

Southwest Power Pool, Inc. – Entergy
ENTERGY SPP RTO REGIONAL PLANNING PROCESS

August 7, 2012

JW Marriott - New Orleans, LA

• Agenda •

3:30 pm – 4:30 pm

- 1. Administrative
 - A. Introductions All
 - B. Discuss/Approve Minutes of 5/24/2012 ESRPP Meeting Eddie Filat /All
 - C. SPP Antitrust Guidelines Ben Roubique
- 2. Review of Initial Study Results Eddie Filat and Samrat Datta
 - A. 2012 ESRPP Step 1 (High-Level Analysis) Studies
 - i. From SPP South to Entergy Louisiana for 1000 MW
 - ii. From Entergy to OG&E for 1500 MW
 - iii. From AEP South to Entergy Louisiana for 500 MW
 - B. 2011 ESRPP Step 2 (Detailed Analysis) Studies
 - i. From Entergy to EMDE for 500 MW
 - ii. From Nebraska to Entergy for 3000 MW
- 3. Next Steps Michael Odom
 - A. Stakeholder Comment Period
 - B. Post the 2012 ESRPP Final Report November 30, 2012
- 4. Other Discussion All
- 5. Adjournment



Southwest Power Pool, Inc. – Entergy
ENTERGY SPP RTO REGIONAL PLANNING PROCESS MEETING
May 24, 2012
NET CONFERENCE
• M i n u t e s •

Agenda Item 1 – Administrative

Eddie Filat called the meeting to order at 10:05 a.m. A list of attendees is attached at the end of these Minutes. Eddie reviewed the agenda and Tim McGinnis provided the anti-trust guidelines.

Agenda Item 2 – 2011 ESRPP Final Report

Eddie Filat went over the 2011 ESRPP Final report. Roy Boyer asked if we would provide the transfer capability increase for the Nebraska to Entergy transfer. Eddie mentioned that the slide was left off by accident and will update the report within a week.

Agenda Item 3 – Process Overview

Eddie Filat presented the 2012 ESRPP overview. There were no questions or comments.

Agenda Item 4 – 2012 ESRPP Study Scope

Eddie Filat presented the 2012 ESRPP Study Scope. Roy Boyer asked what timeframe we have for the August 7th meeting. Eddie mentioned that the Entergy Summit will last until 3:30 p.m. and the 2012 ESRPP meeting will be from 4:00 to 5:00 p.m. on the same day.

Agenda Item 5 – Nominated Studies for 2012 ESRPP Study

Eddie Filat mentioned the Nominated Studies for 2012 ESRPP Cycle will be emailed out with the next week. There were no questions or comments.

Agenda Item 6 – Other Discussion

There were no questions or comments.

Agenda Item 7 – Adjournment

Eddie Filat adjourned the meeting at 10:45 a.m.

Attendance List

Company	Last Name	First Name
Southwest Power Pool	Filat	Eddie
Southwest Power Pool	McGinnis	Tim
Southwest Power Pool	Odom	Michael
Southwest Power Pool	Cook	English
Southwest Power Pool	Kelley	David
Southwest Power Pool	Roubique	Ben
Associated Electric Cooperative, Inc.	Gott	Tony
AEP	McGee	Matt
AEP	Rainbolt	Scott
Xcel Energy	Boyer	Roy
KGen Power	Lee	Tina
Entergy	Datta	Samrat
Entergy	McNeece	Matt
Entergy	Aluko	Olumide
Entergy	Salini	Nainder
Ameren	Feltz	Rick
	Wetterlyn	Carolyn
	McNeil	Nathan

SPP Antitrust Guidelines

Entergy ICT Transmission
Planning Summit
August 7, 2012



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

Review of Initial Study Results

Entergy SPP RTO Regional
Planning Process (ESRPP)
Stakeholder Meeting

August 7, 2012



ESRPP

- **Main Objectives of ESRPP upgrades**
 - Improve interregional transfer capability
 - Relieve constraining flowgates
 - Facilitate optimization of SPP and Entergy approved expansion plans
- **Solution**
 - Robust transmission system capable of a more economic delivery of power across the seam between Entergy and SPP

Study Selection Criteria

- **Increase transfer capability between a control area in SPP and a control area in Entergy (including Entergy), specifying a transfer amount (POR/POD, MW)**
- **2012 ESRPP Step 1 (High-Level Analysis) Studies**
- **2011 ESRPP Step 1 Studies evaluated as 2012 ESRPP Step 2 (Detailed Analysis) Studies**

Selected Studies

- **Composition of 2012 ESRPP Studies**
 - **3 new high-level studies**
 - SPP South to Entergy Louisiana for 1000 MW (*1500 MW)
 - Entergy to OG&E for 1500 MW (*2000 MW)
 - AEP to Entergy Louisiana for 500 MW (*1000 MW)
 - **2 Detailed studies selected from the 2011 ESRPP Studies**
 - From Entergy to EMDE for 500 MW
 - From Nebraska to Entergy for 3000 MW

*Updated transfer amounts due to limited number of constraints

2012 ESRPP Selected Studies

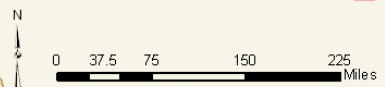
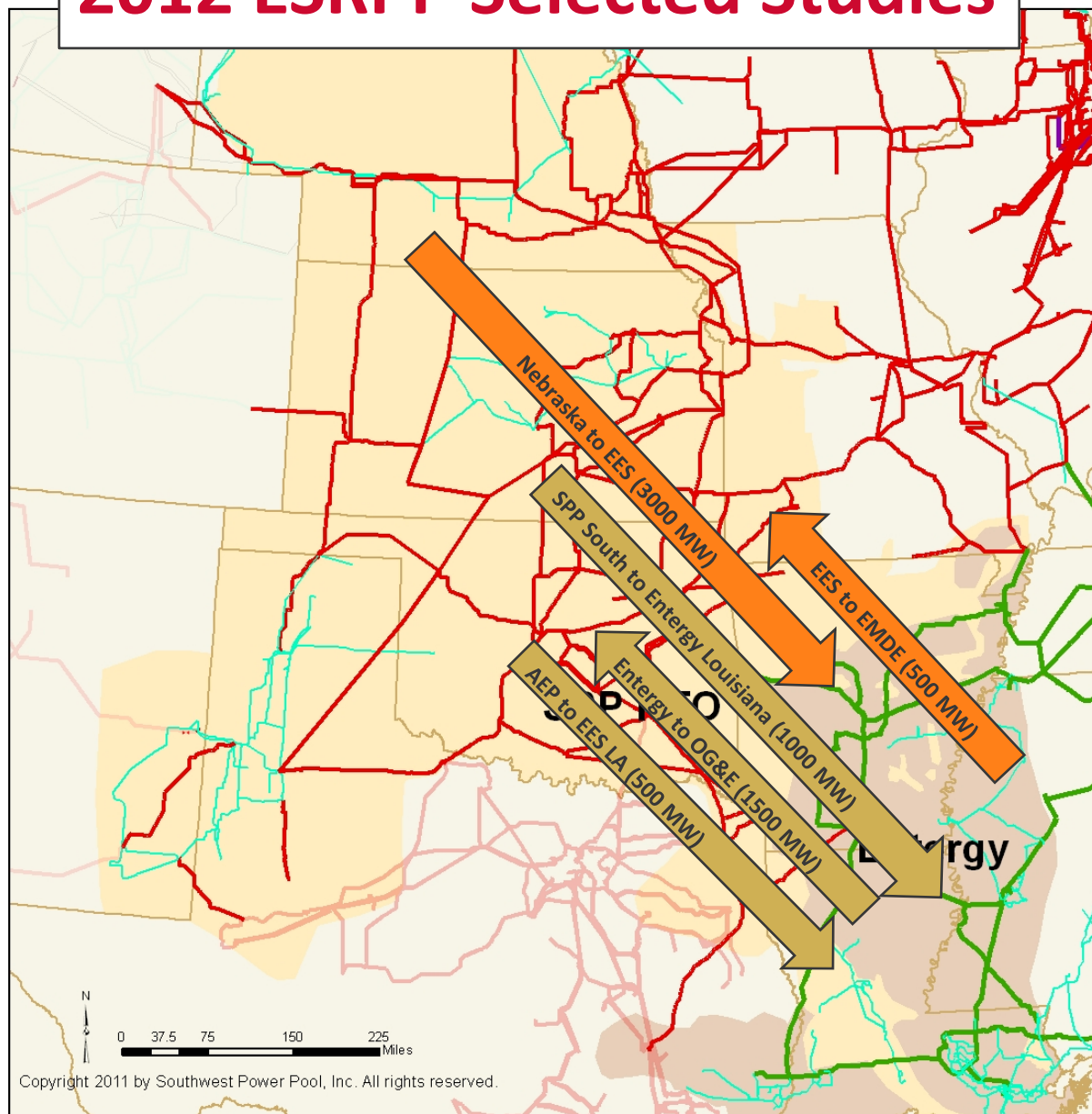


EHV Transmission
 (Including expansion projects with commitments to construct)

June 2011

All SPP Transmission Expansion Plans are subject to change.

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



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Step 1 (High-level Analysis)

General Study Assumptions for 2012 ESRPP Step 1 (High-Level Analysis) Studies

- **MUST DC analysis of FCITC (First Contingency Incremental Transfer Capability)**
- **The high-level project proposals for the 2012 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**
- **The resulting upgrades will focus on EHV expansion and other projects that are capable of relieving interregional limitations.**

Powerflow Models

- **Base Model**
 - SPP 2012 Series MDWG and Entergy 2011 Series Update 2a
 - 2018 Summer Peak Base Case Model
 - Includes Priority Projects in SPP
 - Entergy 2012-2016 Construction Plan Approved Projects
- **Change Model**
 - Add transfer and other study project requirements
 - Analyze transfer results
 - Develop and test upgrades to relieve constraints

1. SPP South to Entergy Louisiana for 1000 MW

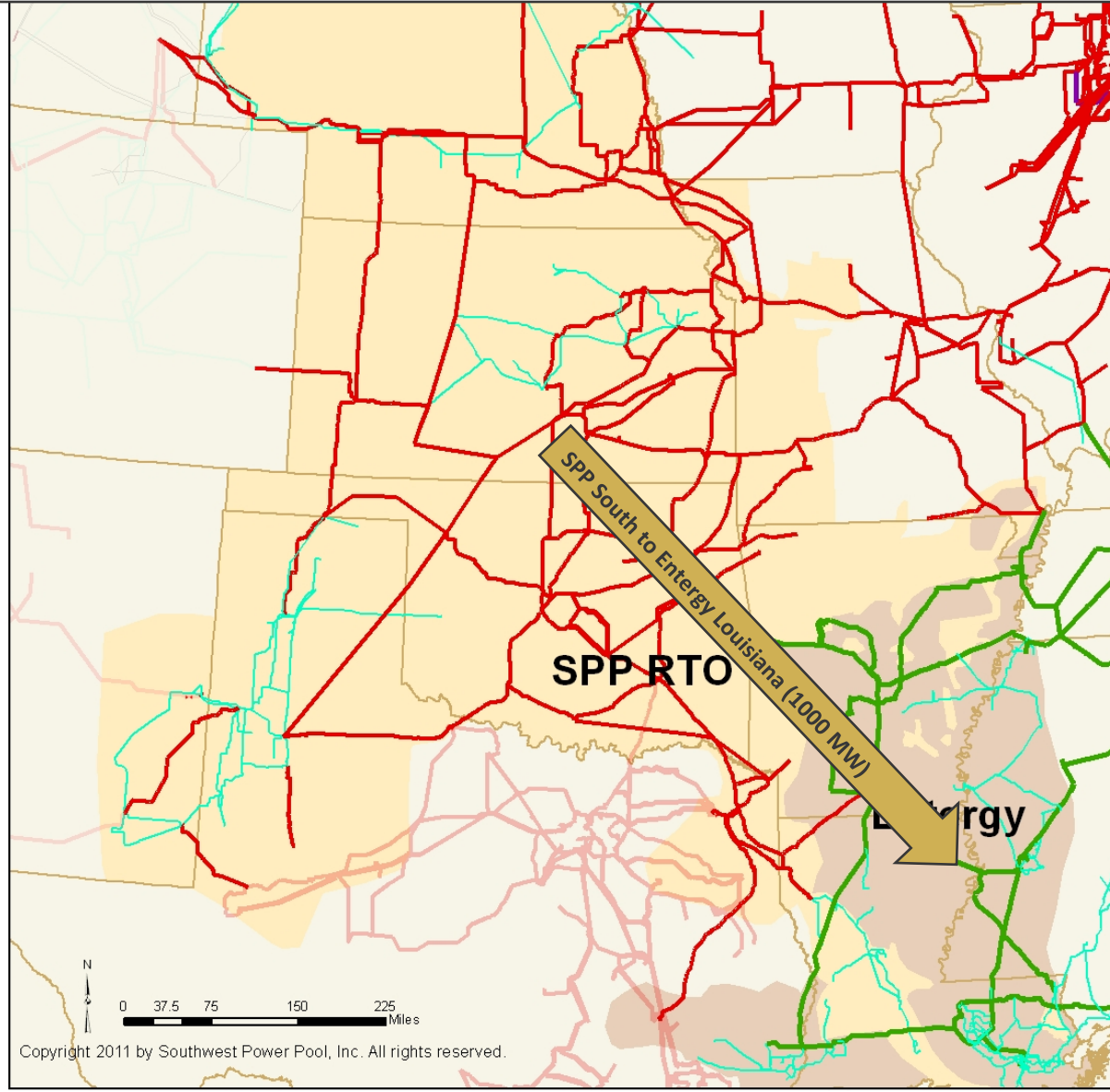


EHV Transmission
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Transfer Analysis

- **Transfer**
 - **Original request:**
 - **SPP South to Entergy Louisiana for 1000 MW**
 - **Updated transfer:**
 - **SPP South to Entergy Louisiana for 1500 MW**
 - **SPP South**
 - **Scale all generation up 1500 MW**
 - **Entergy Louisiana**
 - **Scale all generation down 1500 MW**

Interregional Limitations

SPP South to Entergy Louisiana 1500 MW

FCITC (MW)	Limiting Constraint				Contingency			
830.6	334026 4GRIMES	138	334060 4MT.ZION	138 1	334026 4GRIMES	138	334039 4BENTWATER	138 1
975.5	334026 4GRIMES	138	334028 7GRIMES	345 2	334026 4GRIMES	138	334028 7GRIMES	345 1
975.5	334026 4GRIMES	138	334028 7GRIMES	345 1	334026 4GRIMES	138	334028 7GRIMES	345 2
1057.6	334026 4GRIMES	138	334060 4MT.ZION	138 1	334039 4BENTWATER	138	334040 4WALDEN	138 1
1194.5	334026 4GRIMES	138	334039 4BENTWATER	138 1	334026 4GRIMES	138	334060 4MT.ZION	138 1
1332.8	334058 4L558T485	138	334060 4MT.ZION	138 1	334026 4GRIMES	138	334039 4BENTWATER	138 1
1356.9	334026 4GRIMES	138	334039 4BENTWATER	138 1	334058 4L558T485	138	334060 4MT.ZION	138 1
1434.7	334026 4GRIMES	138	334060 4MT.ZION	138 1	334040 4WALDEN	138	334041 4APRILTX	138 1

Initial transfer for 1000 MW shown above in red

SPP South to Entergy Louisiana for 1500 MW - Overloads



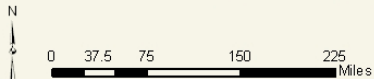
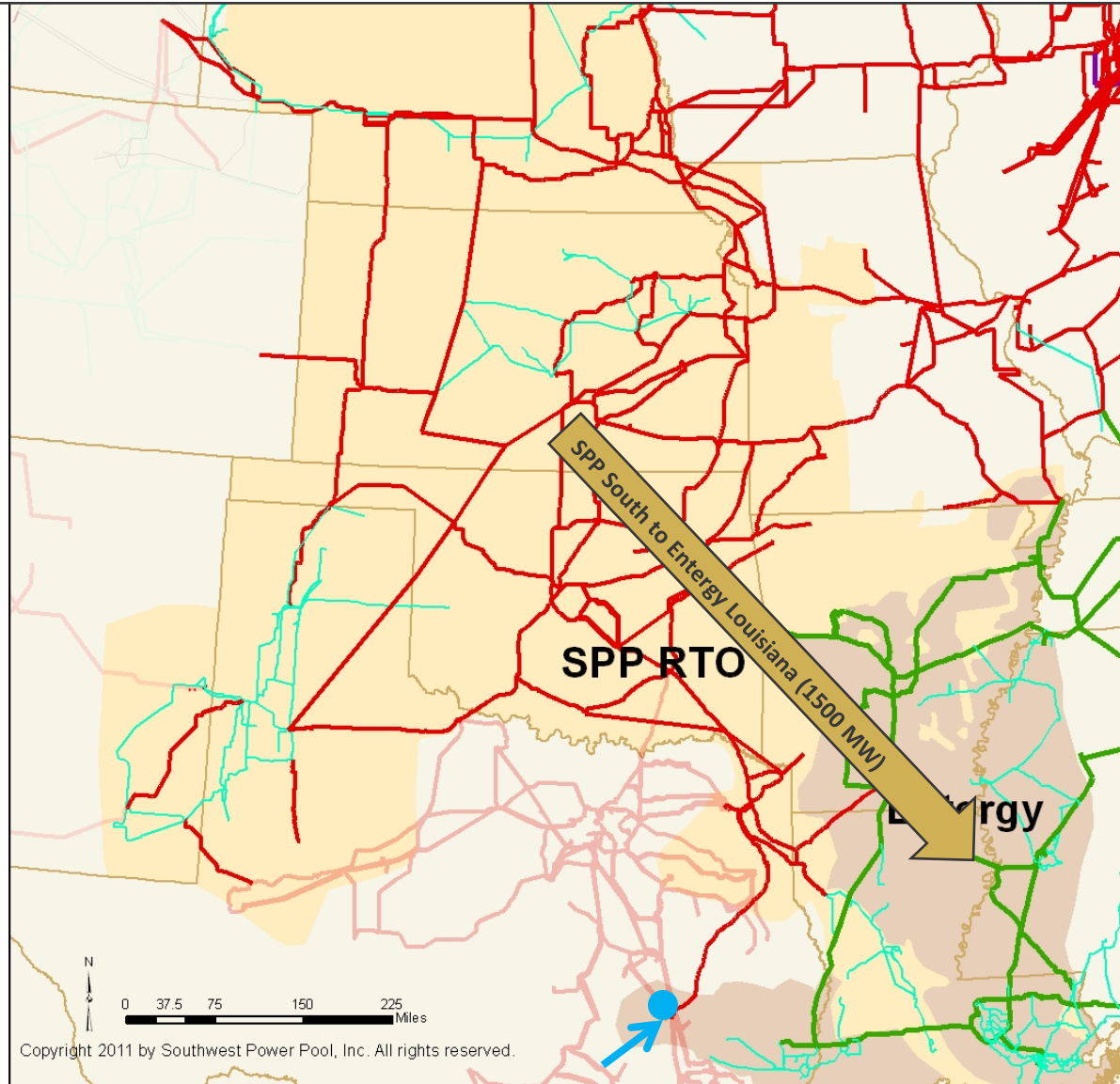
 **SPP**
Southwest
Power Pool

EHV Transmission
(Including expansion projects
with commitments to construct)

June 2011

**All SPP Transmission Expansion
Plans are subject to change.**

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



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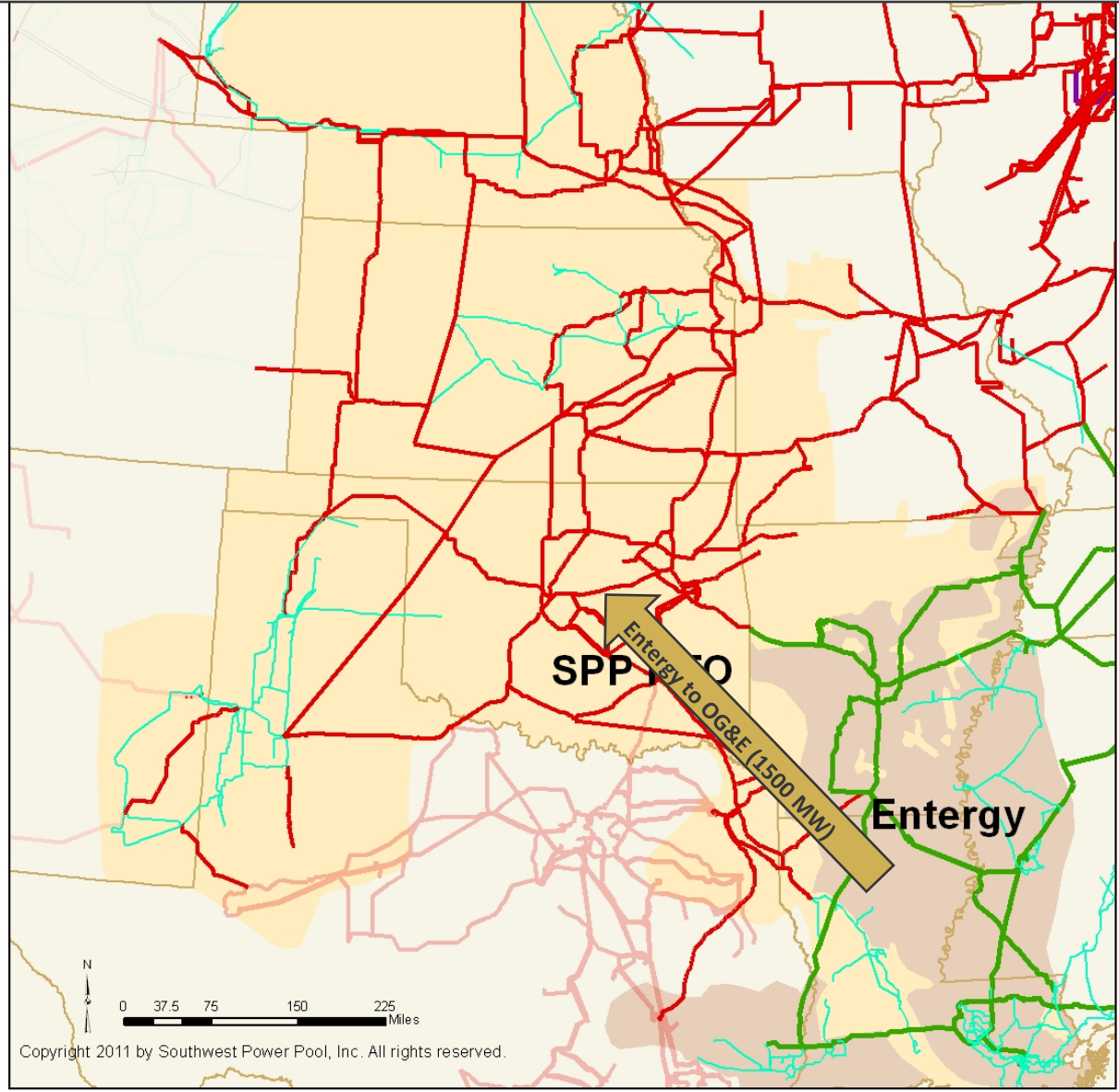
2. Entergy to OG&E for 1500 MW



EHV Transmission
(Including expansion projects with commitments to construct)

June 2011
All SPP Transmission Expansion Plans are subject to change.

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



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Transfer Analysis

- **Transfer**
 - **Original request:**
 - **Entergy to OG&E for 1500 MW**
 - **Updated transfer:**
 - **Entergy to OG&E for 2000 MW**
 - **Entergy**
 - **Scale all generation up 2000 MW**
 - **OG&E**
 - **Scale all generation down 2000 MW**

Interregional Limitations

Entergy to OG&E 2000 MW

FCITC (MW)	Limiting Constraint	Contingency
1294.1	337905 5RUSSELVL.E! 161 337906 5RUSSELVL.N 161 1	337909 8ANO 500 515305 FTSMITH8 500 1
1584.4	303311 3RUSTON_E 115 337374 3DOWNSVILLE 115 1	337420 8STERLING 500 337561 8EL DORADO 500 1
1711.7	338130 5CALICO ROCK 161 338131 5MELBOURNE 161 1	337909 8ANO 500 515305 FTSMITH8 500 1
1789.2	338130 5CALICO ROCK 161 505448 NORFORK5 161 1	337909 8ANO 500 515305 FTSMITH8 500 1
1873.8	337926 5QUITMAN! 161 338831 5BEE BRANCH 161 1	337909 8ANO 500 515305 FTSMITH8 500 1
1954.5	337904 5RUSSELVL.S 161 337905 5RUSSELVL.E! 161 1	337909 8ANO 500 515305 FTSMITH8 500 1
1961.1	337903 5DARDANELLE 161 505508 DARDANE5 161 1	337909 8ANO 500 515305 FTSMITH8 500 1
1971.9	303311 3RUSTON_E 115 337371 3VIENNA_LA! 115 1	337420 8STERLING 500 337561 8EL DORADO 500 1

Initial transfer for 1500 MW shown above in red

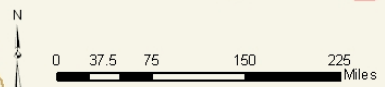
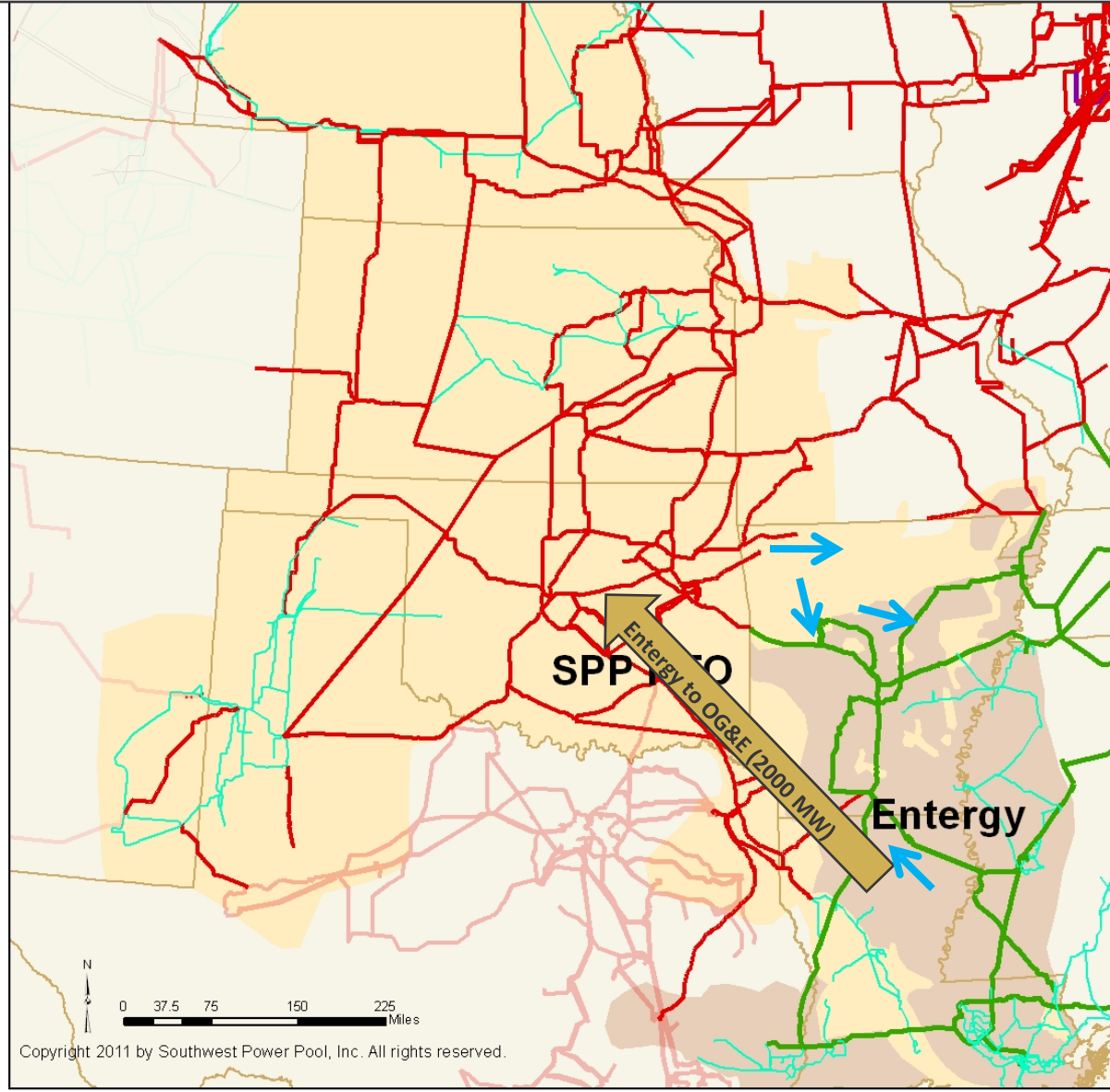
Entergy to OG&E for 2000 MW - Overloads



EHV Transmission
(Including expansion projects with commitments to construct)

June 2011
All SPP Transmission Expansion Plans are subject to change.

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



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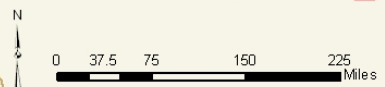
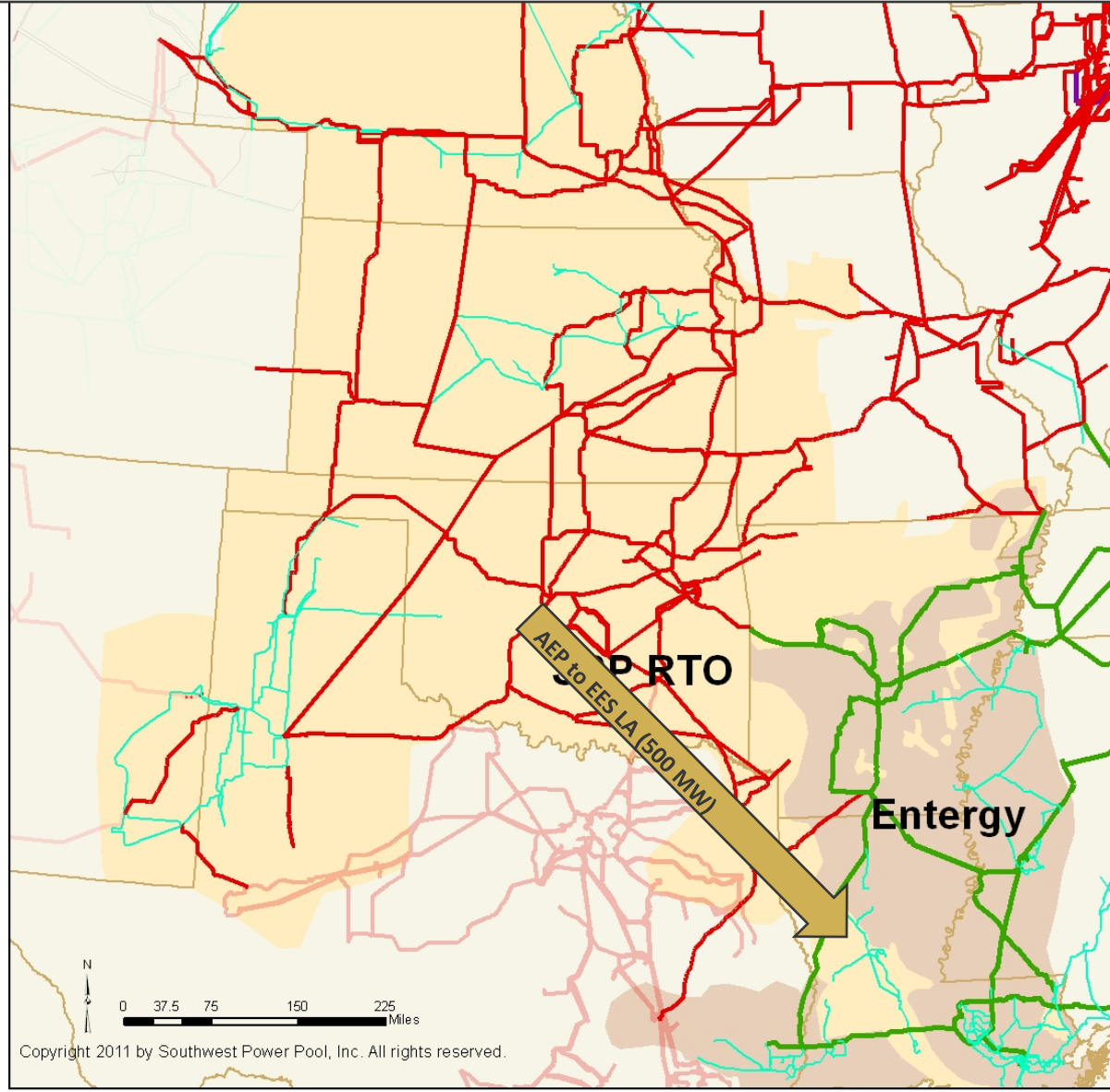
3. AEP to Entergy Louisiana for 500 MW



EHV Transmission
(Including expansion projects with commitments to construct)

June 2011
All SPP Transmission Expansion Plans are subject to change.

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



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Transfer Analysis

- **Transfer**
 - **Original request:**
 - **AEP to Entergy Louisiana for 500 MW**
 - **Updated transfer:**
 - **AEP to Entergy Louisiana for 1000 MW**
 - **AEP**
 - **Scale all generation up 1000 MW**
 - **Entergy Louisiana**
 - **Scale all generation down 1000 MW**

Interregional Limitations

AEP to Entergy Louisiana 1000 MW

FCITC (MW)	Limiting Constraint	Contingency
589.7	334026 4GRIMES 138 334060 4MT.ZION 138 1	334026 4GRIMES 138 334039 4BENTWATER 138 1
693.3	334026 4GRIMES 138 334028 7GRIMES 345 2	334026 4GRIMES 138 334028 7GRIMES 345 1
693.3	334026 4GRIMES 138 334028 7GRIMES 345 1	334026 4GRIMES 138 334028 7GRIMES 345 2
750.9	334026 4GRIMES 138 334060 4MT.ZION 138 1	334039 4BENTWATER 138 334040 4WALDEN 138 1
850.4	334026 4GRIMES 138 334039 4BENTWATER 138 1	334026 4GRIMES 138 334060 4MT.ZION 138 1
946.2	334058 4L558T485 138 334060 4MT.ZION 138 1	334026 4GRIMES 138 334039 4BENTWATER 138 1
966.1	334026 4GRIMES 138 334039 4BENTWATER 138 1	334058 4L558T485 138 334060 4MT.ZION 138 1

Initial transfer for 500 MW shown above in red

AEP to Entergy Louisiana for 1000 MW - Overloads

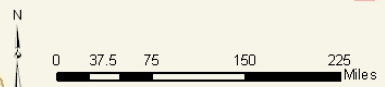
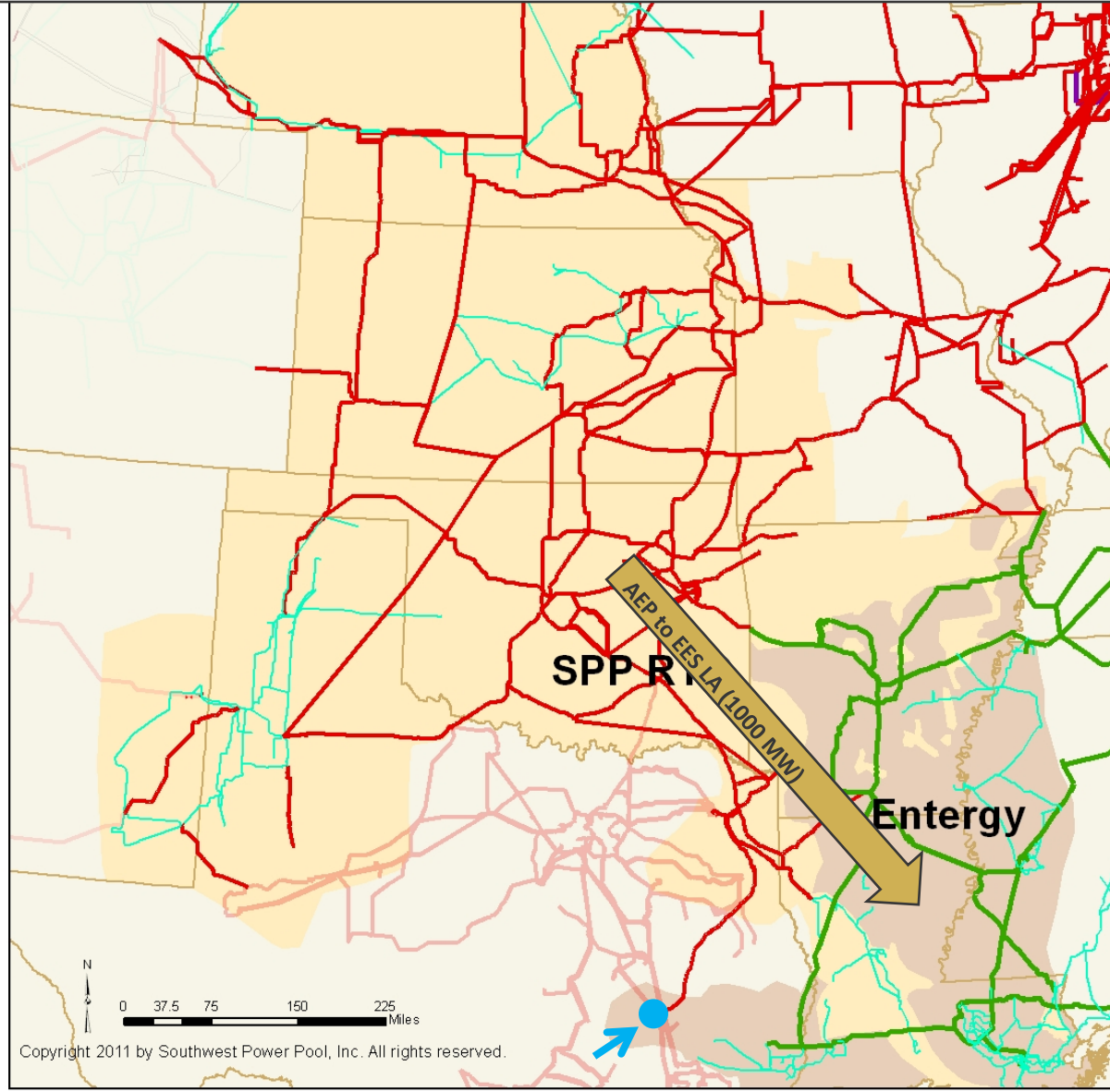


EHV Transmission
(Including expansion projects with commitments to construct)

June 2011

All SPP Transmission Expansion Plans are subject to change.

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



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2012 ESRPP Step 1 Study Initial Results

- Please further review initial FCITC Results that was just presented
- Provide comments and project recommendations (along with powerflow model IDEVs if possible)



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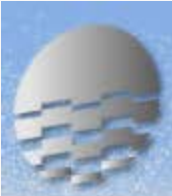
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2012 ESRPP Step 2 Process

August 7th, 2012



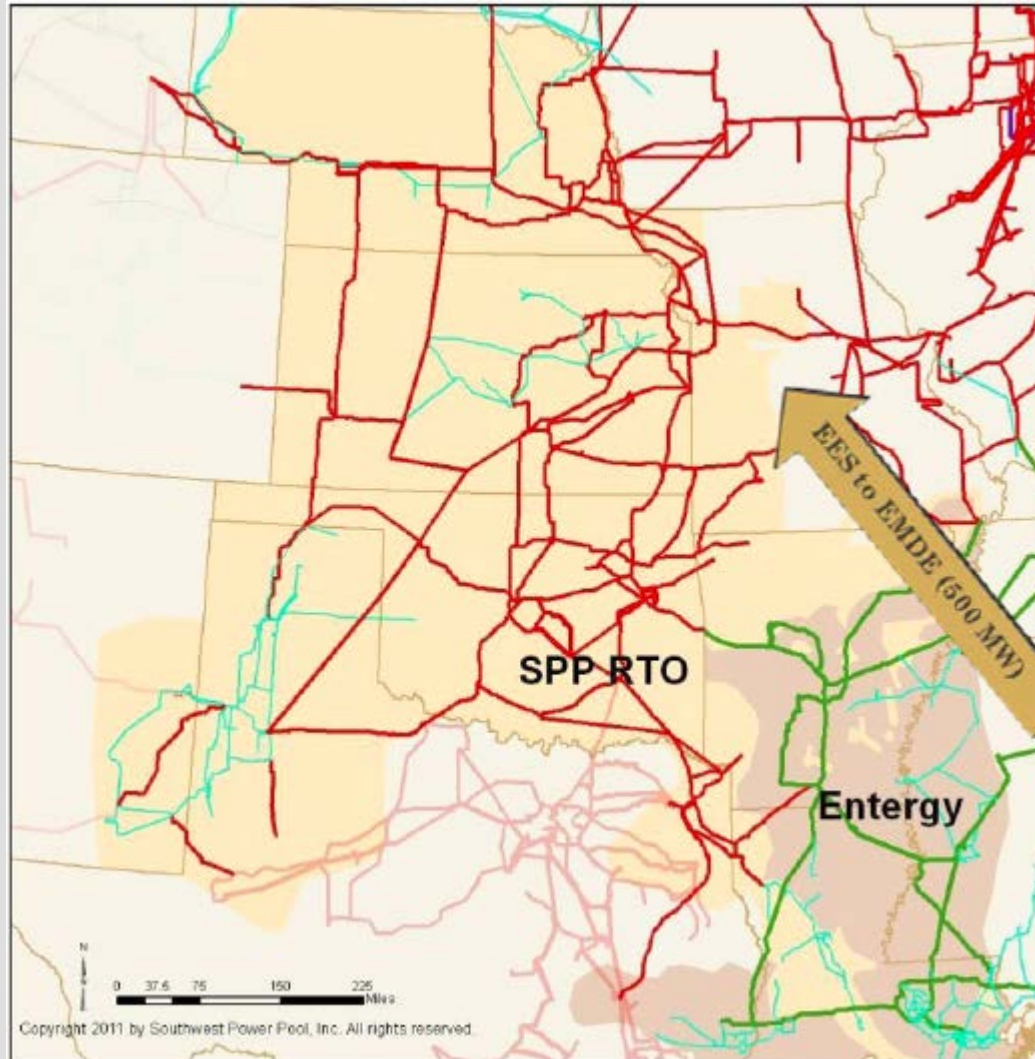


Discussion Topics

- 1. Transfers selected for Step 2 of the 2012 ESRPP**
- 2. Step 2 Study Procedure**
- 3. Estimated completion date for Step 2 Analyses**

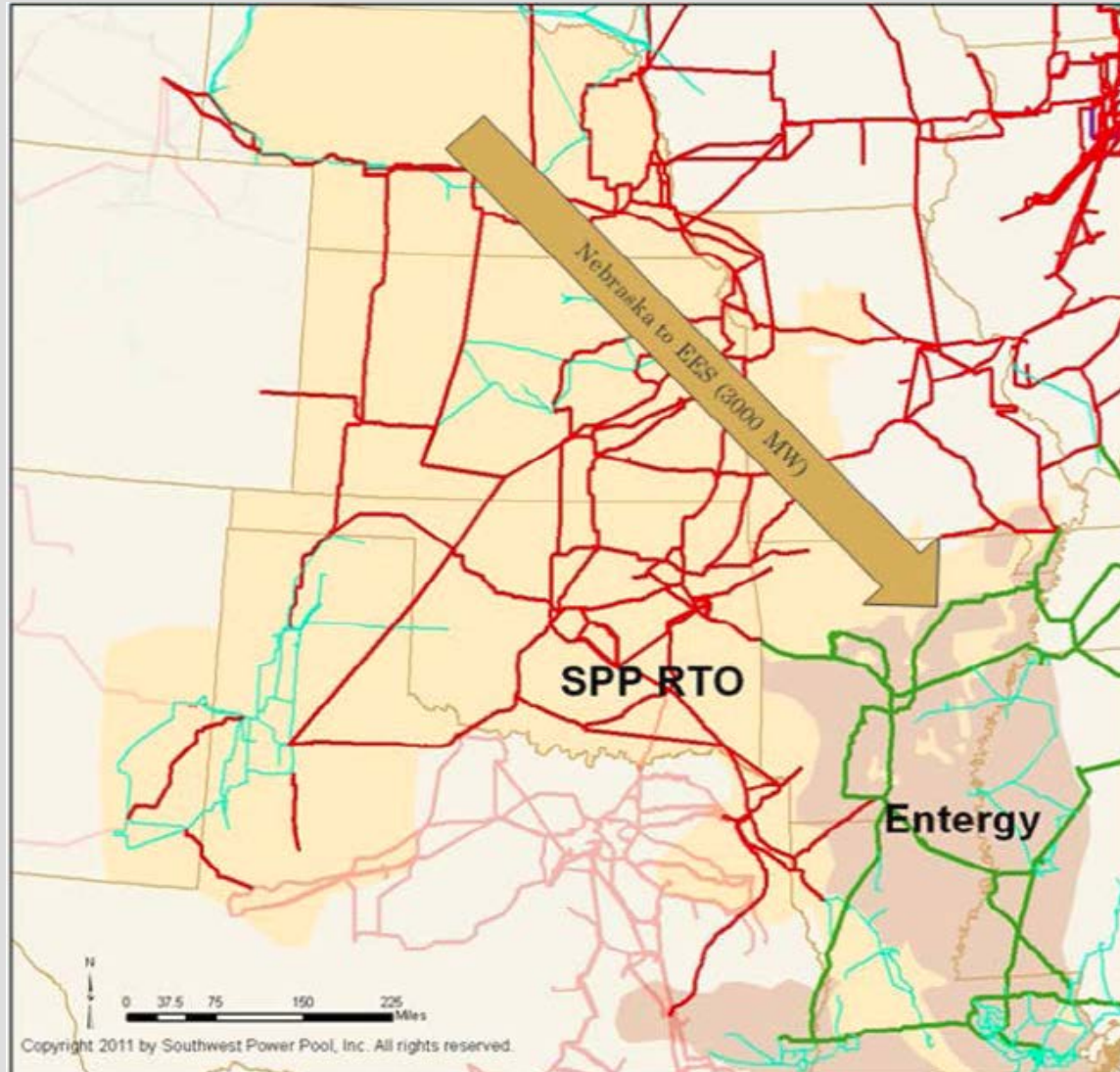
Transfers selected for Step 2 of the 2012 ESRPP

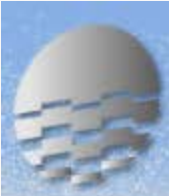
1. Entergy to EMDE 500 MW



Transfers selected for Step 2 of the 2012 ESRPP

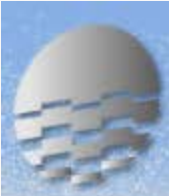
2. Nebraska to Entergy 3000 MW





Step 2 Study Procedure

- **Base Loadflow case**
 - Developed by the ICT
 - Developed from the SPP 2018S MDWG B2 case with the Entergy 2011 Series 2018S U2a case incorporated into the case. Also included recent Entergy system changes. This is the Base Case.
- **Modeling the study transfers**
 - Generators in the source subsystem will be increased in dispatch on a pro-rata basis (proportional to the $P_{max} - P_{gen}$ of each generator)
 - Generators in the sink subsystem will be reduced in dispatch on a pro-rata basis (proportional to the $P_{gen} - P_{min}$ of each generator)
 - The loadflow cases with the transfers baked in will represent the Change case
- **Contingency analysis of the resulting Change cases:**
 - Perform single contingencies for all transmission elements 100 kV and above in the following regions: Entergy, SPP, AECI and MISO
 - Monitor thermal loading on all transmission branches 100 kV and above in the following regions: Entergy , SPP, AECI and MISO
 - Monitor voltage on all buses 100 kV and above in the following regions: Entergy , SPP, AECI and MISO

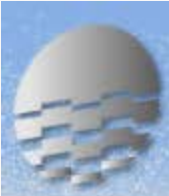


Step 2 Study Procedure

- Identification of constraints:
 - All transmission branches whose thermal loadings meet the following criteria will be identified:
 - All branches in the monitored regions whose loadings exceed 100% in the Change case
- AND
- Branches whose post-contingent loading in the Change case exceeds the post-contingent loading in the Base Case by more than 3% of the post-contingent loading in the Base Case

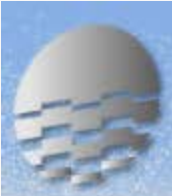
$$\frac{\text{Change case post-contingent loading} - \text{Base case post-contingent loading}}{\text{Base case post-contingent loading}} > 3\%$$

- All buses whose post-contingent voltage is less than 0.92 pu in the Change case, but not in the base case.
- All buses whose post-contingent voltage has decreased by more than 0.02 pu compared to the Base case post-contingency voltage



Step 2 Study Procedure

- **Identification of transmission solution:**
 - **Once all constraints have been identified, the transmission projects identified in corresponding Step 1 study of that transfer will be tested**
 - **Should the transmission solution set identified in Step 1 be unable to solve all constraints identified in step, then transmission projects will be identified to alleviate the remaining constraints.**
 - **Class 5 cost estimates (-50%/ + 100% accuracy) will be prepared for all identified projects.**



Estimated completion date for Step 2 Analyses

The Step 2 study results will be included in the Final 2012 ESRPP study report that is expected to be published in November, 2012.

ESRPP Next Steps

Entergy SPP RTO Regional
Planning Process
Stakeholder Meeting

August 7, 2012



ESRPP Next Steps

- **Stakeholder Comment Period**
 - **Step 1 (High-Level Analysis) Studies**
 - Please recommend project upgrades to reach requested study transfer capability
 - **Step 2 (Detailed Analysis) Studies**
 - Please review the results and provide comments when study is available

ESRPP 2012 Results

- **Post Final Results**
 - **Step 1 and Step 2 results**
 - **November 30, 2012**

Communications

- Sign up for **TWG** or **ICT SPC** email exploders
 - ESRPP Meeting Minutes
 - ESRPP Nomination Requests and Email Vote
 - ESRPP Reports
- SPP distribution list for stakeholders to send comments to SPP and Entergy personnel:

ESRPP@spp.org



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