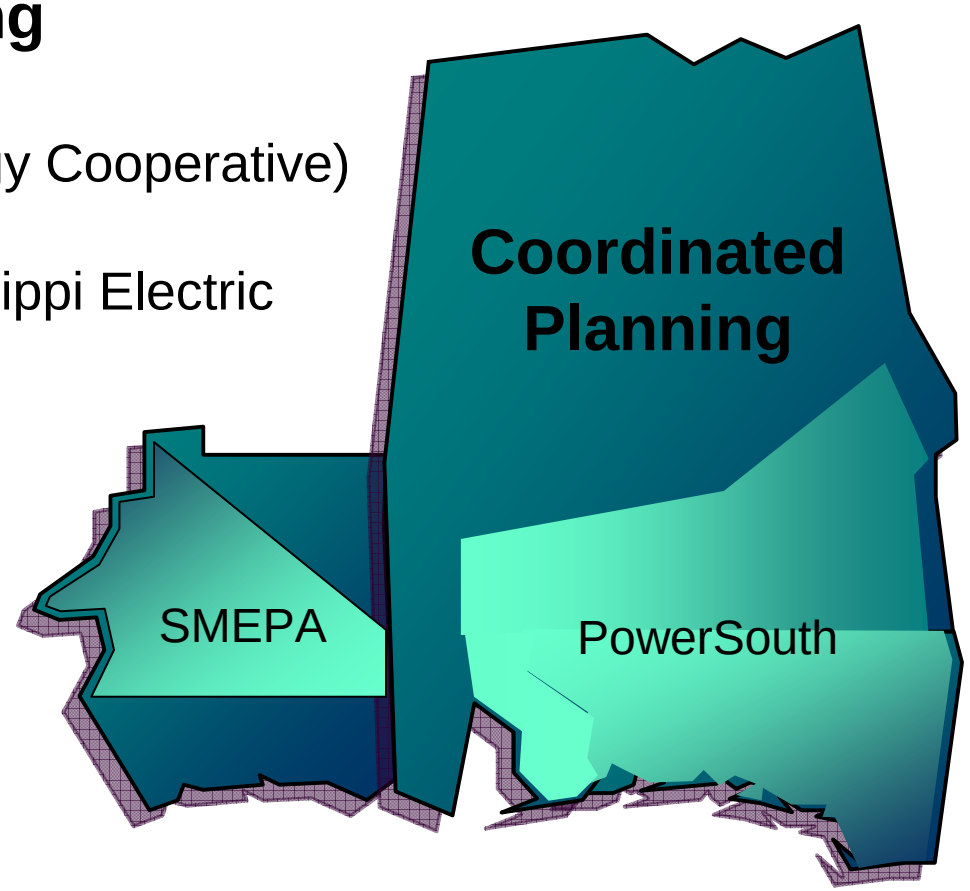
Southeastern Region Transmission Planning

West Region

Coordinated Planning

- PS (PowerSouth Energy Cooperative)
- SMEPA (South Mississippi Electric Power Association)
- Southern Company Transmission



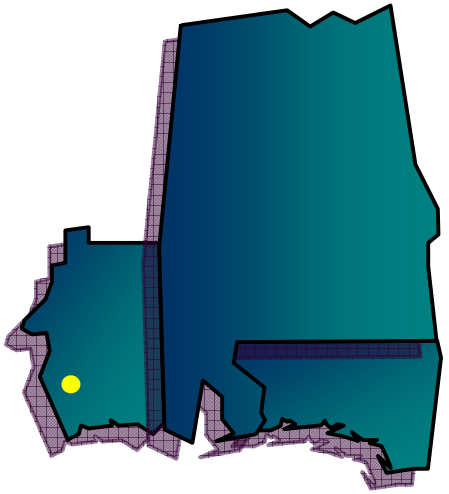
Southeastern Region Transmission Planning

Expansion Item W-1

Carriere SW 230 / 115 kV Substation Project

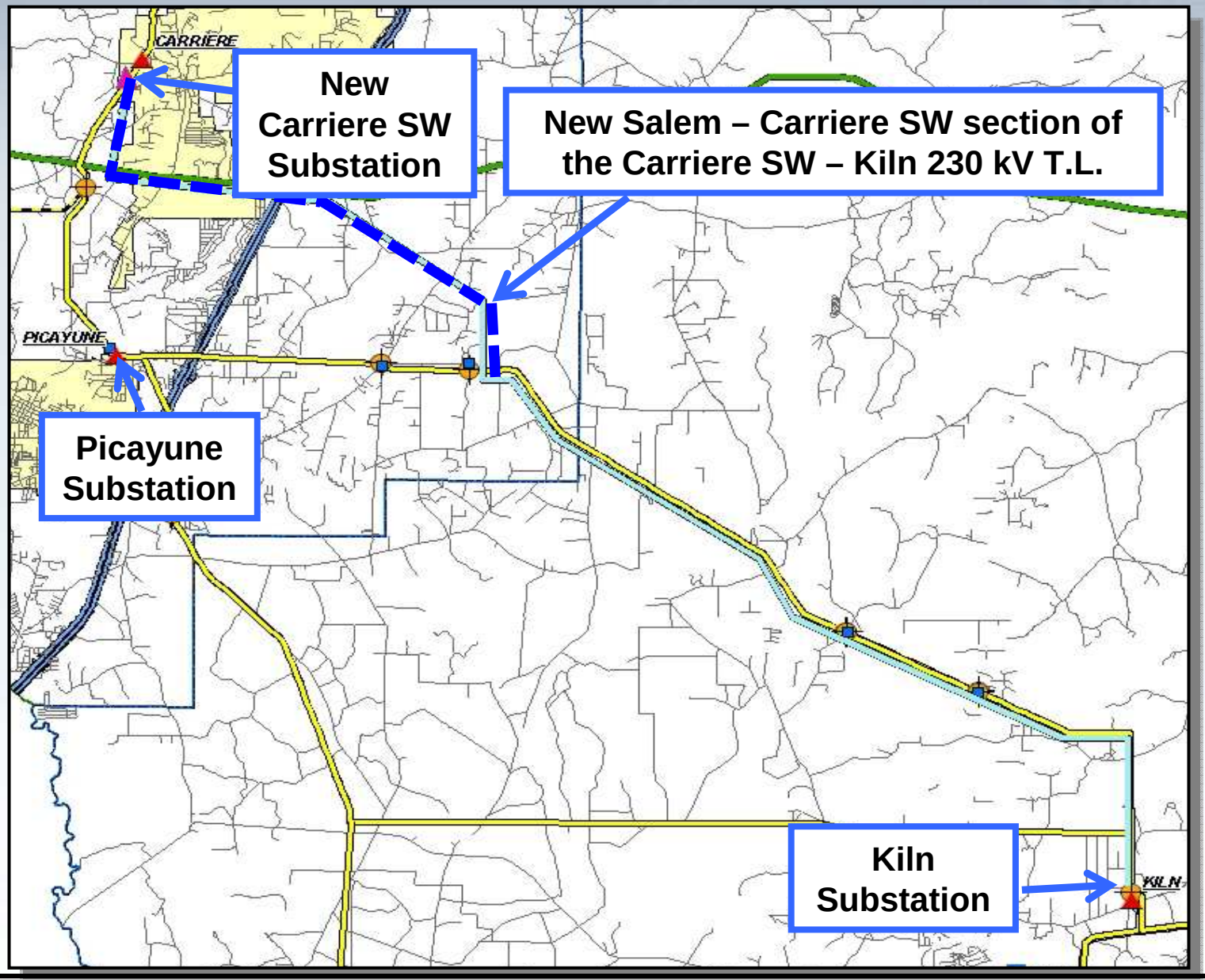
- Construct a new 230 / 115 kV Carriere SW Substation approximately 5 miles north of Picayune 115 kV Substation
- Complete the 230 kV Ring Bus at Kiln
- Construct the 230 kV T.L section from Salem to Carrier SW to complete the 18.4 miles of 230 kV line from Kiln to Carriere SW.
- The loss of the Necaise – Spence 115 kV T.L overloads the Kiln – Nicholson Tap 115 kV T.L. and vice versa.

2011 W-1



Carriere Southwest 230/115 kV Project

2011 W-1



Southeastern Region Transmission Planning

Expansion Item W-2

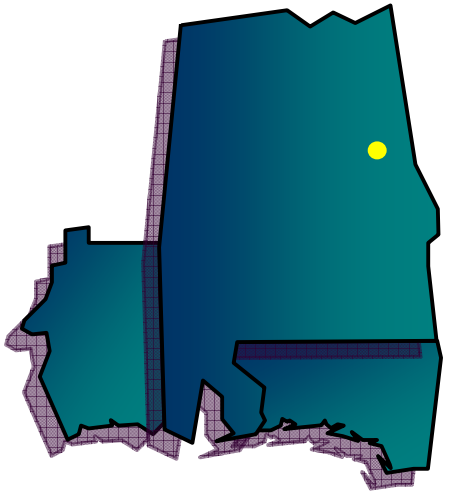
Hillabee – North Opelika 230 kV T.L.

- Upgrade approximately 37.6 miles of 230 kV T.L. from Hillabee to North Opelika to 110°C operation.

- The loading on this line exceeds its thermal rating under contingency conditions.

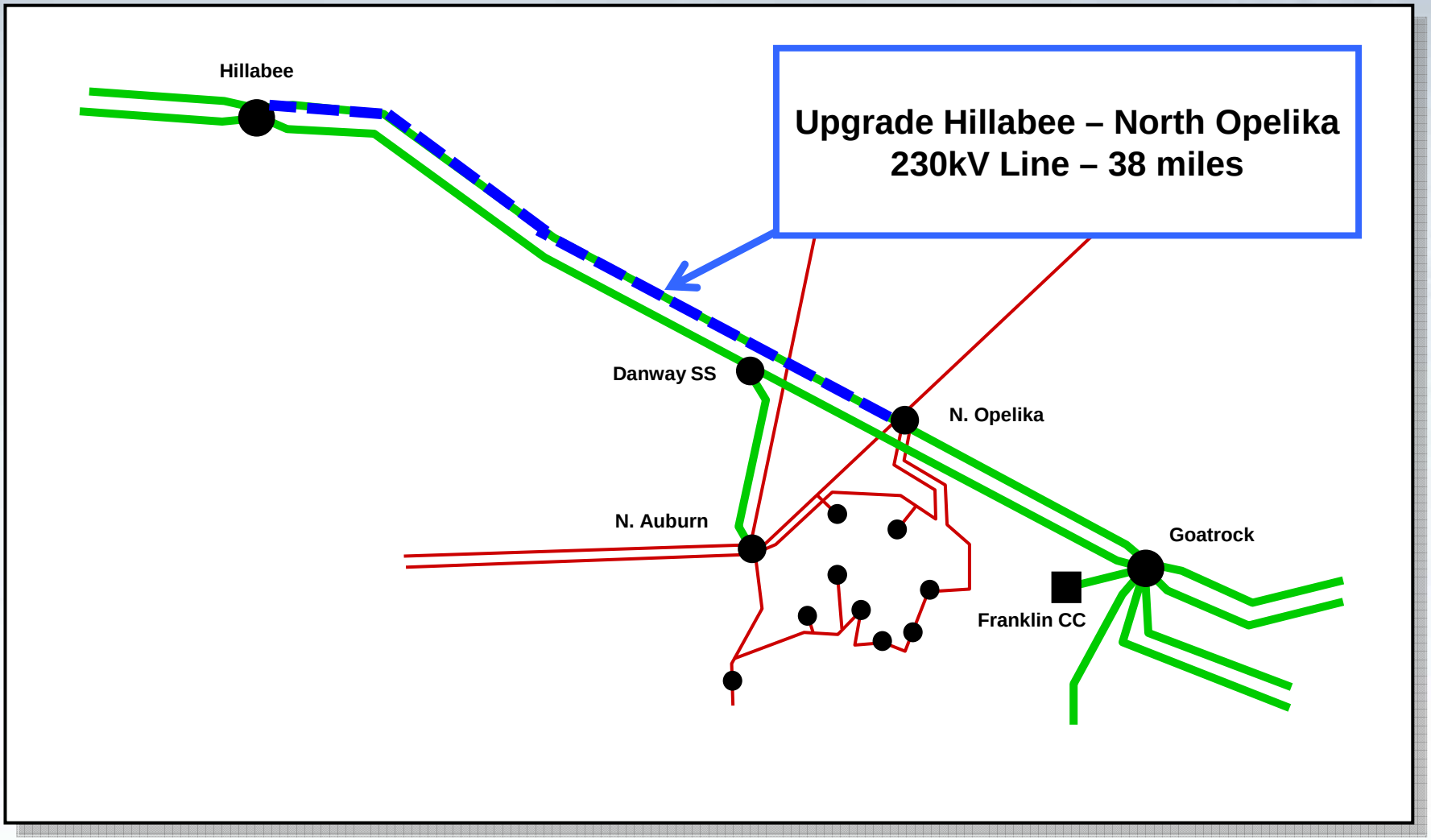
**Advanced from 2013 in 2009 expansion plan*

2011 W-2



2011 W-2

Hillabee – North Opelika 230 kV T.L. Upgrade



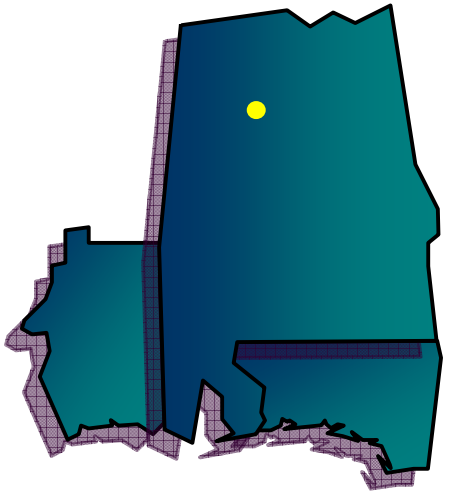
Southeastern Region Transmission Planning

Expansion Item W-3

Holt – Tuscaloosa 230 kV T.L.

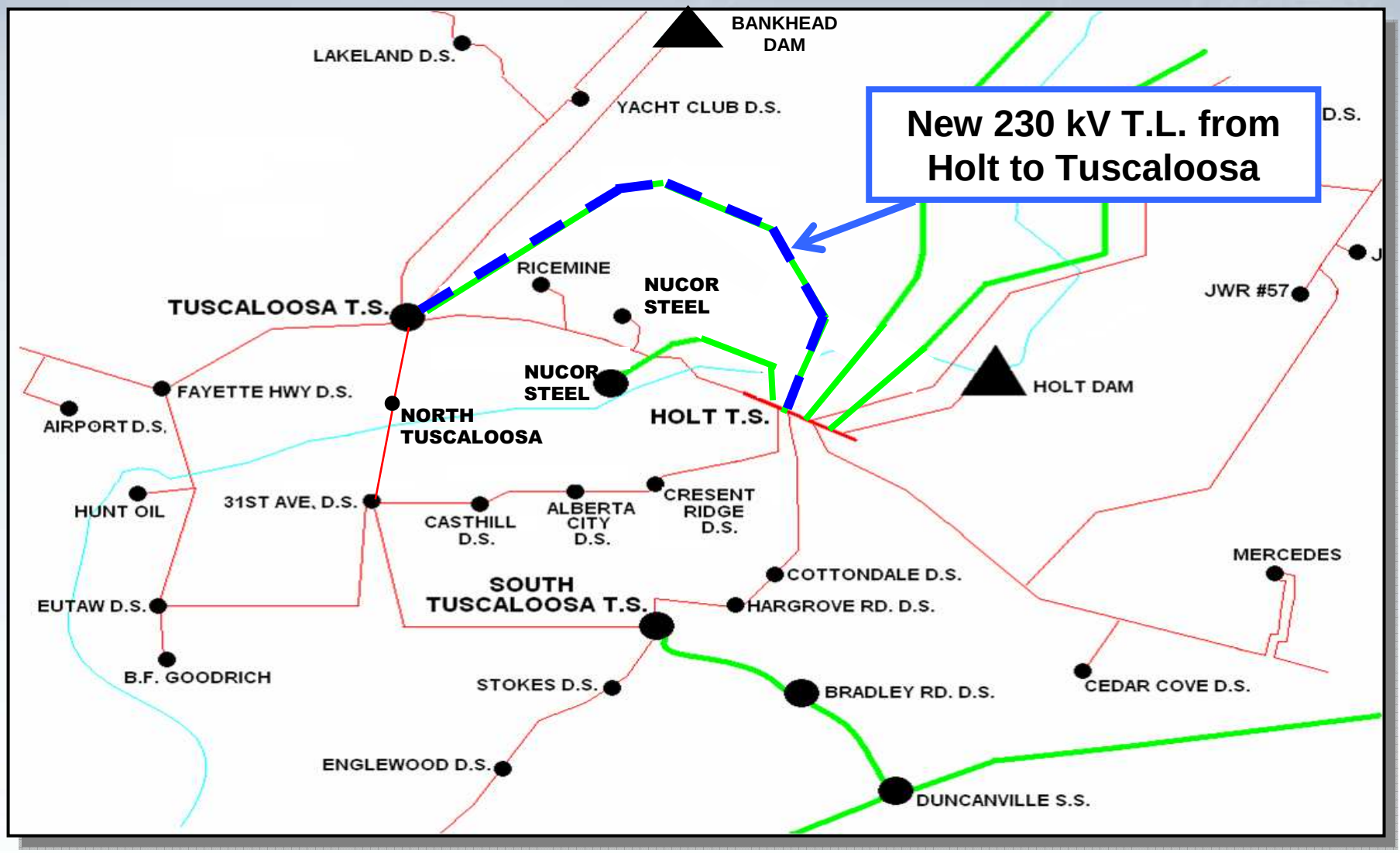
- Construct 6.9 miles of 230 kV T.L. from Holt to Tuscaloosa.
- The loss of the Holt – NUCOR Steel 115 kV T.L., with Greene County Unit #1 offline, causes thermal overloads in the Tuscaloosa area.

2011 W-3



2011 W-3

Holt – Tuscaloosa 230 kV T.L.



Southeastern Region Transmission Planning

Expansion Item W-4

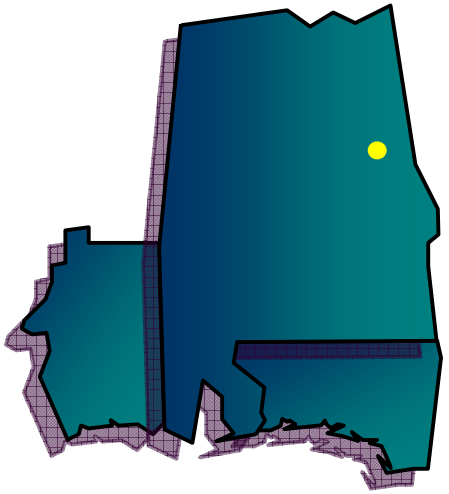
Hillabee – Danway 230 kV T.L.

- Upgrade approximately 32 miles of 230 kV T.L. from Hillabee to Danway S.S. to 110°C operation.

- The loading on this line exceeds its thermal rating under contingency conditions.

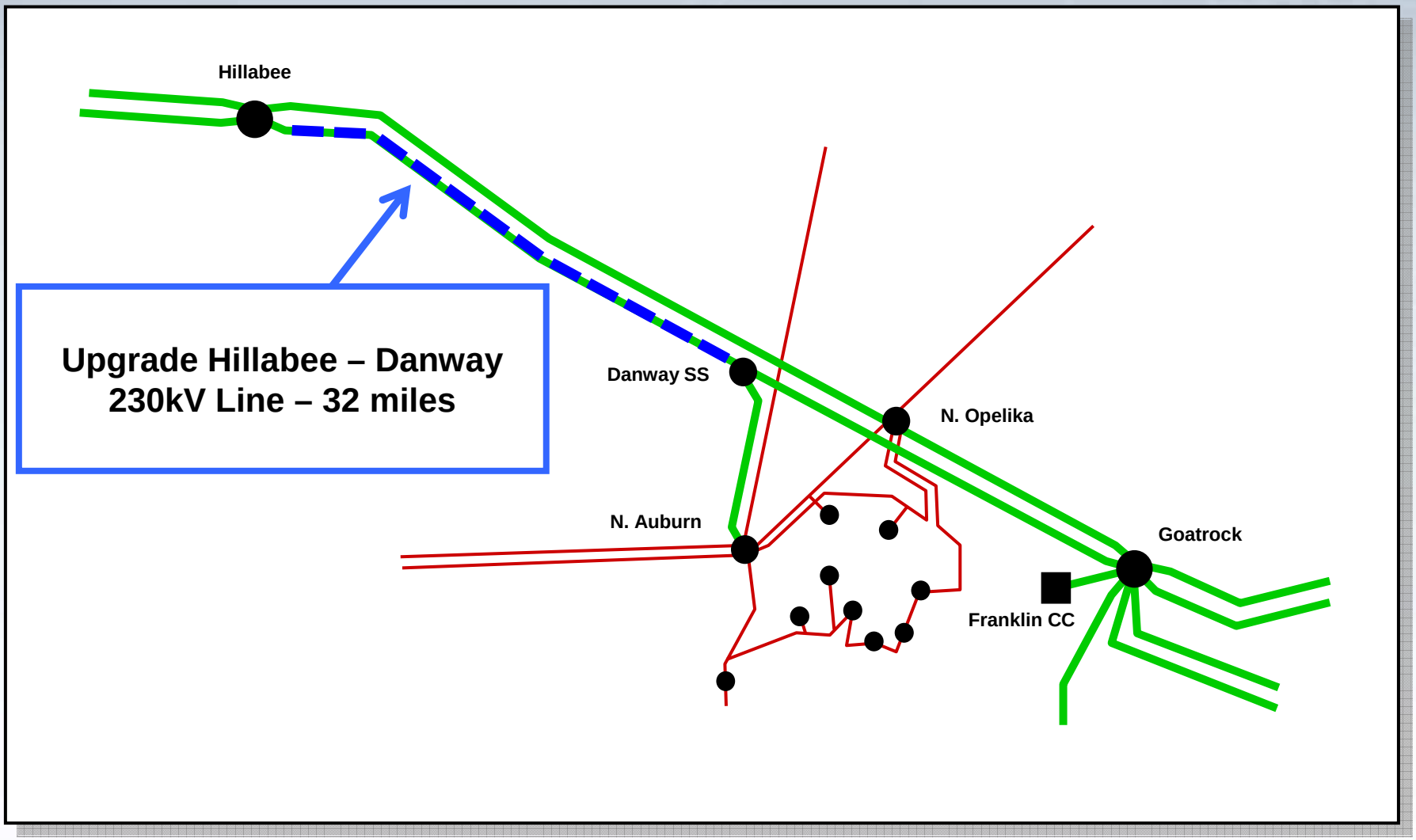
**Advanced from 2013 in 2009 expansion plan*

2012 W-4



2012 W-4

Hillabee – Danway S.S. 230 kV T.L. Upgrade



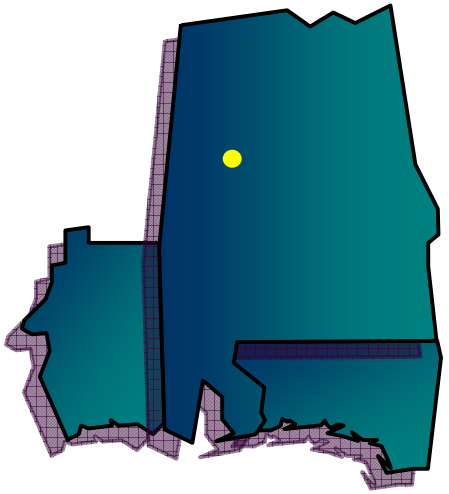
Southeastern Region Transmission Planning

Expansion Item W-5

Greene County Substation

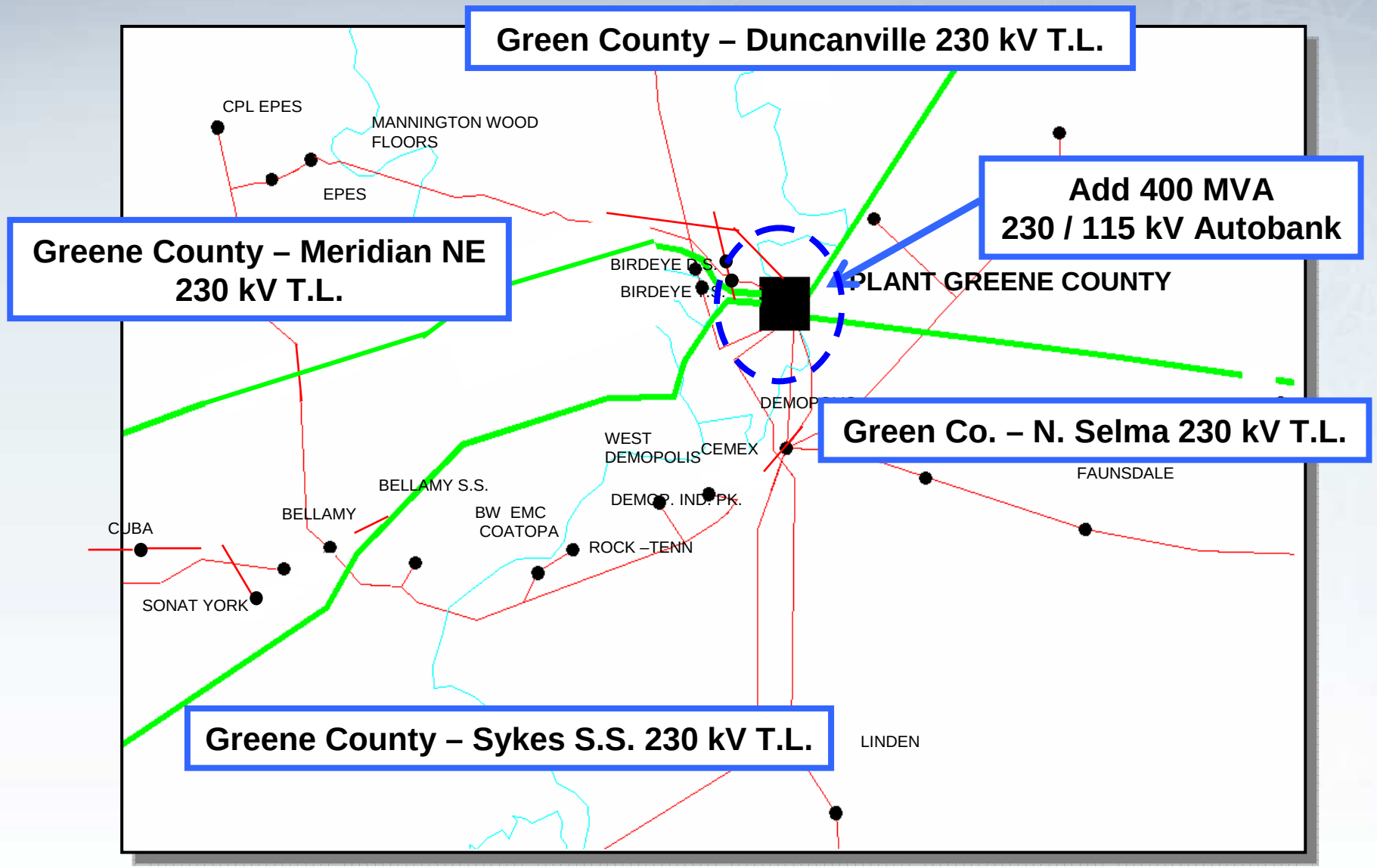
- Install a second 230 / 115 kV transformer at Greene County substation.
- The loss of the existing 230 / 115kV Transformer at Greene County SP causes the South Tuscaloosa – Eutaw 115kV Transmission Line to become overloaded.

2013 W-5



Greene County Substation

2013 W-5



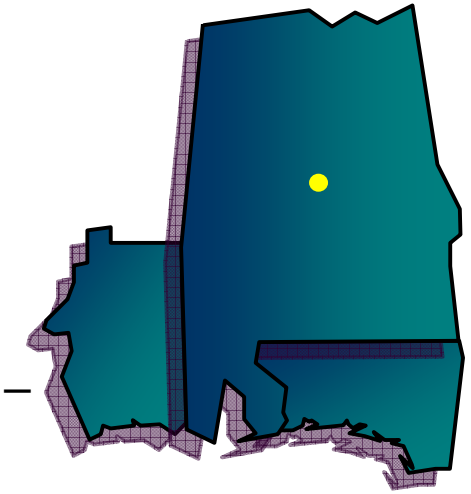
Southeastern Region Transmission Planning

Expansion Item W-6

Autaugaville 500 kV Substation

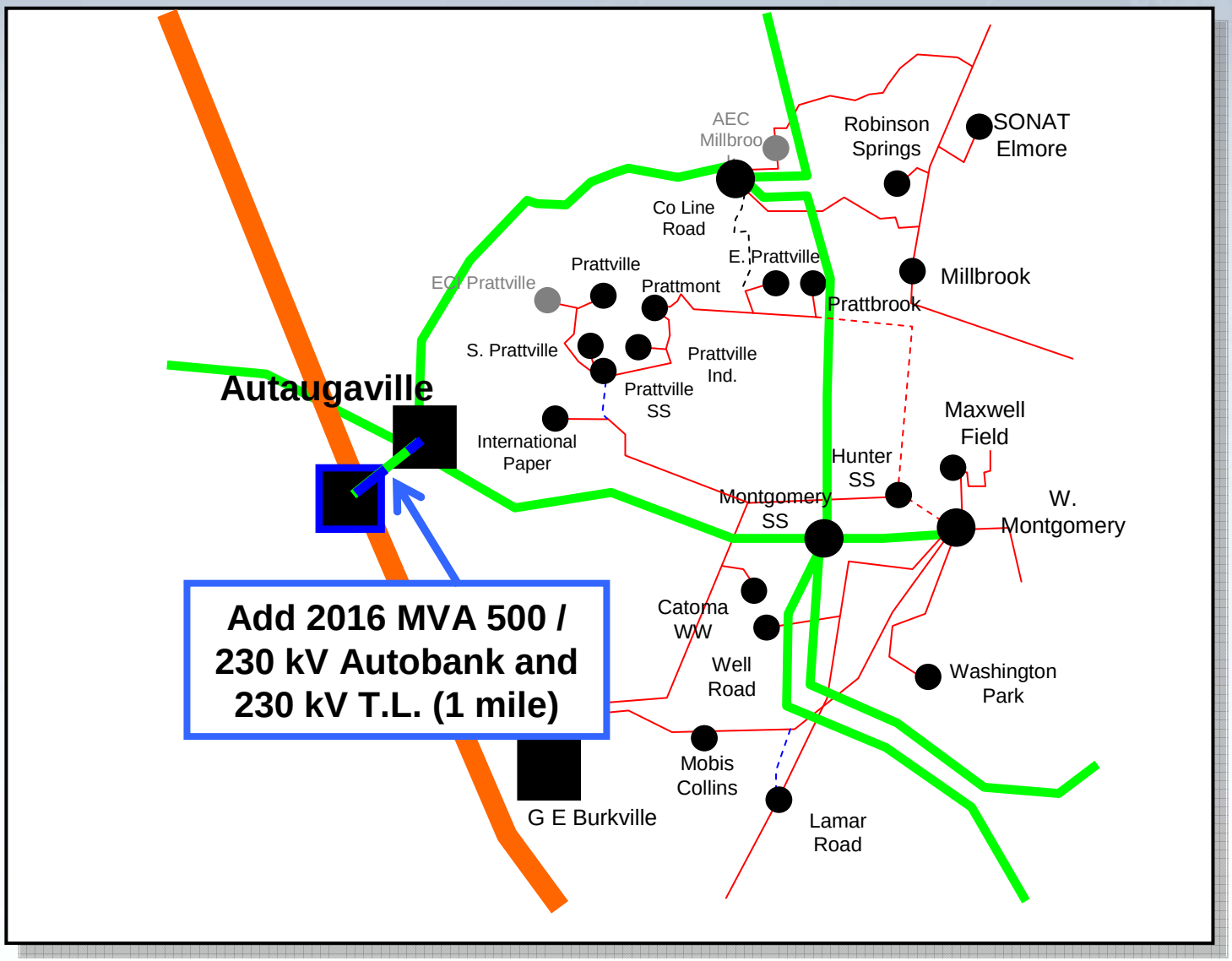
- Install a new 500 / 230 kV transformer at Autaugaville (2016 MVA)
- The loss of the Snowdoun – Autaugaville 500 kV T.L., with Harris Unit #1 offline, causes the Gaston – County Line Road 230 kV T.L. to overload.

2013 W-6



2013 W-6

Autaugaville 500 / 230 kV Transformer



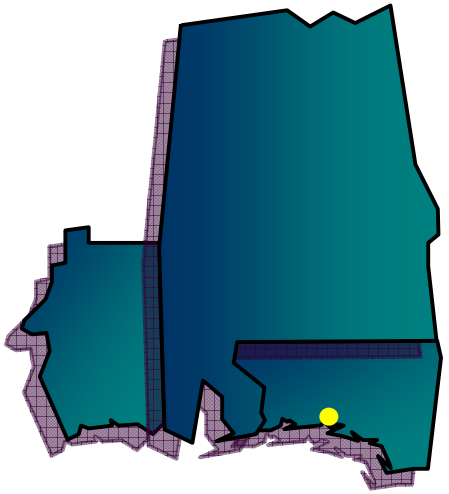
Southeastern Region Transmission Planning

Expansion Item W-7

Laguna Beach 230 / 115 kV Substation

- Install a second 230 / 115 kV transformer at Laguna beach substation.
- The loss of the Smith 230 / 115 kV transformer, with Smith unit #1 offline, overloads the Laguna Beach 230 / 115 kV transformer.

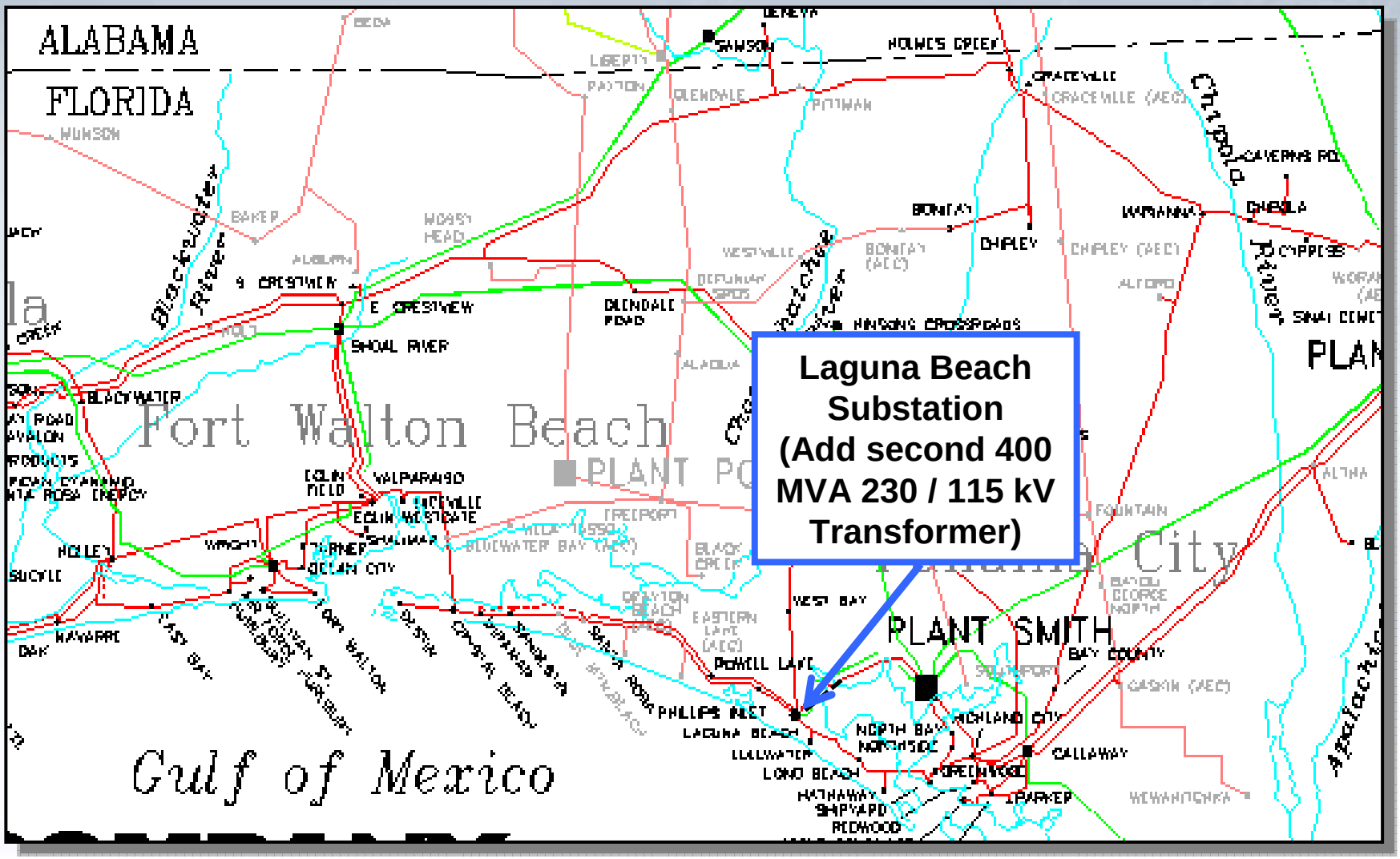
2013 W-7



**Delayed from 2011 in 2009 expansion plan*

2013 W-7

Laguna Beach 230 / 115 kV Substation



Southeastern Region Transmission Planning

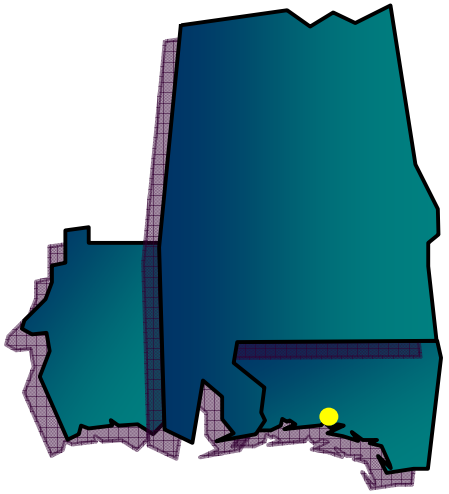
Expansion Item W-8

Smith – Laguna Beach 115 kV T.L.

- Convert the Smith – Laguna Beach 115 kV T.L. to 230 kV operation.
- The loss of the Laguna Beach 230 / 115 kV transformer, with Crist unit #7 offline, causes the Smith – Laguna Beach 115 kV to exceed its thermal limit.

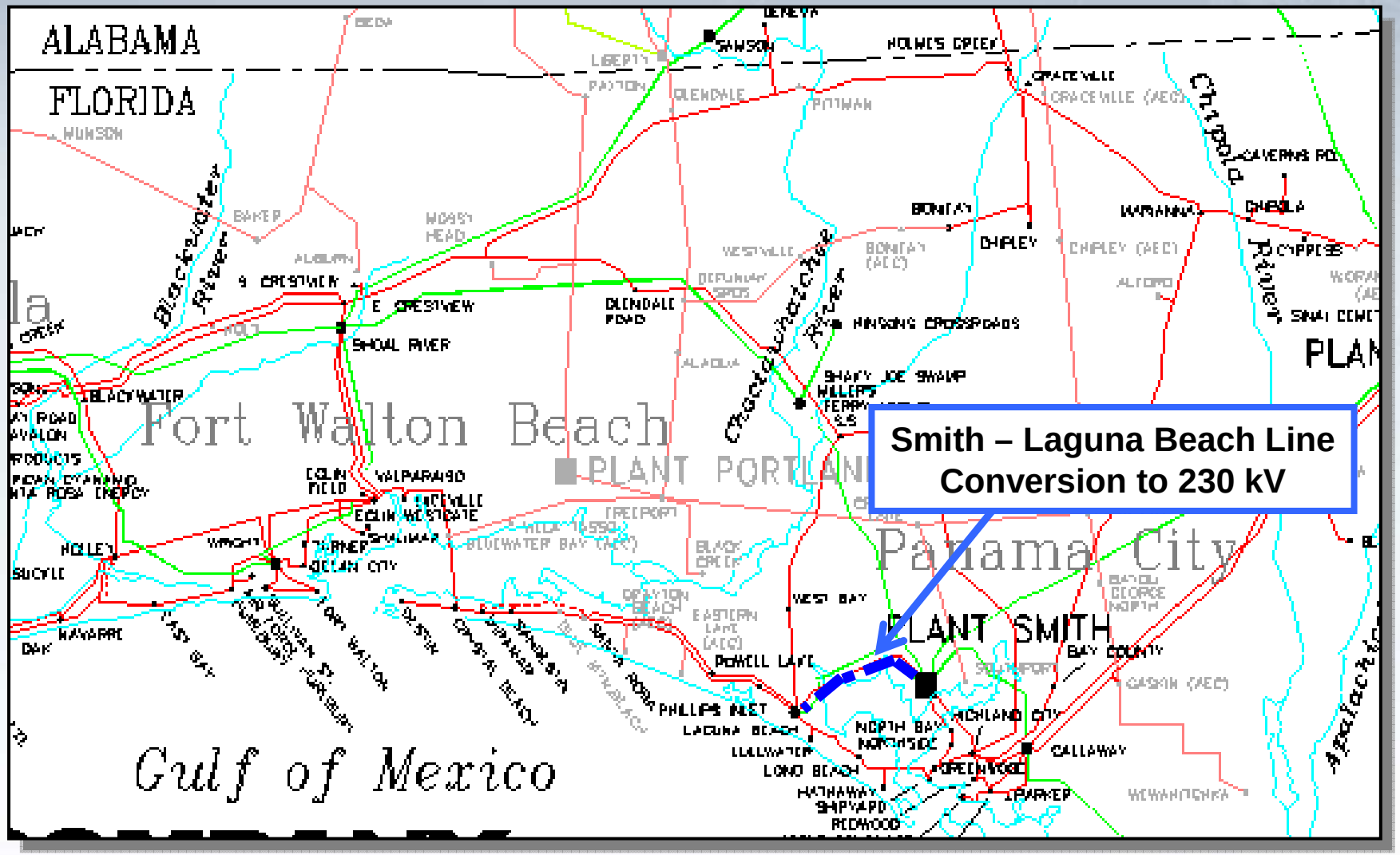
**Delayed from 2011 in 2009 expansion plan*

2013 W-8



Smith – Laguna Beach 115 kV T.L.

2013 W-8



Southeastern Region Transmission Planning

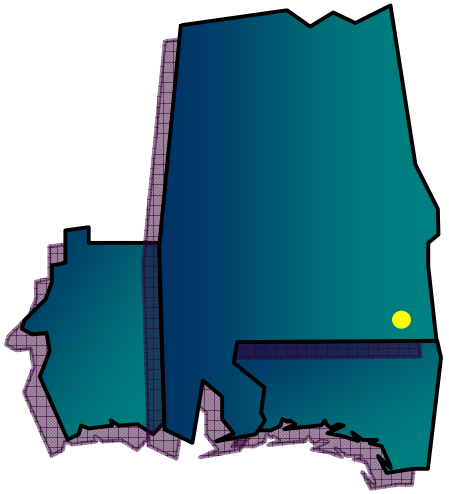
Expansion Item W-9

2013 W-9

Pinckard – Slocomb 115 kV T.L.

- Reconductor 12.5 miles of 115 kV T.L. with 1033 ACSS at 160º C. Upgrade the Holmes Creek terminals at Pinckard T.S. to 2000 A.

- The loss of Farley – Sinai Cemetery 230 kV T.L., with Smith unit #3 offline, causes the Pinckard – Slocomb 115 kV T.L. to overload.



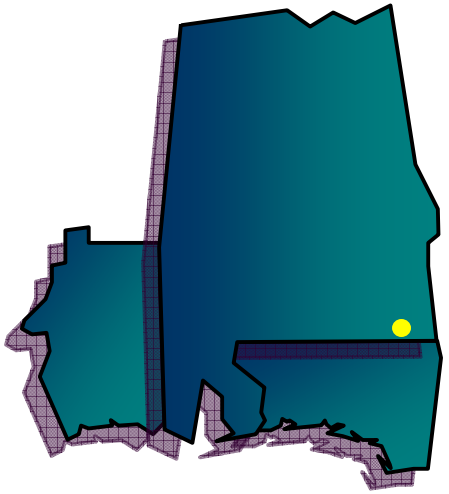
Southeastern Region Transmission Planning

Expansion Item W-10

2014 W-10

Slocomb – Holmes Creek 115 kV T.L.

- Reconductor 10.19 miles of 115 kV T.L. from Slocomb to Holmes Creek with 1033 ACSS at 160º C.



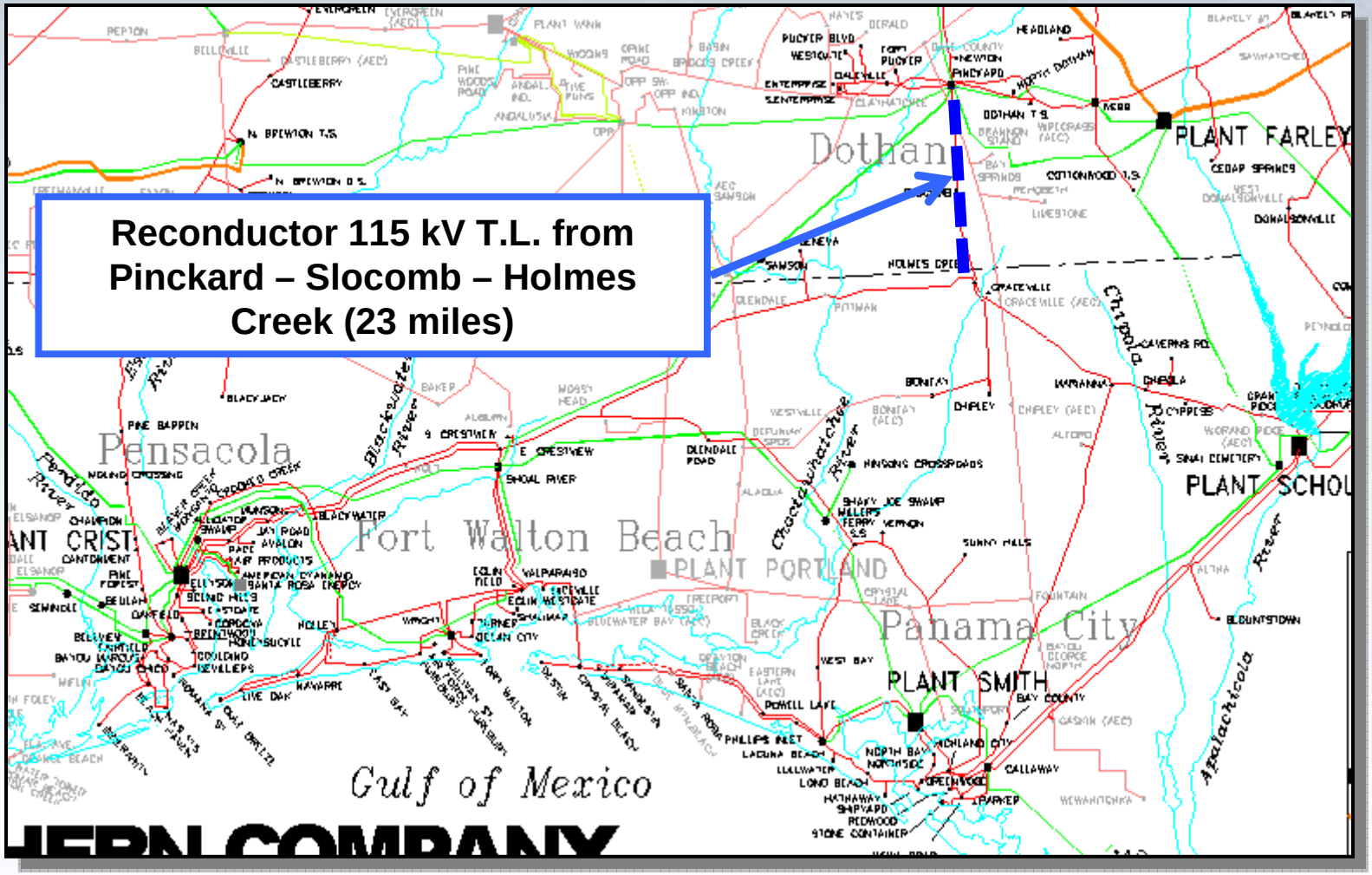
- The loss of Farley – Sinai Cemetery 230 kV T.L., with Smith unit #3 offline, causes this line to overload.

Pinckard – Slocomb 115 kV T.L.

Slocomb – Holmes Creek 115 kV T.L.

2013 W-9

2014 W-10



Southeastern Region Transmission Planning

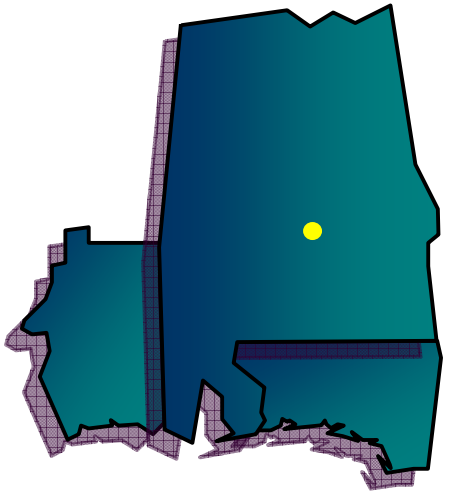
Expansion Item W-11

Snowdoun – Pike County 230 kV T.L.

- Reconductor 32.3 miles of 230 kV T.L. between Snowdoun and Pike County.

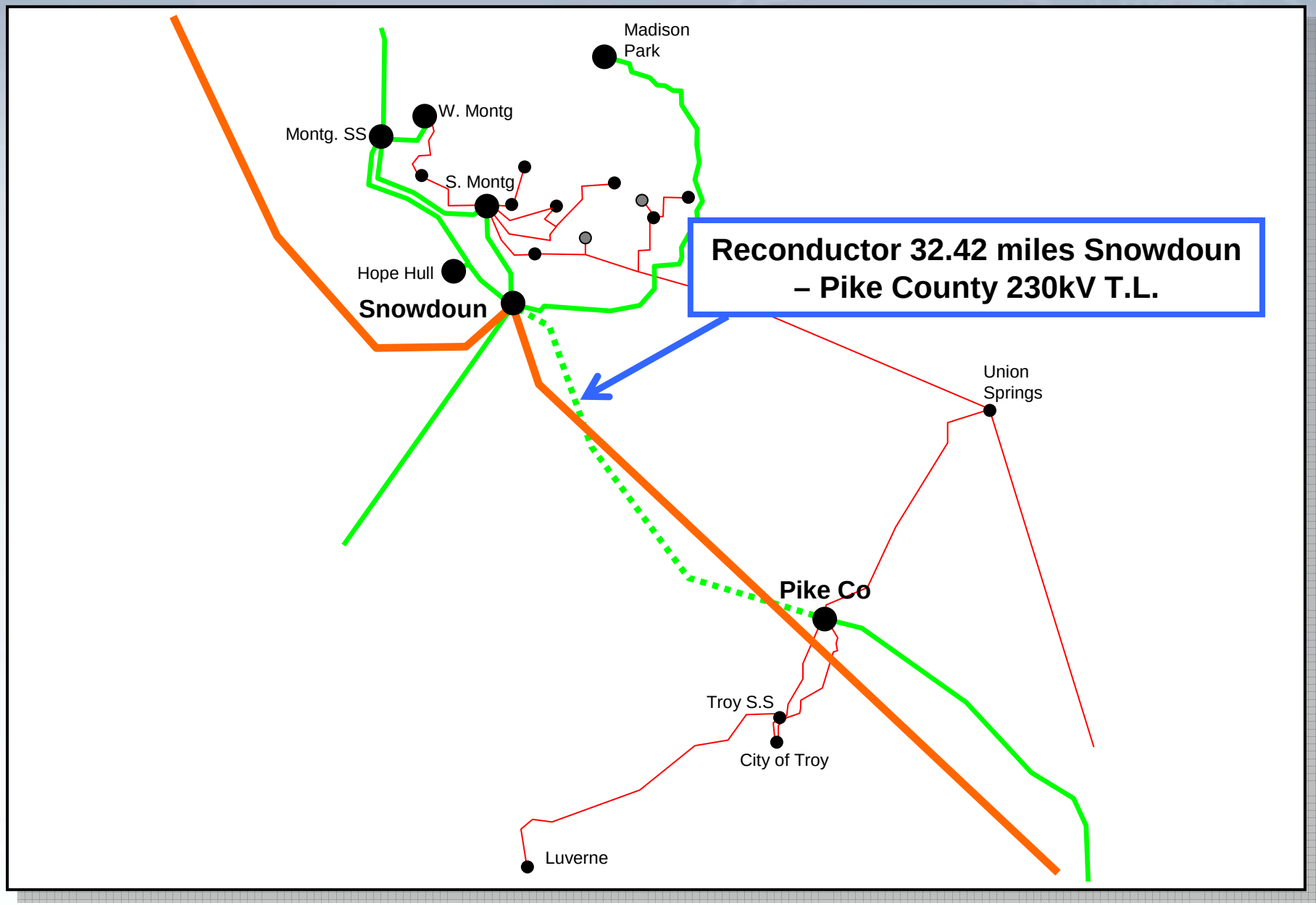
- The loss of Snowdoun – Farley 500 kV T.L. causes the Snowdoun – Pike County to exceed its thermal limit.

2014 W-11



Snowdoun – Pike Co. 230 kV T.L.

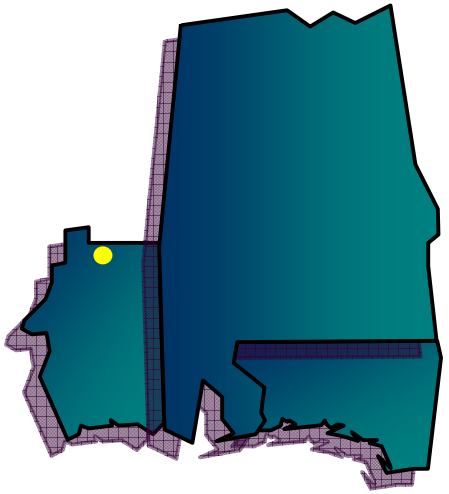
2014 W-11



Southeastern Region Transmission Planning

Expansion Item W-12

2014 W-12



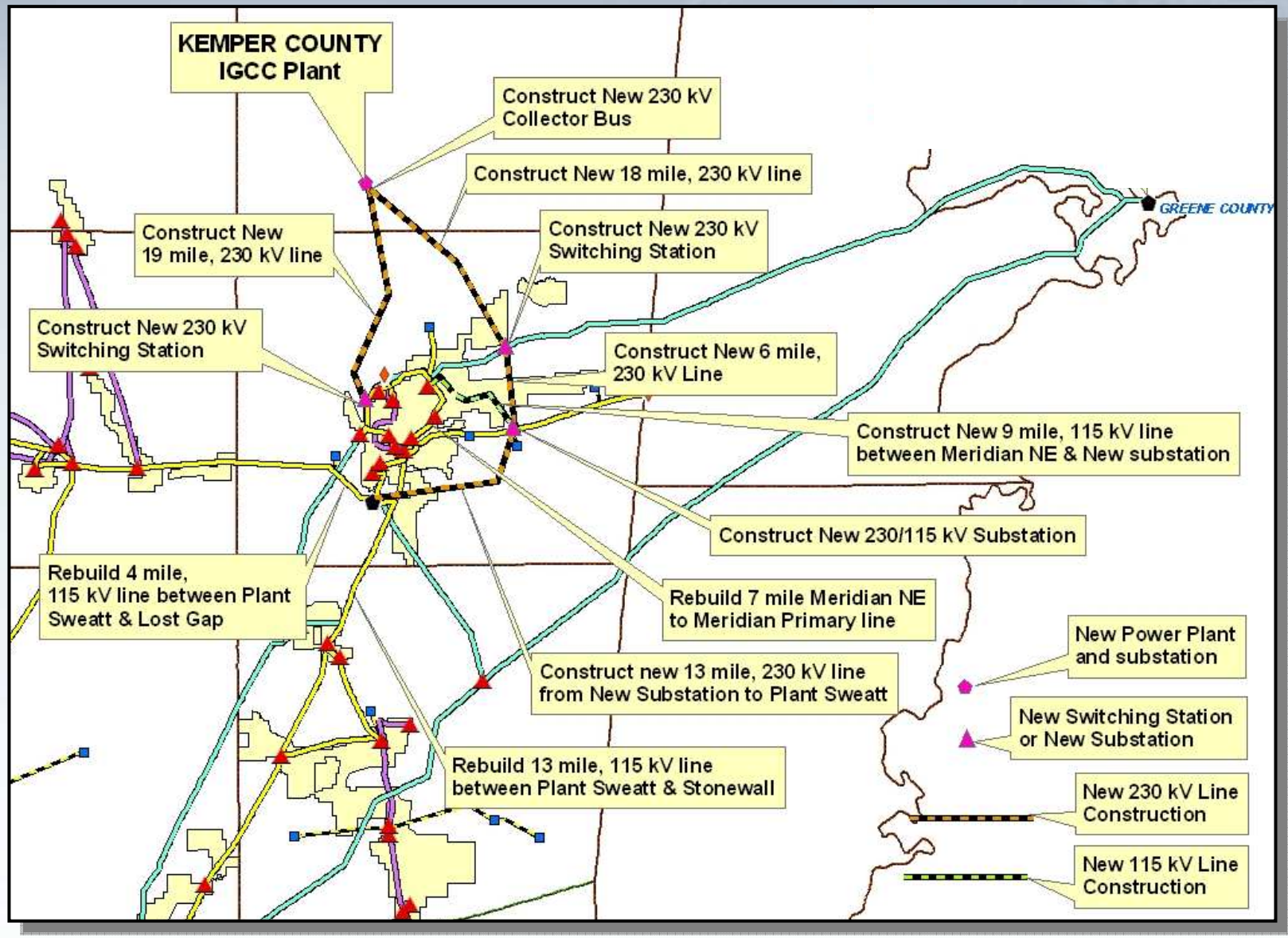
Kemper County Generation

- IGCC plant addition in Kemper County, Mississippi and construct all transmission facilities required for firm service from the plant.

- These projects are to support the addition of Kemper County IGCC.

Kemper County Generation

2014 W-12



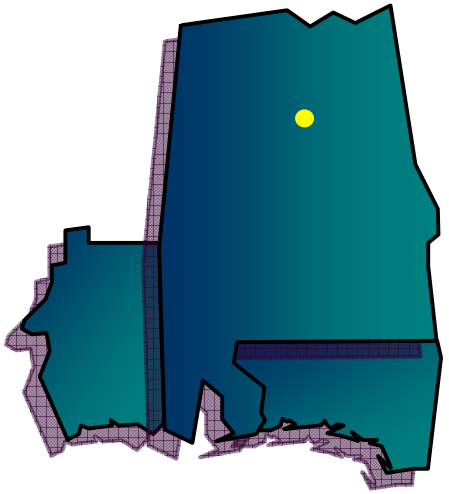
Southeastern Region Transmission Planning

Expansion Item W-13

Gaston – East Pelham 230 kV T.L.

- Upgrade the Gaston – Twelve Oaks – East Pelham 230 kV T.L. to 100°C operation.
- The loading on the Gaston – East Pelham 230 kV T.L. exceeds its thermal rating.

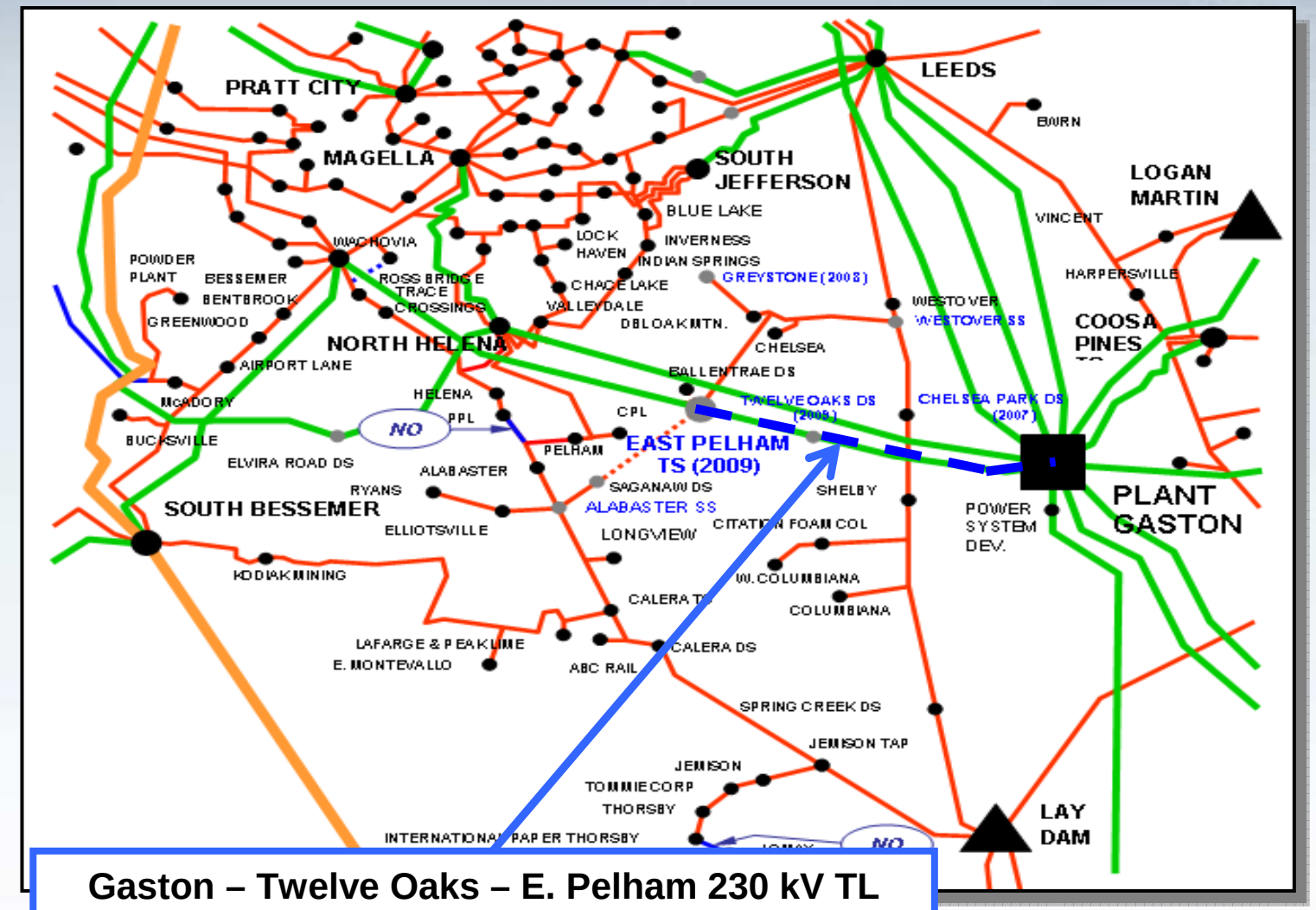
2014 W-13



**Advanced from 2015 in 2009 expansion plan*

Gaston – East Pelham 230 kV T.L.

2014 W-13

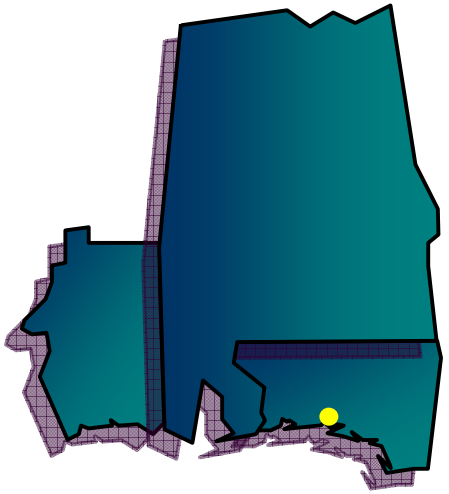


Gaston – Twelve Oaks – E. Pelham 230 kV TL

Southeastern Region Transmission Planning

Expansion Item W-14

2015 W-14



Santa Rosa – Laguna Beach 230 kV T.L.

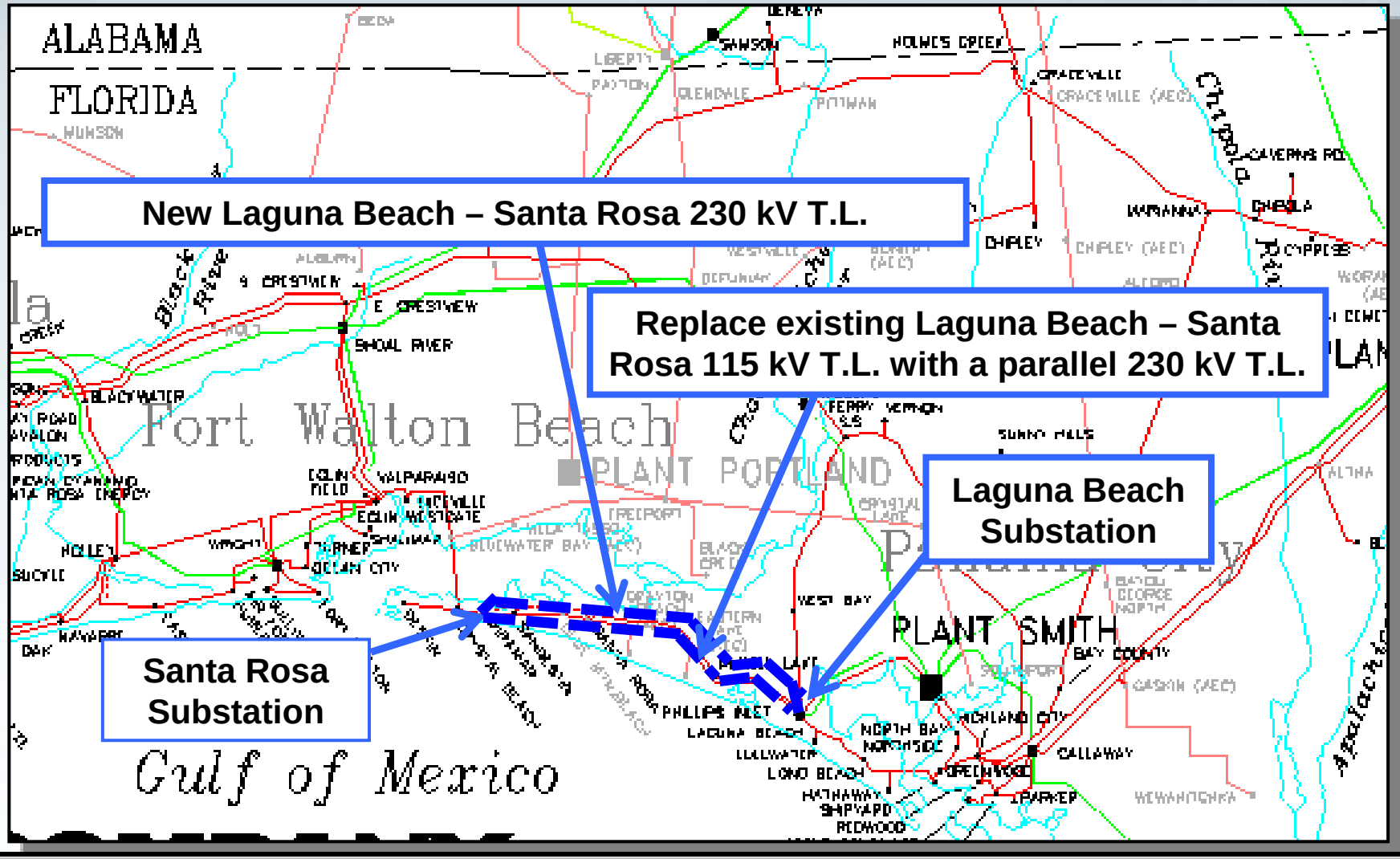
- Construct a new Santa Rosa 230 KV substation with two 230 / 115 kV transformers.
- Build a new 230 kV T.L. from Laguna Beach to Santa Rosa.
- Replace Laguna Beach – Santa Rosa #1 115 kV T.L. with a new 230 kV T.L.

- Project is in conjunction with Santa Rosa 230 / 115 kV substation and rebuild of the Smith – Laguna Beach T.L.

**Delayed from 2012 in 2009 expansion plan*

Santa Rosa – Laguna Beach 230 kV T.L.

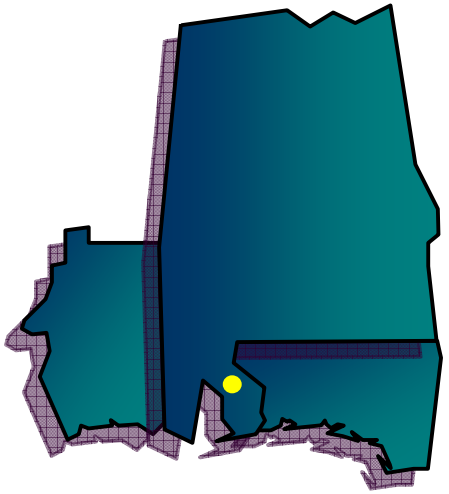
2015 W-14



Southeastern Region Transmission Planning

Expansion Item W-15

2016 W-15



Barry - Chickasaw 230 kV T.L.

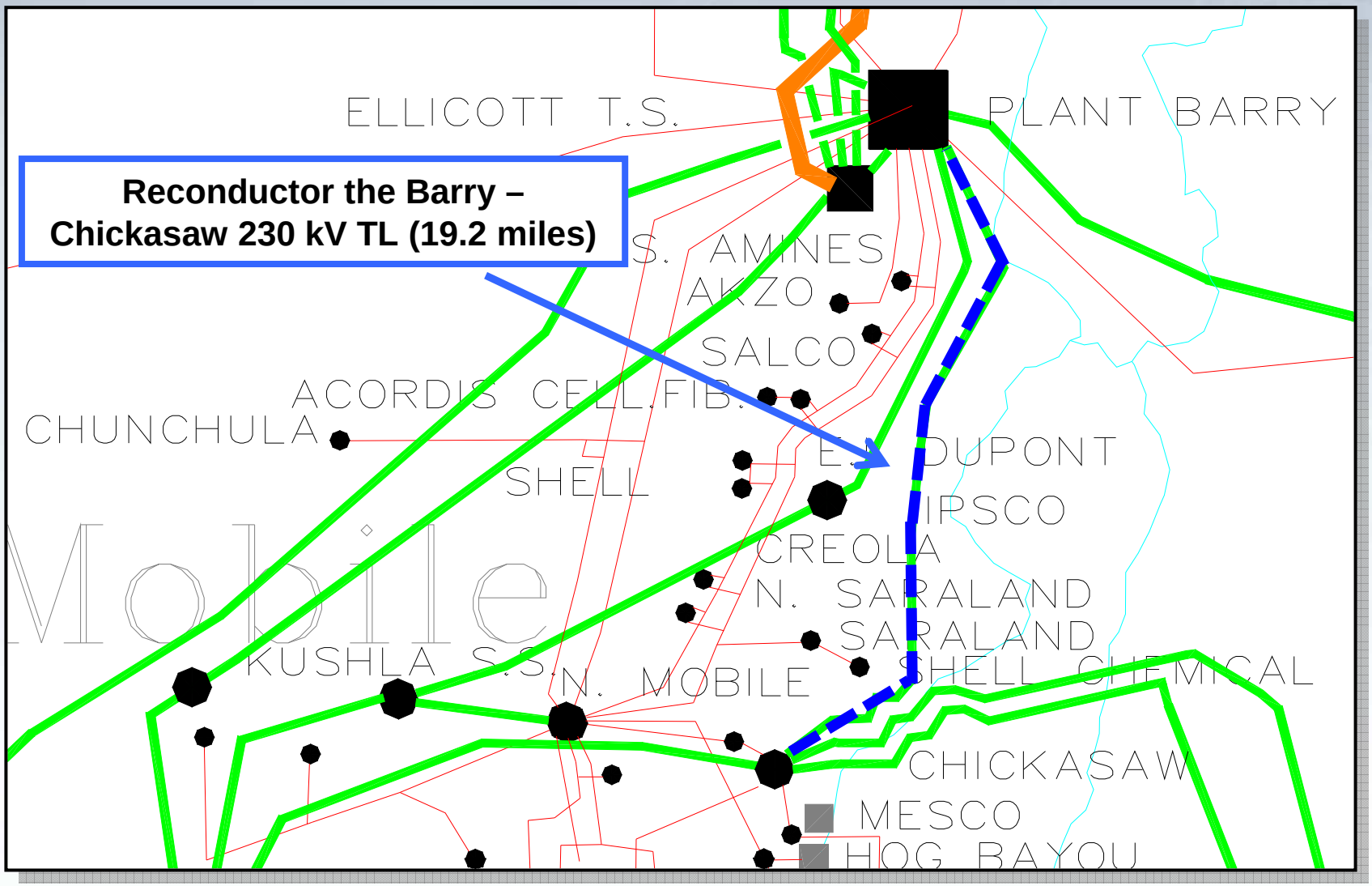
- Reconductor 19.18 miles of 230 kV T.L. from Barry Steam Plant – Chickasaw T.S.

- The loss of the Barry – Crist 230 kV T.L., with Crist Unit #7, causes the Barry – Chickasaw 230 kV T.L. to become overloaded.

**Delayed from 2013 in 2009 expansion plan*

Barry – Chickasaw 230 kV T.L.

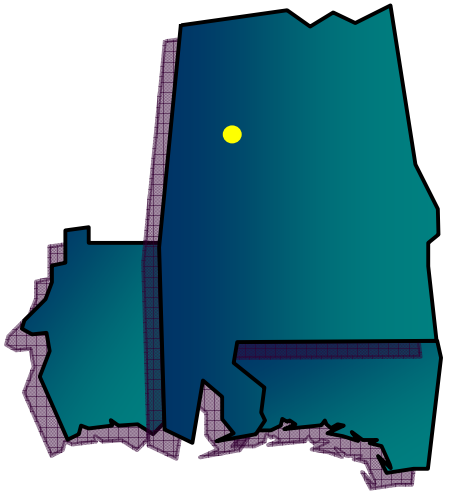
2016 W-15



Southeastern Region Transmission Planning

Expansion Item W-16

2016 W-16



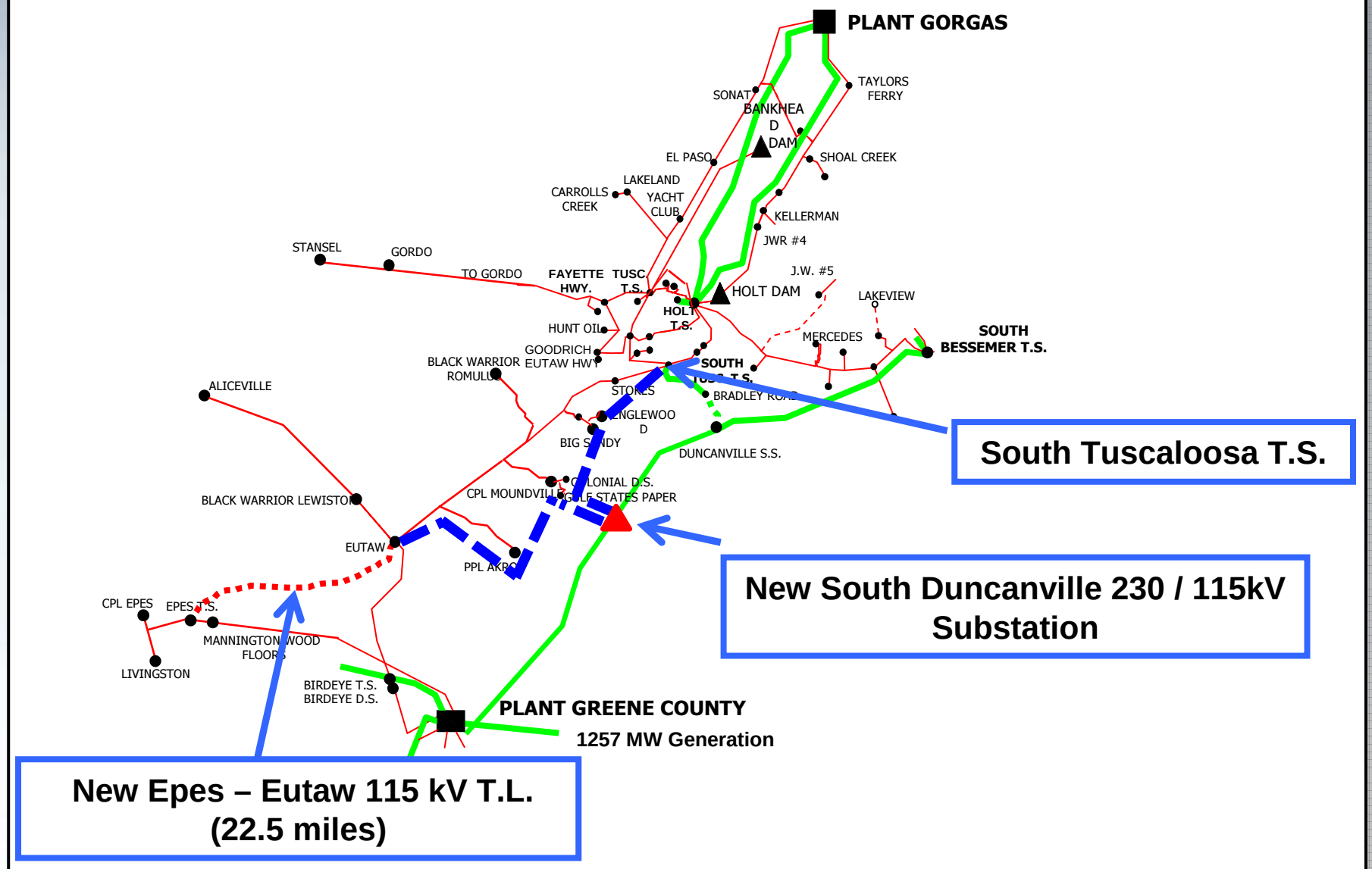
Tuscaloosa Solution Phase 2

- Install a 230 / 115 kV Transformer at South Duncanville.
- Construct a new 115 kV T.L. from South Tuscaloosa to South Duncanville.
- Reconductor existing 2/0 115 kV T.L. to Big Shanty Tap with 397 ACSR.

- Overloads caused by multiple contingencies.
- Voltage Support.

Tuscaloosa Solution Phase 2

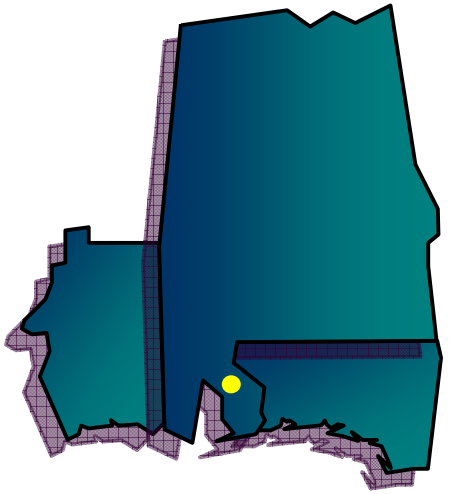
2016 W-16



Southeastern Region Transmission Planning

Expansion Item W-17

2019 W-17



Barry – Crist 230 kV T.L.

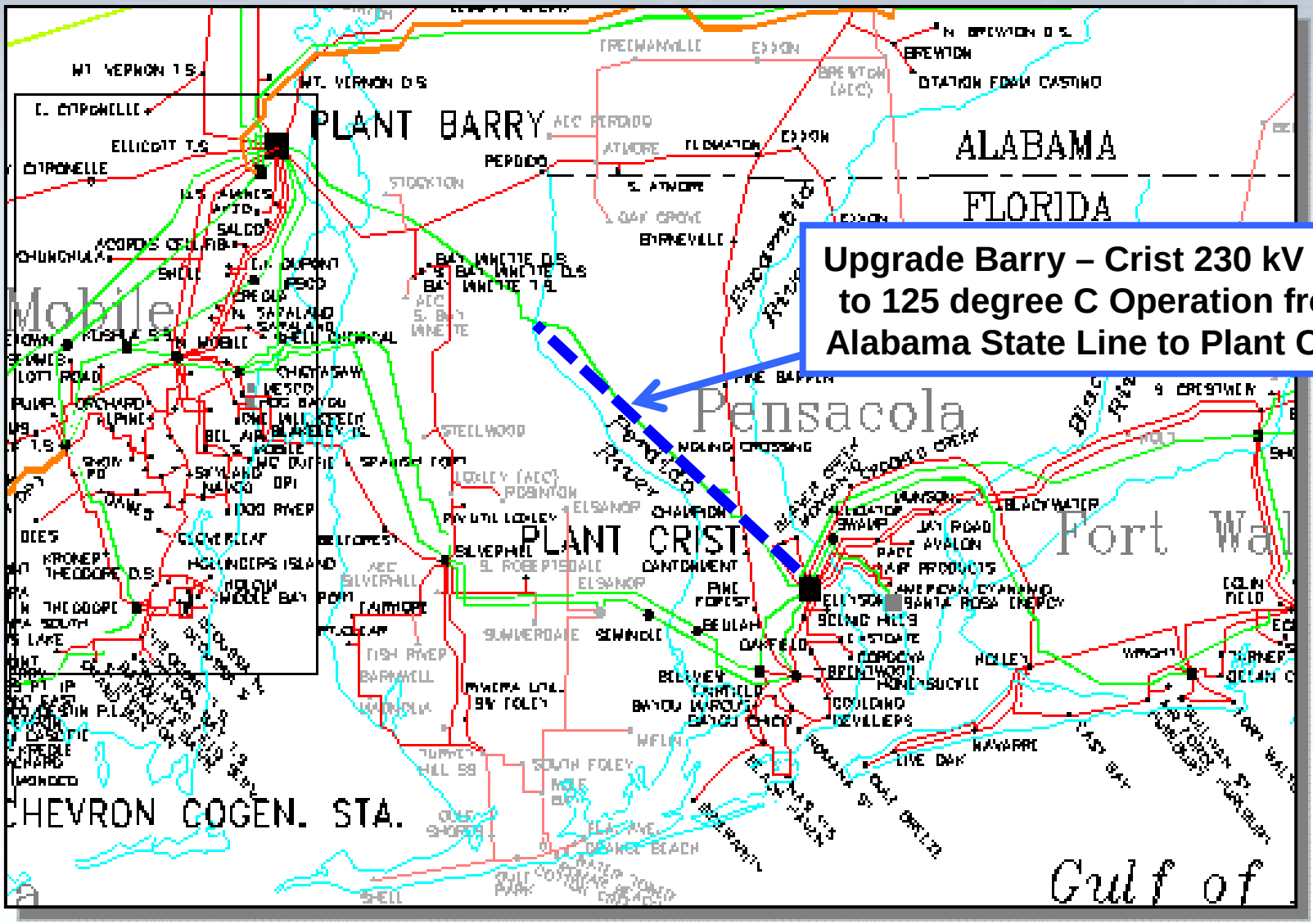
- Upgrade the Barry SP – Crist SP 230 kV T.L. to 125°C operation.

- The loss of Barry S.P. – Chickasaw 230 kV T.L., with Crist unit #7 offline, causes the Barry S.P. – Crist S.P. 230 kV T.L. to exceed its rating.

**Delayed from 2016 in 2009 expansion plan*

Barry – Crist 230 kV T.L.

2019 W-17



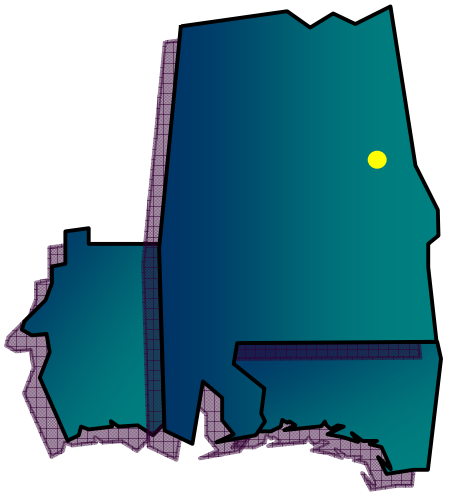
Southeastern Region Transmission Planning

Expansion Item W-18

2019 W-18

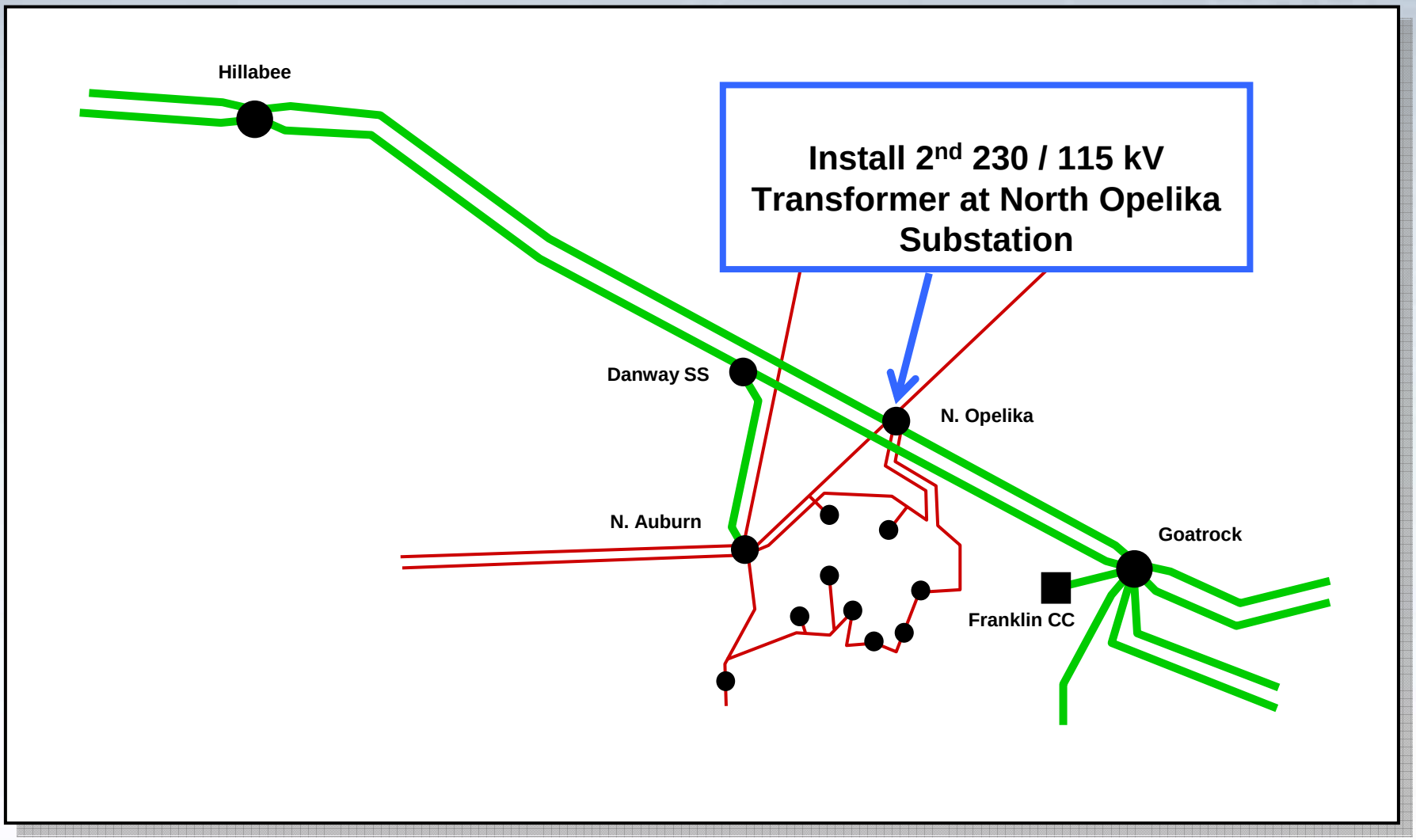
North Opelika 230 kV Substation

- Install a second 230 / 115 kV transformer at North Opelika Substation.
- The loss of the North Auburn 230 / 115 kV transformer overloads the 230 / 115 kV transformer at North Opelika.



2019 W-18

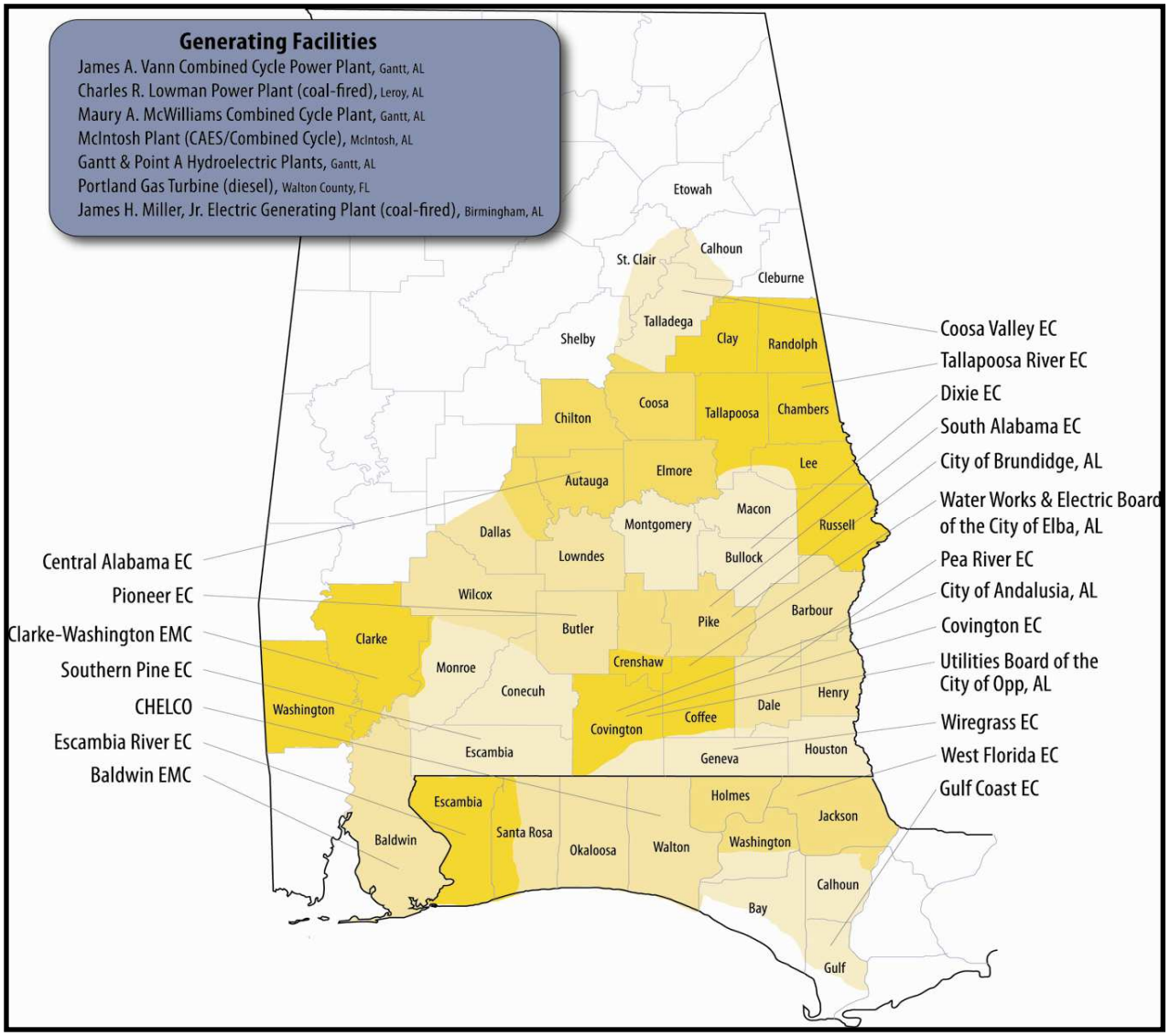
North Opelika 230 kV Substation



Southeastern Region Transmission Planning

PowerSouth

Southeastern Region Transmission Planning



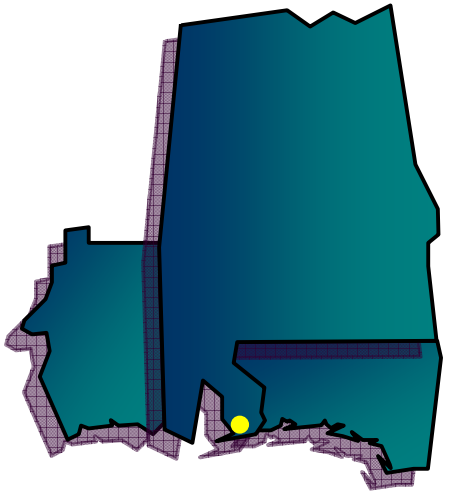
Southeastern Region Transmission Planning

Expansion Item PS-1

Liberty – Glendale – Defuniak T.L.

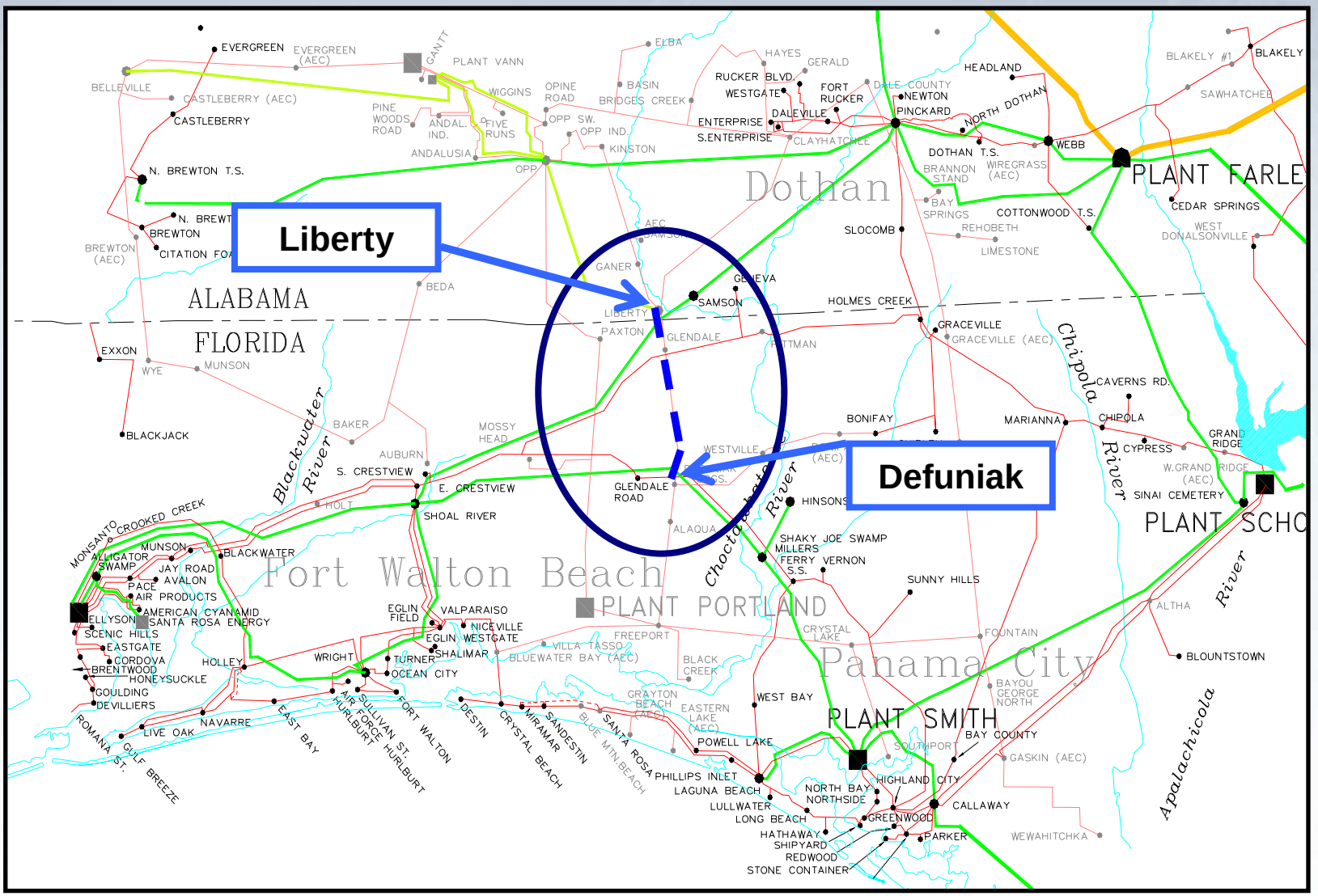
- Reconductor approximately 21 miles of 115 kV T.L.
- With Smith unit #3 offline, high North to South flow causes overloads. This is a project to strengthen the system to respond to single contingency conditions.

2011 PS-1



Liberty– Defuniak 115 kV T.L.

2011 PS-1



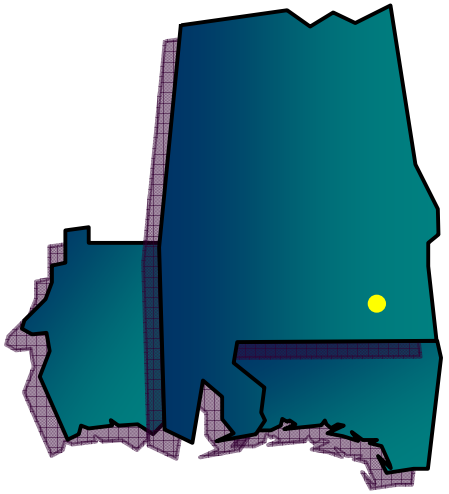
Southeastern Region Transmission Planning

Expansion Item PS-2

Dale County – Bay Springs Junction

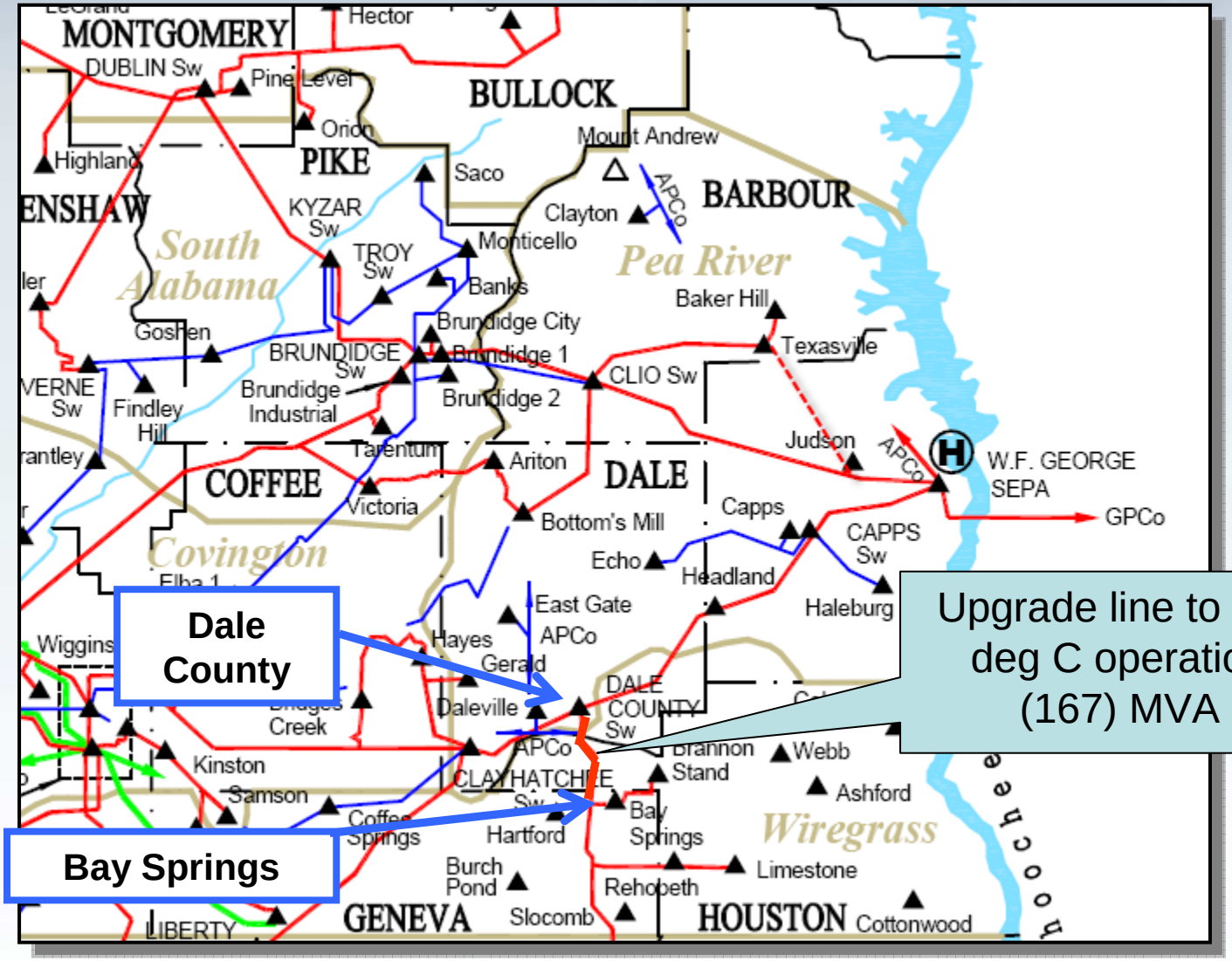
- Uprate to 100°C design temperature.
- This line overloads for Smith unit #3 offline and N-1 contingency.

2011 PS-2



Dale County – Bay Springs Junction

2011 PS-2



Southeastern Region Transmission Planning

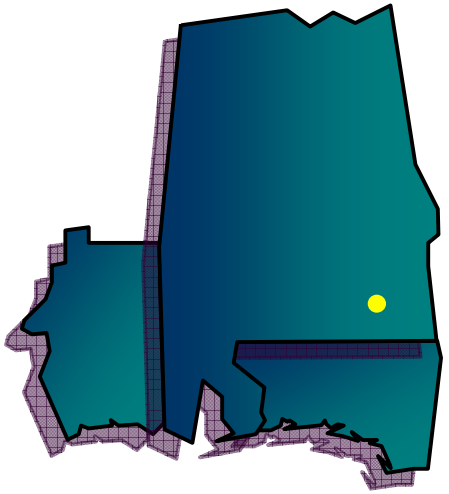
Expansion Item PS-3

Clio Area Project

- Construct new 14 miles Texasville Junction – Judson with 795 ACSR.

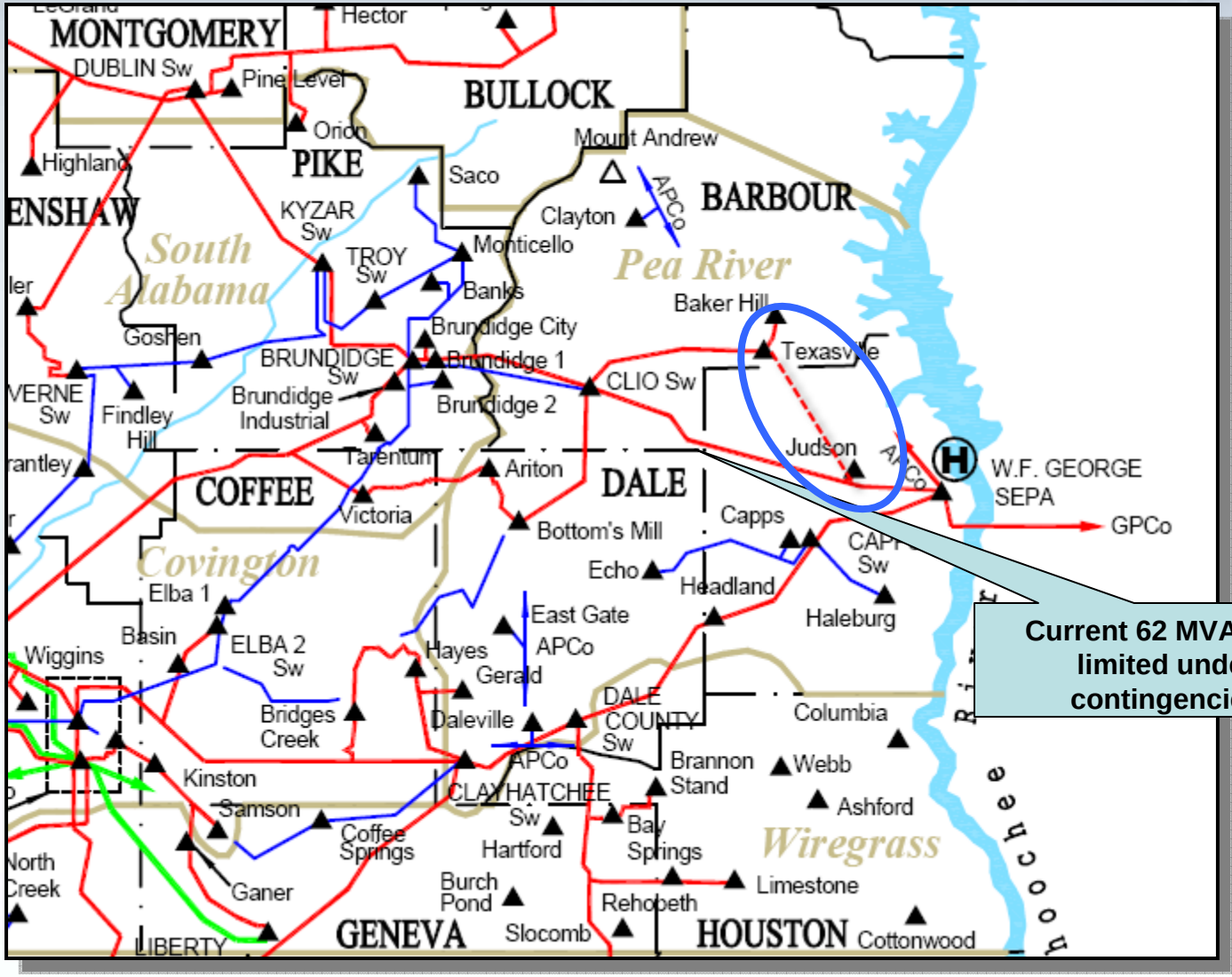
- This is a project to provide an additional source for a radial load and increase the capacity of an East to West path.

2012 PS-3



Clio Area Upgrades

2012 PS-3



Southeastern Region Transmission Planning

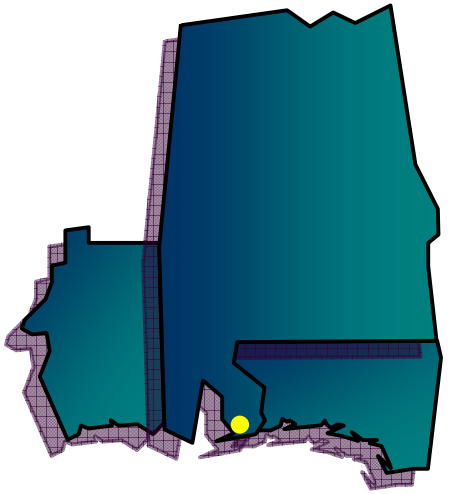
Expansion Item PS-4

Baldwin County Alabama

- Construct a new 115 kV T.L. from Miflin Junction – Florida Avenue with one mile water crossing.
- Construct Miflin Switching Station.
- Thermal uprate Miflin Junction – Wolf Bay Junction T.L.
- 15 MVAR Cap Banks at Florida Avenue and Gulf Shores.

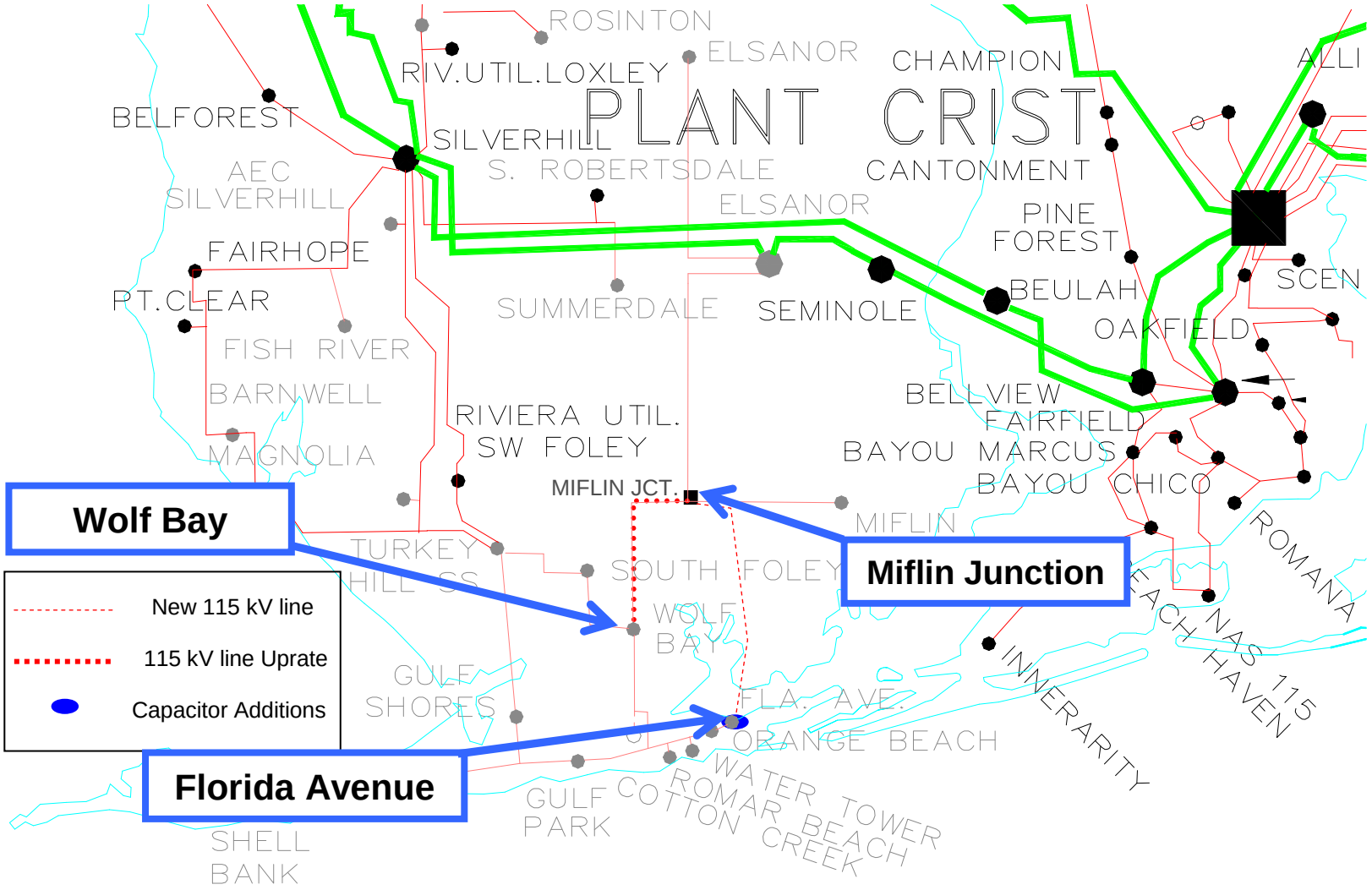
- This is a project to strengthen the system of the high load growth area, Orange Beach being served radially, to respond to single contingency conditions.

2012 PS-4



Baldwin County Alabama

2012 PS-4



Southeastern Region Transmission Planning

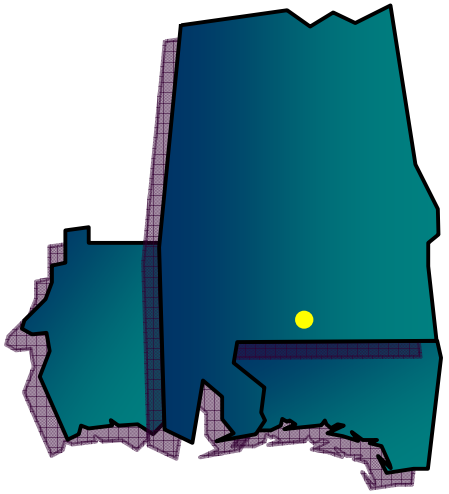
Expansion Item PS-5

Brewton/Atmore Area

- Upgrade 40 miles of 46kV line to 115kV 795 ACSR.

- This area experiences line overloads under single contingencies and unacceptable low voltage under a double contingency scenario.
- Alleviate voltage and overload problems by providing a parallel 115kV path that eliminates the overload and assures that the voltage is supported for the loss of two sources.

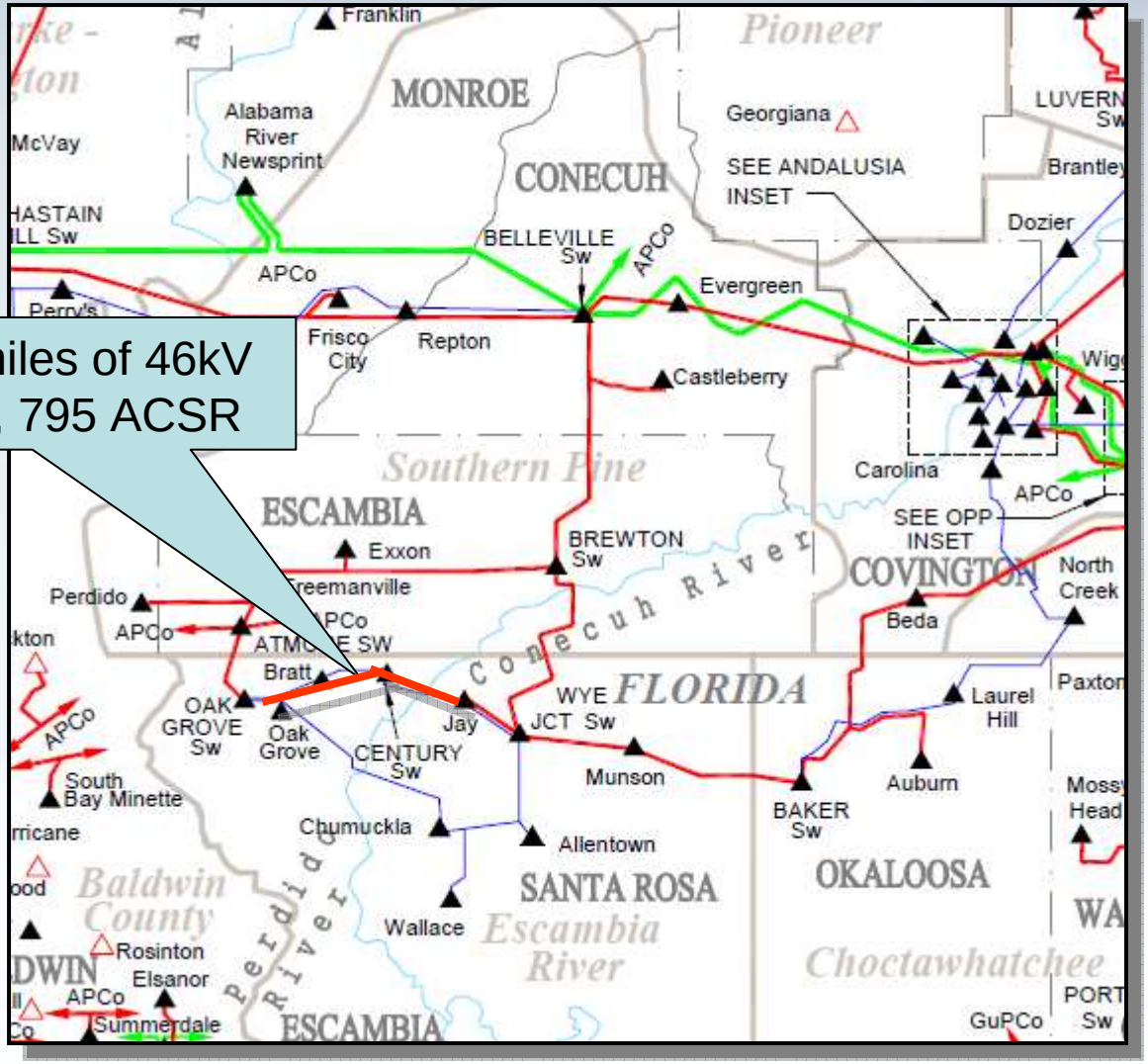
2012 PS-5



Brewton / Atmore Area

2013 PS-5

Upgrade 40 miles of 46kV line to 115kV, 795 ACSR



Southeastern Region Transmission Planning

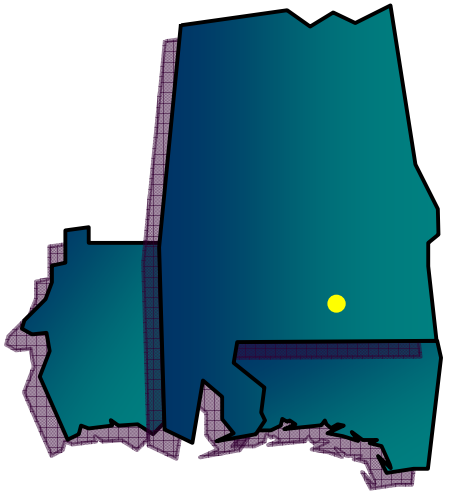
Expansion Item PS-6

Northern System Voltage Support

- Construct a new 230 kV T.L. from Gantt to Dublin
- New 230 / 115 kV transformer at Gantt.
- New 230 / 115 kV transformer at Dublin

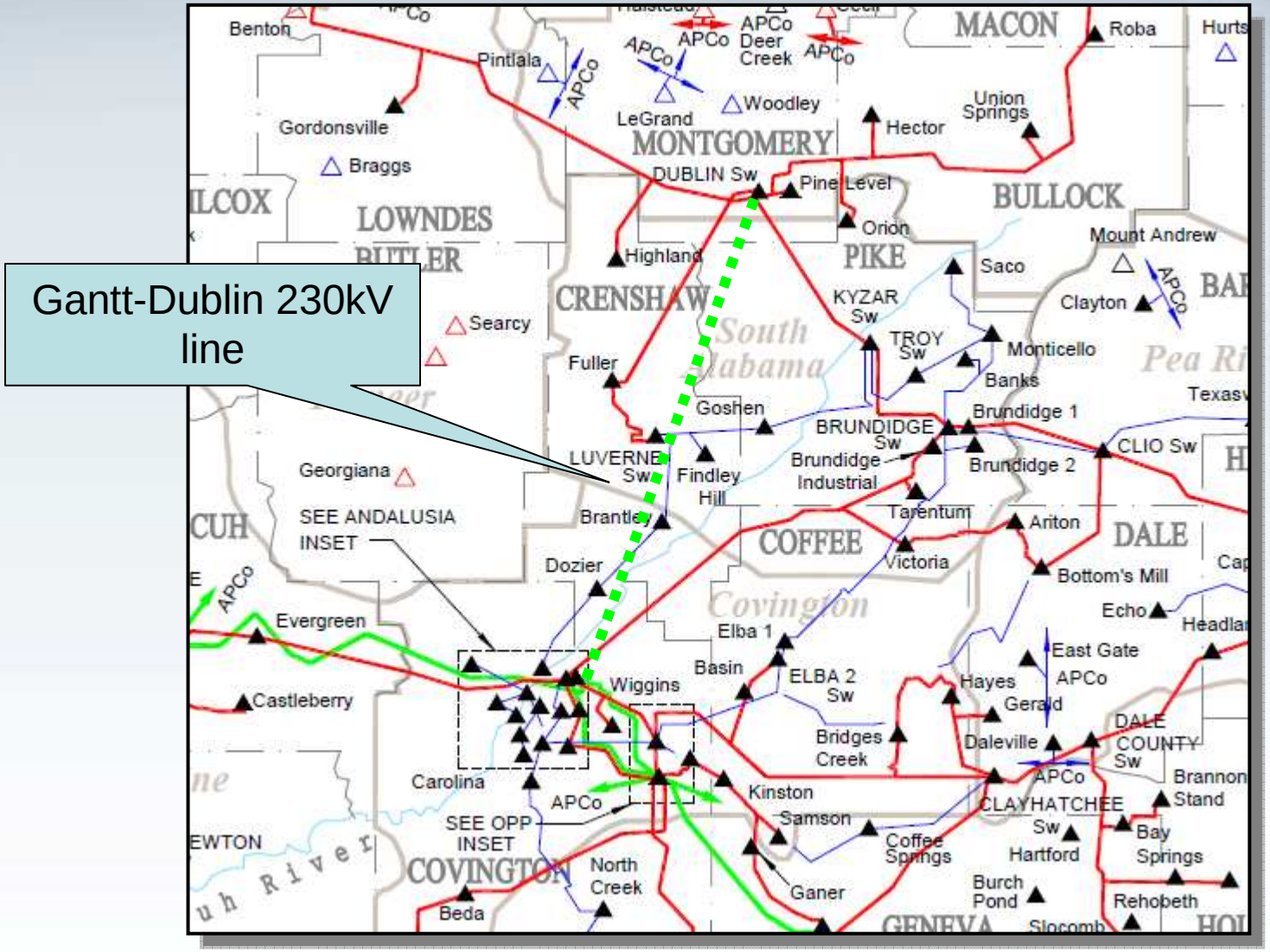
- This project provides voltage support to the northern part of the system.

2014 PS-6



Northern System Voltage Support

2014 PS-6



Southeastern Region Transmission Planning

South Mississippi Electric Power Association

Southeastern Region Transmission Planning

SMEPA's System Expansion Plan

10 Year Transmission Plan

- Years 2010 – 2013
  - Under Construction
  - Included in Transmission Construction Work Plan (TCWP)
- Years 2014 – 2020
  - Not Included in TCWP

Southeastern Region Transmission Planning

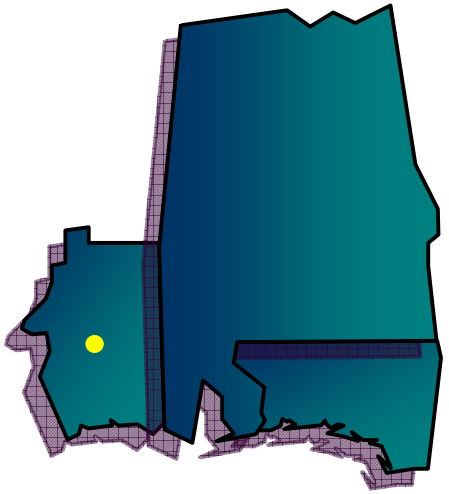
Expansion Item SME-1

Polkville 161 kV Source

- Construct 161 / 69 kV Substation and T.L.
- Tap 161 kV T.L. '172' with White Oak S.S.

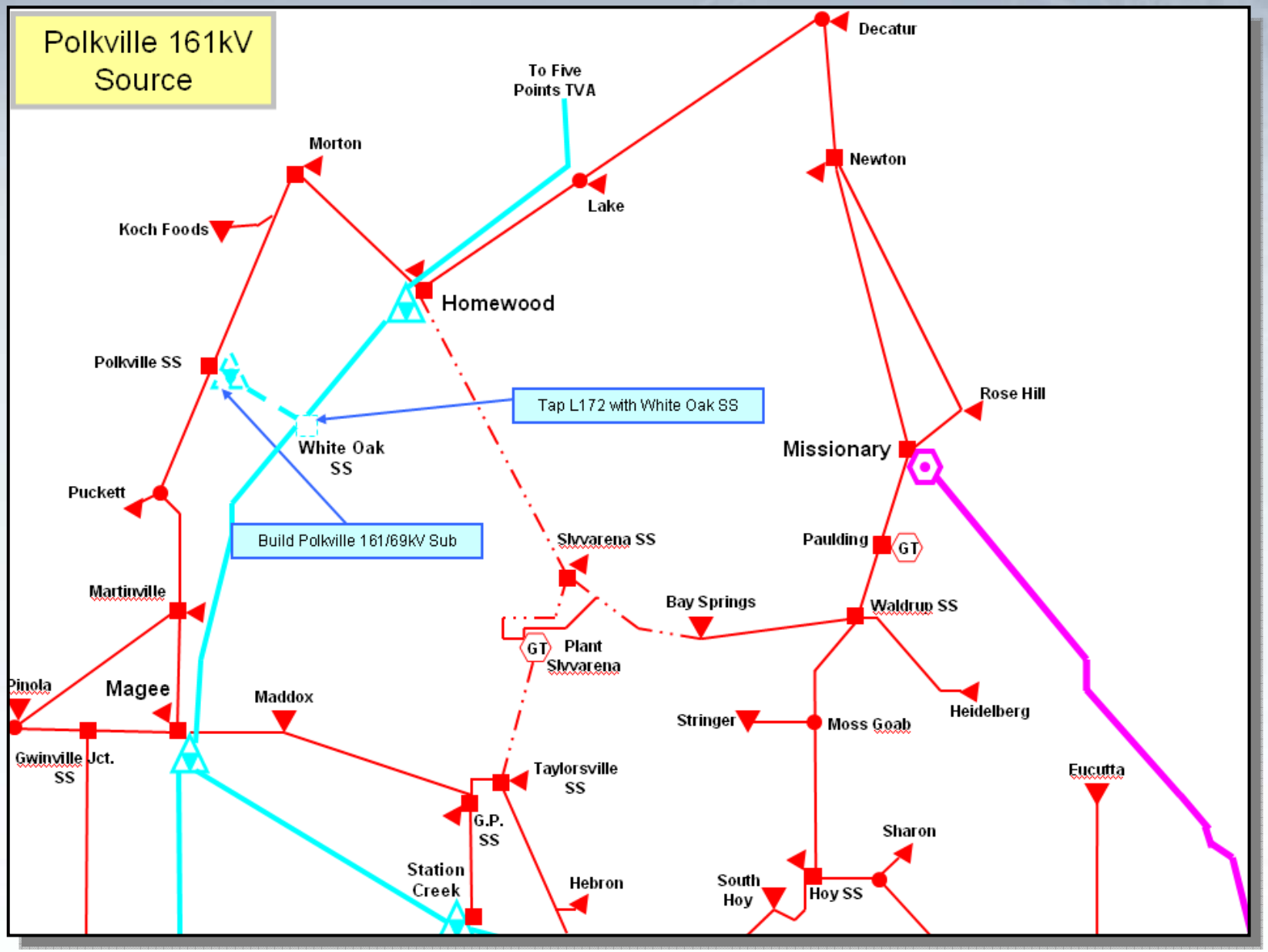
- Project alleviates low voltages and overloads and is required to support the industrial load growth.

2011 SME-1



Polkville 161 kV Source

2011 SME-1



Southeastern Region Transmission Planning

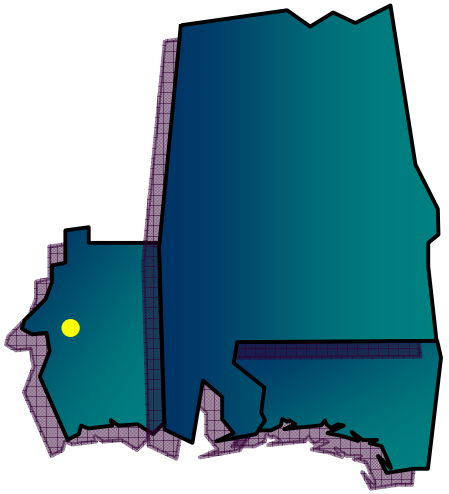
Expansion Item SME-2

Silver Creek Interconnection

- Construct new Silver Creek 115 / 161 kV Substation.
- Tap 161 kV T.L. '168' and construct a new 161 kV T.L.

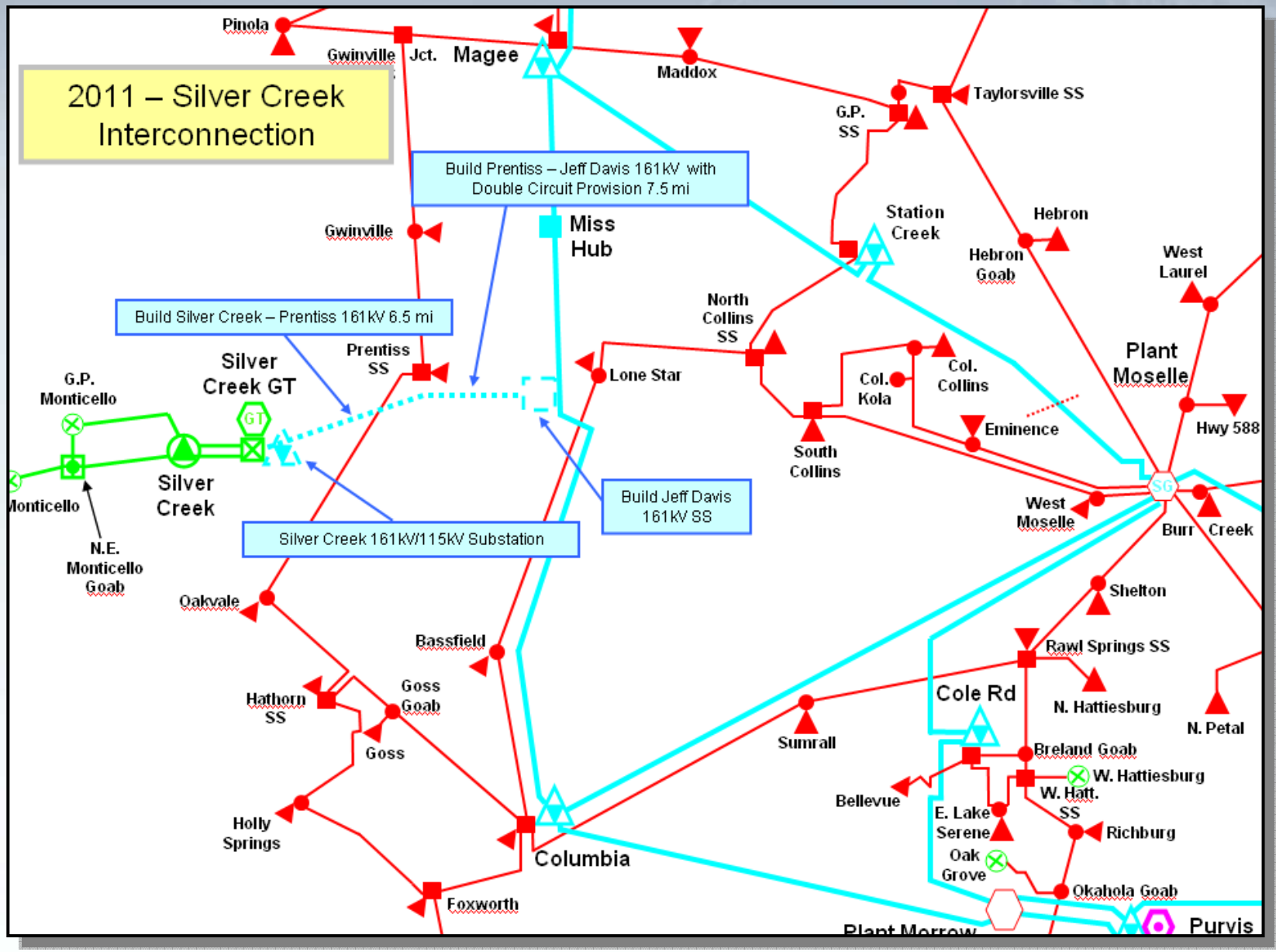
- Single interconnection with Entergy (Magee).
  - Outage impacts SMEPA's ability to serve off-system load.

2011 SME-2



Silver Creek Interconnection

2011 SME-2



Southeastern Region Transmission Planning

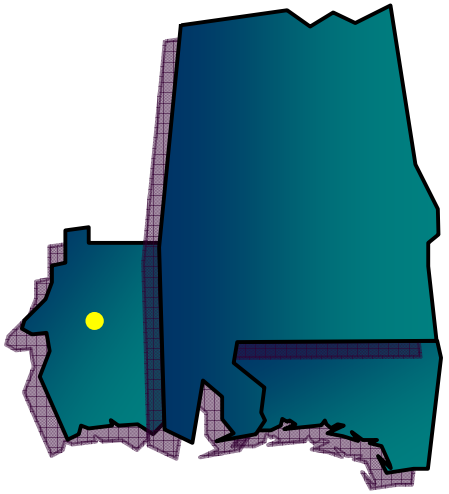
Expansion Item SME-3

2012 SME-3

South Hoy 161 kV Source

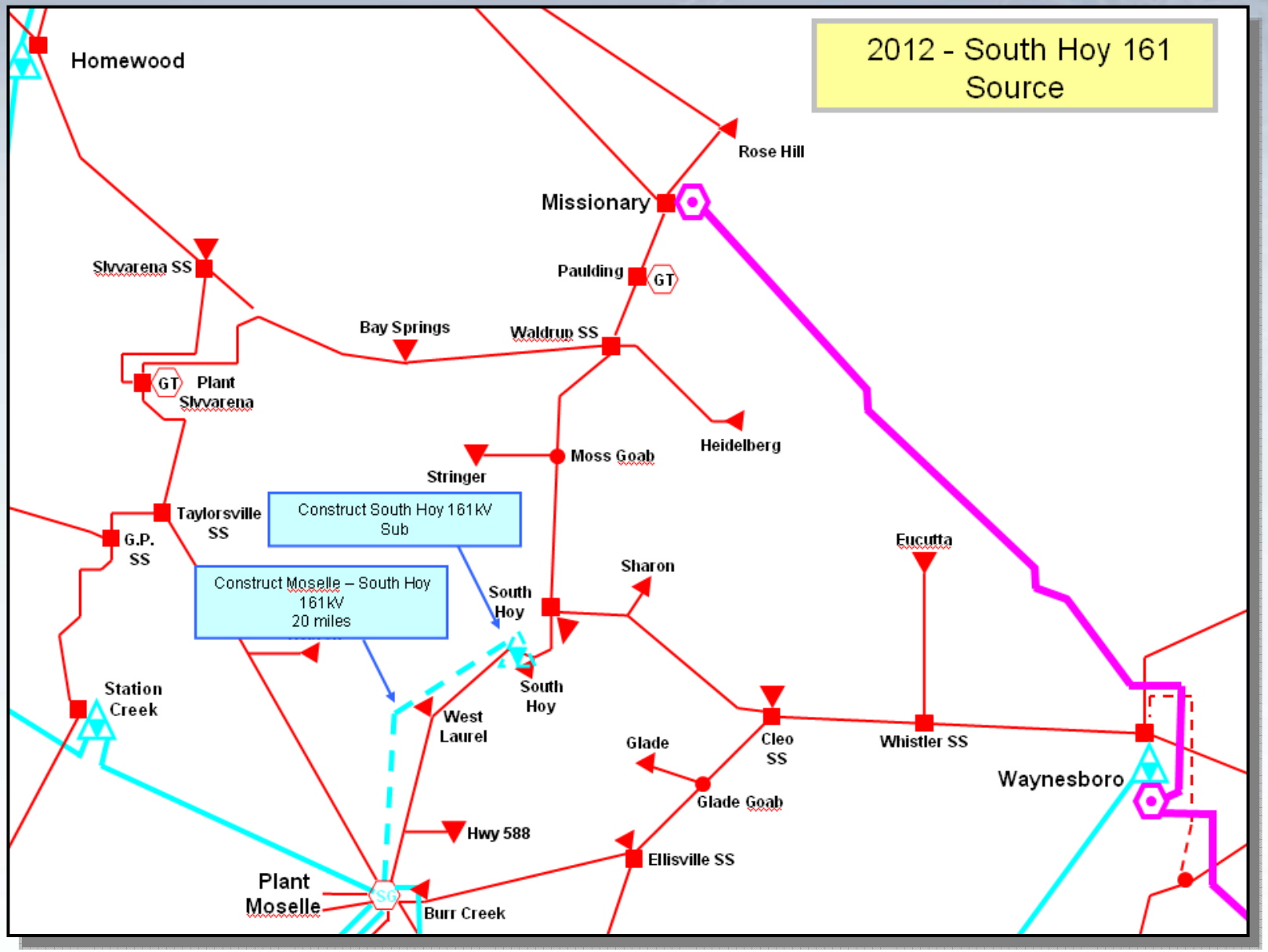
- Construct a new 161 / 69 kV substation at South Hoy.
- Construct a new 161 kV T.L. from Moselle to South Hoy.

- This project alleviates 69 kV low voltages and multiple line overloads during 69 kV contingencies.



South Hoy 161 kV Source

2012 SME-3



Southeastern Region Transmission Planning

Expansion Item SME-4

Moselle 161 kV Generation Expansion and Repower

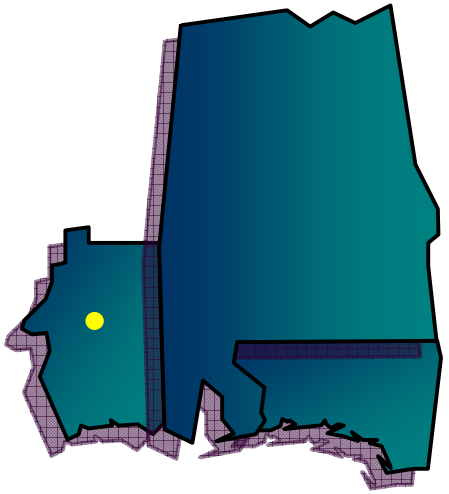
- Add 2 – 83 MW Combustion Turbines at SMEPA's Moselle Generation Station.
- Repower 2 – 59 MW Steam Units with HRSGs.

- Required to improve generation deficient in 2012.

Comments

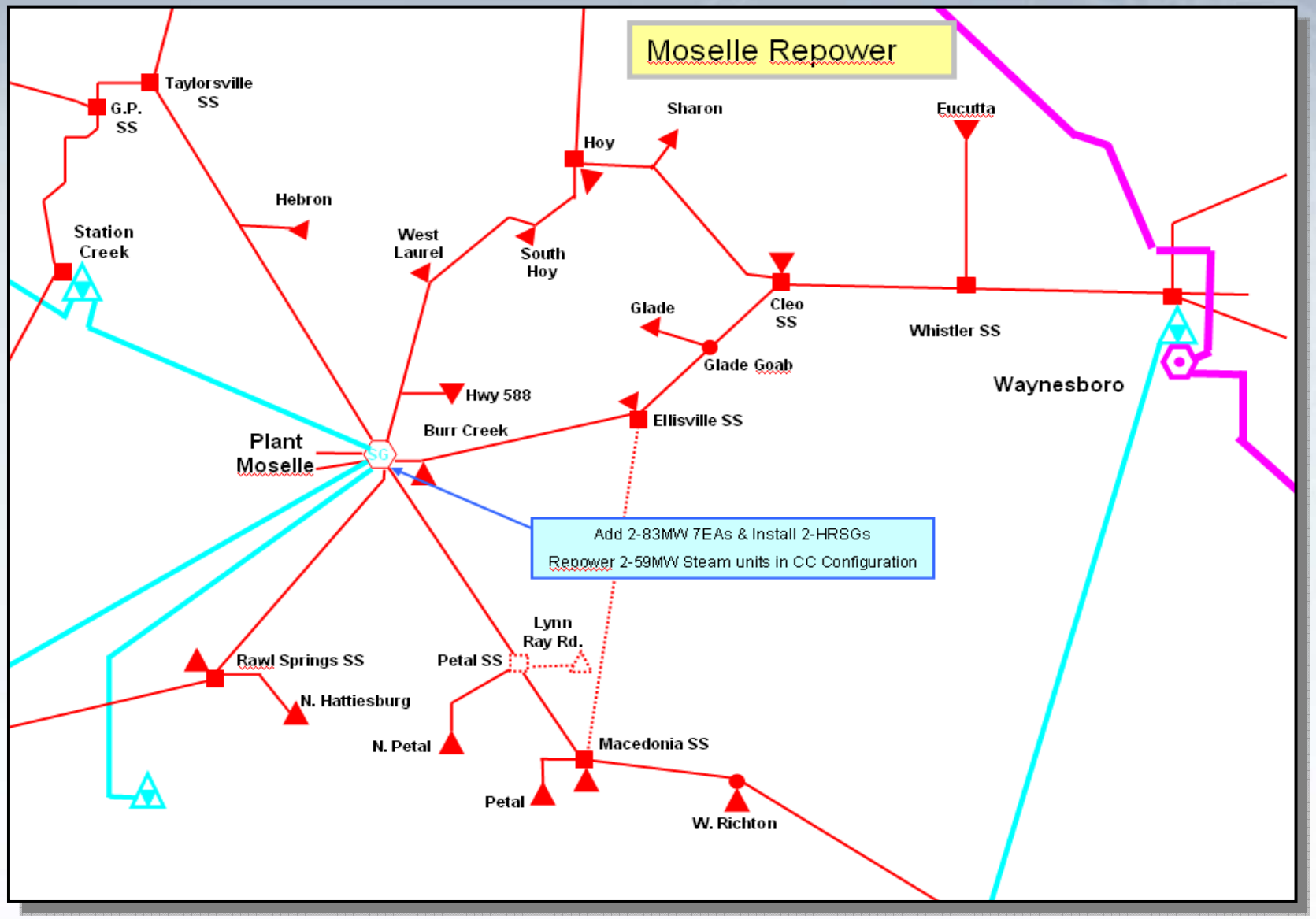
- Combined Cycle configuration most efficient option.
- Building at existing facilities reduces construction time.

2012 SME-4



Moselle 161 kV Generation Expansion

2012 SME-4



Southeastern Region Transmission Planning

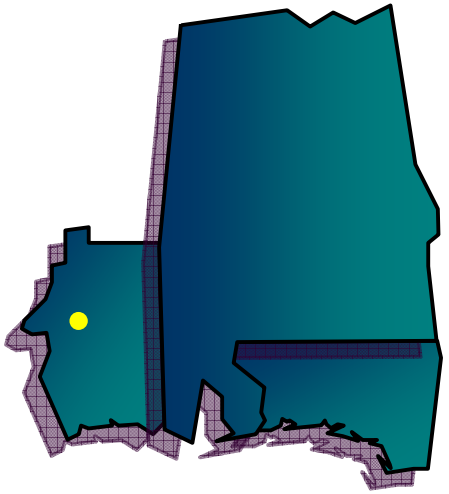
Expansion Item SME-5

Prentiss 161 / 69 kV Substation

- Tap Silver Creek 161 kV Interconnection.
- Construct Prentiss 161 / 69 kV Substation.

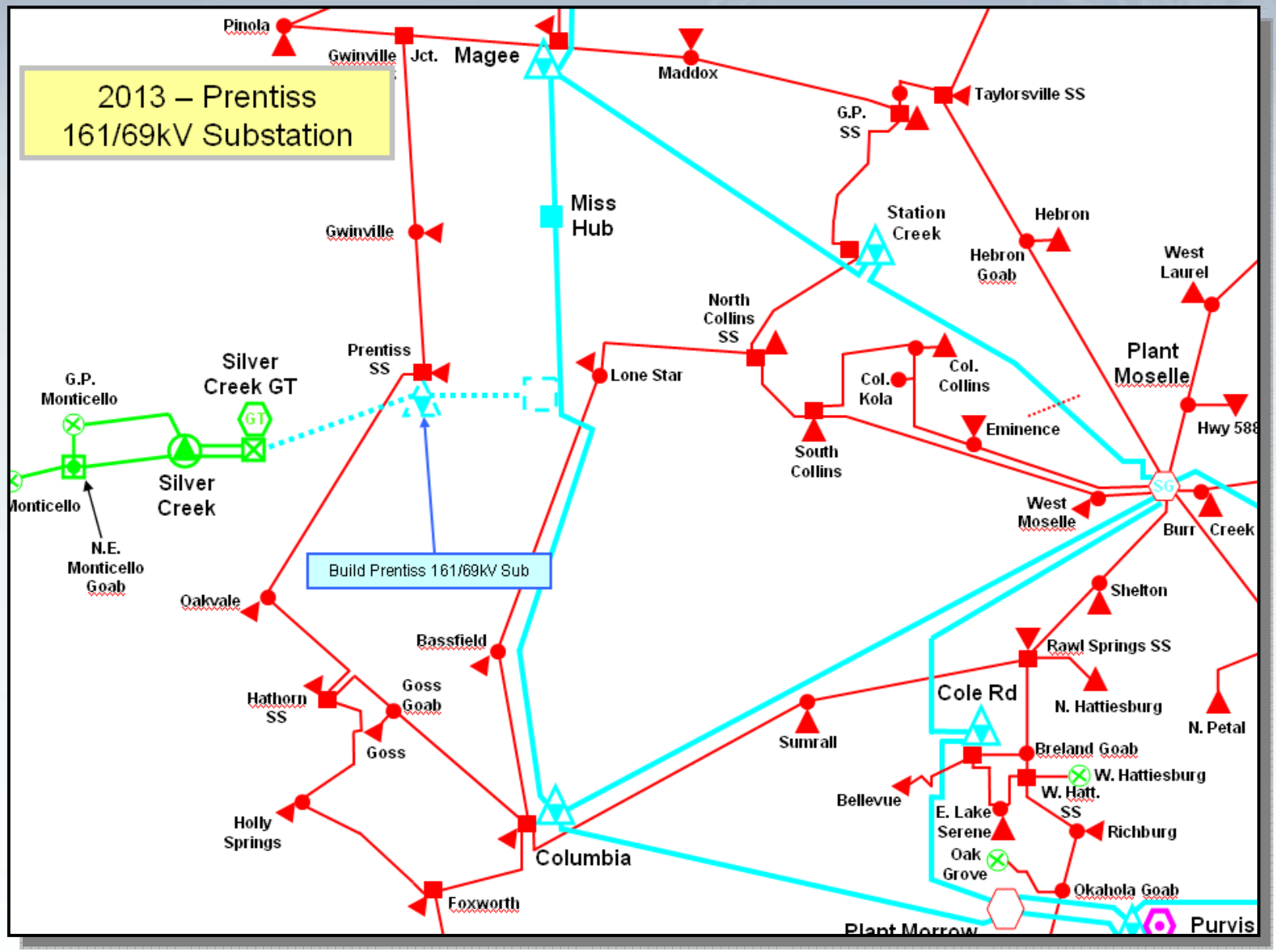
- This project alleviates 69 kV low voltages and multiple line overloads during 69 kV contingencies.

2013 SME-5



Prentiss 161 / 69 kV Substation

2013 SME-5



Southeastern Region Transmission Planning

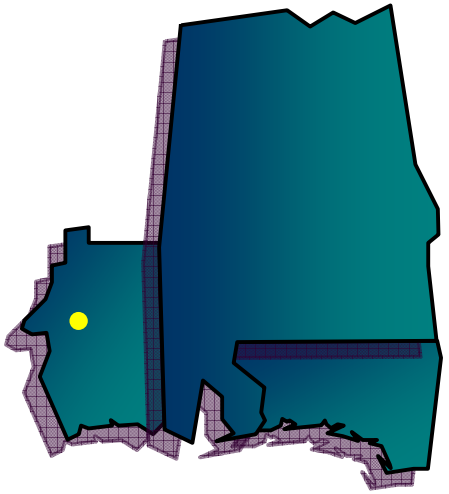
Expansion Item SME-6

East Waynesboro 230 / 69 kV Substation

- Tap 230 kV T.L. '230' (PowerSouth Tie) and 69 kV T.L. '23'.
- Construct East Waynesboro 230 / 69 kV Substation.
- Upgrade supporting 69 kV transmission.

- This project alleviates 69 kV low voltages and multiple line overloads during 69 kV contingencies.
- 69 kV transmission capacity.

2017 SME-6



East Waynesboro 230 / 69 kV Substation

2017 SME-6