Southwest Power Pool
Sub-Regional Planning Meeting

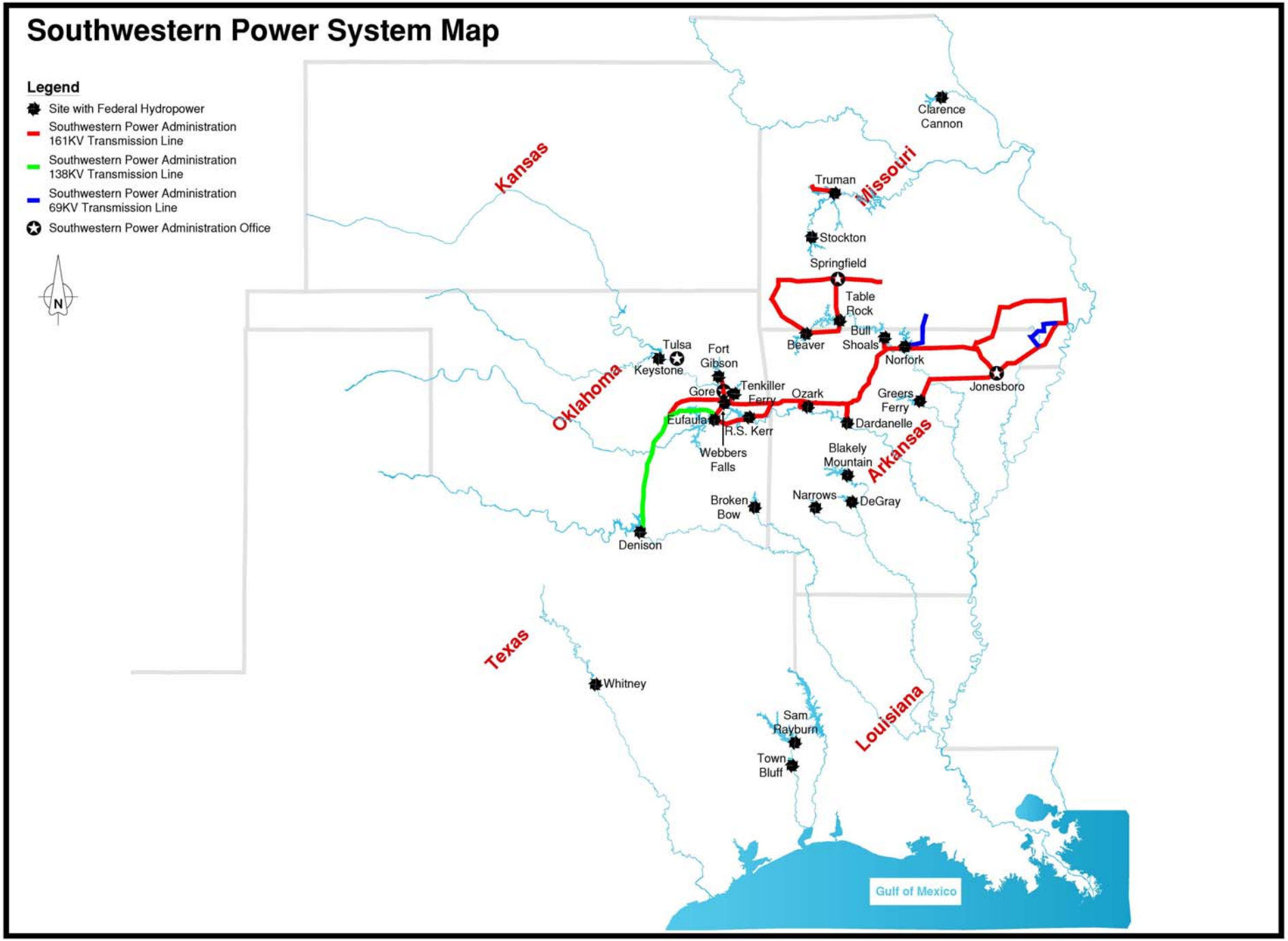
Sub-Regional Area 3

David Sargent

May 12, 2009

SOUTHWESTERN
POWER
ADMINISTRATION

Southwestern Power System Map



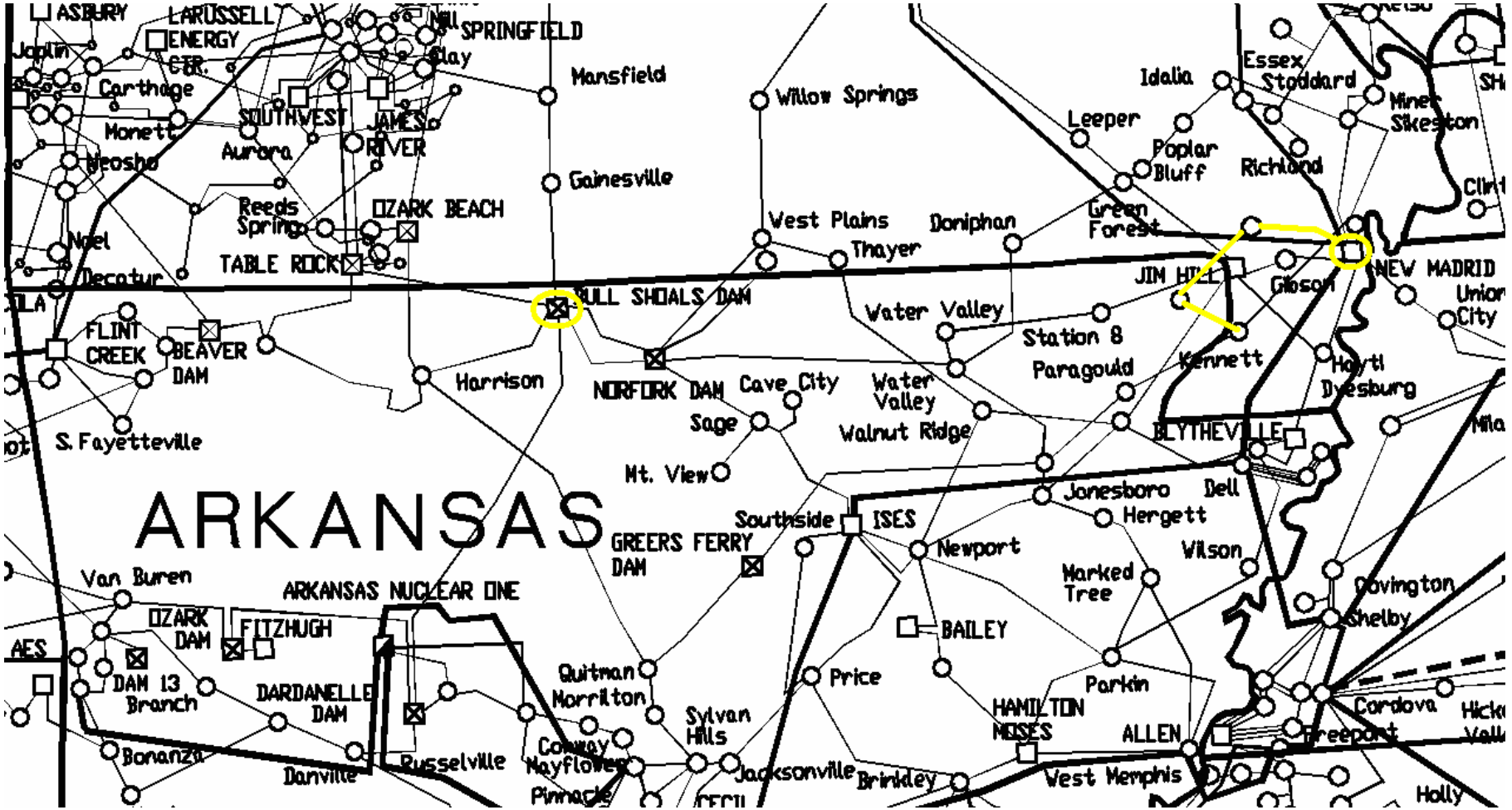
Five Year Construction Plan

2009

- Bull Shoals Dam Bus Upgrade - from 600 to 1200/2000 amps

  The bus is a limiting element for the line going from Bull Shoals toward Harrison.
- New Madrid 161/69 kV Autotransformer Replacement
- New Madrid-Malden-Piggott-Kennett 69 kV Line Rebuild – 55 miles of line collapsed during an ice storm. We are completely rebuilding the line and doubling its capacity.

2009 Projects



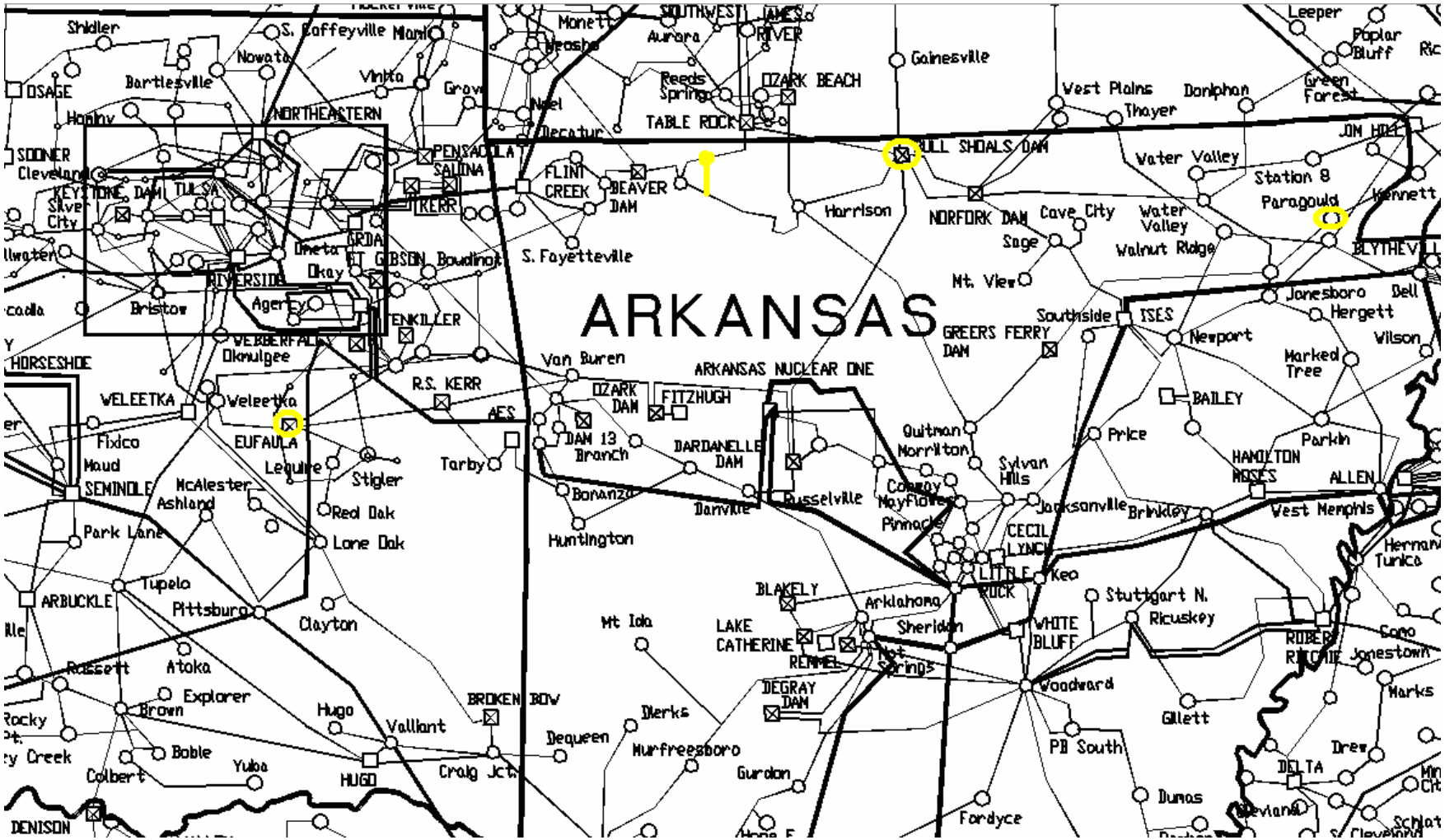
Five Year Construction Plan

2010

- Bull Shoals Dam Pothead/Cable Replacement - Potheads on cable from GSUs to substation are old and leaking. Potential for outage of generation.
- Grandview Switching Station? – joint project with Entergy

  Connection to Table Rock-Eureka Springs, with a 161kV line to Osage Creek. Needed to support loads in NW Arkansas.
- Eufaula 161/138/13.8 kV Autotransformer Replacement - upgrade from 100 to 200 MVA
- Paragould 161/69 kV Autotransformer #1 Replacement (70 MVA)

2010 Projects

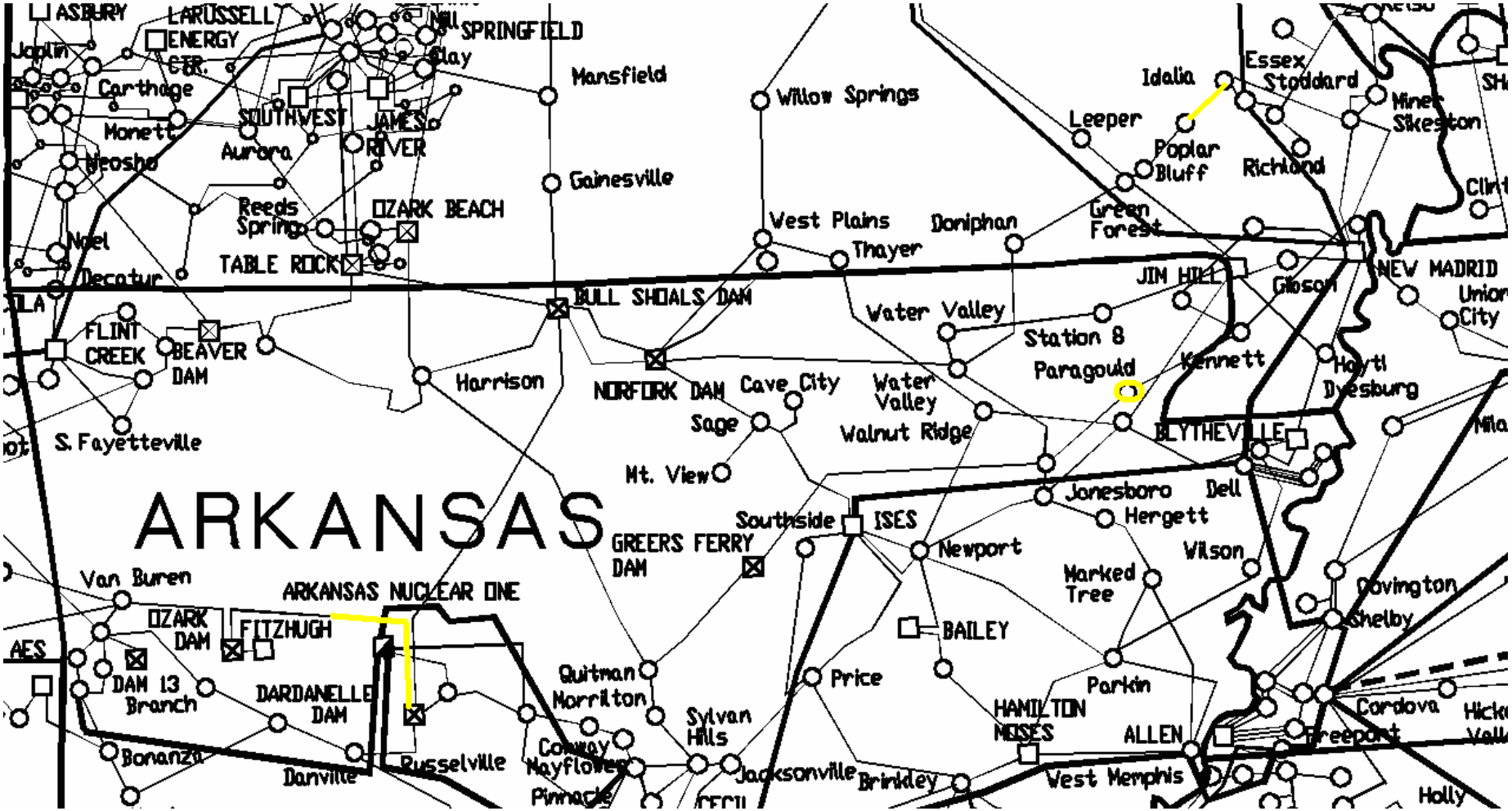


Five Year Construction Plan

2011

- Idalia-Asherville 161 kV Line Reconductor – 22 miles
- Dardanelle-Clarksville 161 kV Line Reconductor? – 34 miles
- Paragould 161/69 kV Autotransformer #2 Replacement (70 MVA)

2011 Projects

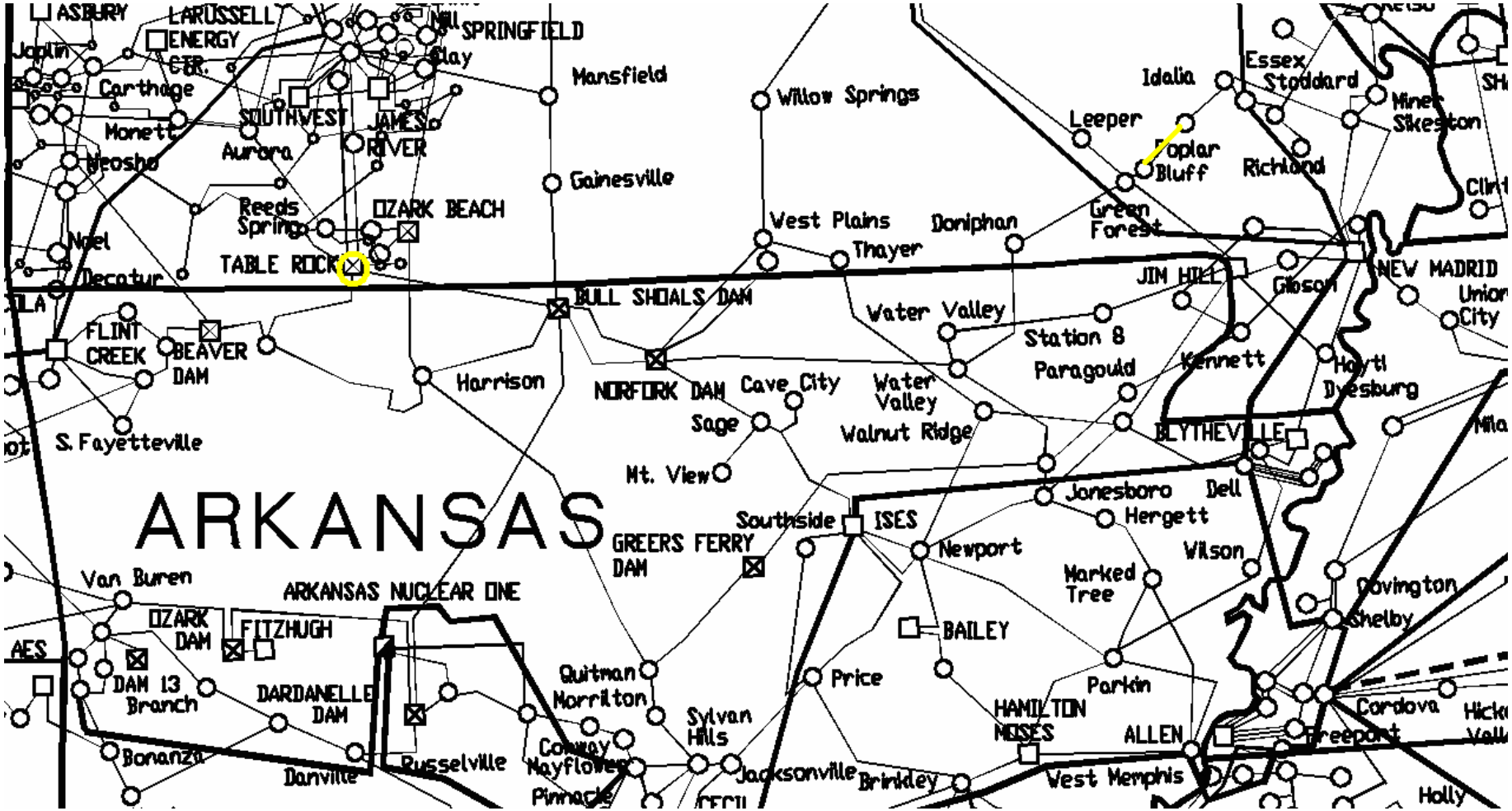


Five Year Construction Plan

2012

- Poplar Bluff-Asherville 161 kV line – resag conductor and replace several structures to allow line to operate at 100C emergency rating
- Table Rock Autotransformer #1 Replacement

2012 Projects



Five Year Construction Plan

2013 and Beyond

- 161/69 kV Transformer Replacement – plan for one per year
- All years: disconnect switch, breaker, instrument transformer, and relay replacement, oil containment, communication system improvements, etc.

Planning Cycle and Process

- **Model Development** – SWPA participates in the SPP model development process, which begins in August and results in final models in January.
- **Transmission Assessment** – SWPA conducts base case and contingency load flow analysis to determine violations of planning criteria and to develop potential improvements or mitigations to address any violations.
- **Reporting of Results** – SWPA reports the results of the assessment in the FERC Form 715 filing. In addition the results are used as input to SPP's assessments (STEP, mitigation reviews, etc.).
- **Local Planning Meetings**
  - Sub-regional planning meetings, for areas 3 (Oklahoma) and 4 (which includes SW Missouri and Arkansas).
  - Local planning forum the first Wednesday in September, if people request to attend.
  - Planning criteria forum if we see a need to change criteria and if parties indicate an interest in the forum.

Load Forecast

- Load is expected to grow at about 2.5 percent per year within SWPA's Balancing Authority.
- Highest growth is in the cities of Springfield and Nixa in Missouri (5 to 6 percent).
- Next highest growth is AECC loads near Norfork Dam, and then the city of Jonesboro (3 to 4 percent)
- The only loads within SWPA's Balancing Authority in Oklahoma are PSO and WFEC loads at Allen and Explorer/Horntown. There is no significant growth.

Transmission Planning Criteria

- The NERC reliability standards and the *SPP Criteria* form the basis for Southwestern's transmission planning criteria.

	Voltage Criteria	
	Minimum (in per unit)	Maximum (in per unit)
Base Case	0.95	1.05
Contingency Cases	0.90	1.05

- Thermal limits of transmission lines and terminal equipment are determines in accordance with SPP Criteria. Maximum conductor temperature for ACSR is assumed to be 85C unless line has been verified to be able to operate at 100C.
- Maximum conductor temperature for other conductor types (e.g., ACSS) varies, limited by manufacturer recommended maximum temperatures and NESC clearances.
- Allowable transformer loading is 100 percent of nameplate rating

Transmission Planning Studies

- Southwestern assesses its transmission system considering the following contingencies:
  - Single contingencies: All branches, including transmission lines, transformers, and related facilities, within Southwestern's Balancing Authority Area, and in any Balancing Authority Area directly interconnected with Southwestern, are removed from service individually.
  - Generation Unit Outages: Generating units within Southwestern's Balancing Authority Area are removed from service individually, or where two generating units share a common step-up transformer, they are removed from service in pairs. For this analysis, area interchange control is disabled.
  - Double Circuit Outages: Outages of both circuits on double circuit lines are studied when the lines are double circuited for a significant distance. In the Southwestern Transmission System, this includes an outage of the Bull Shoals-Dardanelle and Bull Shoals-Buford Tap 161 kV lines, which are on double circuit structures for approximately 10 miles, and an outage of the Dardanelle-Bull Shoals and Dardanelle-Clarksville 161 kV lines, which are on double circuit structures for approximately 20 miles.

For More Information

For more information, go to Southwestern's website, www.swpa.gov.