 6GEOTOWN 230 1	56497 6CHINA 230	56499 6SABINE 230 1			402	-2.02%	Spring_NUO
57215 6FAIRVW 230 57263 6GYPSY 230 1	52188 8MCKNT 500	57665 8FRKLIN 500 1			454	-5.61%	Winter_Gorgas10
57216 6FAIRVW 230 57264 6GYPSY 230 1	52188 8MCKNT 500	57666 8FRKLIN 500 1			454	-5.48%	Shoulder
57216 6FAIRVW 230 57264 6GYPSY 230 1	52188 8MCKNT 500	57666 8FRKLIN 500 1			454	-5.49%	SumPeak_Gorgas10
57555 8R.BRAS 500 57562 8B.WLSN 500 1	57577 8G.GULF 500	57623 8FRKLIN 500 1			1732	-4.89%	Spring_NUO

2012 – 3000 MW TVA to Georgia ITS

High Level Map of Constraints Identified



2012 – 3000 MW TVA to Georgia ITS Initial Constraints

Constraint	Contingency	Rating (MVA)	TDF	Scenario
51 WOODLAWN 230 190 NMARIETA 230 1	4 BULLSLUI 500 19 BIG SHAN 500 1	602	-2.44%	SumPeak_nuo
888 DALTON 115 893 DALTON 9 115 1	199 OOSTANAU 230 3044 LOOPFMSO 230 1	155	2.11%	spring_nuo
4155 GORGAS 6 230 4156 MILLER6 230 1	4157 MILLER8 500 4375 S.BESS 8 500 1	433	-2.29%	SumPeak_gorgas10
4331 ATTALLA3 115 4332 ATTALLA5 161 1	4331 ATTALLA3 115 4332 ATTALLA5 161 2	99	-2.11%	spring_nuo
4332 ATTALLA5 161 53241 5ALBERTV 161 1	4234 CLAY 6 230 4247 ONEONTA6 230 1	193	-2.54%	shoulder_nuo
18005 MAGEE 161 18022 N SMITH 161 1	52352 8FR CAMP 500 52353 8CHOCTAW 500 1	180	-2.04%	spring_nuo
18018 HOMWD161 161 18022 N SMITH 161 1	52352 8FR CAMP 500 52353 8CHOCTAW 500 1	180	2.21%	spring_nuo
52300 6WID CRK 230 52695 5WIDCRK2 161 1	52300 6WID CRK 230 52695 5WIDCRK2 161 2	500	-4.01%	shoulder_nuo
52300 6WID CRK 230 53289 6CRAWFIS 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	631	6.36%	shoulder_nuo
52300 6WID CRK 230 53289 6CRAWFIS 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	631	6.36%	SumPeak_bowen4
52688 5TRINITY 161 53291 5NEEL AL 161 1	52334 8LOWNDES 500 51920 8VALLEYV 500 1	299.2	2.12%	SumPeak_gorgas10
52694 5WIDCRK1 161 53099 5BRYANT 161 1	52301 8SNP 500 54451 8BRADLEY 500 1	208.3	3.39%	shoulder_nuo
52703 5SNP 161 52963 5CONCORD 161 1	52301 8SNP 500 54451 8BRADLEY 500 1	350	2.48%	SumPeak_bowen4
52838 5WHEELER 161 55047 5FIVEPTS 161 1	52352 8FR CAMP 500 52353 8CHOCTAW 500 1	192.7	2.27%	spring_nuo
52959 5NICJACK 161 53244 5OGLETHR 161 1	52694 5WIDCRK1 161 53099 5BRYANT 161 1	181.8	2.37%	shoulder_nuo
52961 5CHICK H 161 53236 5HAMIL C 161 1	52301 8SNP 500 54451 8BRADLEY 500 1	391.2	3.81%	shoulder_nuo
52961 5CHICK H 161 53236 5HAMIL C 161 1	52301 8SNP 500 54451 8BRADLEY 500 1	391.2	3.81%	SumPeak_bowen4
53244 5OGLETHR 161 53328 6OGLETRP 230 1	52963 5CONCORD 161 53329 6CONCRD 230 1	335	3.57%	shoulder_nuo
53261 6RCKSPSS 230 53389 6KENSNGN 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	631	-6.36%	shoulder_nuo
53289 6CRAWFIS 230 53389 6KENSNGN 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	631	6.36%	shoulder_nuo
53291 5NEEL AL 161 53292 5IRONMAN 161 1	52334 8LOWNDES 500 51920 8VALLEYV 500 1	299.2	2.12%	SumPeak_gorgas10
53312 6W.RINGO 230 53318 3W.RINGG 115 1	53310 6ALPHA 2 230 53312 6W.RINGO 230 1	200	2.77%	spring_nuo
53313 6OGLETRP 230 53629 6BATTLFD 230 1	52948 5CONCORD 161 53314 6CONCRD 230 1	370.9	5.03%	spring_nuo
53325 6ALPHA 2 230 53327 6W.RINGO 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	530.6	-5.86%	shoulder_nuo
53328 6OGLETRP 230 53647 6BATTLFD 230 1	52963 5CONCORD 161 53329 6CONCRD 230 1	339	3.57%	shoulder_nuo
57489 8MCADAM 500 57490 6MCADAM 230 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	560	5.75%	SumPeak_bowen4

Potential Solutions

Proposed Solution Option

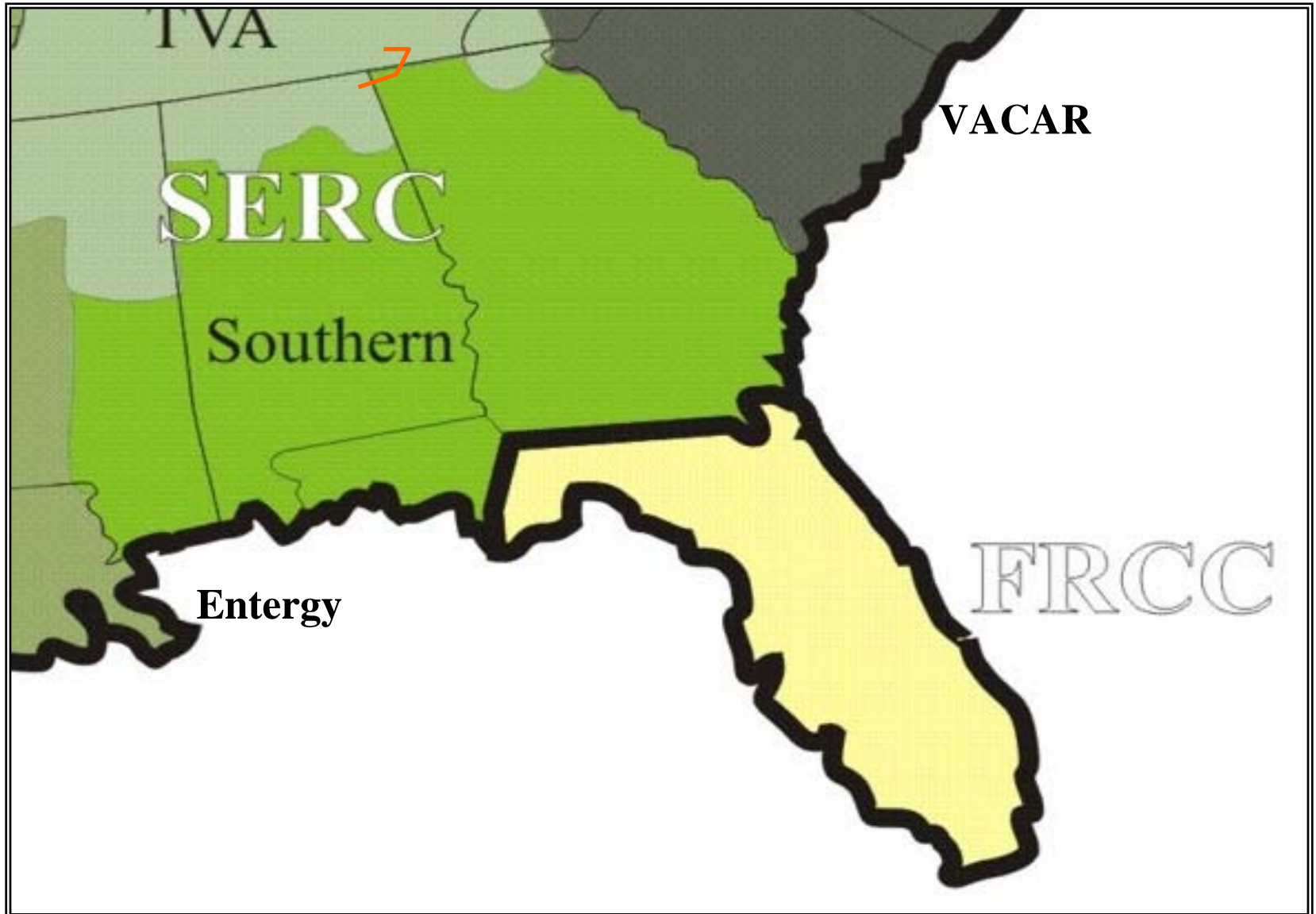
1. New Raccoon Mountain (TVA) to Bradley (TVA) 500 kV line – 25 miles (Route along current Raccoon Mtn to Concord right of way)
2. New Widows Creek (TVA) to Bradley (TVA) 500 kV line – 45 miles (Route along current Widows Creek – Oglethorpe – Bradley right of way)

Potential Solutions

Proposed Solution Option

3. Multiple 230 and 161 kV overloads still exist in TVA
4. 230 and 115 kV overloads exist in Southern
5. One (1) 115 kV overload exists in Entergy

High Level Map of Solutions

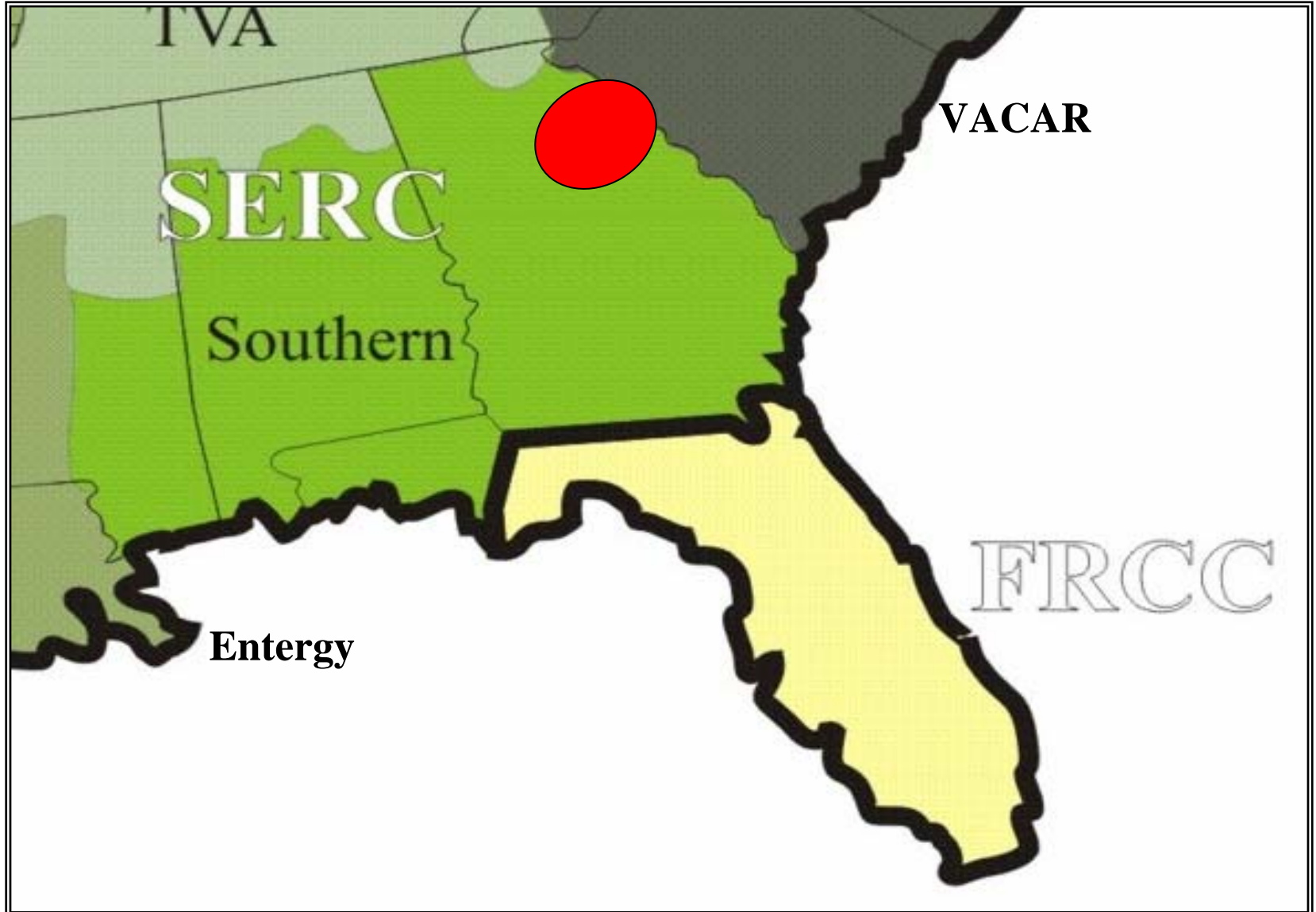


2012 – 3000 MW TVA to Georgia ITS Constraints After Solution Implementation

Constraint	Contingency	Rating (MVA)	TDF	Scenario
48 PARKAIRE 230 190 NMARIETA 230 1	4 BULLSLUI 500 19 BIG SHAN 500 1	596	-2.41%	SumPeak_NUO
51 WOODLAWN 230 190 NMARIETA 230 1	4 BULLSLUI 500 19 BIG SHAN 500 1	602	-2.52%	SumPeak_NUO
4155 GORGAS 6 230 4156 MILLER6 230 1	4157 MILLER8 500 4375 S.BESS 8 500 1	433	-2.23%	SumPeak_Gorgas10
4332 ATTALLA5 161 53241 5ALBERTV 161 1	4234 CLAY 6 230 4247 ONEONTA6 230 1	193	-2.49%	Shoulder
52300 6WID CRK 230 53289 6CRAWFIS 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	631	6.35%	Shoulder
52300 6WID CRK 230 53289 6CRAWFIS 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	631	6.36%	SumPeak_Bowen4
52688 5TRINITY 161 53291 5NEEL AL 161 1	52334 8LOWNDES 500 51920 8VALLEYV 500 1	299.2	2.14%	SumPeak_Gorgas10
52838 5WHEELER 161 55047 5FIVEPTS 161 1	52352 8FR CAMP 500 52353 8CHOCTAW 500 1	192.7	2.12%	Spring_NUO
53244 5OGLETHR 161 53328 6OGLETRP 230 1	52963 5CONCORD 161 53329 6CONCRD 230 1	335	3.54%	Shoulder
53261 6RCKSPSS 230 53389 6KENSNGN 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	631	-6.35%	Shoulder
53289 6CRAWFIS 230 53389 6KENSNGN 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	631	6.35%	Shoulder
53291 5NEEL AL 161 53292 5IRONMAN 161 1	52334 8LOWNDES 500 51920 8VALLEYV 500 1	299.2	2.14%	SumPeak_Gorgas10
53325 6ALPHA 2 230 53327 6W.RINGO 230 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	530.6	-5.86%	Shoulder
53328 6OGLETRP 230 53647 6BATTLFD 230 1	52963 5CONCORD 161 53329 6CONCRD 230 1	339	3.54%	Shoulder
57489 8MCADAM 500 57490 6MCADAM 230 1	52296 8W POINT 500 52366 8CHOCTAW 500 1	560	5.76%	SumPeak_Bowen4

2012 – 3000 MW VACAR to Georgia ITS

High Level Map of Constraints Identified



2012 – 3000 MW VACAR to Georgia ITS Initial Constraints

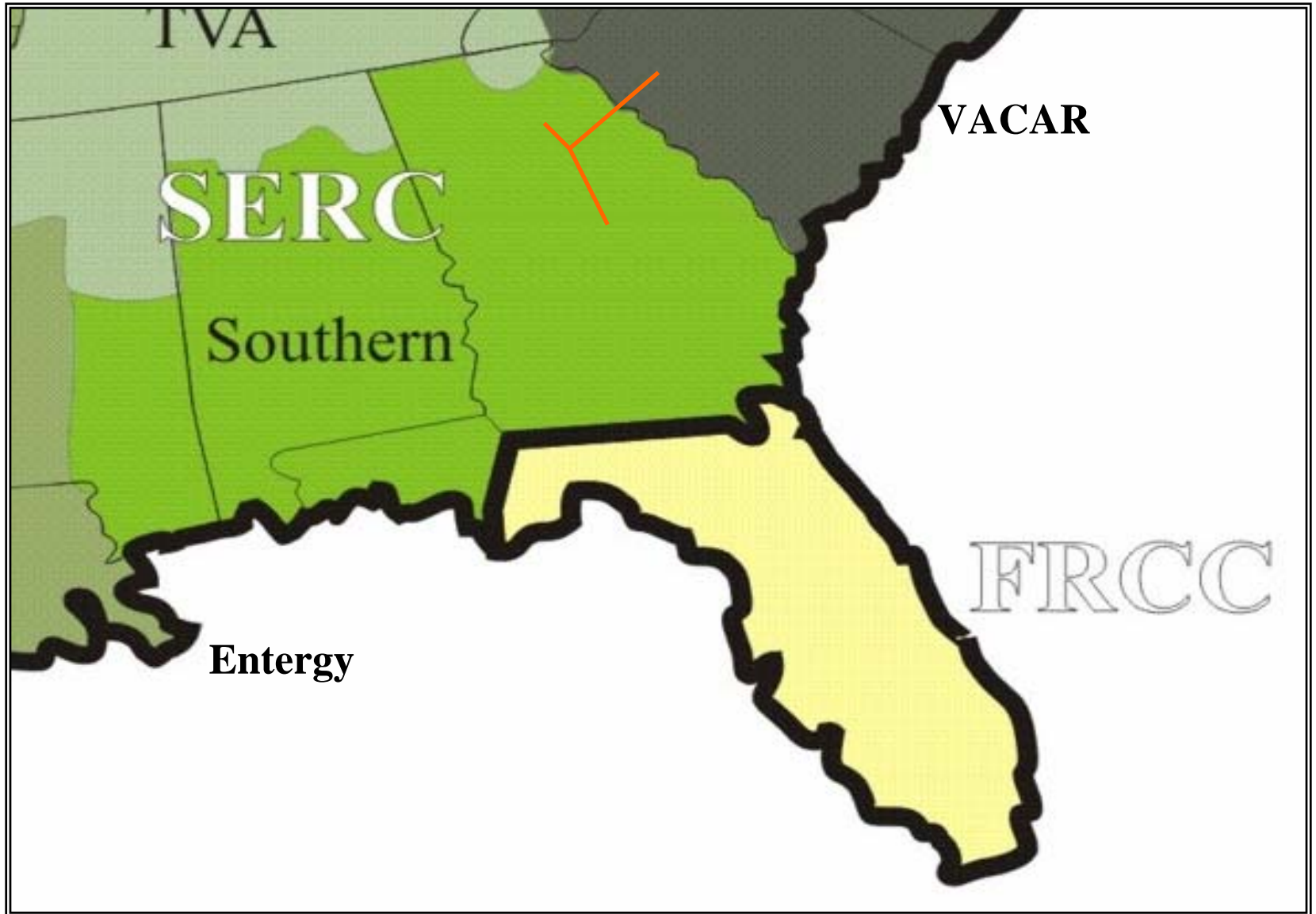
Constraint	Contingency	Rating (MVA)	TDF	Scenario
50634 6MCGUIRE 230 50649 6RIVRBEN 230 1	50634 6MCGUIRE 230 50649 6RIVRBEN 230 2	574	3.42%	Shoulder_NUO
50634 6MCGUIRE 230 50649 6RIVRBEN 230 2	50634 6MCGUIRE 230 50649 6RIVRBEN 230 1	574	3.42%	Shoulder_NUO
51278 6RUSSELL 230 104 LEXNGTON 230 1	50453 8OCONEE 500 3042 STEPHENS 500 1	596	7.26%	SumPeak_Bowen4
51278 6RUSSELL 230 104 LEXNGTON 230 1	3042 STEPHENS 500 11 S HALL 500 1	596	7.26%	SumPeak_Bowen4
94 BIO 230 87 R-VANNA 230 1	50453 8OCONEE 500 3042 STEPHENS 500 1	433	4.90%	SumPeak_Bowen4
94 BIO 230 87 R-VANNA 230 1	3042 STEPHENS 500 11 S HALL 500 1	433	4.90%	SumPeak_Bowen4
104 LEXNGTON 230 133 R-WAT 230 1	50453 8OCONEE 500 3042 STEPHENS 500 1	602	7.23%	SumPeak_Bowen4
104 LEXNGTON 230 133 R-WAT 230 1	3042 STEPHENS 500 11 S HALL 500 1	602	7.23%	SumPeak_Bowen4
3000 HWENERGY 230 3005 MSHARTCO 230 1	50453 8OCONEE 500 3042 STEPHENS 500 1	828	6.98%	SumPeak_Bowen4
3000 HWENERGY 230 3005 MSHARTCO 230 1	3042 STEPHENS 500 11 S HALL 500 1	828	6.98%	SumPeak_Bowen4
3005 MSHARTCO 230 94 BIO 230 1	50453 8OCONEE 500 3042 STEPHENS 500 1	828	6.98%	SumPeak_Bowen4
3005 MSHARTCO 230 94 BIO 230 1	3042 STEPHENS 500 11 S HALL 500 1	828	6.98%	SumPeak_Bowen4
2035 S HALL 230 3067 CANDLER 230 1	3 NORCROSS 500 11 S HALL 500 1	509	7.85%	SumPeak_Bowen4
133 R-WAT 230 102 EWTKNSV1 230 1	50453 8OCONEE 500 3042 STEPHENS 500 1	662	7.23%	SumPeak_Bowen4
133 R-WAT 230 102 EWTKNSV1 230 1	3042 STEPHENS 500 11 S HALL 500 1	662	7.23%	SumPeak_Bowen4
105 VANNA 230 99 NEWHAVEN 230 1	50453 8OCONEE 500 3042 STEPHENS 500 1	433	4.81%	SumPeak_Bowen4
105 VANNA 230 99 NEWHAVEN 230 1	3042 STEPHENS 500 11 S HALL 500 1	433	4.81%	SumPeak_Bowen4
50627 6JOCASSE 230 50641 6OCONEE 230 1	50597 8JOCASSE 500 50453 8OCONEE 500 1	487	5.82%	Shoulder_NUO
50627 6JOCASSE 230 50641 6OCONEE 230 2	50597 8JOCASSE 500 50453 8OCONEE 500 1	487	5.82%	Shoulder_NUO
50597 8JOCASSE 500 50453 8OCONEE 500 1	50598 8MCGUIRE 500 50672 CLFSDTAP 500 1	2218	25.15%	SumPeak_Bowen4
99 NEWHAVEN 230 93 CENTER 230 1	50453 8OCONEE 500 3042 STEPHENS 500 1	433	4.80%	SumPeak_Bowen4
99 NEWHAVEN 230 93 CENTER 230 1	3042 STEPHENS 500 11 S HALL 500 1	433	4.80%	SumPeak_Bowen4
11 S HALL 500 2035 S HALL 230 1	3 NORCROSS 500 11 S HALL 500 1	2016	22.64%	SumPeak_Bowen4
3067 CANDLER 230 3073 BRASELTN 230 1	3 NORCROSS 500 11 S HALL 500 1	509	7.77%	SumPeak_Bowen4
50453 8OCONEE 500 3042 STEPHENS 500 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	2701	31.34%	SumPeak_Bowen4
3042 STEPHENS 500 11 S HALL 500 1	21 MOSTELLER SP 500 3045 CONASAUG 500 1	2701	31.34%	SumPeak_Bowen4

Potential Solutions

Proposed Solution Option

1. Advancement of the East Walton 500/230 Project
(Shown in 2006 Planning Summit)
 - a) New Rockville to East Walton 500 kV line – 40 miles
 - b) New East Walton to Bostwick 230 kV line – 4 miles
 - c) New East Walton to Cornish Mountain 230 kV line – 29 miles
 - d) Two New East Walton to Bethabara 230 kV line – 18 miles
2. New Rainey (Duke) to East Walton (Southern) 500 kV line – 70 miles
(Route to be determined)
3. New East Walton to South Hall 500 kV line – 26 miles
(Route to be determined)
4. Multiple 230 and 500 kV overloads still exist in VACAR

High Level Map of Solutions

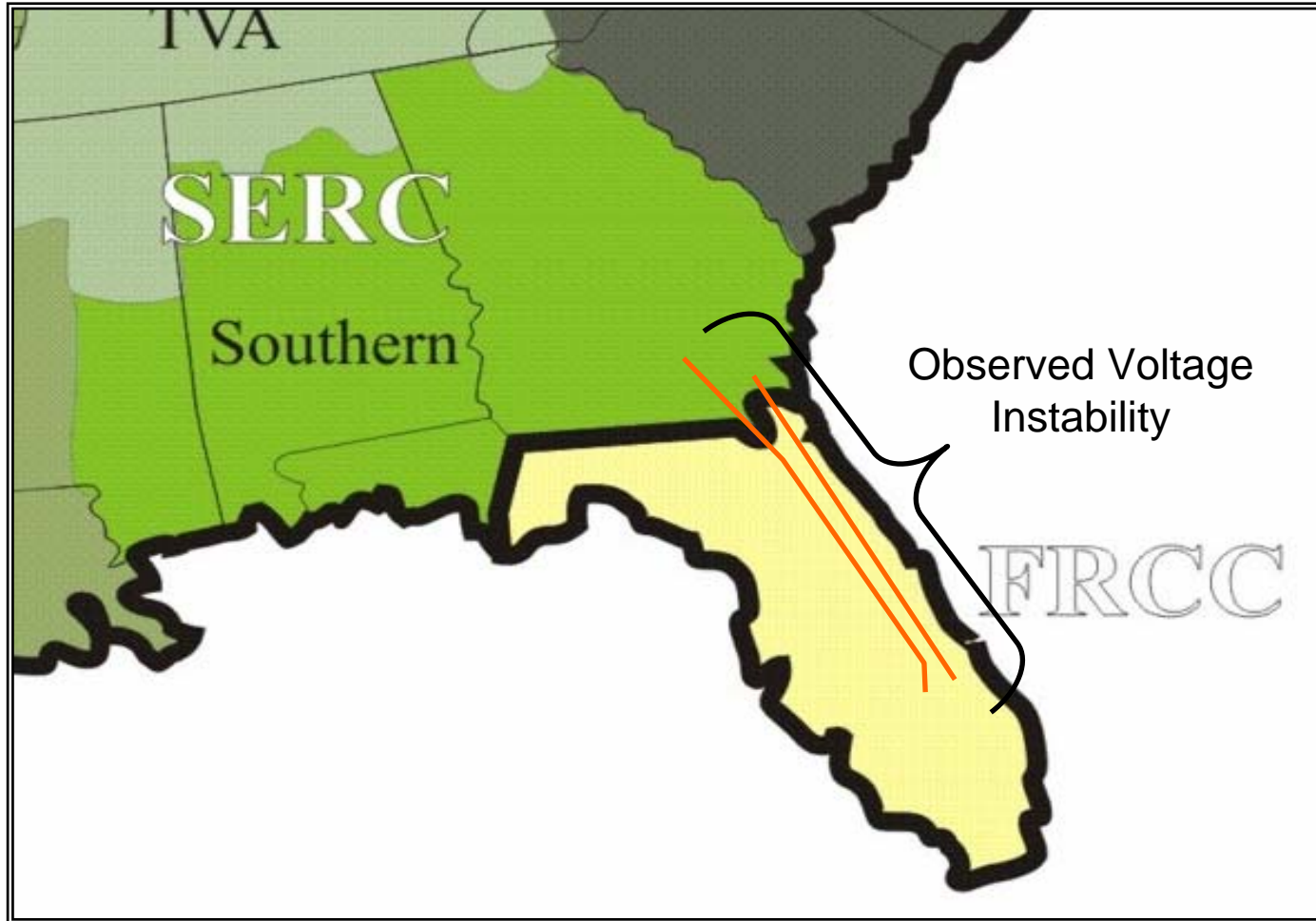


2012 – 3000 MW VACAR to Georgia ITS After Solution Implementation

Constraint	Contingency	Rating (MVA)	TDF	Scenario
50634 6MCGUIRE 230 50649 6RIVRBEN 230 1	50634 6MCGUIRE 230 50649 6RIVRBEN 230 2	574	3.70%	Shoulder_NUO
50634 6MCGUIRE 230 50649 6RIVRBEN 230 2	50634 6MCGUIRE 230 50649 6RIVRBEN 230 1	574	3.70%	Shoulder_NUO
50627 6JOCASSE 230 50641 6OCONEE 230 1	50597 8JOCASSE 500 50453 8OCONEE 500 1	487	6.29%	Shoulder_NUO
50627 6JOCASSE 230 50641 6OCONEE 230 2	50597 8JOCASSE 500 50453 8OCONEE 500 1	487	6.29%	Shoulder_NUO
50597 8JOCASSE 500 50453 8OCONEE 500 1	50598 8MCGUIRE 500 50672 CLFSDTAP 500 1	2218	24.15%	SumPeak_Bowen4

**2012 – 3000 MW Georgia ITS to Florida
(FRCC)**

High Level Map of Constraints Identified



2012 – 3000 MW Southern to Florida Initial Constraints

Limiting constraint for transfers from Southern to Florida beyond posted TTC (total transfer capability) is due to voltage instability in Florida.

Background

For additional 700 MW transfer capability higher than posted TTC, studies posted on OASIS show installation of 30% series compensation in seven (7) sections of the 500 kV lines between Southern and FRCC.

Potential Solutions

Proposed Solution Option

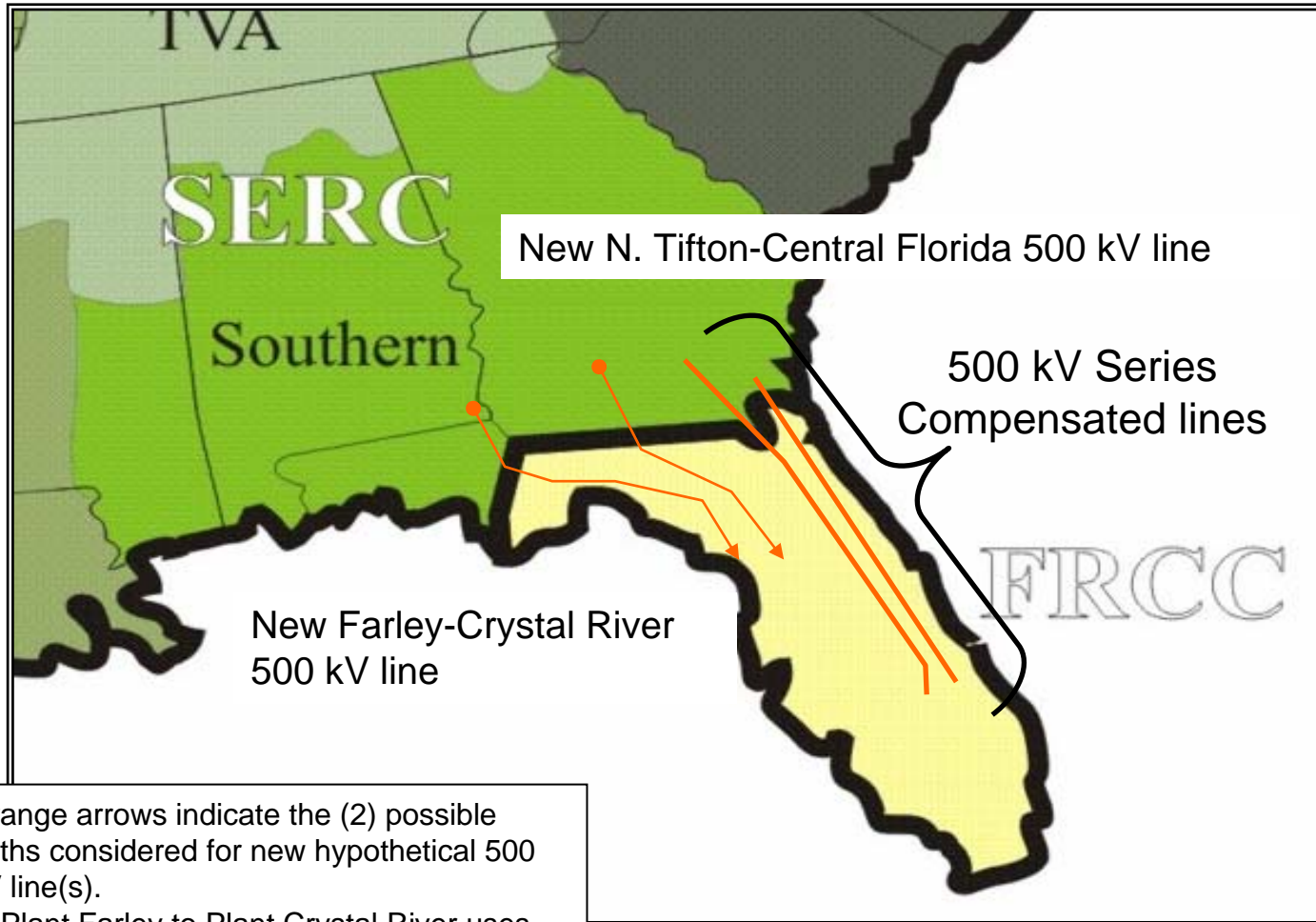
1. Build new Farley (Southern) to Crystal River (Florida) 500 kV line – 250 miles.
2. Resulting transfer capability tested is approximately 1700 MW higher than the TTC currently posted.

Potential Solutions

Proposed Solution Option

3. Additional 500 kV line options were tested between the 1700 MW and 2700 MW transfer range above current TTC postings. No viable solutions were identified. Further detailed study with Florida utilities would be necessary.

High Level Map of Solutions



Orange arrows indicate the (2) possible paths considered for new hypothetical 500 kV line(s).

1. Plant Farley to Plant Crystal River uses an assumed length of ~250 miles.
2. North Tifton to Central Florida uses an assumed length of ~210 miles.

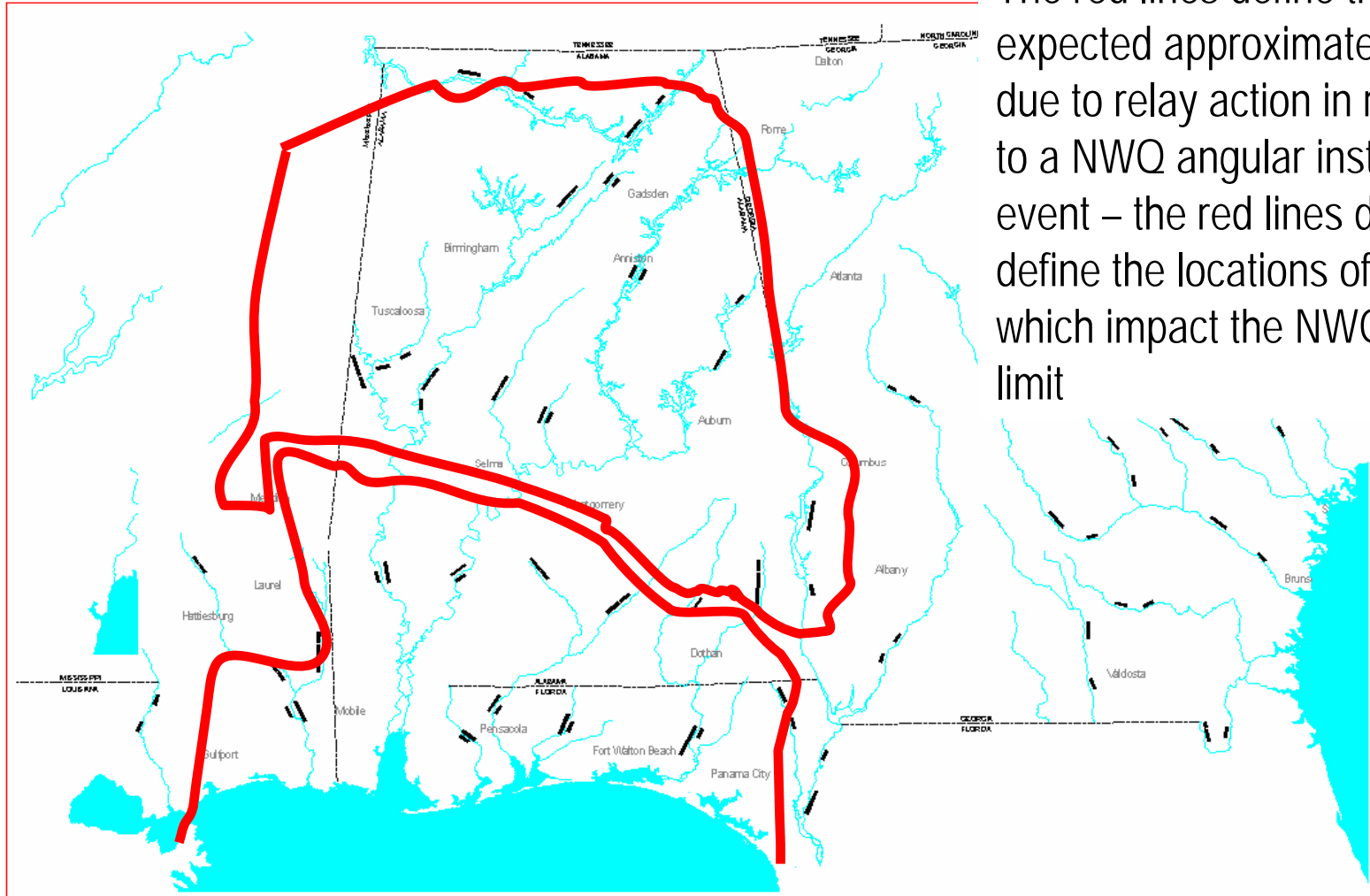
2012 – 3000 MW NWQ to Georgia ITS

NWQ to Georgia ITS Assumptions

- 2012 - 70% load level case
- The following generation was used in creating 3000 MW transfer simulation from NWQ to Georgia ITS:
 - Prattville area (Alabama)
 - Early County, Georgia
 - Talladega, AL

Northwest Quadrant

The red lines define the expected approximate islands due to relay action in response to a NWQ angular instability event – the red lines do not define the locations of plants which impact the NWQ stability limit



Potential Solutions

Proposed Solution Option

- At 1500 MW transfer, a 300 Mvar SVC is needed at the South Bainbridge 230 kV bus.
- At 2000 MW transfer, a 500 kV line is required. One potential solution is a Billingsley to Fortson 500 kV line (approximately 125 miles).

High Level Map of Solutions

