



Southwest Power Pool, Inc. – Entergy

ENERGY SPP RTO REGIONAL PLANNING PROCESS MEETING

June 16, 2011

NET CONFERENCE

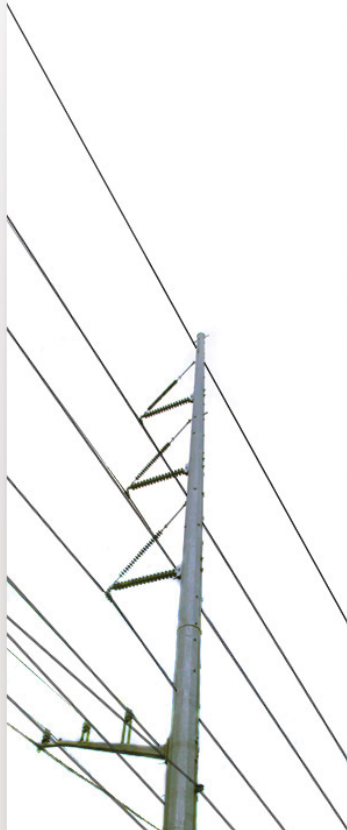
• A G E N D A •

1:30 – 3:00 PM

- 1. Administrative
 - A. Introductions..... All
 - B. SPP Antitrust Guidelines..... Ben Roubique
- 2. 2010 ESRPP Final Report.....Eric Burkey
- 3. Process Overview..... Eddie Filat
- 4. 2011 ESRPP Study Scope..... Eddie Filat
- 5. Nominated Studies for 2011 ESRPP Cycle..... Eddie Filat
- 6. Other Discussion All
- 7. Adjournment



**Helping our members work together
to keep the lights on...
today & in the future**



SPP Antitrust Guidelines



Prohibited Discussions

- **Pricing information, especially margin (profit) and internal cost.**
- **Information and participants' expectations as to their future prices or internal costs.**
- **Participant's marketing strategies.**
- **How customers and geographical areas are to be divided among competitors.**
- **Exclusion of competitors from markets.**



Prohibited Discussions *cont.*

- **Boycotting or group refusals to deal with competitors, vendors or suppliers.**
- **No decisions should be made nor any actions taken during SPP activities for the purpose of giving an industry participant or group of participants a competitive advantage over other participants.**

Permitted Discussions

- **Reliability matters relating to the bulk power system, including operation and planning matters such as establishing or revising reliability standards, special operating procedures, operating transfer capabilities, and plans for new facilities.**
- **Matters relating to the impact of reliability standards for the bulk power system on electricity markets, and the impact of electricity market operations on the reliability of the bulk power system.**

Permitted Discussions *cont.*

- **Proposed filings or other communications with state or federal regulatory authorities or other governmental entities.**
- **Matters relating to the internal governance, management and operation of SPP, such as nominations for vacant committee positions, budgeting and assessments.**
- **Procedural matters such as planning and scheduling meetings.**
- **Any other matters that do not clearly fall within these guidelines should be reviewed with SPP's General Counsel before being discussed.**



<http://www.spp.org>

General Inquiries: 501-614-3200

questions@spp.org

Entergy SPP RTO Regional Planning Process

June 16, 2011

Eric Burkey

eburkey@spp.org · 501-688-1665



Selected Projects

- **Arkansas IPPs (Hot Springs, Magnet Cove, and PUPP) to SPP South (AEP and OG&E) for 3000MW**
- **From AEPW to Entergy Arkansas for 700MW**
- **From Entergy Arkansas to AEPW for 700MW**
- **Messick 500/230 kV Transformer**
- **Turk – McNeil 345kV Line**

Objectives

- **Improve Regional Transfer Capability**
- **Improve Regional Optimization**
- **Relieve Constraining Flowgates**



Model Assumptions

- **MDWG 2009 Series 2016 Summer Peak Model with STEP Projects**
 - **Modifications to Model**
 - **Using Entergy's 2009 series 2016 Summer Peak Update 3**
 - Added Current Entergy Generation and Loads
 - Added Entergy Topology updates
 - **Added Entergy's Approved Construction Plan Projects (2010 – 2012)**

Study Assumptions

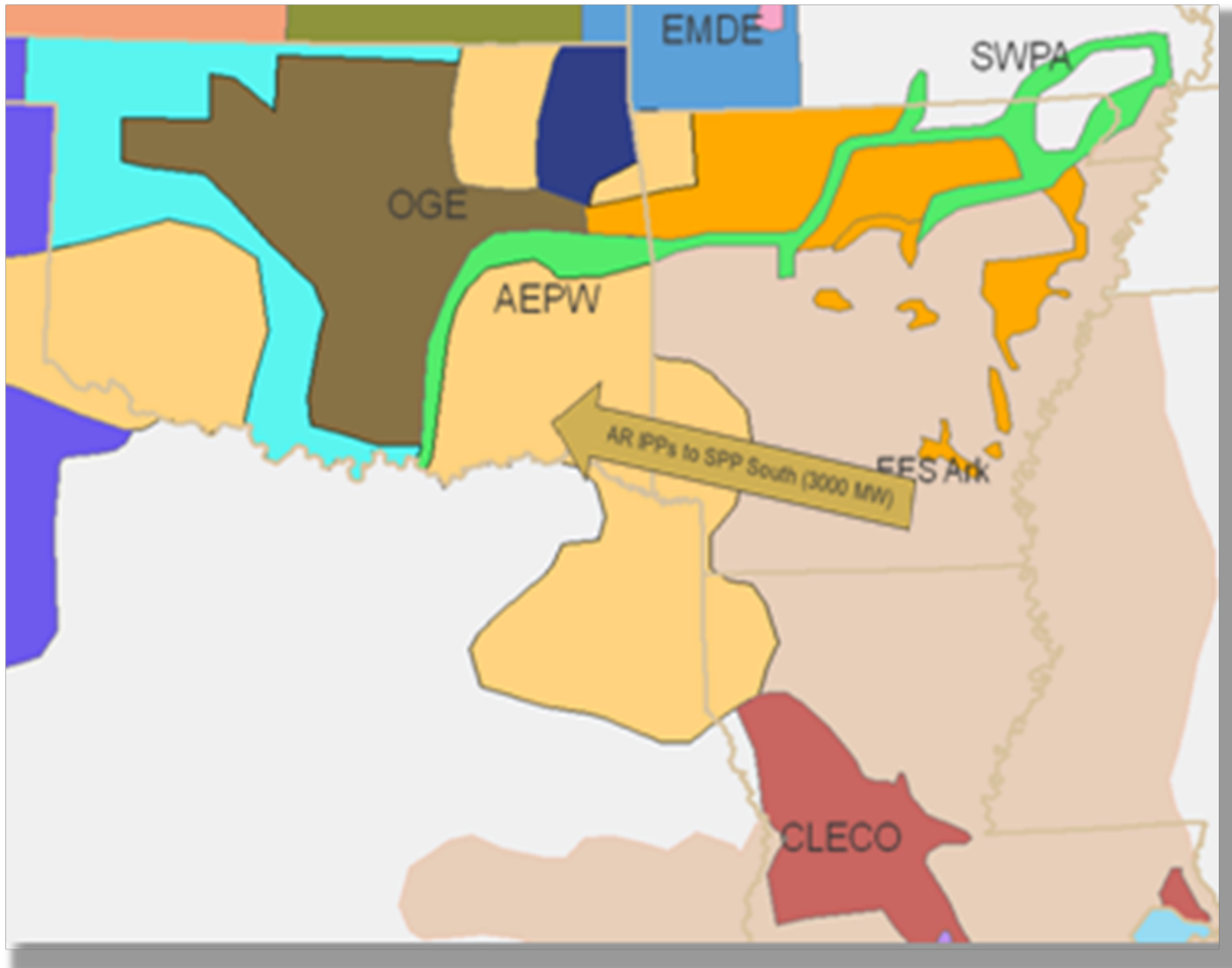
- **Step 1 High-Level Analysis**

- MUST DC analysis of FCITC
- Monitored and Contingent Elements
 - **115kV and above elements within:**
 - Entergy Zones adjacent to SPP
 - SPP Areas adjacent to Entergy
 - **All elements 345kV and above in SPP and Entergy**
- N-1 Contingency Scan (no breaker-to-breaker scan)
- POR/POD Transfer Analyses will be performed for all study projects

- **Step 2 Detailed Analysis**

- Full AC Analysis Contingency Analysis
- Short Circuit Analysis
- Detailed cost estimates
- Detailed construction schedule

(#1) Arkansas IPPs (Hot Springs, Magnet Cove, and PUPPP) to SPP South (AEPW and OGE) for 3000MW



Project Upgrades

- **Etta – Pittsburg 500kV line**
 - **Approximately 160 miles direct**
- **Pittsburg Substation**
 - **500kV switchyard**
 - **Two 500/345kV transformers**
- **ANO – Fort Smith 500kV Line circuit 2**
 - **500/345kV transformer @ Fort Smith**
- **RSS – Pecan Creek 345kV Uprate**
 - **Replace Wave Trap**
- **Sheridan – Mabelvale 500kV**
 - **Replace Terminal Equipment**

High-Level Planning Cost Estimates

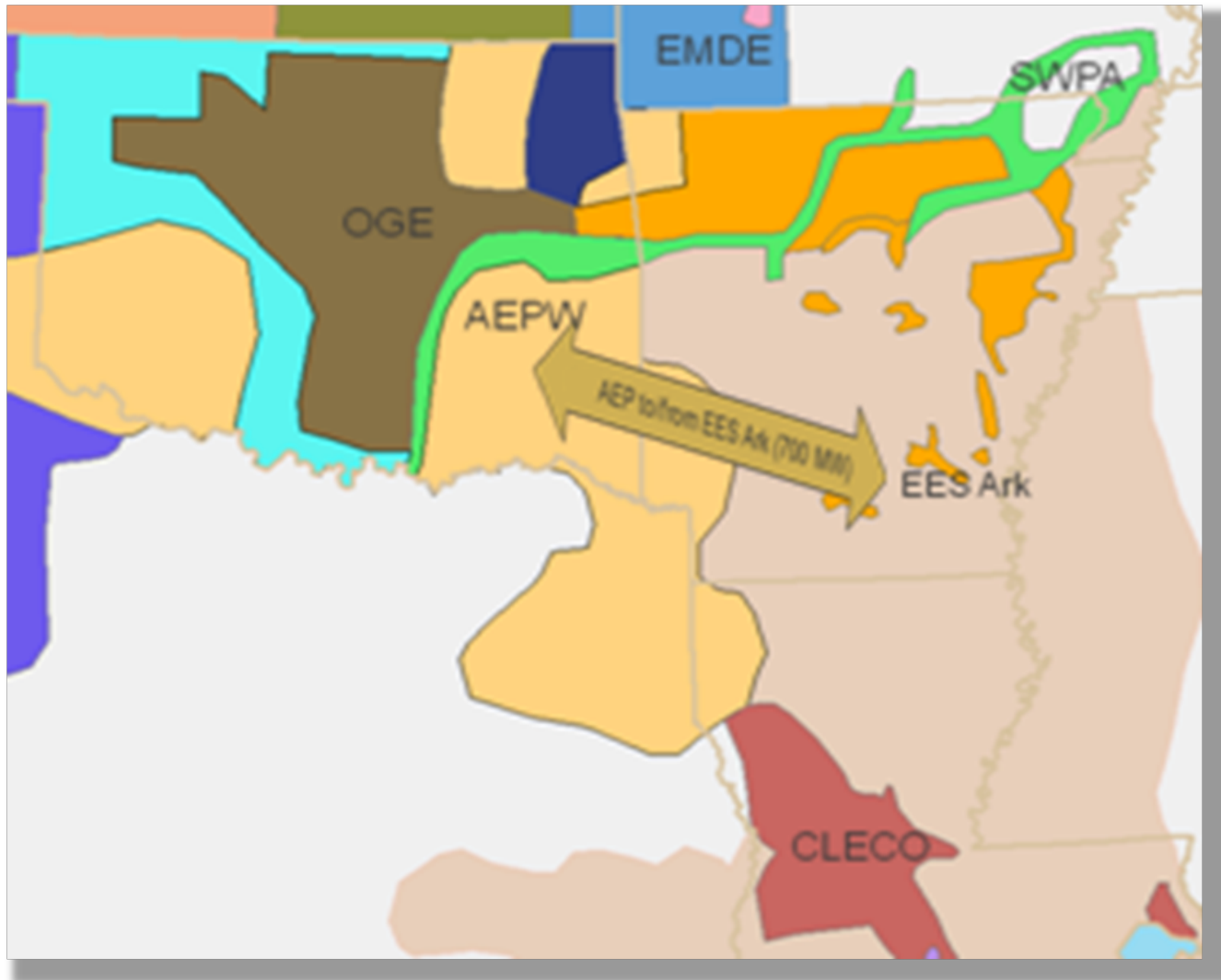
Description	Line Rating	Upgrade Description	ICT Cost Estimate
Etta – Pittsburg 500kV Line	(2900MVA)	Build new transmission line 160 miles	\$470,400,000
Pittsburg Substation	(2900MVA)	Two new 500/345kV transformers and new 500 kV switchyard @ Pittsburg	\$50,270,000
ANO – Fort Smith 500kV Line Circuit 2	(1299MVA)	Build new transmission line 93.60 miles	\$275,184,000
500/345kV Autotransformer @ Fort Smith	(493MVA)	New 500/345kV transformer @ Fort Smith	\$19,110,000
Pecan Creek – RSS 345kV Uprate	(1195MVA)	Replace wave trap	\$100,000
Total Cost			\$815,064,000

FCITC Results (Arkansas IPP – SPP South)

Transfer	Base Case FCITC Results	Change Case FCITC Results	Difference	Cost per MW (\$/MW)
Arkansas IPP – SPP South	808	2408	1600	509,415

- **Total project cost \$815,064,000**
- **Approximately 8 years to construct**

(#2) AEPW to Entergy Arkansas for 700MW



Project Description

- **Messick Substation**
 - **500kV switch station**
 - **500/230kV transformer**
 - **500/345kV transformer**
 - **Ties into Mt. Olive – Hartburg 500kV Line**
- **Dolet Hills – Messick 345kV Line**
 - **Approximately 26.40 miles direct**
- **Quarry 345kV Substation**
 - **345kV switch station**
 - **Ties into Grimes – Crockett 345kV Line**
- **Rivtrin Substation**
 - **345/138kV transformer**
- **Quarry – Rivtrin 345kV Line**
 - **Approximately 8.25 miles direct**

High-Level Planning Cost Estimates

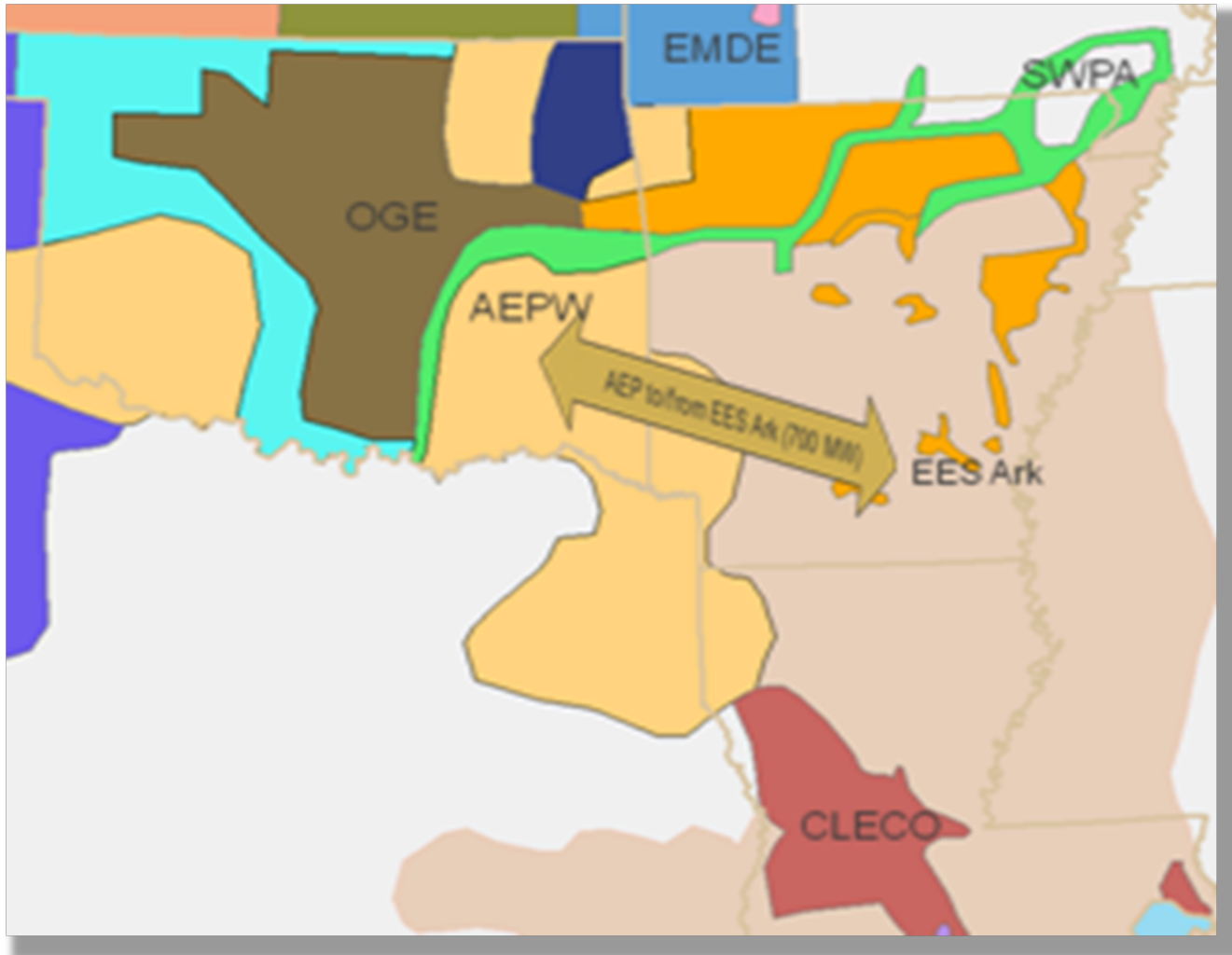
Description	Line Rating	Upgrade Description	ICT Cost Estimate
Messick Substation	(855MVA)	New 500/345kV transformer, new 500/230kV transformer, new 500/345kV switching station, and new 500/230kV switching station	\$61,500,000
Dolet Hills-Messick 345kV Line	(1195MVA)	Build new transmission line 26.40 miles	\$67,320,000
Quarry Substation	(525MVA)	Build new 345kV bus with breakers and switches and new 345/138kV transformer	\$31,000,000
Quarry – Rivtrin 345kV Line	(1326MVA)	Build new transmission line 8.25 miles	\$22,000,000
Total Cost			\$181,820,000

FCITC Results (AEPW to Entergy Arkansas for 700MW)

Transfer	Base Case FCITC Results	Change Case FCITC Results	Difference	Cost per MW (\$/MW)
AEPW – Entergy Arkansas	632	1117	585	310,803

- **Transfer level was increased from 700MW to 2000MW to target seam projects**
 - **No upgrades were required to obtain 632MW of transfer capability**
- **Total project cost \$181,820,000**
- **Approximately 4 years to design and build.**

(#3) Entergy Arkansas to AEPW for 700MW



Project Description

- **Osage Substation**
 - **500 & 345kV switching station**
 - **500/345 transformer**
 - **Second 345/161kV transformer**
- **ISES – Osage Creek 500kV Line**
 - **Approximately 125 miles direct**
- **Pecan Creek – RSS 345kV Line**
 - **Replace Wave Trap**
- **AVOCA – Beaver 161kV Line**
 - **Reconductor transmission Line**
- **Third 161/138kV Autotransformer at Catoosa**

High-Level Planning Cost Estimates

Description	Line Rating	Upgrade Description	ICT Cost Estimate
Osage Substation	(1545MVA)	New 500/345kV transformer, new 500/345kV switching station, and new 345/161KV transformer	\$31,160,000
ISES – Osage Creek 500kV Line	(1545MVA)	Build new transmission line 125 miles	\$367,500,000
Pecan Creek – RSS 345kV Line	(1195MVA)	Replace wave trap	\$100,000
AVOCA – Beaver 161kV Line	(313MVA)	Reconductor transmission line 11.00 miles	\$13,750,000
161/138kV Autotransformer at Catoosa	(188MVA)	New 161/138kV transformer at Catoosa	\$6,000,000
Total Cost			\$418,510,000

FCITC Results (Entergy Arkansas to AEPW for 700MW)

Transfer	Base Case FCITC Results	Change Case FCITC Results	Difference	Cost per MW (\$/MW)
Entergy Arkansas - AEPW	167	1538	1371	305,259

- **Transfer level was increased from 700MW to 2000MW to target seam projects**
 - **No upgrades were required to obtain 167MW of transfer capability**
- **Total project cost \$418,510,000**
- **Approximately 8 years to design and build.**

Summary

- ESRPP 2010 Report is posed on Entergy's OASIS:
http://www.oatioasis.com/EES/EESDocs/ESRPP_2010_Final_Report.pdf
- 2011 ESRPP Study
 - Any projects from the 2010 cycle can be selected for a Detailed Step 2 Analysis

Questions





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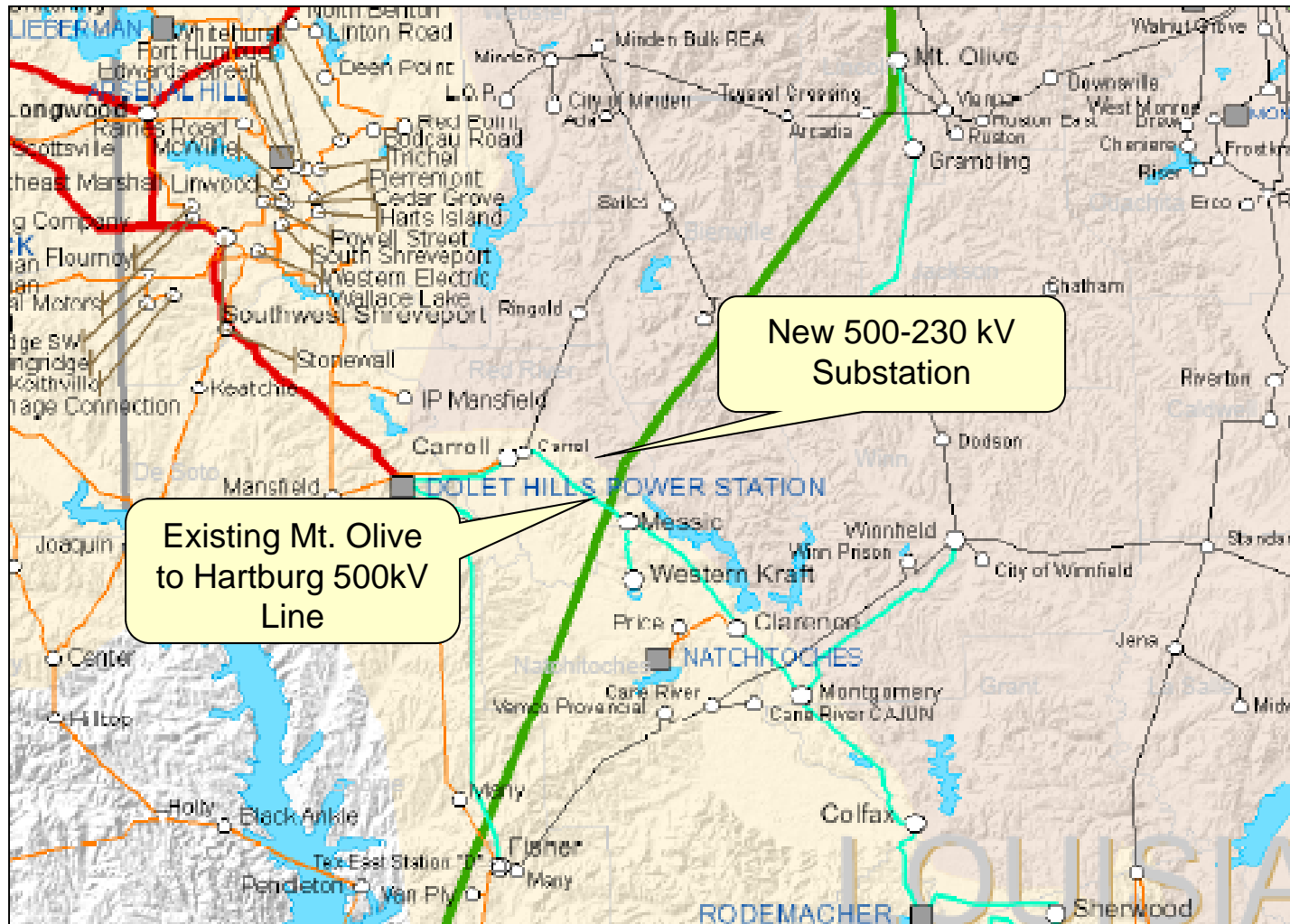


2010 Step 2 Final Study Results

Selected Studies

- **Composition of 2010 ESRPP Studies**
 - **2 Detailed studies selected from the 2009 ESRPP Studies**
 1. **Messick 500-230 kV Autotransformer**
 2. **Turk-McNeil 345 kV Line**

(#1) Messick 500-230kV Autotransformer



(#1) Messick 500-230kV Autotransformer Project Description

- **Transmission Line**
 - **Tap Mt Olive to Hartburg 500kV Transmission Line**
 - **Tap Messick to Carroll 230KV Transmission Line**
- **Substation Work**
 - **500/230 kV Substation**
 - **Located at the crossing of the Mt Olive to Hartburg 500kV Transmission Line and the Messick to Carroll 230 kV Transmission Line**
 - **500kV, 3 Breaker Ring Bus (Expandable to a 4 Breaker Ring)**
 - **230kV, 3 Breaker Ring Bus (Expandable to a 4 Breaker Ring)**
 - **4 500-230kV, 160/213/266 MVA Single Phase Autotransformers (480/639/798 MVA Bank Total + 1 Spare)**

(#1) Messick 500-230kV Autotransformer Project Description

- **Cost Estimate**

- The cost estimates developed were made based on limited information and are to be considered as a Class 5 (-50% +100%) estimate.



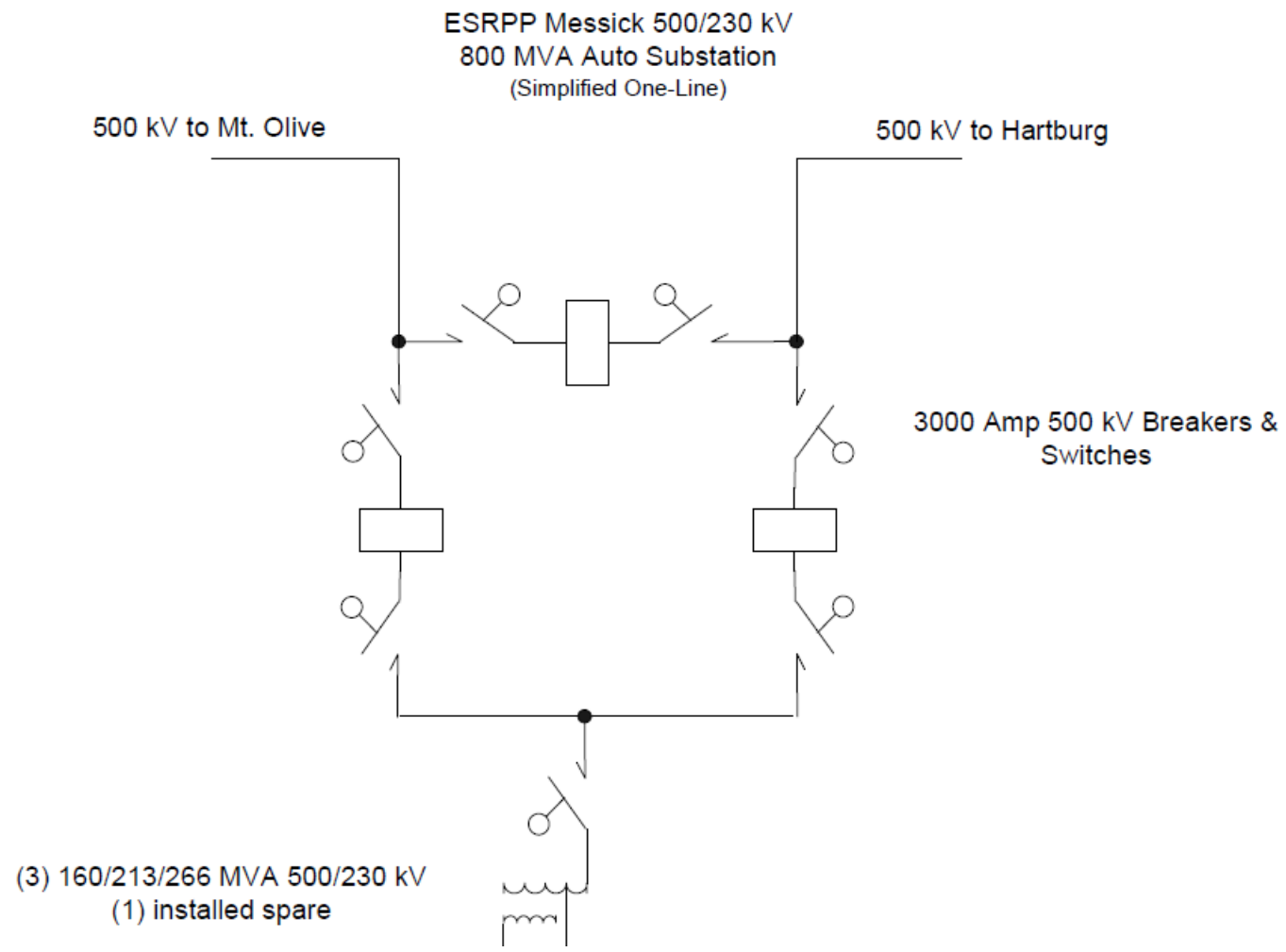
(#1) Messick 500-230kV Autotransformer Project Description

- **Timeline**

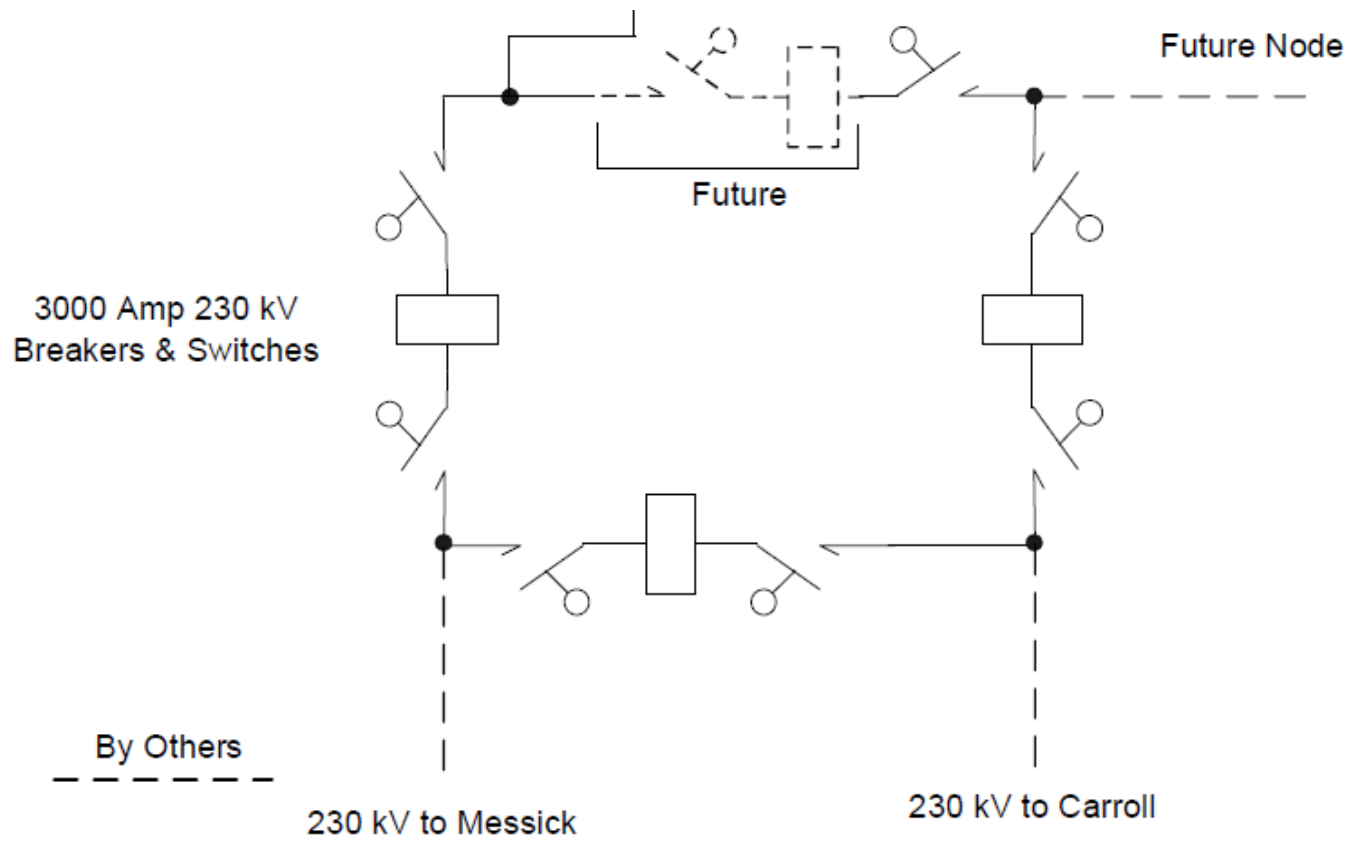
- Schedule durations are high level estimates at this time. A detailed schedule will be prepared upon project approval.

Task	Months
Definition	6
Regulatory	12
Substation Work	12
T-Line Work	12
Less Parallel Tasks	12
Total Duration	24 - 36

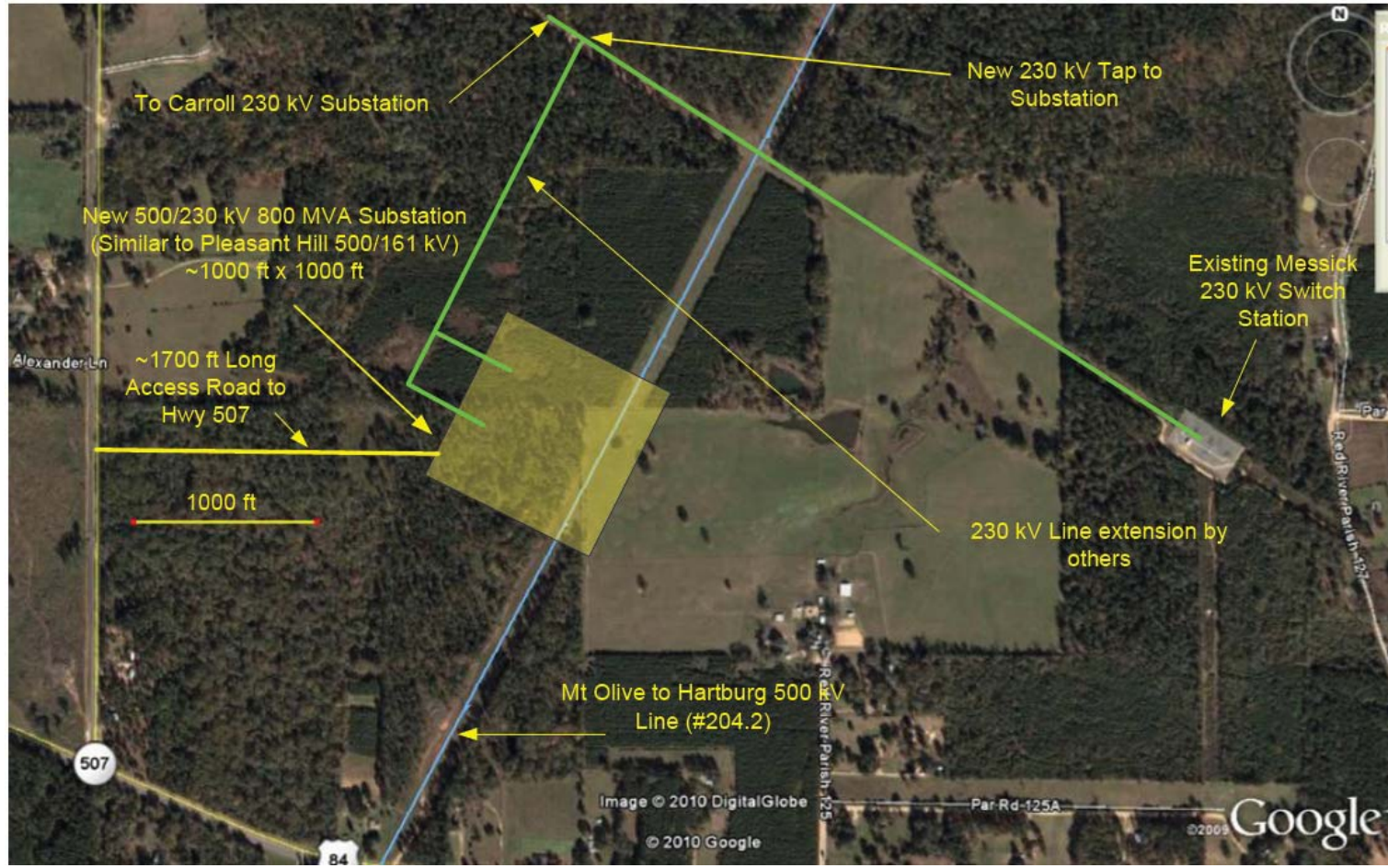
(#1) Messick 500-230kV Autotransformer Project Description



(#1) Messick 500-230kV Autotransformer Project Description



(#1) Messick 500-230kV Autotransformer Project Description



(#1) Messick 500-230kV Autotransformer AC Contingency Results

- **n-1 scan of SPP and Entergy systems**
- **Voltage Criteria**
 - **SPP: The voltage level shall recover to within +10% and -10% of the nominal voltage**
 - **Entergy: The voltage level shall recover to within +5% and -8% of the nominal voltage**
 - **+5% and -5% was used for reporting**
- **Thermal Criteria**
 - **100% loading and above for SPP and Entergy using rate B**
 - **95% loading and above was used for reporting**

(#1) Messick 500-230kV Autotransformer AC Contingency Results

- **Voltage Results**
 - **No noticeable increase or decrease in voltage violations**
- **Thermal Results**
 - **There were no increase in overloads**
 - **Seven overloads decreased minimally**

(#1) Messick 500-230kV Autotransformer 3 Phase Fault Results

- **Case:** ESRPP_2010_Cycle_R1_7-6-2010.sav
- **Fault Type:** 3 Phase Fault
- **Pre-Fault Voltage:** 1.02 puV

Messick				
Bus	Name	kV	Base Case (Amps)	Messick (Amps)
334325	Hartburg	500	15,027	15,464
337368	Mt Olive	500	10,184	11,271
500140	Carroll	230	9,727	17,544
500570	Messick (Cleco)	230	8,662	11,072
999113	Messick	500	n/a	10,346
999114	Messick(New Station)	230	n/a	17,593

(#1) Messick 500-230kV Autotransformer Voltage Stability

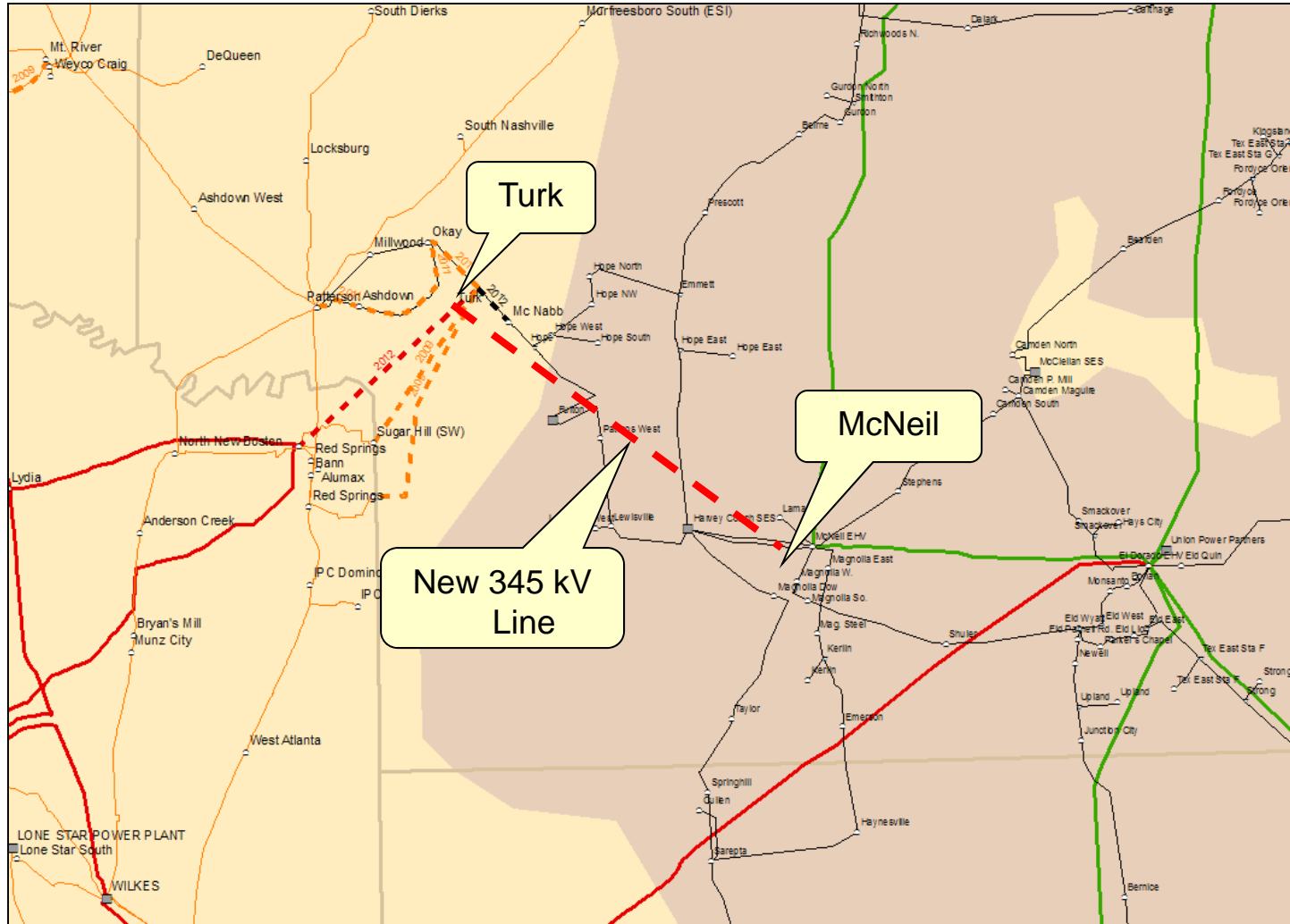
- **Voltage Stability**
 - **Messick Substation had no impact on the power flow stability limit for Mt. Olive – Hartburg 500kV**

(#1) Messick 500-230kV Autotransformer FCITC Results from Step 1 study

		AEPW	CLECO	EMDE	OGE	SPP	SWPA
Amite South	POR	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit
	POD	No Benefit	145(135)	No Benefit	No Benefit	No Benefit	No Benefit
Entergy Arkansas	POR	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit
	POD	No Benefit	109(118)	No Benefit	No Benefit	No Benefit	No Benefit
Entergy Oil & Gas Units	POR	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit
	POD	No Benefit	132(123)	No Benefit	No Benefit	No Benefit	No Benefit
Entergy	POR	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit
	POD	No Benefit	127(118)	No Benefit	No Benefit	No Benefit	No Benefit
WOTAB	POR	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit
	POD	No Benefit	172(160)	No Benefit	No Benefit	No Benefit	No Benefit

Note: ### is the increase or decrease in FCITC with the project addition.
(###) is the FCITC with the project.

(#2) Turk – McNeil 345 kV



(#2) Turk – McNeil 345 kV Project Description

- **Transmission Line**
 - **Turk to McNeil 345kV Transmission Line**
 - **Approximately 50 miles**
 - **954 Rail, 3 Bundle, 1950 MVA, 100°C Rating**
- **Substation Work**
 - **McNeil Substation**
 - **4 500-345kV, 120/160/200 MVA Single Phase Autotransformers (360/480/600 MVA Bank Total + 1 Spare)**
 - **New 345kV Switchyard**
 - **Turk Substation**
 - **345kV Terminal Equipment**

(#2) Turk – McNeil 345 kV Project

Description

- **Cost Estimate**

- The cost estimates developed were made based on limited information and are to be considered as a Class 5 (-50% +100%) estimate.

(#2) Turk – McNeil 345 kV Project

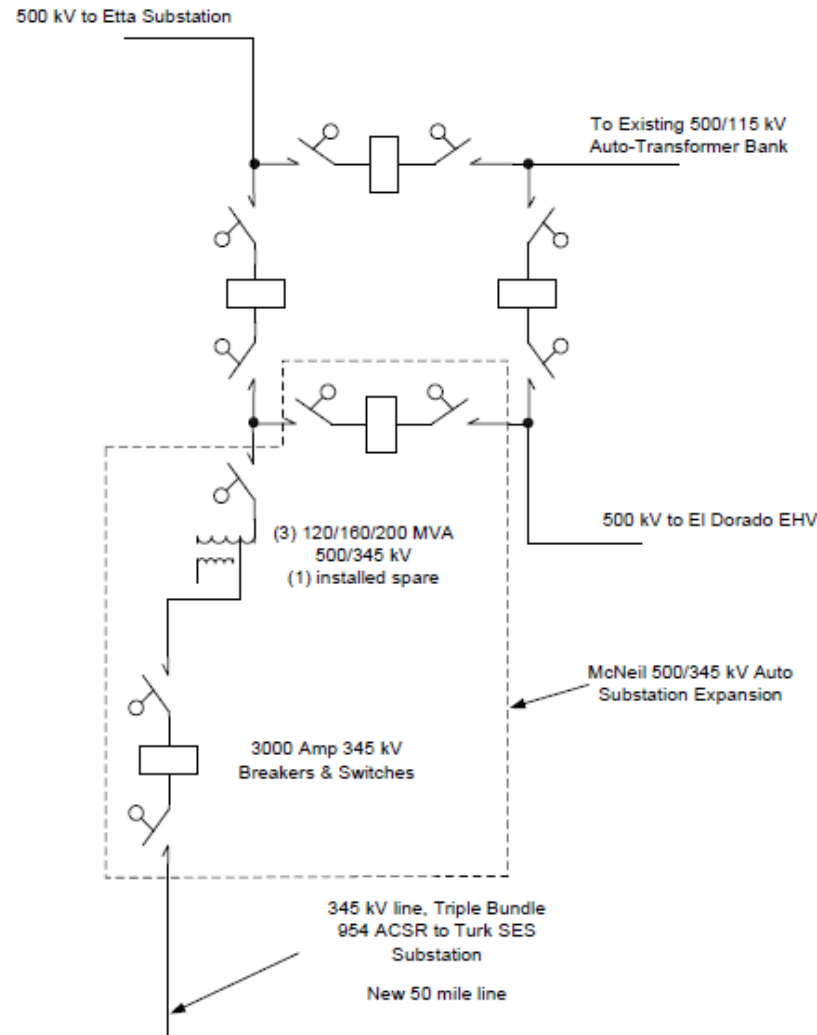
Description

- **Timeline**

- Schedule durations are high level estimates at this time. A detailed schedule will be prepared upon project approval.

Task	Months
Definition	4
Regulatory	18
Substation Work	12
T-Line Work	12
Total Duration	34-46

(#2) Turk – McNeil 345 kV



(#2) Turk – McNeil 345 kV



(#2) Turk – McNeil 345 kV AC Contingency Results

- **n-1 scan of SPP and Entergy systems**
- **Voltage Criteria**
 - **SPP: The voltage level shall recover to within +10% and -10% of the nominal voltage**
 - **Entergy: The voltage level shall recover to within +5% and -8% of the nominal voltage**
 - **+5% and -5% was used for reporting**
- **Thermal Criteria**
 - **100% loading and above for SPP and Entergy using rate B**
 - **95% loading and above was used for reporting**

(#2) Turk – McNeil 345 kV AC Contingency Results

- **Voltage Results**
 - **No noticeable increase or decrease in voltage violations**
- **Thermal Results**
 - **31 overloads decreased due to the project addition**
 - **15 overloads increased due to the project addition**
 - **3 new overloads**
 - **12 overloads increased minimally**

(#2) Turk – McNeil 345 kV 3 Phase Fault Results

- **Case:** ESRPP_2010_Cycle_R1_7-6-2010.sav
- **Fault Type:** 3 Phase Fault
- **Pre-Fault Voltage:** 1.02 puV

Turk-McNeil				
Bus	Name	kV	Base Case (Amps)	Turk-McNeil (Amps)
337515	McNeil	500	12,581	14,707
999111	McNeil	345	n/a	12,708
337516	McNeil	115	26,016	26,964
507455	Turk	345	8,654	12,749
507454	Turk	138	20,389	24,393
507456	Turk	115	15,219	16,381

(#2) Turk - McNeil 345 kV FCITC Results from Step 1 study

		AEPW	CLECO	EMDE	OGE	SPP	SWPA
Amite South	POR	No Benefit	No Benefit	No Benefit	817 (-435)	No Benefit	No Benefit
	POD	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit
Entergy Arkansas	POR	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit
	POD	347 (2040)	No Benefit	No Benefit	No Benefit	200 (2926)	No Benefit
Entergy Oil & Gas Units	POR	No Benefit	No Benefit	No Benefit	No Benefit	130 (-1172)	No Benefit
	POD	No Benefit	No Benefit	No Benefit	No Benefit	121 (1660)	No Benefit
Entergy	POR	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit
	POD	111 (1342)	No Benefit	No Benefit	No Benefit	178 (1962)	No Benefit
WOTAB	POR	161 (256)	No Benefit	No Benefit	No Benefit	126 (209)	No Benefit
	POD	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit	No Benefit

Note: ### is the increase or decrease in FCITC with the project addition.
(###) is the FCITC with the project.



SPP *Southwest
Power Pool*



Entergy



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The logo for the Southwest Power Pool (SPP) is located in the top left corner. It features the letters "SPP" in a large, bold, red serif font. To the right of "SPP", the words "Southwest" and "Power Pool" are stacked vertically in a smaller, black, italicized serif font. The entire logo is set against a background of a red-outlined octagon containing a stylized, red-outlined graphic of a power transmission tower or a similar structure.

SPP Southwest
Power Pool

A vertical photograph of a power line tower is positioned on the left side of the slide. The tower is a tall, grey metal structure with several cross-arms supporting multiple power lines. The lines extend from the tower towards the right side of the frame. The background of the photograph is a clear, light sky.

**Helping our members work together
to keep the lights on...**
today & in the future



Entergy SPP RTO
Regional Planning Process Meeting
(ESRPP)

ESRPP net-conference

June 16, 2011

Process Overview



Background

- **FERC Order 890 – Regional Participation Planning Principle: identify system enhancements that could relieve “significant and recurring” transmission congestion**
- **Open Access Transmission Tariffs**
 - SPP OATT Attachment O
 - Entergy OATT Attachment K

SPP OATT Attachment O

Section X (10) Inter-regional Coordination

- 1. The Transmission Provider shall undertake to coordinate any studies required to assure the reliable, efficient, and effective operation of the Transmission System with, at a minimum, first-tier adjacent interconnected systems. Such coordination shall include:**
 - a) Sharing system plans to ensure that such plans are simultaneously feasible and otherwise use consistent assumptions and data; and**
 - b) Identifying system enhancements that could relieve inter-regional congestion or integrate new resources on an aggregate basis.**
- 2. The Transmission Provider shall undertake to coordinate any studies with other transmission providers primarily through participation in the agreements listed in Addendum 1 to this Attachment O.**
- 3. On an annual basis, the Transmission Provider shall review the ongoing planning activities under the agreements specified in Addendum 1 to this Attachment O to determine the need for any additional inter-regional studies. The Transmission Provider shall share this review with the stakeholders at a planning summit and solicit input regarding additional inter-regional studies that should be initiated by the Transmission Provider.**

Entergy OATT Attachment K

Section 13.1 Regional Planning

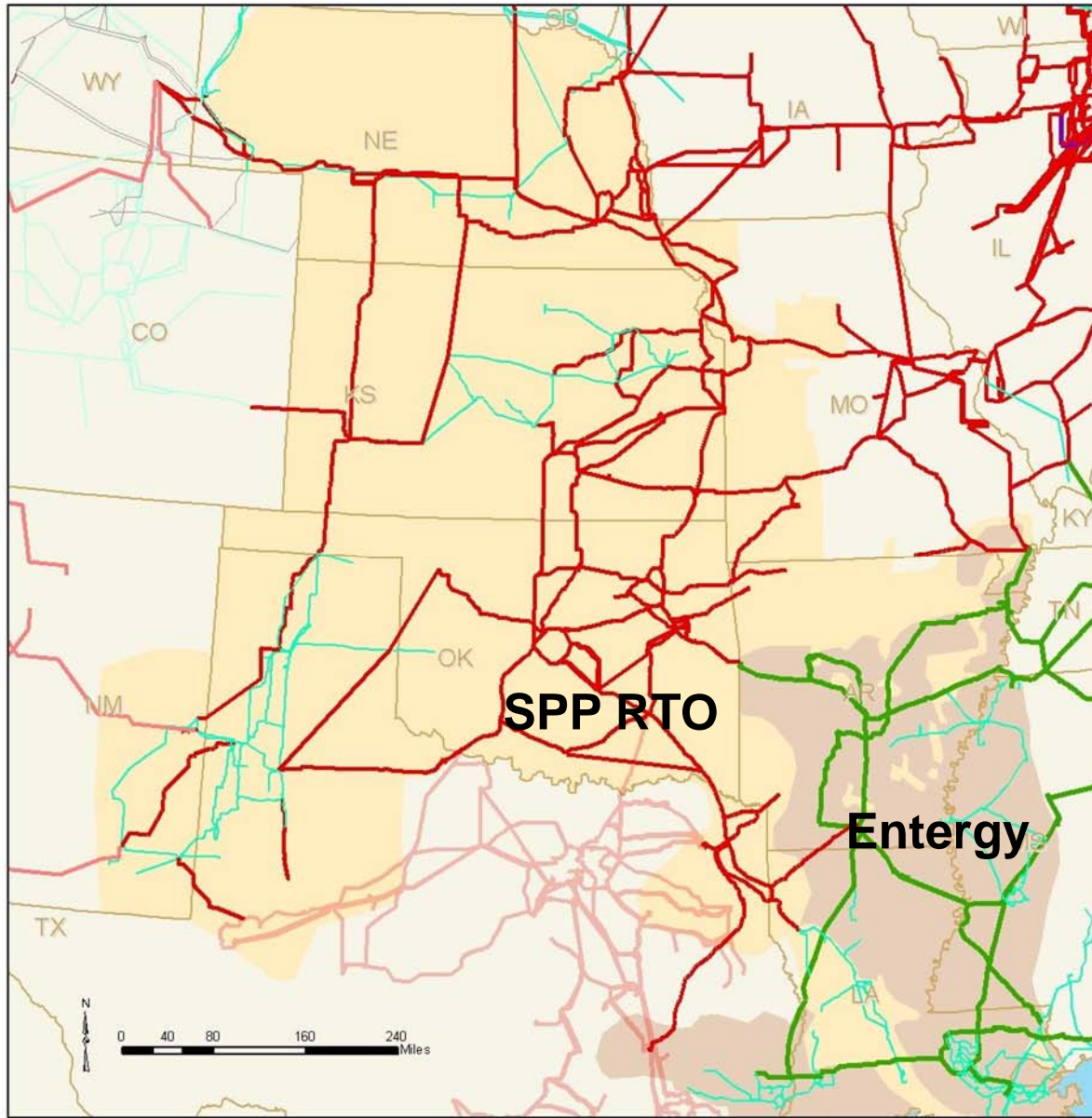
- **Regional Planning Parties (SPP & Entergy)**
 - **share system plans to ensure that they are simultaneously feasible and otherwise use consistent assumptions and data;**
 - **address requests for Regional Studies**
 - **identify any opportunities for regional optimization of the Construction Plan with the construction plans of the Regional Planning Parties.**



Entergy OATT Attachment K

Section 13.1 Regional Planning

- **Joint Planning Committee (JPC) will be established to perform studies and coordinate stakeholder communication:**
 - Request information from Regional Planning Parties as needed
 - Lead meetings
 - Ensure meetings conform with Standards of Conduct
 - Establish working groups to perform studies
 - Coordinate information exchange with outside agencies
 - Coordinate the various activities related to Regional Planning
 - Meet at least annually
 - Perform dispute resolution as needed



SPP *Southwest Power Pool*

EHV Transmission
(Including expansion projects with commitments to construct)

- 230 kV
- 345 kV
- 500 kV
- Southwest Power Pool
- Entergy ICT



Assessing Simultaneous Feasibility of System Plans and Consistent Use of Data and Assumptions

- **Each party will share system plans and associated data and assumptions, including models, data, maps, planned upgrades, expected in-service dates, long-term reservation information, reliability assessments, etc.**
- **Each party will assess the simultaneous feasibility of the expansion plans and the consistency of data and assumptions and report any inconsistencies or incompatibilities to the JPC.**

Regional Studies

- **JPC will conduct stakeholder-requested studies intended to identify system enhancements that could relieve inter-regional congestion or integrate new resources on an aggregate basis.**
- **Step 1 studies will provide a high-level screening to identify constraints and needed upgrades, and approximate costs & timelines**
- **Based on the results of a Step 1 study, stakeholders may request a Step 2 study be undertaken in the following planning cycle which will provide detailed cost estimates and timelines.**

Entergy OATT Economic Planning Studies

- **Entergy System Studies**
 - Customer-requested
 - ISTEP
- **Southeast Inter-Regional Participation Process (SIRPP)**
- **Entergy SPP RTO Regional Planning Process Regional Studies (ESRPP)**

Stakeholder Meetings

- **1st Meeting – 6/16/2011 – Net conference**
 - Stakeholders review and discuss scope and nominated studies
- **2nd Meeting – 7/08/2011 – SPP Summer Summit**
 - Results of stakeholder vote are announced
- **3rd Meeting – 8/24/2011 – SPP Fall Summit**
 - Progress Update for Step 1 and 2 studies
- **4th Meeting – 1st Quarter 2012 – Net conference**
 - Presentation and discussion of the final report

Communications

- **Sign up for SPC or TWG email exploders**
 - <http://www.spp.org/exploder.asp>
- **SPP distribution list for stakeholders to send comments to SPP and Entergy personnel**
 - ESRPP@spp.org



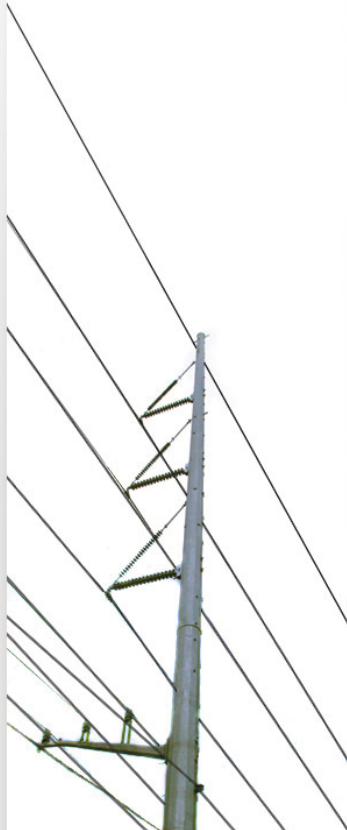
SPP *Southwest
Power Pool*



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**Helping our members work together
to keep the lights on...
today & in the future**





2011 ESRPP Cycle Study Scope

ESRPP Net-Conference

6/16/2011

Overview of Study Assumptions

- **Upgrades will be evaluated through load flow analysis to determine their scope and benefit.**
- **Upgrades will be studied in a long-term Entergy/SPP RTO combined model.**
- **Stakeholders input will be considered during the study process**

Powerflow Models

- **Base Model**
 - **2017 Summer Peak Base Case Model (Entergy and SPP RTO MDWG)**
 - **Includes 2011-2013 Construction Plan (CP) projects (approved) and Board Approved SPP RTO 2010 STEP projects**

- **Change Model**
 - **Add transfer and other study project requirements**
 - **Analyze transfer results**
 - **Develop and test upgrades to relieve constraints**

Contingency Scan

- **Monitored and Contingent Elements**
 - **115 kV and above elements within:**
 - **Entergy and SPP Zones adjacent to the Entergy/SPP Seam**
 - **All elements 345 kV and above in SPP and Entergy**
- **Category A: The model will be evaluated under normal, system-intact conditions.**
- **Category B: N-1 Contingency Scan (no breaker-to-breaker scan)**
- **Category C: Limited Multiple Contingency Scan**

General Study Assumptions for 2011 ESRPP Step 2 (Detailed Analysis) Studies

- **A 2010 Cycle project can be evaluated in more detail.**
- **Detailed cost estimates and timelines for the projects will be provided.**
- **A full AC contingency analysis (N-1) will be performed on the base and change models.**

General Study Assumptions for 2011 ESRPP Step 1 (High-Level Analysis) Studies

- **The high-level project proposals for 2011 cycle should increase transfer capability between a control area in SPP and a control area in Entergy (including Entergy), specifying a transfer amount. (POR/POD, MW)**
- **Planning-level cost estimates and construction timelines**
- **MUST DC analysis of FCITC.**

Other Information in Scope

- **ESRPP Background and Objectives**
- **2011 ESRPP Cycle Schedule**



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Entergy SPP RTO Regional Planning Process

Study Scope

June 2011

Background

In accordance with FERC Order 890, SPP OATT Attachment O, and Entergy OATT Attachment K, the Entergy SPP RTO Regional Planning Process (ESRPP) was created to identify system enhancements that may relieve regional congestion between Entergy and Southwest Power Pool. The process shares system plans to ensure that they are simultaneously feasible and otherwise use consistent assumptions and data.

The Joint Planning Committee (JPC) was established as part of SPP-Entergy Seams Agreement and is utilized in the ESRPP to perform these studies and coordinate regional stakeholder communication. Each party that is part of the JPC assesses the simultaneous feasibility of the expansion plans and the consistency of data and assumptions and reports any inconsistencies or incompatibilities to the JPC. The JPC will conduct stakeholder requested studies intended to identify system enhancements that may relieve regional congestion. Up to a total of five studies may be requested annually. Due to the expected scope of the requested studies and size of the geographical region encompassed, the JPC will perform up to five (5) studies annually, which could encompass both Step 1 and Step 2 evaluations. A Step 1 evaluation will consist of a high level screen of the requested transfer and will be performed during a single year's planning cycle. The high level screen will identify transfer constraints and likely transmission enhancements to resolve the identified constraints. The JPC will also provide approximate costs and timelines associated with the identified transmission enhancements to facilitate the stakeholders' determination of whether they have sufficient interest to pursue a Step 2 evaluation. Once a Step 1 evaluation has been completed for a particular transfer, the stakeholders have the option to request a Step 2 evaluation for that transfer to be performed during the subsequent year's process cycle. In the event that the stakeholders request a Step 2 evaluation, the JPC will then perform additional analysis, which may include additional coordination with external processes. The JPC will then develop detailed cost estimates and timelines associated with the final transmission enhancements. The Step 2 evaluation will ensure that sufficient coordination can occur with stakeholders and among the impacted Participating Transmission Owners.

The main objectives of the ESRPP are to improve regional transfer capability, improve regional optimization, and relieve constraining Flowgates. These objectives are combined in order to provide a more robust transmission system capable of more economic delivery of power across a regional transmission system.

Study Assumptions

Upgrades will be evaluated through load flow analysis to determine their scope and benefit. Upgrades will be studied in a long-term Entergy/SPP RTO combined model. Approved Entergy Construction Plan projects and SPP RTO STEP projects will be included in the study models. Upgrades will be designed as long-term solutions, though projects addressing constraints in the near term will also be considered. Stakeholder input will be considered during the study process.

Study Process

Project Recommendations

High-Level (Step 1)

The high-level study proposals for 2011 cycle should increase transfer capability between a control area in SPP and a control area in Entergy (including Entergy), specifying a transfer amount. (POR/POD, MW)

Detailed (Step 2)

A 2010 Cycle project can be evaluated in more detail. Detailed cost estimates and timelines for the projects will be provided.

Powerflow model analysis

The base model will include the 2011-2013 Approved Entergy Construction Plan (CP) projects and Board Approved SPP RTO 2010 STEP projects.

High-Level (Step 1)

A full DC contingency analysis (N-1) will be performed on the base and change models. The contingency scan will include NERC Category A, B, and C events. Details on monitored elements and Category A, B, and C events can be found in the Contingency Scan section below.

Detailed (Step 2)

A full AC contingency analysis (N-1) will be performed on the base and change models. The contingency scan will include NERC Category A, B, and C events. Details on monitored elements and Category A, B, and C events can be found in the Contingency Scan.

Initial Results

There will be a meeting in August 2011 in conjunction with the ICT Annual Transmission Planning Summit and the SPP RTO Fall Summit. At this meeting initial results of the selected studies will be presented. Stakeholders will be allowed to make comments or suggestions on initial study results.

Documentation

The ICT-SPC and TWG will be updated when project results are made available. The final project summary report will be completed 1st Qtr 2012.

Model Assumptions

Powerflow Models

1. Base Model
 - A. 2017 Summer Peak Base Case Model (Entergy and SPP RTO MDWG)
 - B. Includes 2011-2013 Construction Plan (CP) projects (approved)
 - C. Includes Board Approved SPP RTO 2010 STEP projects
2. Change Model(s)
 - A. Add transfer and other study project requirements
 - B. Analyze transfer results
 - C. Develop and test transmission upgrades to relieve constraints

Contingency Scan

High-Level & Detailed

Category A

1. The model will be evaluated under normal, system-intact conditions.
2. Monitored elements must remain within the thermal limits specified in Entergy's Transmission Local Planning Criteria and SPP RTOs Planning Criteria for Category A.
3. Identify all elements that do not meet the Category A limits.

Category B

1. An N-1 contingency scan will be run on the models.
2. Monitored elements must remain within the thermal limits specified in Entergy's Transmission Local Planning Criteria and SPP RTOs Planning Criteria for Category B, currently for flows less than 100% of RATEB; voltages between 0.90 and 1.05 per unit.

Category C

1. A limited multiple contingency scan will be run on the models. Special events resulting in the loss of two or more elements (i.e. bus section & breaker failure/fault) will be resolved on case by case scenario.
2. Monitored elements must remain within the thermal and voltage limits specified in Entergy's Transmission Local Planning Criteria for Category B, currently flows less than 100% of RATEB; voltages between 0.92 and 1.05 per unit.
3. To address these Category C event conditions, projects are generally not required if there are systems or processes in place to prevent cascading outages on neighboring systems.

Monitored Elements

1. Entergy Internal:
 - A. Transmission elements within Entergy's footprint (including embedded Areas) with nominal voltage 115 kV and higher.
 - B. Ties to outside Areas at 115 kV and higher.
2. SPP Internal:
 - A. Transmission elements in Control Areas adjacent to Entergy's footprint with nominal voltage 115kV and higher.
 - B. Transmission elements in Control Areas non-adjacent to Entergy's footprint with nominal voltage 345kV and higher.

Schedule

1. Email Nominations: Stakeholders nominate studies via email to ESRPP@spp.org:
June 9, 2011 to June 22, 2011
2. ESRPP Net Conference: Stakeholders review and discuss scope and nominated studies:
June 16, 2011
3. Email Vote: Stakeholders vote for studies via email to ESRPP@spp.org:
June 24, 2011 to July 7, 2011
4. ESRPP Meeting: Results of Stakeholder vote are announced:
July 8, 2011
5. ESRPP Meeting: Initial Results of Step 1 and 2 Studies:
August 24, 2011
6. ESRPP Meeting: Presentation of Final Report:
First (1st) Quarter 2012

ESRPP Study Scope

Area #	Area Abbrev.	Area Name
502	CLEC	Central Louisiana Electric
503	LAFAL	City of Lafayette
504	LEPA	Louisiana Energy & Power Authority
515	SWPA	Southwest Power Administration
520	AEPW	American Electric Power System West (fka Central & Southwest Services)
523	GRDA	Grand River Dam Authority
524	OKGE	Oklahoma Gas & Electric Cooperative
525	WFEC	Western Farmers Electric Coop.
526	SPS	Southwest Public Service Company
527	OMPA	Oklahoma Municipal Power Authority
531	MIDW	Midwest Energy
534	SUNC	Sunflower Electric Power Corp.
536	WERE	Westar Energy, Inc. (aka Westar Energy Generation)
540	GMO	Greater Missouri Operations Company (fka Missouri Public Service Co.)
541	KCPL	Kansas City Power and Light
542	KACY	Kansas City Board of Public Utilities
544	EMDE	Empire District Electric Co.
545	INDN	Independence P & L
546	SPRM	City Utilities, Springfield, MO

ESRPP Study Scope

System Intact:				
Monitor Voltage Range				
CELE	0.95	to	1.05	
LAFA	0.95	to	1.05	
LEPA	0.95	to	1.05	
SWPA	0.95	to	1.05	
AEPW	0.95	to	1.05	
GRRD	0.95	to	1.05	
OKGE	0.95	to	1.05	
WFEC	0.95	to	1.05	
SWPS	0.95	to	1.05	
OMPA	0.95	to	1.05	
MIDW	0.95	to	1.05	
SEPC	0.95	to	1.05	
WERE-L	0.93	to	1.05	
WERE-H	0.95	to	1.05	
MKEC	0.95	to	1.05	
MIPU	0.95	to	1.05	
KCPL	0.95	to	1.05	
KACY	0.95	to	1.05	
EMDE-L	0.95	to	1.05	
EMDE-H	0.95	to	1.05	
INDN	0.95	to	1.05	
SPRM	0.95	to	1.05	
ERCOT	0.95	to	1.05	
WSCC	0.95	to	1.05	
NPPD	0.95	to	1.05	
LES	0.95	to	1.05	
OPPD	0.95	to	1.05	
Internal-2	0.95	to	1.05	
Tier1	0.95	to	1.05	
Bus 525830	0.95	to	1.05	Tuco 230kV
Bus 532797	0.985	to	1.03	Wolf Creek

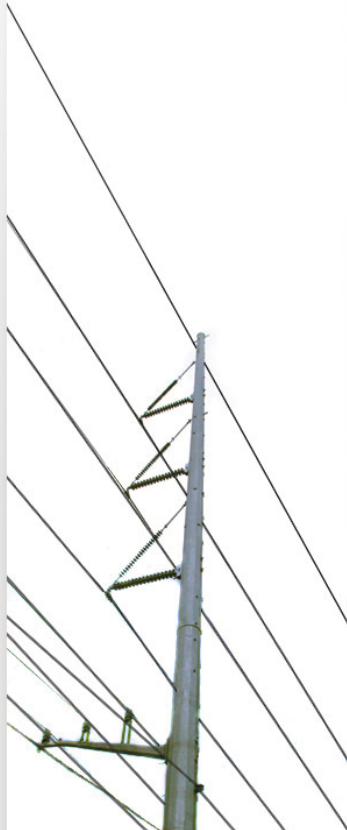
ESRPP Study Scope

N-1:				
Monitor Voltage Range				
CELE	0.92	to	1.05	
LAFA	0.90	to	1.05	
LEPA	0.90	to	1.05	
SWPA	0.90	to	1.05	
AEPW	0.90	to	1.05	
GRRD	0.90	to	1.05	
OKGE	0.90	to	1.05	
WFEC	0.90	to	1.05	
SWPS	0.90	to	1.05	
OMPA	0.90	to	1.05	
MIDW	0.90	to	1.05	
SEPC	0.90	to	1.05	
WERE-L	0.93	to	1.05	
WERE-H	0.95	to	1.05	
MIPU	0.90	to	1.05	
KCPL	0.90	to	1.05	
KACY	0.90	to	1.05	
EMDE-L	0.90	to	1.05	
EMDE-H	0.92	to	1.05	
INDN	0.90	to	1.05	
SPRM	0.90	to	1.05	
ERCOT	0.90	to	1.05	
WSCC	0.90	to	1.05	
NPPD	0.90	to	1.05	
LES	0.95	to	1.05	
OPPD	0.95	to	1.05	
Internal-2	0.90	to	1.05	
AECI	0.90	to	1.05	
Tier1	0.90	to	1.05	
ENTR	0.92	to	1.05	
Bus 525830	0.925	to	1.05	Tuco 230kV
Bus 532797	0.98	to	1.03	Wolf Creek
Bus 646251	1.001863	to	1.047205	OPPD FCS Off-Site power limits added 3.15.2010

Where:	
WERE-H >= 230kV	EMDE-H >= 161kV
WERE-L < 230kV	EMDE-L < 161kV
Internal-2 = areas 301, 304, & 305	



**Helping our members work together
to keep the lights on...
today & in the future**





Nominated Studies for 2011 ESRPP Cycle

ESRPP net-conference

June 16, 2011

Study Selection Schedule

- **6/9/2011 to 6/22/2011 – Email Nominations**
 - Stakeholders nominate studies via email to ESRPP@spp.org
- **6/16/2011 – Net conference**
 - Stakeholders review and discuss scope and nominated studies
- **6/24/2011 to 7/7/2011 – Email Vote**
 - Stakeholders vote for studies via email to ESRPP@spp.org
- **7/8/2011 – ESRPP Meeting**
 - Results of Stakeholder vote will be posted

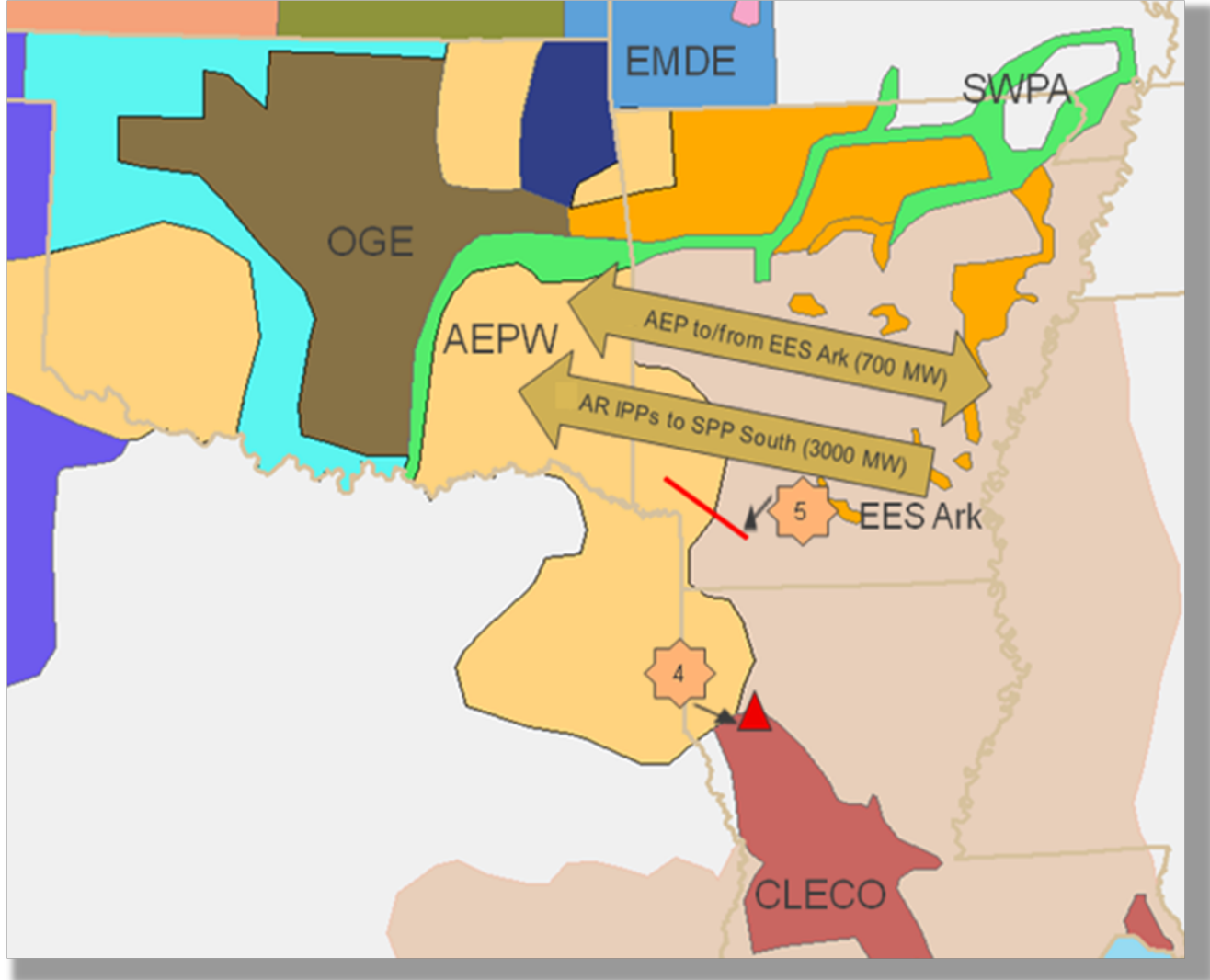
Study Selection Criteria

- **2010 ESRPP Step 2 (Detailed Analysis) Studies**
and/or
- **2011 ESRPP Step 1 (High-Level Analysis) Studies**
 1. **Increase transfer capability between a control area in SPP and a control area in Entergy (including Entergy), specifying a transfer amount**

2010 ESRPP (High-Level Analysis) Studies

- 1. Arkansas IPPs (Hot Springs, Magnet Cove, and PUPP) – SPP South (AEPW and OG&E) for 3000 MW**
- 2. AEPW – Entergy Arkansas for 700 MW**
- 3. Entergy Arkansas – AEPW for 700 MW**
- 4. Messick 500/230 kV Transformer (Step 2 Study)**
- 5. Turk – McNeil 345kV Line (Step 2 Study)**

Regional Study Overview Map



Nominations for 2011 ESRPP Step 1

- **Due by June 22, 2011**

Voting Guidelines (for Email Vote)

- **Each ESRPP Regional Participant (company) is allotted five (5) votes**
- **The five votes may be cast in any manner, e.g.:**
 - 1. 5 votes for five different studies, or**
 - 2. All 5 votes for one study, or**
 - 3. 3 votes for one study and 2 votes for two other studies, etc.**
- **The nominated studies must meet the study selection criteria**
- **Votes should be returned by July 7, 2011 to ESRPP@spp.org.**

Eligible Voters (per Entergy OATT Attachment K, Section 13.1.5.3.1)

- **A transmission customer, an eligible customer, or an interconnection customer under either Regional Planning Party's transmission tariff (including Entergy's wholesale merchant function) may request a Regional Study under the applicable Regional Planning Party's transmission tariff, through the SPC, or through the TWG.**



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