Southwest Power Pool, Inc. − Entergy

ENTERGY SPP RTO REGIONAL PLANNING PROCESS MEETING

May 24, 2012

NET CONFERENCE

• A G E N D A •

10:00 AM – 12:00 PM

1. Administrative
   - A. Introductions ..... All
   - B. SPP Antitrust Guidelines ..... Ben Roubique
2. 2011 ESRPP Final Report ..... Eddie Filat
3. Process Overview ..... Eddie Filat
4. 2012 ESRPP Study Scope ..... Eddie Filat
5. Nominate Studies for 2012 ESRPP Cycle ..... Eddie Filat
6. Other Discussion ..... All
7. Adjourn

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

SPP Southwest Power Pool

SPP Antitrust Guidelines

May 24, 2012

Ben Roubique
broubique@spp.org · 501.614.3331

Southwest Power Pool

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.
- In particular, decisions with respect to setting, revising, or assessing compliance with SPP reliability standards should not be influenced by anti-competitive motivations.

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.

SPP Southwest Power Pool

http://www.spp.org
General Inquiries: 501-614-3200
questions@spp.org

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

SPP Southwest Power Pool

Entergy SPP RTO Regional Planning Process

May 24, 2012

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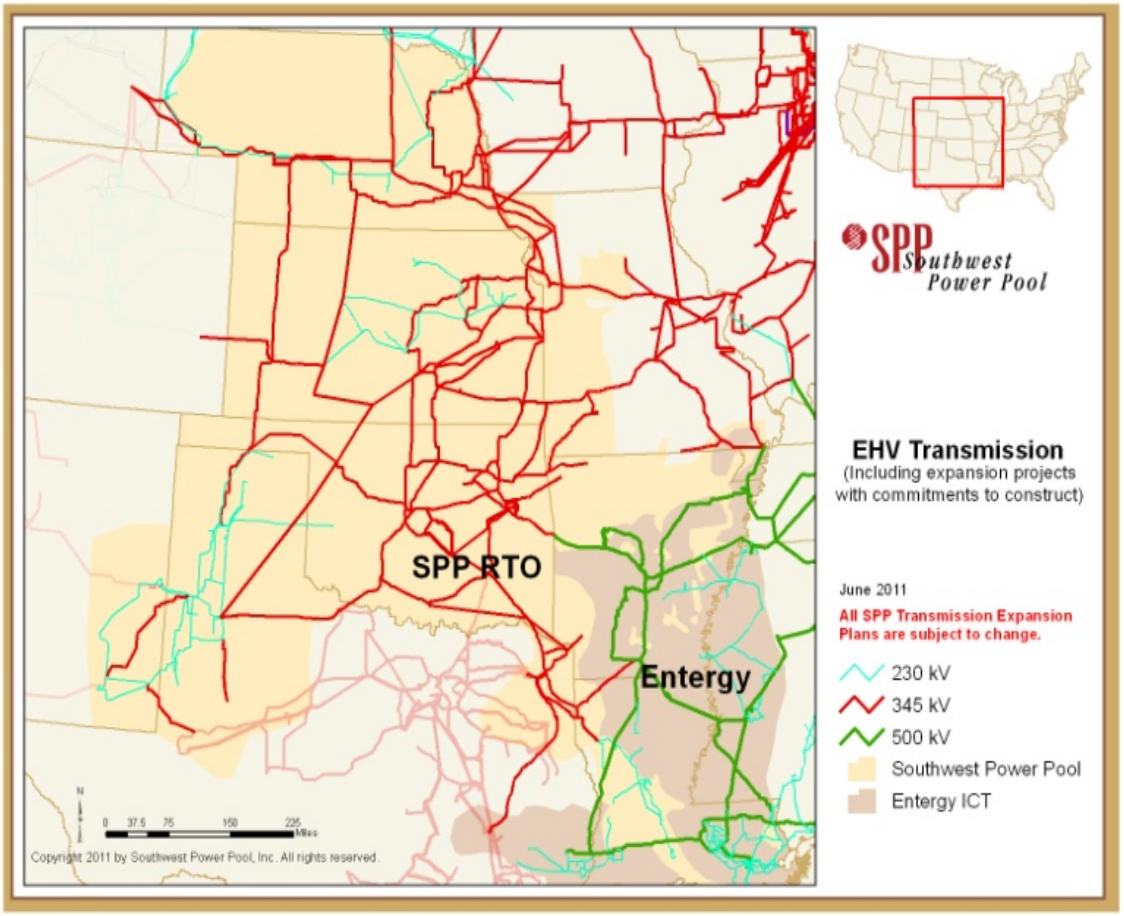
Southwest Power Pool

Entergy and SPP RTO Region



Objectives for ESRPP

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

Joint Planning Committee (JPC)

- JPC Contacts
  - SPP ICT Planning – Eddie Filat
  - SPP RTO Planning – Tim McGinnis
  - Entergy Technical Services – Samrat Datta
- JPC Roles and Responsibilities
  - Develop Study Scope
  - Perform Study Analysis
  - Coordinate Regional Stakeholder Communication

Initial Proposed Studies

- Arkansas IPPs (Hot Springs, Magnet Cove, and PUPP) to SPP South (AEP and OG&E) for 3000 MW (Step 2 Study)
- From AEPW to Entergy Arkansas for 700 MW (Step 2 Study)
- From Entergy Arkansas to AEPW for 700 MW (Step 2 Study)
- From Entergy to OG&E for 1500 MW
- From Entergy to EMDE for 500 MW
- From SPP RTO to Entergy Arkansas for 500 MW
- From Nebraska to Entergy for 3000 MW
- From Entergy to Nebraska for 3000 MW

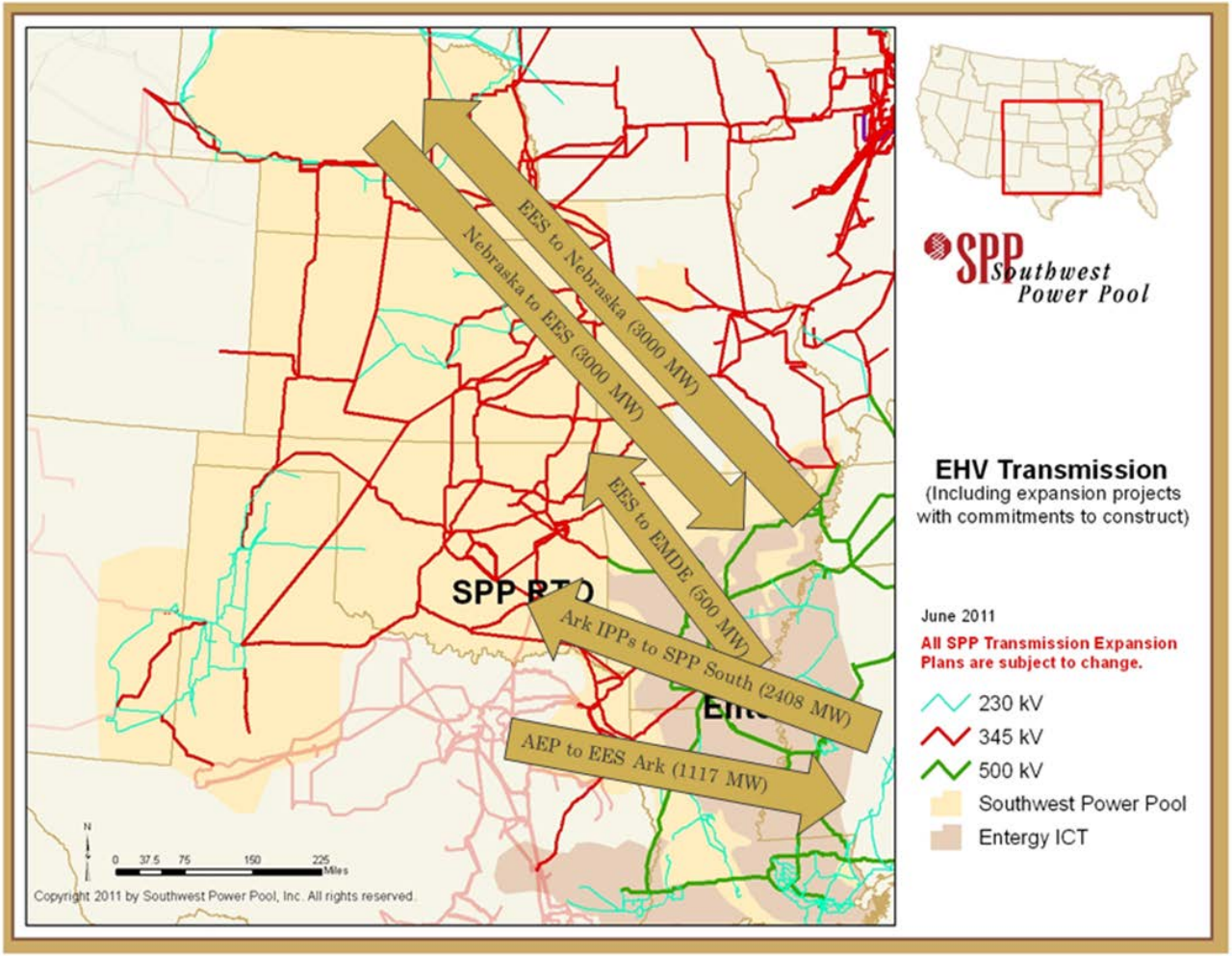
How studies were selected

- Each Regional Participant was allotted five votes
- Voting was reserved for the affected systems to the Entergy and SPP RTO seam
- 1 vote for each project or all five votes to one project

Final Five Selected Studies

- From Entergy to EMDE for 500 MW
- From Nebraska to Entergy for 3000 MW
- From Entergy to Nebraska for 3000 MW
- Arkansas IPPs (Hot Springs, Magnet Cove, and PUPP) to SPP South (AEP and OG&E) for 3000 MW (Step 2 Study)
- From AEPW to Entergy Arkansas for 700 MW (Step 2 Study)

Regional Study Overview Map



STEP 1 Studies

General Study Assumptions

- 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)

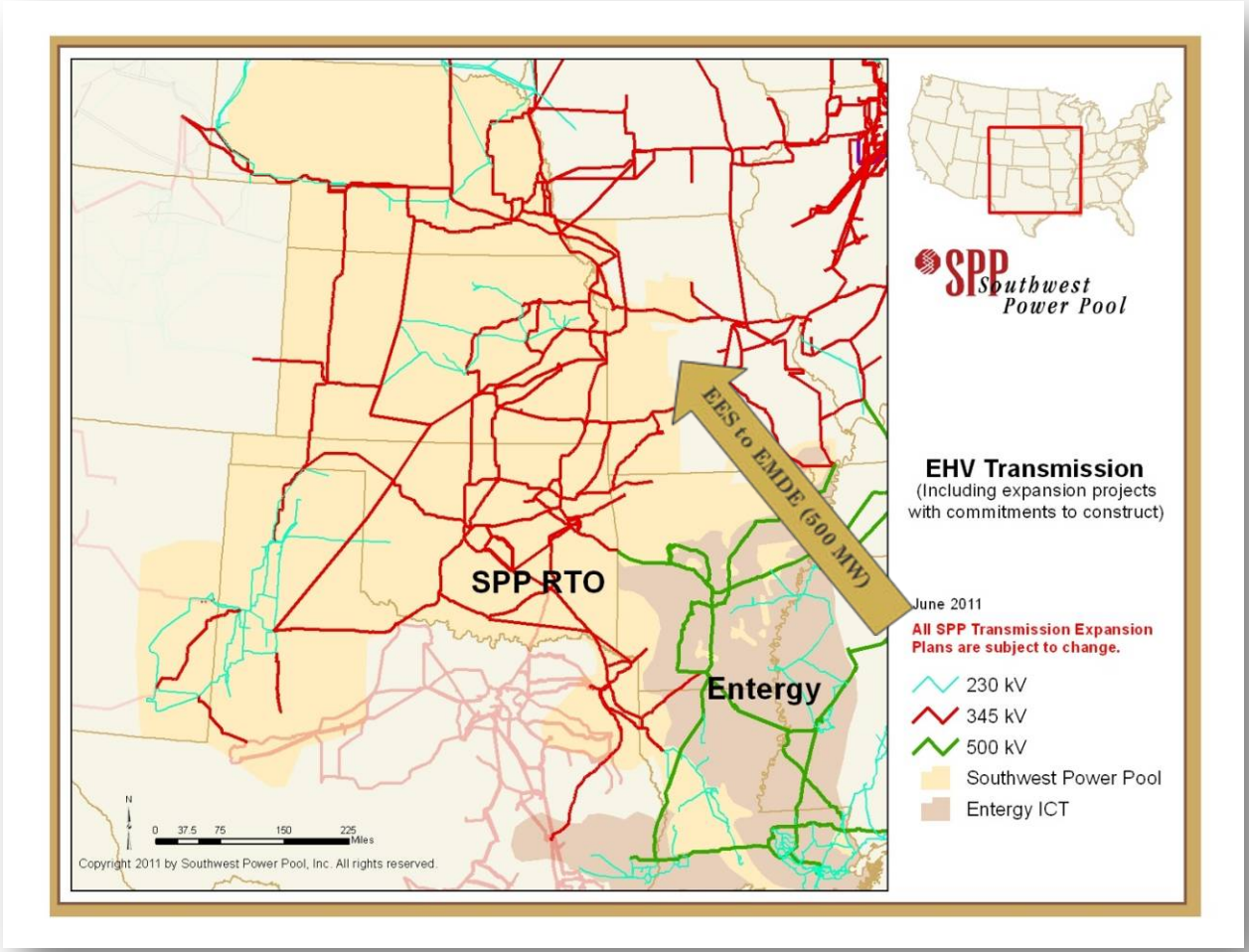
Model Assumptions

- **MDWG 2010 Series 2017 Summer Peak Model**
- **Modifications to Model**
  - **Using Entergy's 2010 series 2017 Summer Peak**
    - Added Current Entergy Generation and Loads
    - Added Entergy Topology updates
  - **Added Entergy's Approved Construction Plan Projects (2011 – 2013)**

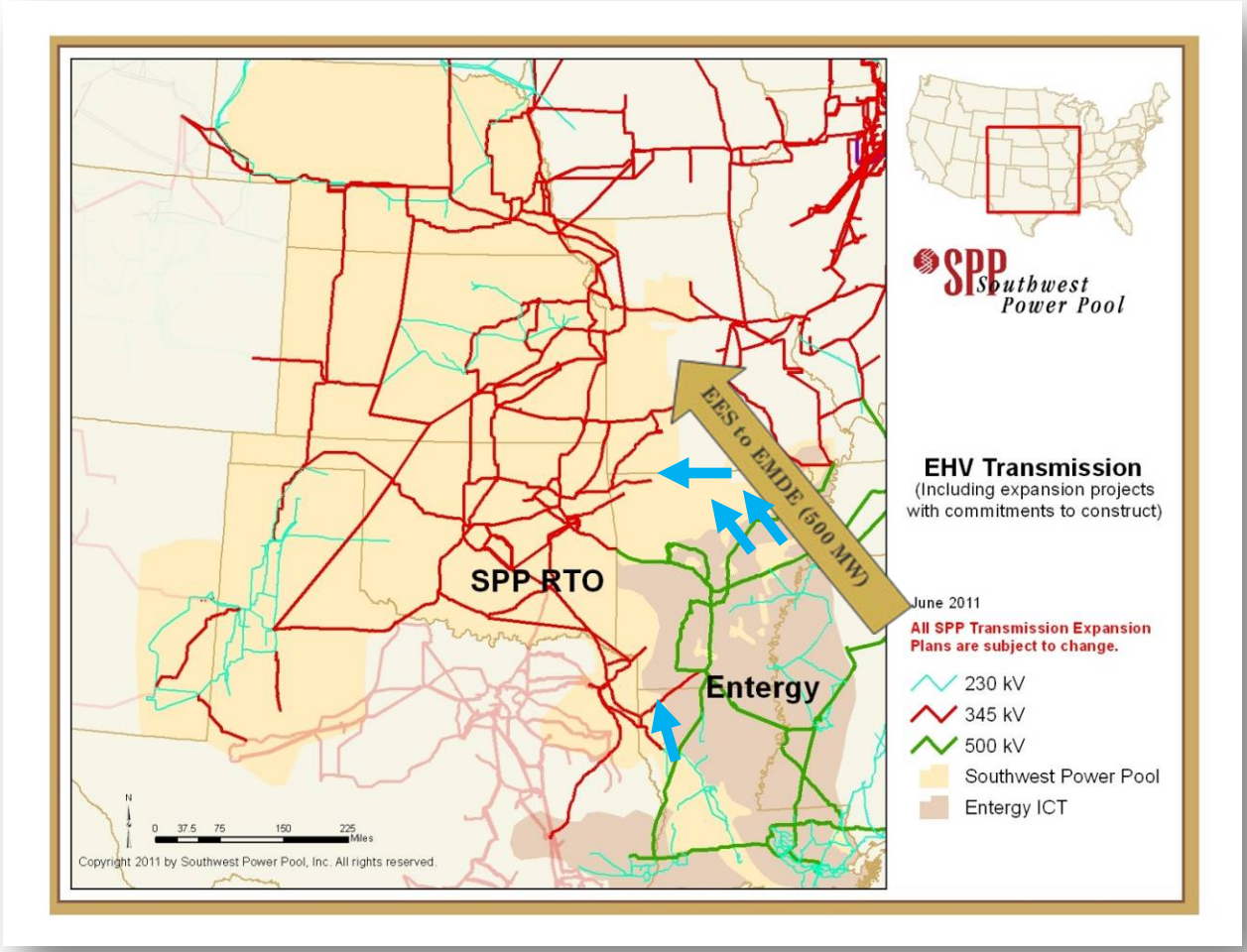
Study Assumptions

- Identical POR/POD Transfer Analyses performed for all study projects
- FCITC Changes from the Base Case were identified
- Performed Transfer analysis using PSS/MUST
- Transfer Analysis Validation
  - Joint Effort (ICT, RTO, Entergy)

Entergy to EMDE 500 MW



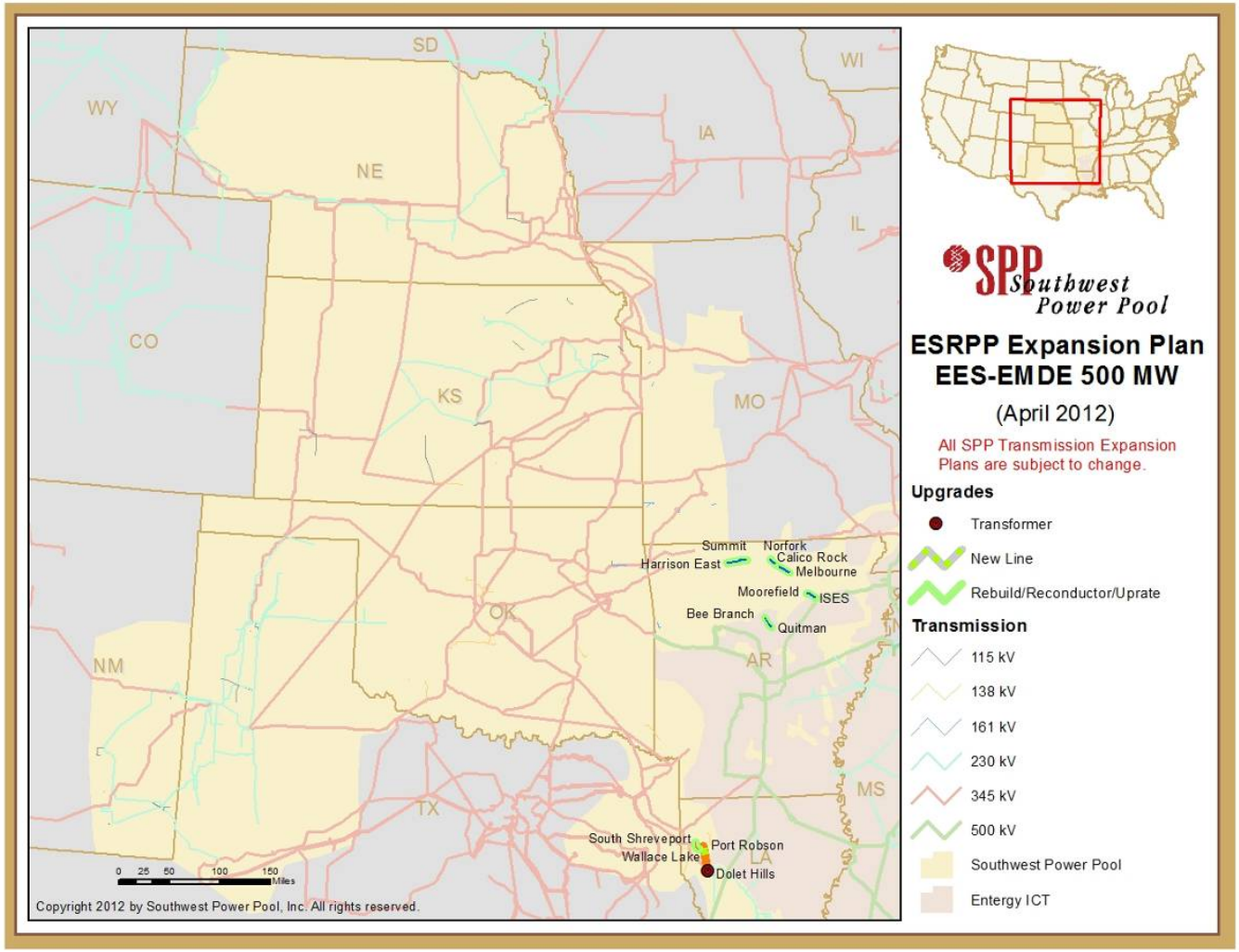
Limitations for Entergy to EMDE 500 MW



Project Descriptions-Entergy to EMDE 500 MW

- Calico Rock – Melbourne 161 kV Line
  - Reconductor Transmission Line
- Calico Rock - Norfork 161 kV Line
  - Reconductor Transmission Line
- Moorefield - ISES 161 kV Line
  - Reconductor Transmission Line
- Harrison East - Summit 161 kV Line
  - Reconductor transmission Line
- Quitman – Bee Branch 161 kV Line Uprate
  - Upgrade Switch
- Dolet Hills - Dolet Hills Auto 345 kV Line
  - Construct New transmission Line
- Dolet Hills Auto Substation 345/138 kV Line
  - Construct New 345/138 kV transformer and switching station
- Wallace Lake – South Shreveport 138 kV Line
  - Reconductor transmission Line
- Dolet Hills – Port Robson 138 kV Line
  - Construct New transmission Line

Entergy to EMDE Upgrade Projects



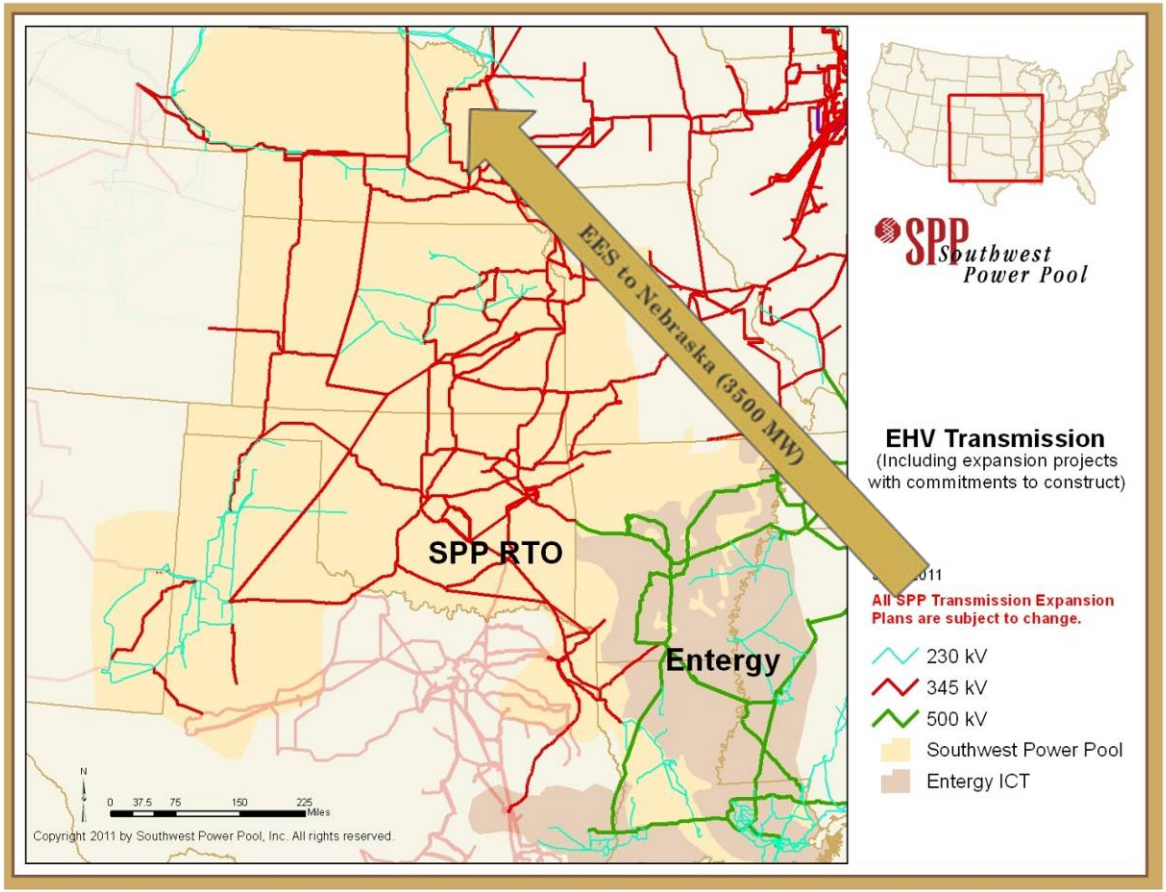
High Level Planning Cost Estimates

Description	Line Rating	Upgrade Description	ICT Cost Estimate
Melbourne-Calico Rock-Norfolk 161kV Line	372 MVA	Reconductor transmission line 8.00 miles	$11.1 M
Quitman-Bee Branch 161kV Line	223 MVA	Upgrade Switch	$.2 M
Moorefield - ISES 161kV Line	372 MVA	Reconductor transmission line 12.00 mi	$16.6 M
Dolet Hills-Dolet Hills Auto 345 kV	2560 MVA	Build new transmission line 3 miles	$4.6 M
Dolet Hills Auto Substation	675 MVA	New 345/138 kV transformer and new 345/138 kV switching station	$17.5 M
Dolet Hills-Port Robson 138 kV line	625 MVA	Build new transmission line 25 miles	$19 M
Wallace Lake-South Shreveport 138 kV line	497 MVA	Reconductor transmission line 22.00 miles	$6.3 M
Harrison East to Summit 161 kV line	223 MVA	Build new transmission line 25 miles	$51 M
Total Cost			**$126.3 M**

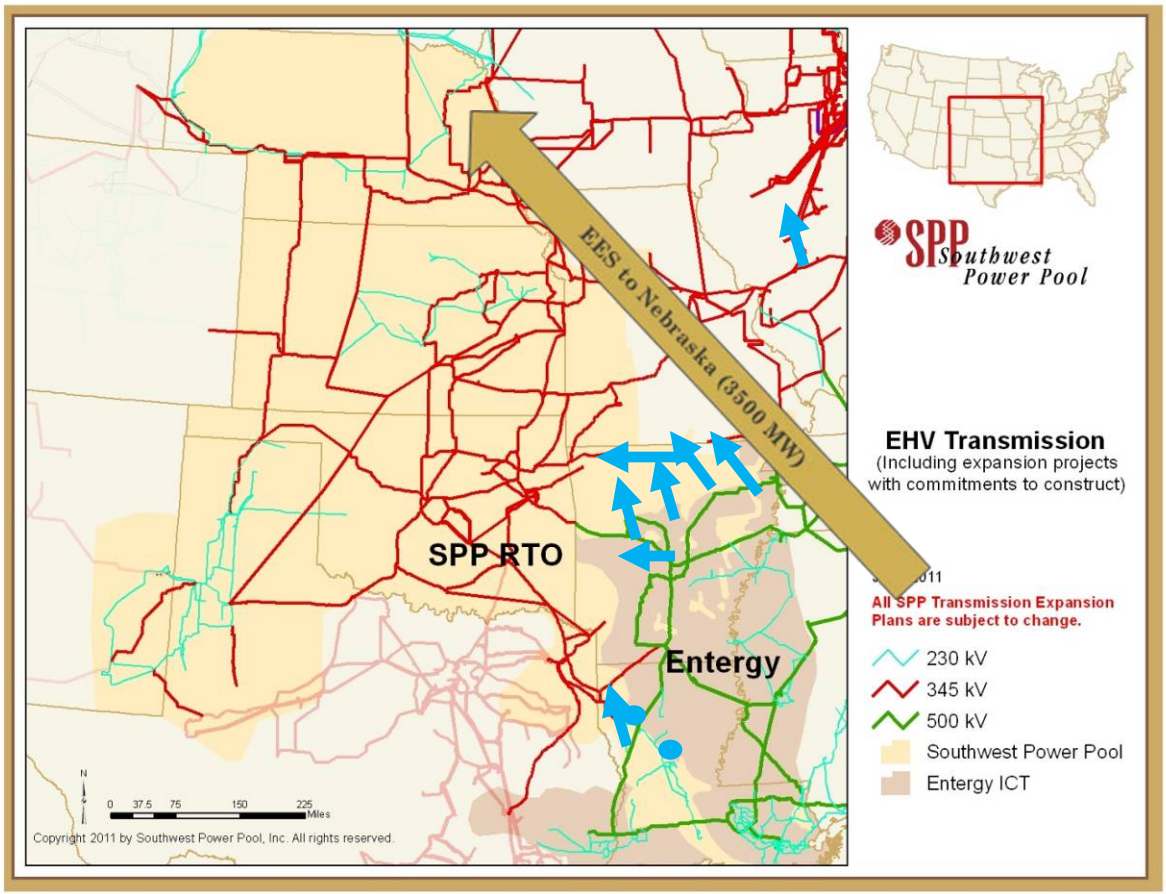
Transfer Capability Increase

Transfer	Base Case FCITC Results	Change Case FCITC Results	Difference	Cost per MW ($/MW)
Entergy - EMDE	153 MW	670 MW	517 MW	$244,139

Entergy to Nebraska 1500 MW



Limitations for Entergy to Nebraska 1500 MW



Projects Descriptions-Entergy to Nebraska 1500 MW

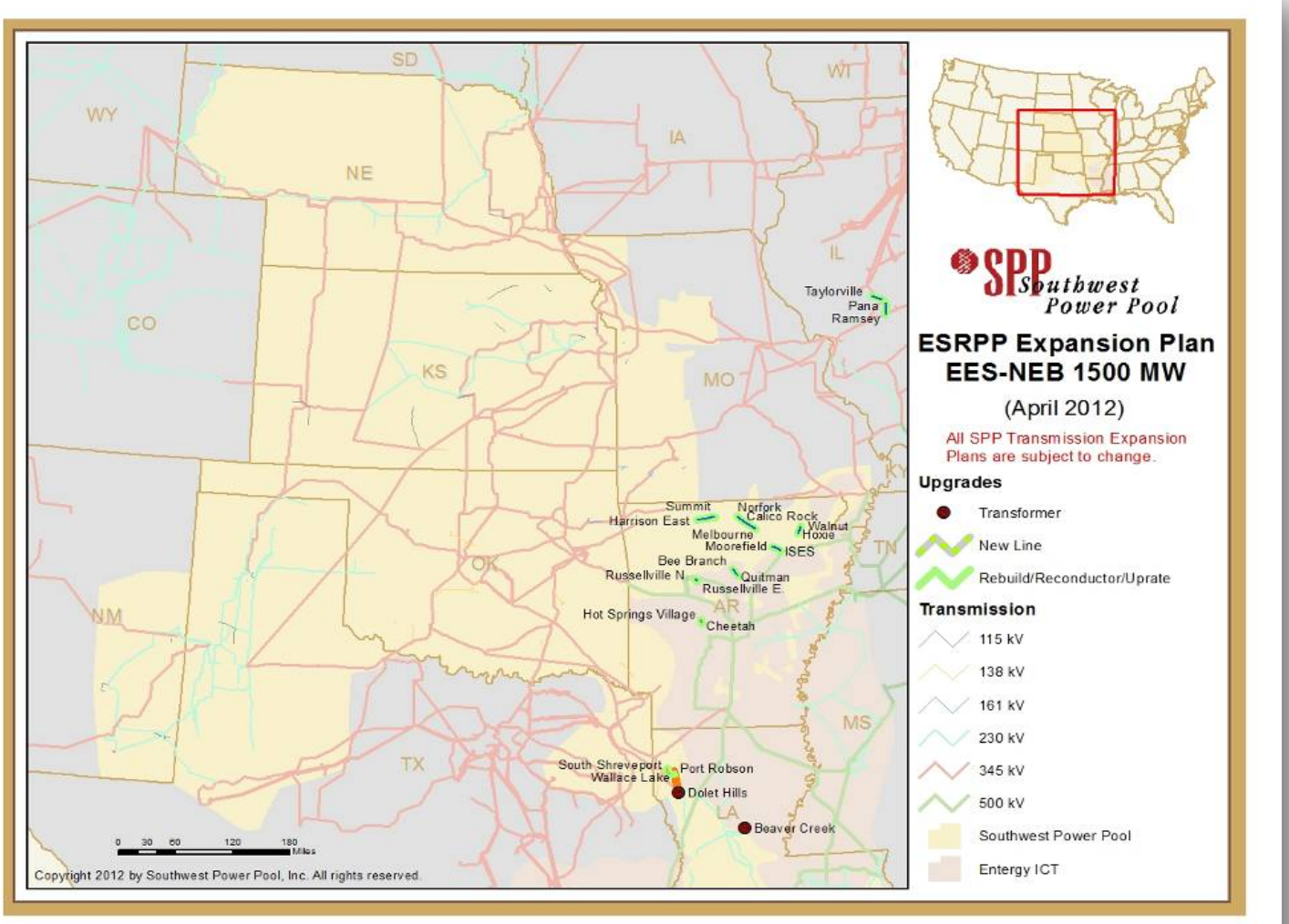
- Melbourne – Calico Rock – Norfork 161kV Line
  - Reconductor Transmission Line
- Russellville North – Russellville East 161 kV Line
  - Reconductor Transmission Line
- Cheetah – Hot Spring Village 115 kV Line
  - Reconductor Transmission Line
- Moore Field – ISES 161 kV Line
  - Reconductor Transmission Line
- Harrison East – Summit 161 kV Line
  - Reconductor Transmission Line
- Walnut – Hoxies 161 kV Line
  - Reconductor Transmission Line
- Quitman – Bee Branch 161 kV Line Uprate
  - Replace Switch

Project Descriptions Cont.

- Dolet Hills – Dolet Hills Auto 345 kV Line
  - Construct New Transmission Line
- Dolet Hills Auto Substation
  - New 345/138 kV Transformer and Switching Station
- Dolet Hills – Port Robson 138 kV Line
  - Construct New Transmission Line
- Wallace Lake – South Shreveport 138 kV Line
  - Reconductor Transmission Line
- Beaver Creek 138/115 kV Auto
  - New 138/115 kV Transformer
- Pana – Ramsey 161 kV Line
  - Reconductor Transmission Line
- Pana – Taylorville South 161 kV Line
  - Reconductor Transmission Line

Entergy to Nebraska 1500 MW

Entergy to Nebraska 1500 MW Upgrades



High Level Planning Cost Estimates

Description	Line Rating	Upgrade Description	ICT Cost Estimate
*Reconductor Melbourne to Calico Rock to Norfolk 161 kV line	335 MVA	Reconductor transmission line 24.75 miles	$34.3 M
Recondutor Russellville North to Russellville East 161 kV line	446 MVA	Reconductor transmission line 3.2 miles	$4.4 M
Recondutor Cheetah to Hot Spring Village 115 kV line	239 MVA	Reconductor transmission line 3.83 miles	$5.3 M
Recondutor Moore Field to ISES 161 kV line	372 MVW	Reconductor transmission line 11.9 miles	$16.5 M
Reconductor Harrison East to Summit 161 kV line	223 MVA	Reconductor transmission line 21.6 miles	$30 M
Reconductor Walnut to Hoxies 161 kV line	310 MVA	Reconductor transmission line 16.32 miles	$22.6 M
*Quitman to Bee Branch 161 kV line Uprate	223 MVA	Replace Switch	$.2 M

Entergy to Nebraska 1500 MW

High Level Planning Cost Estimates Cont.

Description	Line Rating	Upgrade Description	ICT Cost Estimate
Dolet Hills to Dolet Hills Auto_345kV line	2560 MVA	Build new transmission lines 3 Miles	$4.6 M
Dolet Hills Auto Substation	675 MVA	New 345/138 kV transformer and new 345/138 kV switching station	$17.5 M
Dolet Hills to Port Robson 138 kV line	625 MVA	Build new transmission line 25 miles	$19 M
Rebuild Wallace Lake-South Shreveport 138 kV line	497 MVA	Reconductor transmission line 11 miles	$6.3 M
138/115 kV Autotransformer @ Beaver Creek	93 MVA	New 138/115 kV transformer @ Beaver Creek	$2.9 M
Reconductor Pana to Ramsey 161 kV line	478 MVA	Reconductor transmission line 18 miles	$5.5 M
Reconductor Pana to Taylorville South 161 kV line	382 MVA	Reconductor transmission line 13 miles	$4.1 M
Total Cost			**$173.2 M**
***Project included in the Entergy 2012-2016 Construction Plan U1**			

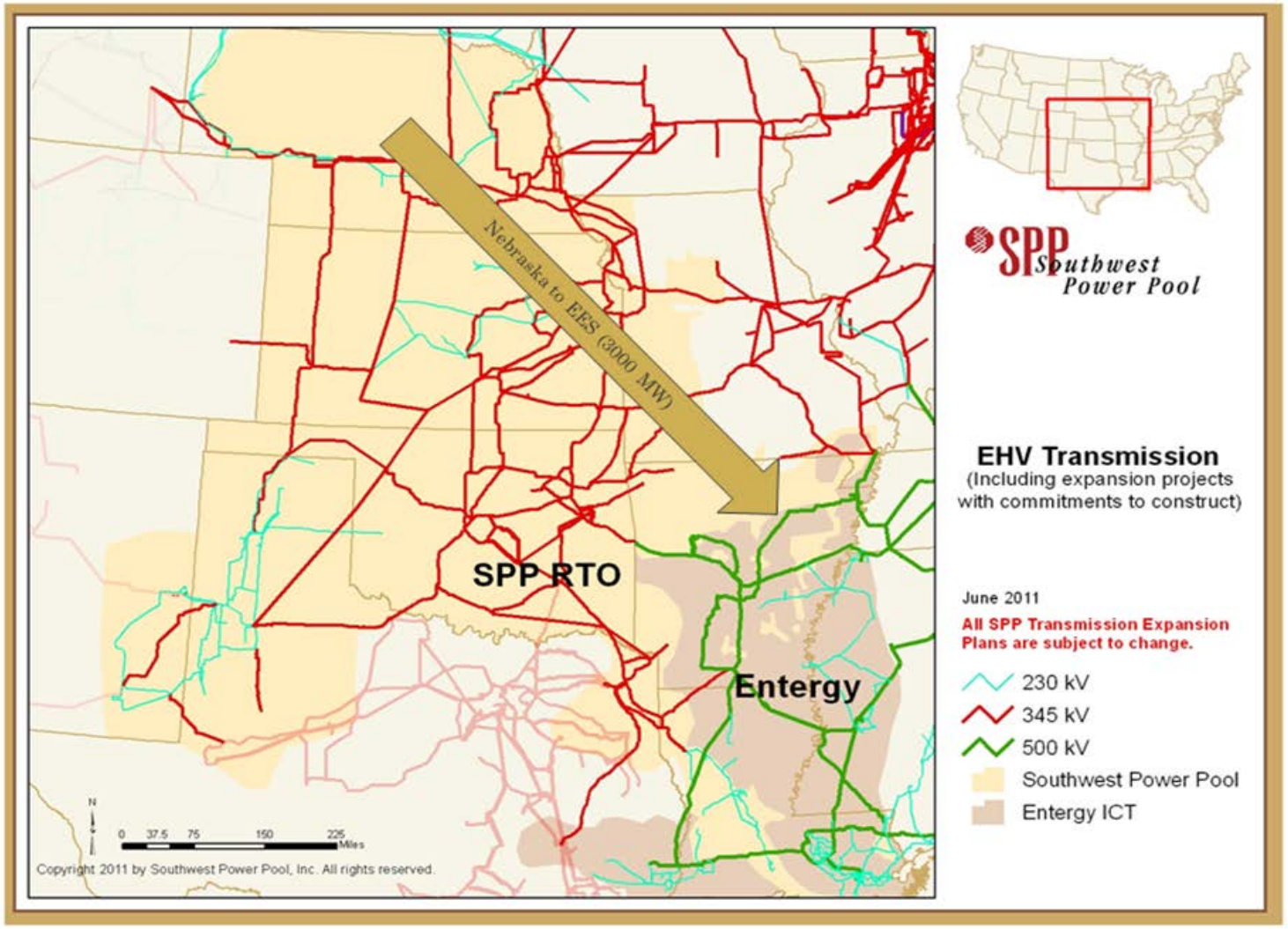
Entergy to Nebraska 1500 MW

Transfer Capability Increase

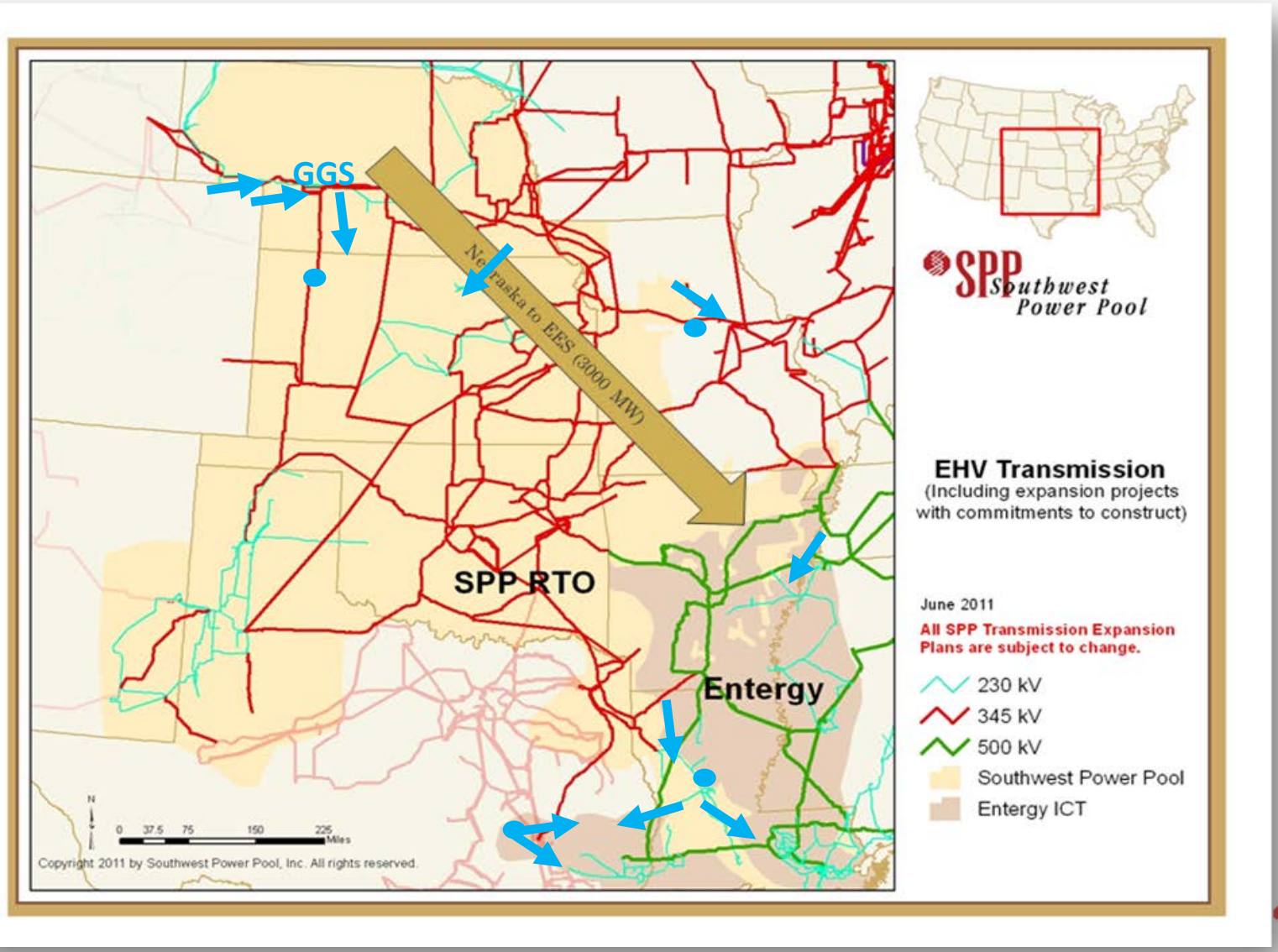
Transfer	Base Case FCITC Results	Change Case FCITC Results	Difference	Cost per MW ($/MW)
Entergy - Nebraska	242 MW	1326 MW	1084 MW	$159,644

Entergy to Nebraska 1500 MW

Nebraska to Entergy 3000 MW



Limitations for Nebraska to Entergy 3000 MW



Project Descriptions–Nebraska to Entergy 3000 MW

- Jasper – Sam Rayburn 138 kV Line
  - Reconductor Transmission Line
- Grimes – Bentwater 138 kV Line
  - Reconductor Transmission Line
- Grimes – Mt. Zion 138 kV Line
  - Reconductor Transmission Line
- Champagne - Plaisance 138 kV Line
  - Upgrade CT's and Relay Settings
- Grimes 345/138 kV Auto
  - Add 3rd Auto
- Leach - Toledo 138 kV Line
  - Reconductor Transmission Line
- Newton Bulk - Leach 138 kV Line
  - Reconductor Transmission Line

Project Descriptions Cont.

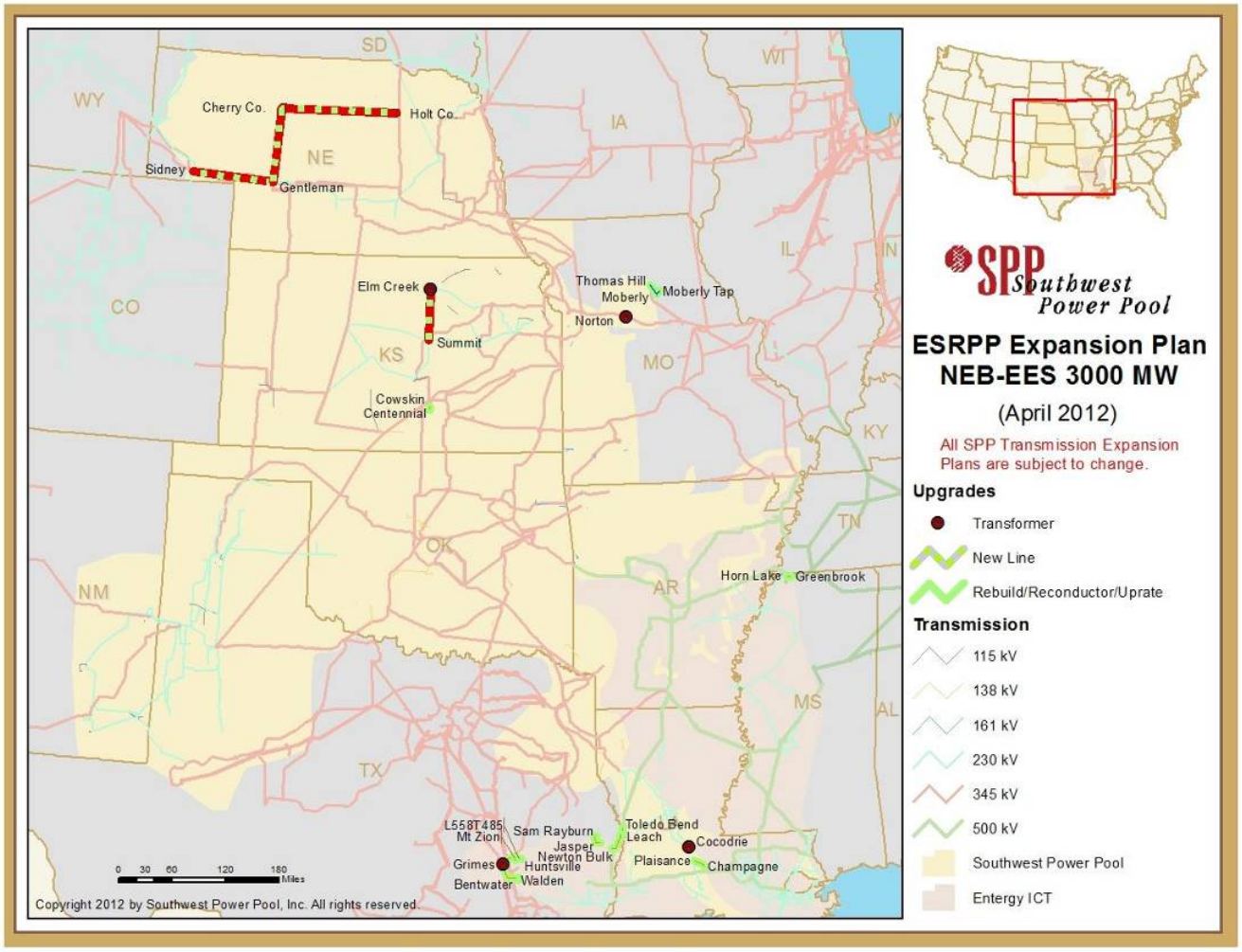
- L558T485 - Mt. Zion 138 kV Line
  - Reconductor Transmission Line
- Huntsville – L558T485 138 kV Line
  - Reconductor Transmission Line
- Greenbrook – Horn Lake 138 kV Line
  - Reconductor Transmission Line
- Bentwater - Walden 138 kV Line
  - Reconductor Transmission Line
- Cocodrie 230/138 kV Auto
  - Add 3rd Auto
- Sidney – Gentleman 345 kV Line
  - Reconductor Transmission Line
- Gentleman – Cherry County – Hold Co 345 kV Line
  - Construct New Transmission Line
- Cherry County 345 kV Substation
  - Construct New 345 kV Substation

Nebraska to Entergy 3000 MW

Project Descriptions Cont.

- Holt County 345 kV Substation
  - Construct New 345 kV Substation
- Thomas Hill – Moberly – Moberly Tap 161 kV Line
  - Reconductor Transmission Line
- Overton - Sibley 345 kV Line
  - Tap Transmission Line
- Norton 345/161 kV Substation
  - Construct New 345/161 kV Substation
- Summit – Elm Creek 345 kV Line
  - Construct New Transmission Line
- Elm Creek 345/230 kV Station
  - Add New 345/230 kV Auto and Bus Work
- Cowskin – Centennial 138 kV Line
  - Rebuild Transmission Line

Nebraska to Entergy 3000 MW Upgrades



High Level Planning Cost Estimates

Description	Facility Rating of Upgrade	Upgrade Description	Cost Estimate
Reconductor Jasper to Sam Rayburn 138 kV line	260 MVA	Reconductor transmission line 14 miles	$17.2 M
Upgrade Grimes to Bentwater 138 kV line	442 MVA	Reconductor transmission line 26 mile	$32 M
Upgrade Grimes to Mt. Zion 138 kV line	339 MVA	Reconductor transmission line 19 miles	$23.4 M
Champagne to Plaisance 138 kV line	287 MVA	Upgrade CT's and Relay settings	$.7 M
Add 3rd 345/138 kV Auto at Grimes	525 MVA	Add 3rd 345/138 kV Auto at Grimes	$10.7 M
Reconductor Leach to Toledo 138 kV line	330 MVA	Reconductor transmission line 2.26 miles	$2.8 M
Reconductor Newton Bulk to Leach 138 kV line	330 MVA	Reconductor transmission line 25.03 miles	$30.8 M
Reconductor L558T485 to Mt. Zion 138 kV line	330 MVA	Reconductor transmission line 5.35 miles	$6.6 M
Reconductor Huntsville to L558T485 138 kV line	330 MVA	Reconductor transmission line 2.25 miles	$2.8 M
Reconductor Greenbrook to Horn Lake 138 kV line	330 MVA	Reconductor transmission line 3.24 miles	$4 M
Reconductor Bentwater to Walden 138 kV line	330 MVA	Reconductor transmission line 3.89 miles	$4.8 M
Add 3rd 230/138 kV Auto at Cocodrie	425 MVA	Add 3rd 230/138 kV Auto at Cocodrie	$13.2 M

Nebraska to Entergy 3000 MW

High Level Planning Cost Estimates Cont.

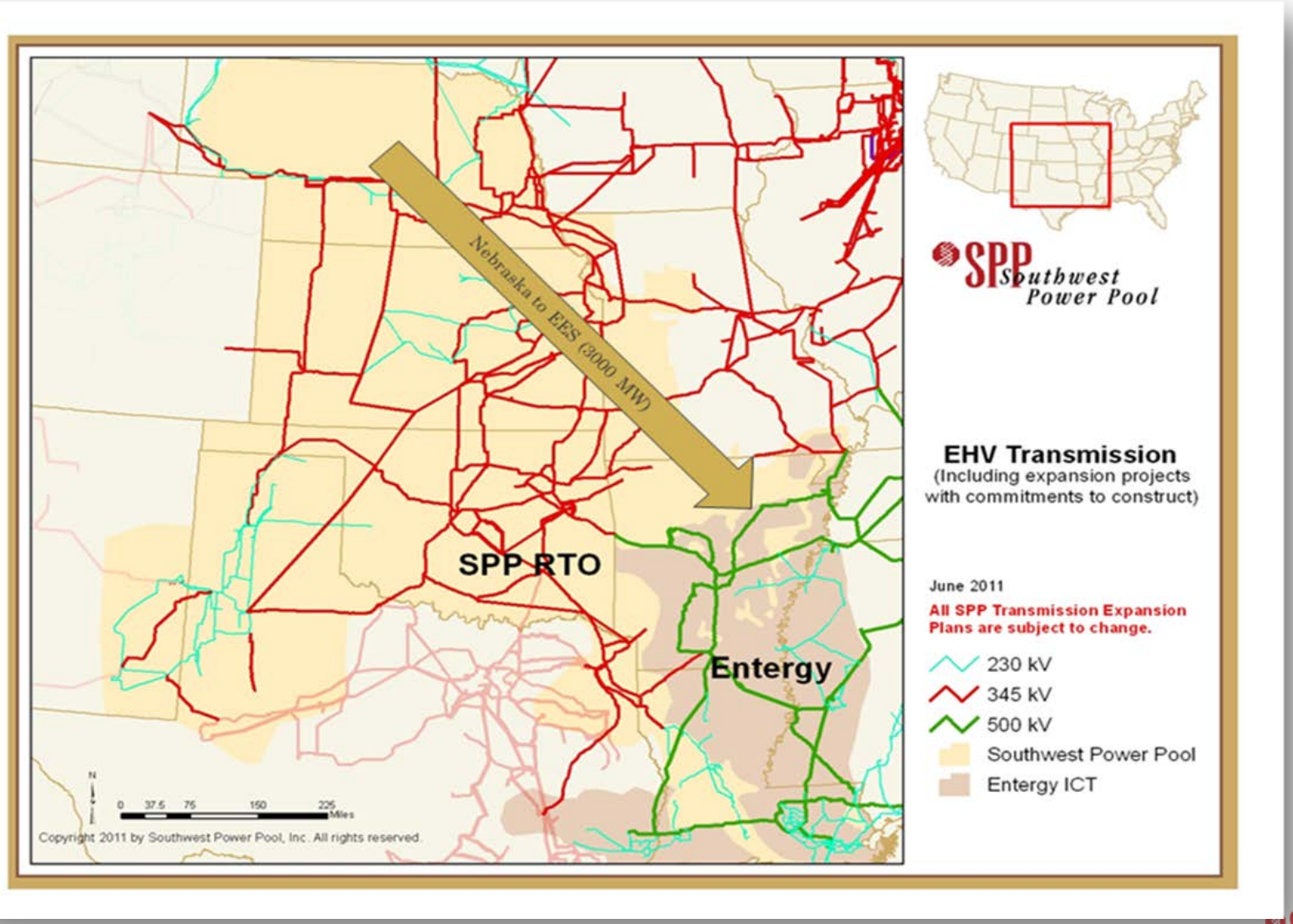
Description	Facility Rating of Upgrade	Upgrade Description	Cost Estimate
Sidney to Gentleman 345 kV line	1792 MVA	Build new transmission line 102 Miles	$158 M
Gentleman to Cherry County to Holt Co 345 kV lines	1792 MVA	Build new transmission lines 222 Miles	$266.4 M
Cherry County Substation	N/A	Construct new 345 kV substation.	$6 M
Holt Co Substation	N/A	Construct new 345 kV substation.	$16.8 M
Reconductor Thomas Hill-Moberly-Moberly Tap 161 kV line	437 MVA	Reconductor transmission line 13.5 Miles	$9.3 M
Tap Overton-Sibley 345 line, build Norton 345/161 kV substation, add new Norton 345/161 kV transformer	336 MVA	New 345/161 kV transformer and new 345/161 kV switching station	$20.7 M
Summit-Elm_Creek_345kV line	1793 MVA	Build new transmission lines 60 Miles	$90.7 M
Add 345/230 kV Auto at Elm Creek and perform bus work	600 MVA	Add 345/230 kV Auto at Elm Creek	$13.4 M
Rebuild Cowskin to Centennial 138 kV line	287 MVA	Rebuild transmission line 36.5 Miles	$3.7 M
Total Cost			**$734 M**

Nebraska to Entergy 3000 MW

Transfer Capability Increase

Transfer	Base Case FCITC Results	Change Case FCITC Results	Difference	Cost per MW ($/MW)
Nebraska - Entergy	176 MW	2935 MW	2759 MW	$266,043

Sensitivities for Nebraska to Entergy 3000 MW



Request for Supplemental Information

- ESRPP stakeholders requested additional information about the Nebraska to Entergy 3000 MW transfer
  - What areas were affected by the flow of power?
  - What additional limitations would occur if the Balanced Portfolio and Priority Projects EHV projects were not in the base case model?
- Study team provided additional tables and maps in the report

Nebraska to Entergy Source and Sink Area

Source/Sink Areas	
Area	**Generation Change (MW)**
NPPD 640	2204
OPPD 645	569
LES 650	227
EES 351	-3000

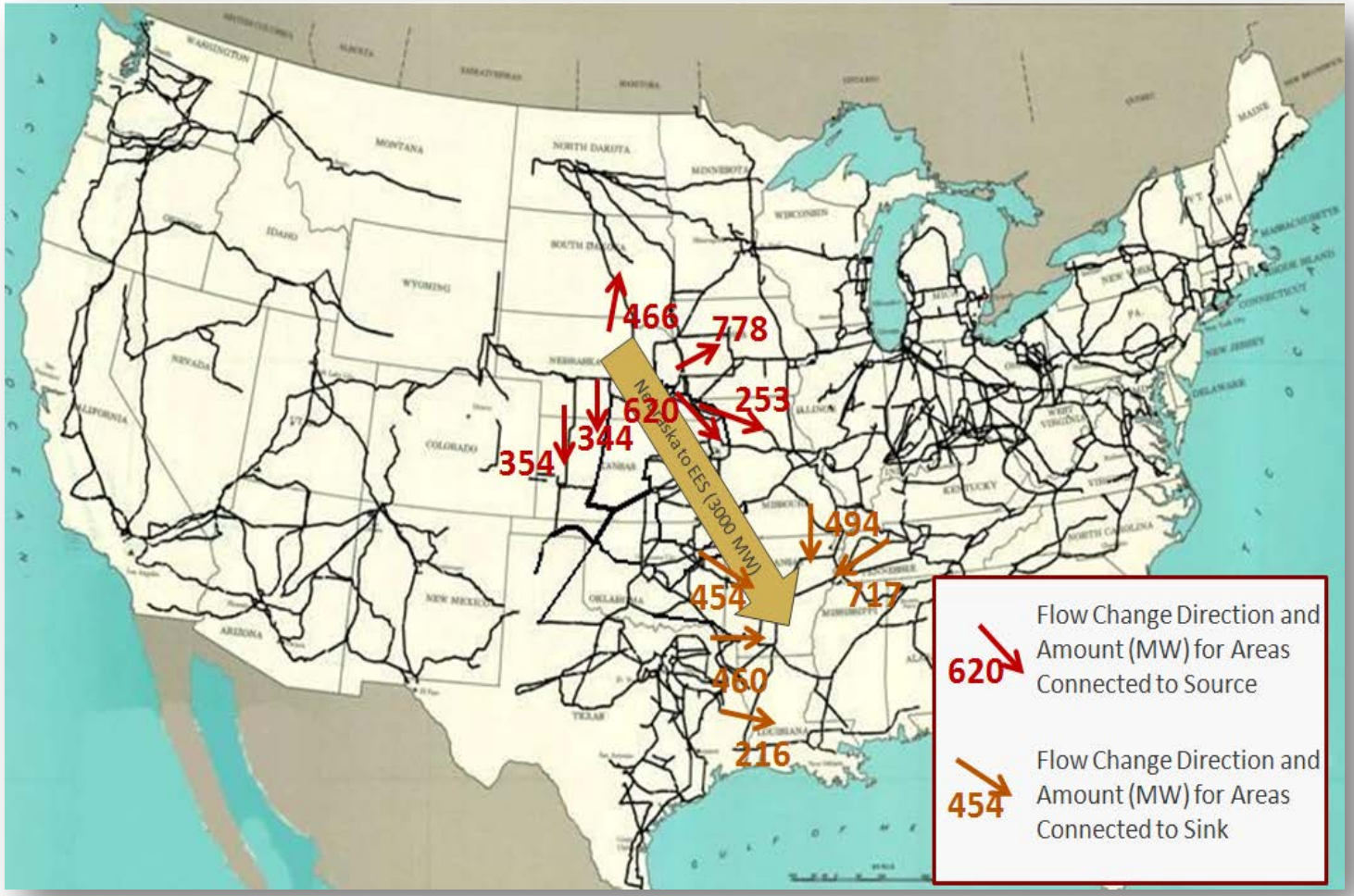
Flows out of Nebraska

Area Interchange from Nebraska Areas (3000 MW Source)		
From Area	To Area	Flow Change (MW)
NPPD 640	WAPA 652	466
NPPD 640	MEC 635	252
NPPD 640	GMO 540	361
NPPD 640	AECI 330	253
NPPD 640	MIDW 531	344
NPPD 640	SUNC 534	354
OPPD 645	MEC 635	526
OPPD 645	GMO 540	259

Flows into Entergy

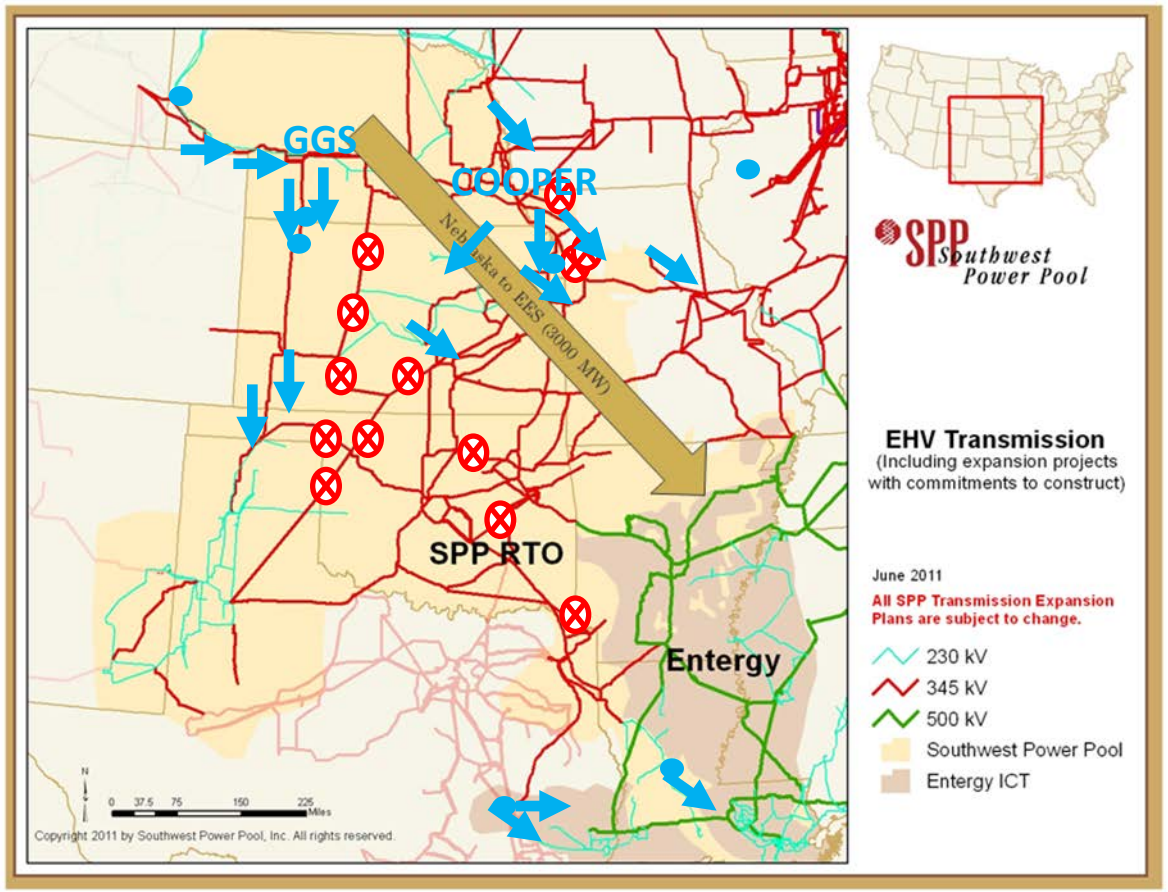
Area Interchange to Entergy (3000 MW Sink)		
From Area	To Area	Flow Change (MW)
CLEC 502	EES 351	216
AEPW 520	EES 351	460
OKGE 524	EES 351	454
AECI 330	EES 351	494
TVA 347	EES 351	717

Nebraska to Entergy Area Interchange



Nebraska to Entergy Transfer Limitations

– **What additional limitations would occur if the Balanced Portfolio and Priority Projects EHV projects were not in the base case model?**

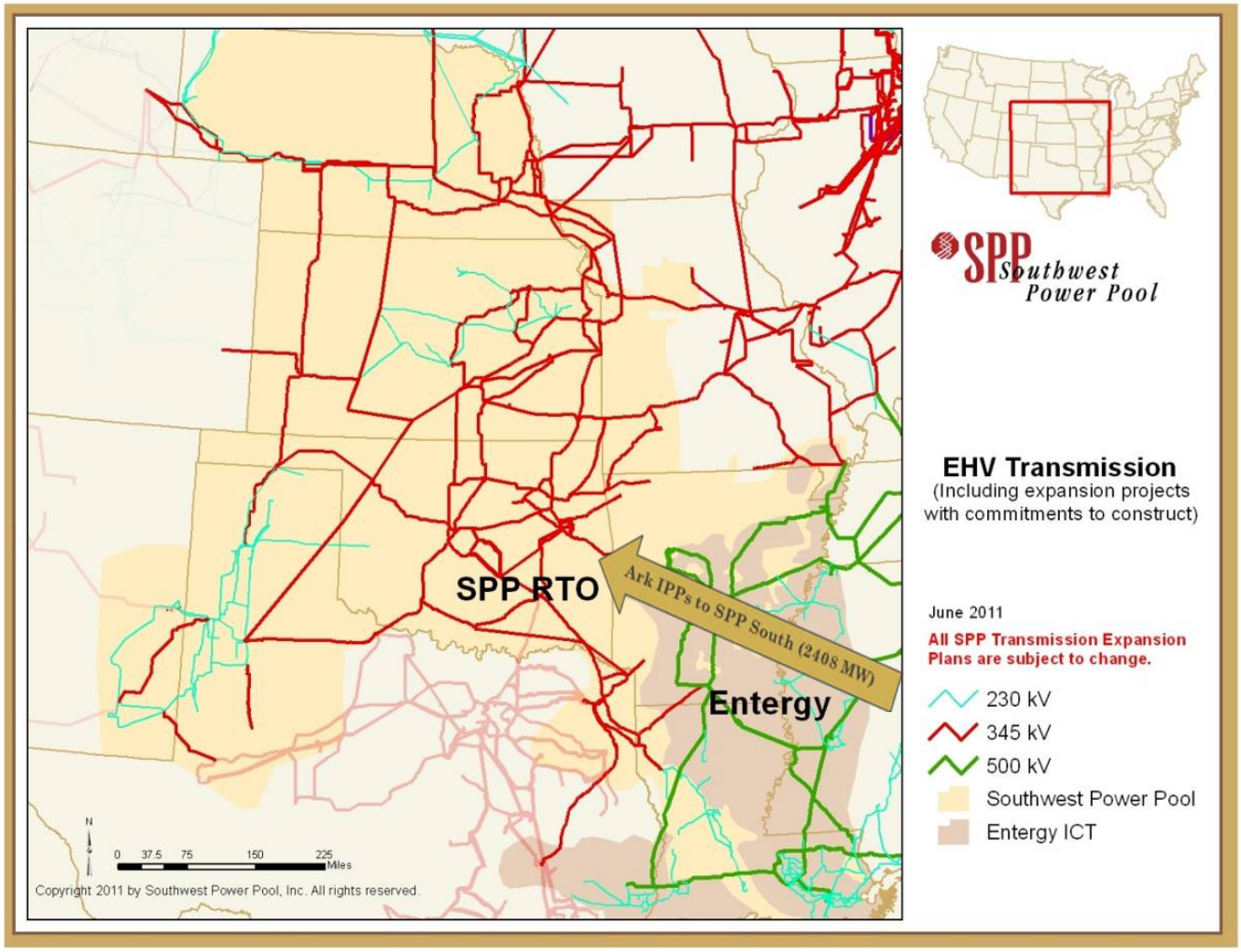


Nebraska to Entergy Sensitivity Conclusions

- **What areas were affected by the flow of power?**
  - Not all the power flows through the SPP region when power is transferred from Nebraska to Entergy
  - Instead, some of the power flows through other regions such as WAPA, MISO, AECI, and TVA
- **What additional limitations would occur if the Balanced Portfolio and Priority Projects EHV projects were not in the base case model?**
  - 38 more transfer limitations for the 3000 MW transfer from Nebraska to Entergy without these 345 kV projects
  - Many of these additional transfer limitations were concentrated in the Kansas City area

STEP 2 Studies

Arkansas IPPs – SPP South Step 2 Study



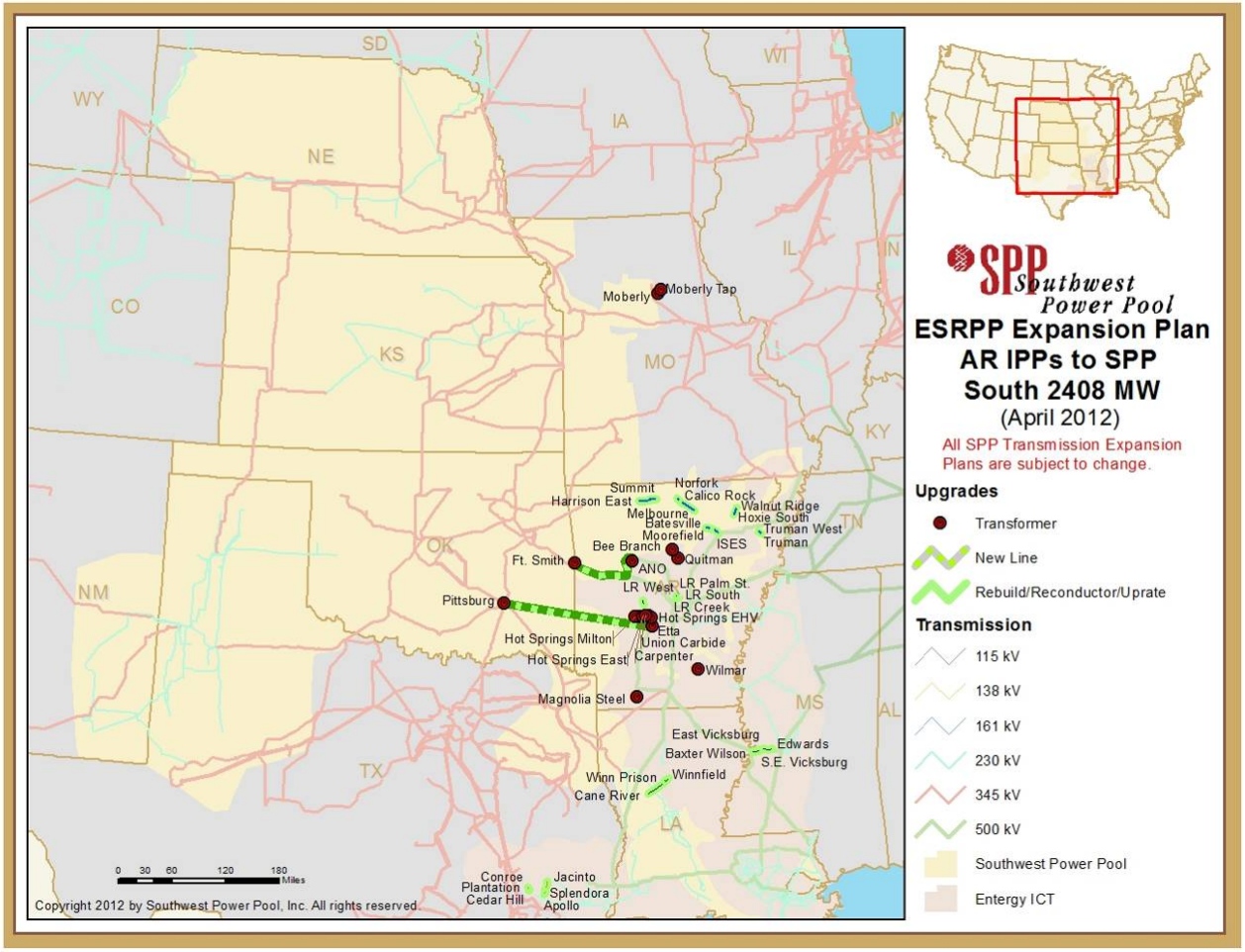
Project Descriptions Arkansas IPPs – SPP South Step 2 Study

- 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
- Add 10.4 MVAR Capacitor bank at Magnolia Steel
- Upgrade Gibson Transformer to 84 MVA unit
- Upgrade Stigler Transformer to 84 MVA unit
- Upgrade Gobbler Knob Transformer to 84 MVA unit

Project Descriptions Arkansas IPPs – SPP South Step 2 Study Cont.

- Tap Overton-Sibley 345 kV Line, build Norton 345/161 kV substation
- Replace 1200A disconnect switches to increase Moberly Tap-Moberly 161 kV Line (372 MVA rating)
- Upgrade South River Transformers to 112 MVA units
- Upgrade West Plain Transformers to 112 MVA units
- Construct Dolet Hills-Port Robson 138 kV Line (28 miles), Dolet Hills 345/138 kV autotransformer, and rebuild Wallace Lake-South Shreveport 138 kV Line (11 miles)

Arkansas IPPs – SPP South Projects



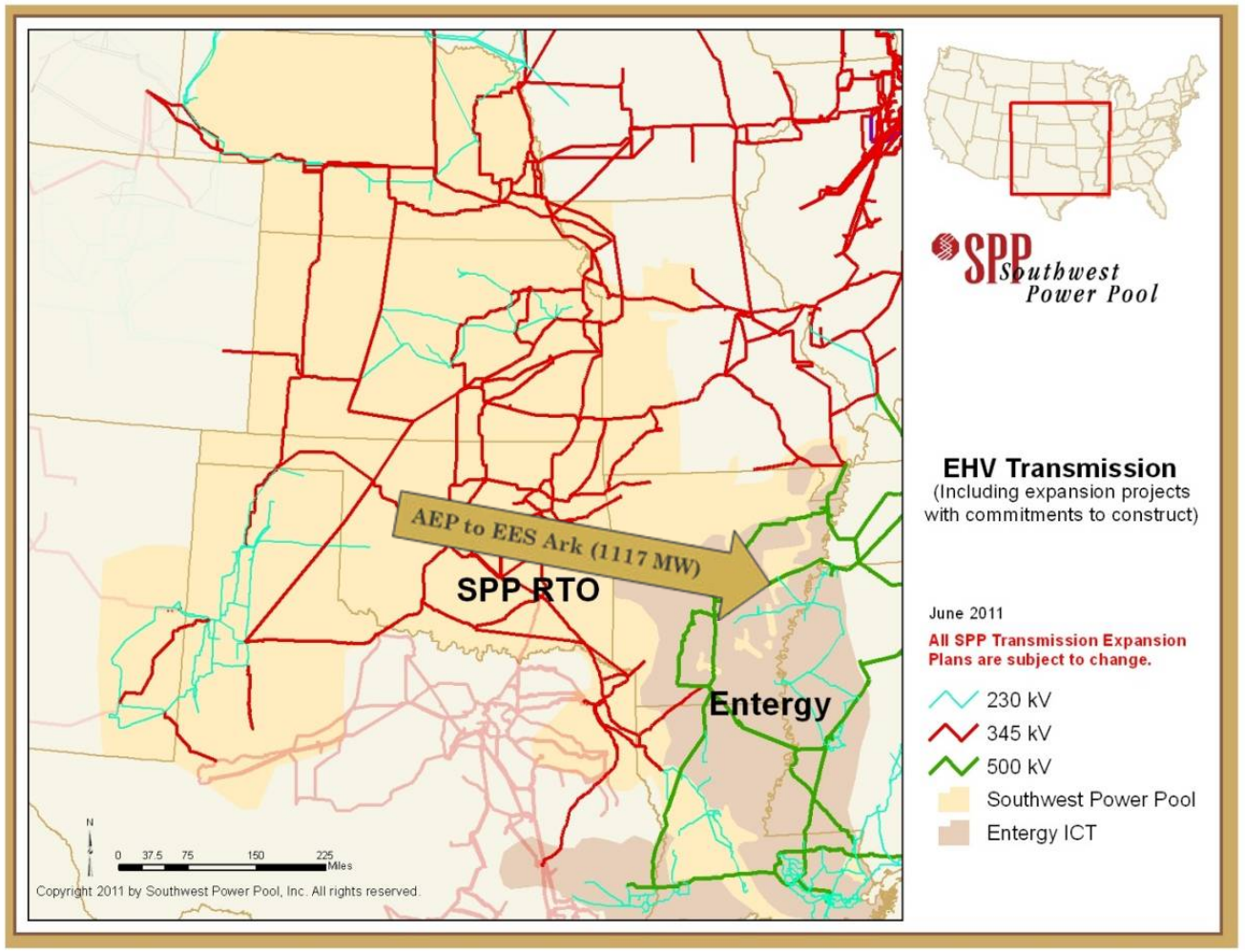
Arkansas IPPs – SPP South Cost

S. No	Name of the Project	Estimate
1	Construct Etta to Pittsburg 500 kV line	$196,430,000
1A	Provide new 500 kV terminal at Etta	$9,625,000
2	Install two 500/345 kV autos at Pittsburg.	$30,380,000
2A	Provide new 500 kV Ring bus at Pittsburg	$13,540,000
3	Construct 2nd ANO to Fort Smith 500kV line	$191,800,000
3A	Provide new 500 kV Terminal at ANO	$9,549,000
4	Install 2nd 500/345 kV Auto at Fort Smith	$15,190,000
5	Upgrade RSS – Pecan Creek 345 kV line	$305,000
6	Upgrade Calico Rock to Norfork 161 kV section	$6,375,000
7	Upgrade Melbourne to Calico Rock 161 kV section	$12,665,000
8	Upgrade Quitman to Bee Branch 161 kV terminal equipment	$131,000
9	Upgrade Cheetah to Hot Springs Village 115 kV section	$14,297,000
10	Construct new 115 kV line from Hot Springs Hamilton to Carpenter Dam (239 MVA)	$8 016,000
10A	Construct new Hot Springs Hamilton Substation	$3,776,000
10B	Construct new 115 kV Terminal at Hot Springs Milton (176 MVA)	$47,000
10C	Construct new 115 kV line from HS Milton to HS Hamilton	$7,796,000
10D	Construct new 115 kV terminal at Carpenter Dam	$4,123,000
10F	Upgrade Mt Pine to Breaker Station	$4,644,000
11	Upgrade Cedar Hill to Plantation 138 kV section.	$2,098,000
12	Upgrade Plantation to Conroe 138 kV section.	$3,148,000
13	Upgrade Truman to AECC Truman West 161 kV section	$6,388,000
14	Upgrade East Vicksburg to Edwards 115 kV section. (Cost includes TGU for EMI)	$16,926,000
15	Upgrade Little Rock South to Little Rock Creek 115kV section	$4,760,000

Arkansas IPPs – SPP South Cost Cont.

S. No	Name of the Project	Estimate
16	Upgrade terminal equipment on Hot Springs Industrial to Hot Springs Union Carbide 115kV section	$398,000
17	Upgrade terminal equipment on Hot Springs EHV to Hot Springs Industrial 115kV section	$111,000
18	Upgrade Jacinto to Splendora 138 kV section	$11,475,000
19	Upgrade Splendora to Apollo 138 kV section	$2,241,000
20	Upgrade Baxter Wilson to South East Vicksburg 115kV section. (Cost includes TGU for EMI)	$7,417,000
21	Upgrade Little Rock West to Little Rock Palm Street 115 kV section	$5,070,000
22	Upgrade terminal equipment on Hot Springs Union Carbide to Hot Springs East 115kV section	$93,000
23	Upgrade Harrison East to Summit 161 kV section	$17,004,000
24	Upgrade ISES to Moorefield 161 kV section	$3,501,000
25	Upgrade Moorefield to Batesville 161 kV section	$3,480,000
26	Upgrade Walnut Ridge to Hoxie South 161 kV section	$5,500,000
27	Upgrade Cane River to Winn Prison 115 kV section	$10,447,000
28	Upgrade Winn Prison to Winnfield 115 kV section	$4,773,000
29	Add 10.4 MVAR Capacitor bank at Magnolia Steel	$1,000,000
30	Add 20.4 MVAR capacitor bank at Wilmar	$832,000
31	Upgrade Stigler transformer to 84 MVA unit	$2,604,000
32	Upgrade Gobbler Knob transformers to 84 MVA units	$5,208,000
33	Tap Overton-Sibley 345 line, build Norton 345/161 kV sub	$20,730,000
34	Moberly-Moberly Tap 161kV line: Replace 1200A disconnect switches to increase rating to conductor rating of 372 MVA	$155,000
35	Upgrade South River transformers to 112 MVA units	$6,944,000
36	Upgrade West Plain transformers to 112 MVA units	$6,944,000
Total for all Projects in the Entergy footprint		**$677,936,000**

AEPW – Entergy Arkansas Step 2 Study



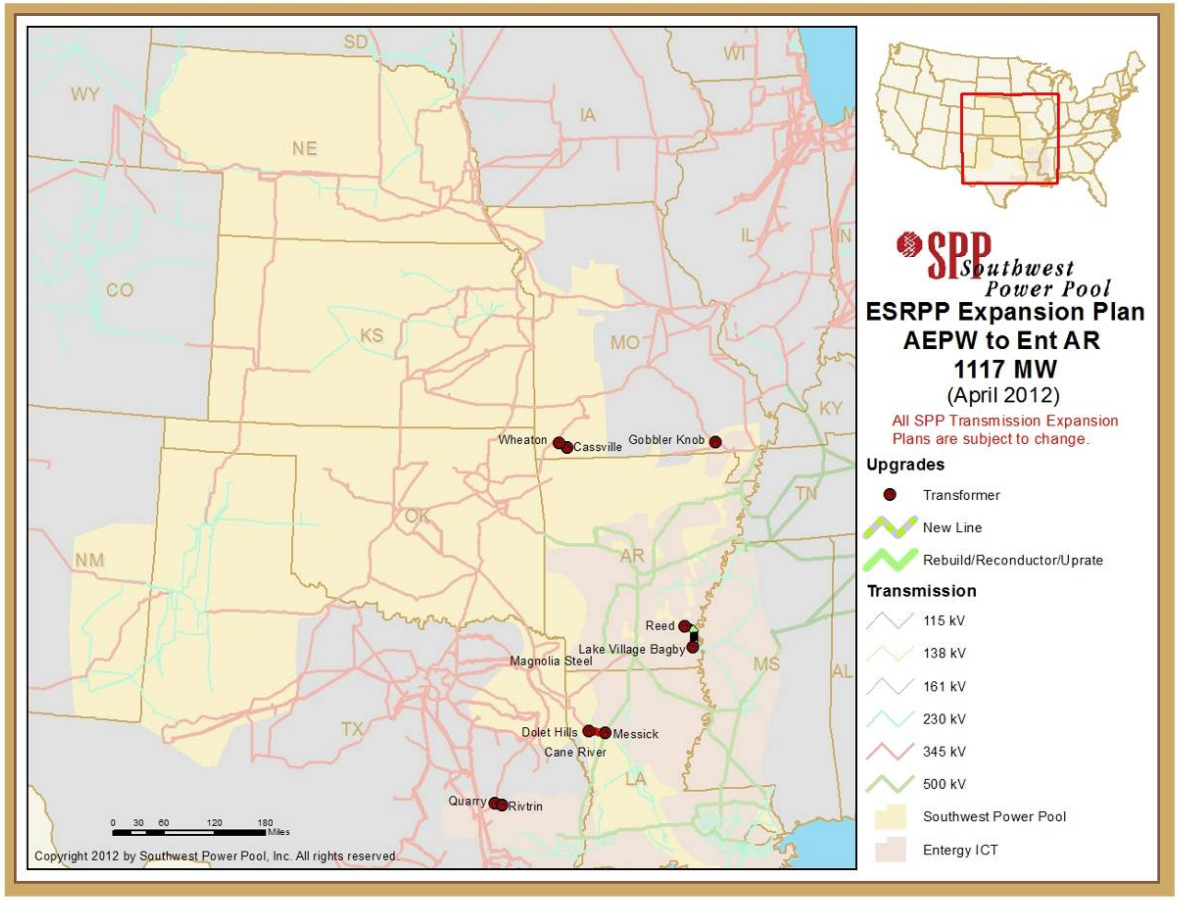
AEPW – Entergy Arkansas Step 2 Study Projects

- Messick Substation
  - 500 kV Switch Station
  - 500/239 kV Transformer
  - 500/345 kV Transformer
  - Ties into Mt. Olive – Hartburg 500 kV Line
- Dolet Hills - Messick 345 kV Line (26.4 miles)
- Quarry 345 kV Substation
  - 345 kV Switch Station
  - 345/138 kV Transformer
  - Ties into Grimes – Crockett 345 kV Line
- Quarry – Rivtrin 345 kV Line (8.25 miles)

AEPW – Entergy Arkansas Step 2 Study Projects Cont.

- Construct 230 kV line from Lake Village Bagby – Reed (operate at 115 kV)
- Install 10.4 MVAR Capacitor bank at Reed
- Build 345/161 kV Substation near Wheaton, rebuild the Wheaton – Cassville 69 kV Line as double circuit 161 kV over 69 kV (15 miles), install a 112 MVA 161/69 kV Transformer at Cassville, and install a second 56 MVA 161/69 kV transformer at Cassville
- Upgrade Gobbler Knob Transformers to 84 MVA units

AEPW – Entergy Arkansas Projects



AEPW – Entergy Arkansas Project Cost

S. No	Name of Project	Estimate
1	Construct Quarry 345 kV switch station	$14,375,000
2	Install 345/138 kV Auto at Rivitrin, Add 138 kV terminal, Add 345 kV terminal	$33,079,000
3	Construct Quarry to Rivtrin 345 kV line	$20,687,000
4	Construct 500 kV Messick switching station	$3,473,000
5	Install 500/230 kV Auto at Messick switching station	$3,473,000
6	Install 500/345 kV Auto at Messick switching station	$5,377,000
7	Construct Dolet Hills to Messick 345 kV line	$109,480,000
7A	Install Dollet Hills 345 kV terminal	$3,020,000
8	Construct 230 kV line from Lake Village Bagby to Reed Switch Station but operated at 115 kV	$34,544,000
8a	Install new 115 kV terminal at LV Bagby	$1,789,000
8b	Convert Reed to a breaker station	$6,228,000
9	Build a 345/161 kV sub near Wheaton, rebuild the Wheaton-Cassville 69 kV line as double circuit 161 over 69 kV (approximately 15 miles), install a 112 MVA 161/69 kV transformer at Cassville	$33,962,000
10	Upgrade Gobbler Knob transformers to 84 MVA units	$5,208,000
11	10.4 Mvar Capacitor bank at Reed	$1,000,000
Total for all Projects		**$275,695,000**

Summary

- ESRPP 2011 Report is posted on Entergy's OASIS:

  http://www.oatioasis.com/EES/EESDocs/2010_ESRPP_Step_1_Report_4-4-2011_Final.pdf

- 2012 ESRPP Study
  - Any Step 1 studies from the 2011 cycle can be selected for a Detailed Step 2 Analysis

Questions

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

SPP Southwest Power Pool

2012 Entergy SPP RTO Regional Planning Process Overview

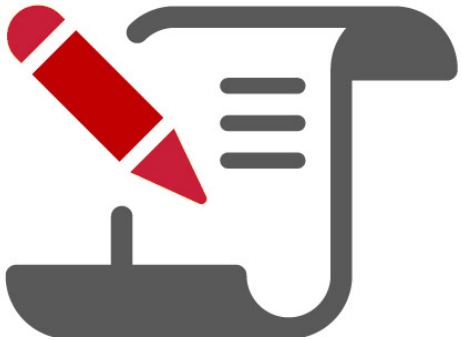
May 24, 2012

Eddie Filat
efilat@spp.org · 501.688.1708

SPP Southwest Power Pool

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 VIII Interregional 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

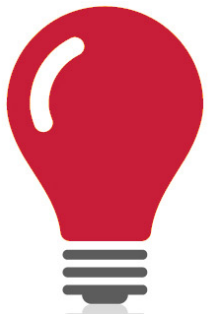
     b) Identifying system enhancements that could relieve interregional congestion or integrate new resources on an aggregate basis.

  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 interregional studies that should be initiated by the Transmission Provider.

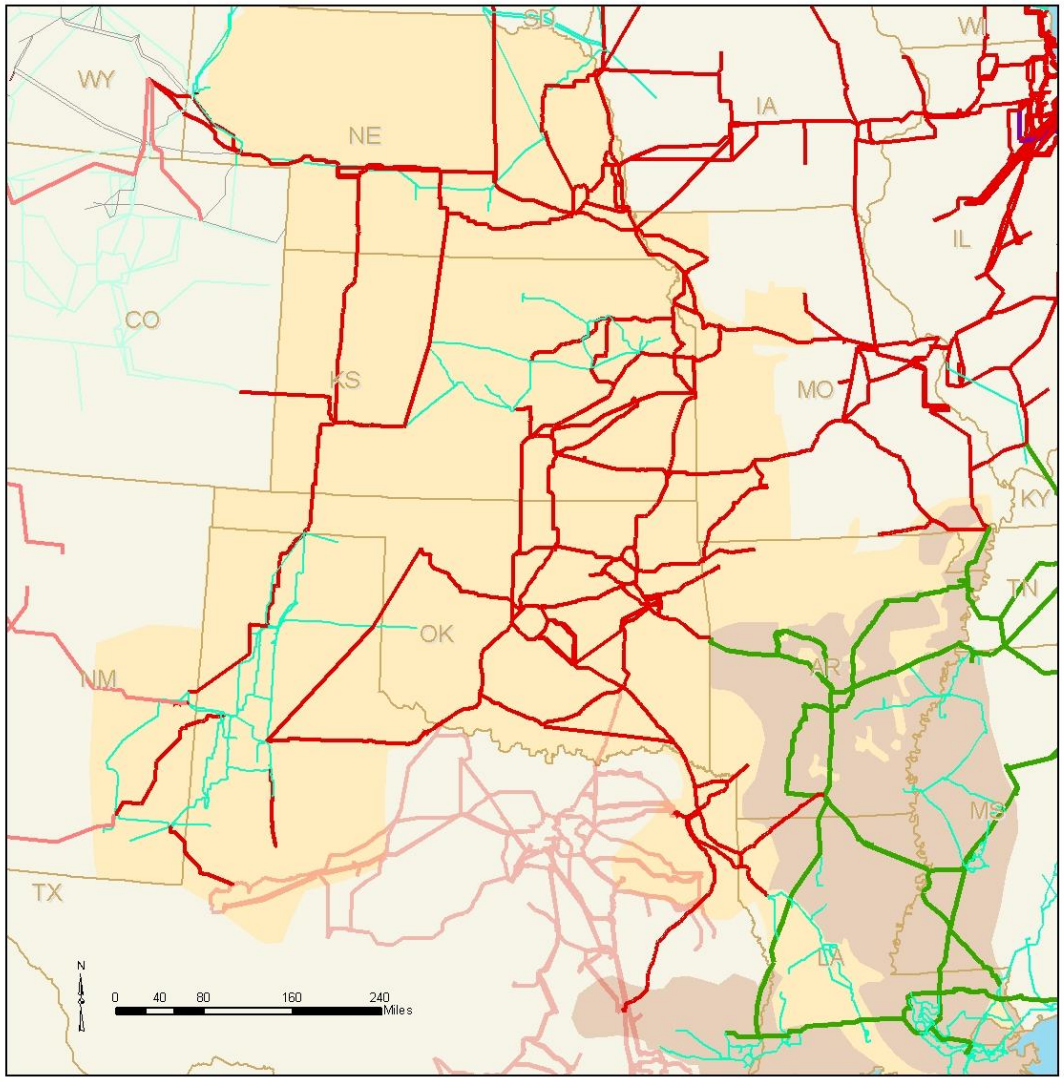
Entergy OATT Attachment K
Section 13.1 Regional Planning

- 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

- Regional Planning Parties may:
  - 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



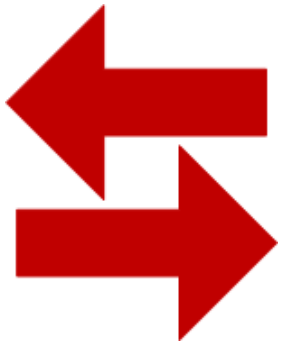
SPP Southwest Power Pool

EHV Transmission
(Including expansion projects with commitments to construct)

230 kV
345 kV
500 kV
Southwest Power Pool
Entergy ICT

Information exchange

- Data and Assumptions
  - Each party will share system plans and associated data and assumptions
- Simultaneous Feasibility
  - Each party will assess the simultaneous feasibility of the expansion plans
  - Each party will assess the consistency of data and assumptions and will report any inconsistencies or incompatibilities to the Regional Planning Parties

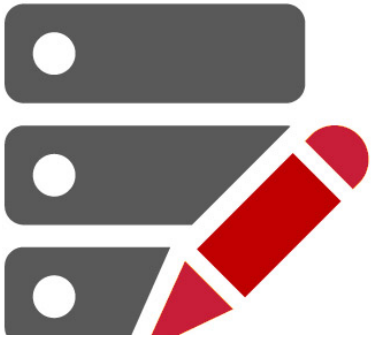


Regional Studies

- Regional Planning Parties will conduct stakeholder-requested studies
- Step 1 studies will provide a high-level screening to identify constraints and needed upgrades, and approximate costs and 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
- ICT Strategic Transmission Expansion Planning (ISTEP)
- Southeast Interregional Participation Process (SIRPP)
- Entergy SPP RTO Regional Planning Process Regional Studies (ESRPP)



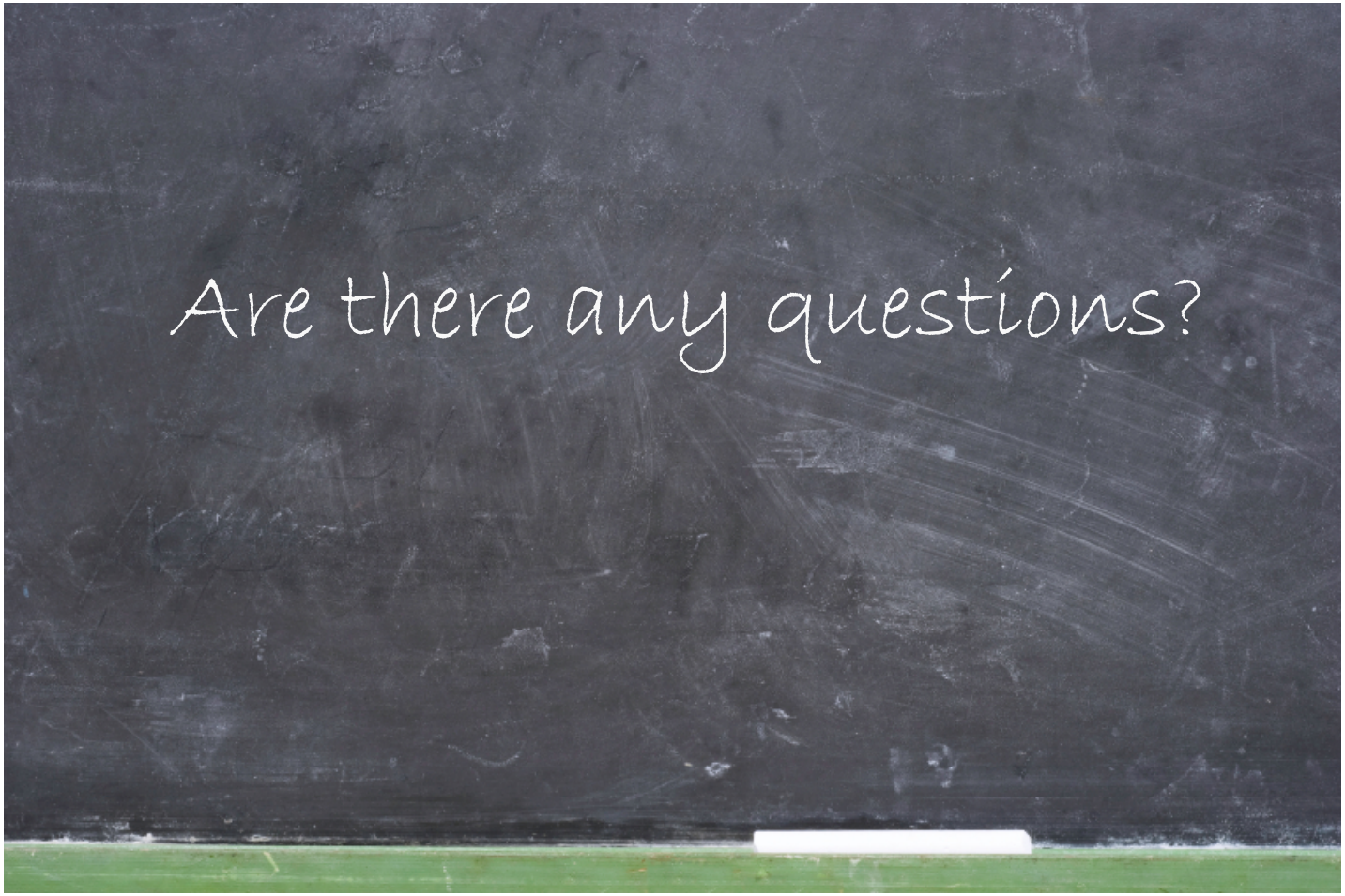
Stakeholder Meetings

- 1st Meeting – 5/24/2012 – Net conference
  - Present 2011 ESRPP Final Report
  - Stakeholders review and discuss scope and nominate studies for 2012
- 2nd Meeting – 8/7/2012 – Entergy Summit
  - Progress Update for Step 1 and 2 studies
- 3rd Meeting – 1st Quarter 2013 – 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

Questions



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

SPP Southwest Power Pool

2012 ESRPP Cycle Study Scope

May 24, 2012

Eddie Filat
efilat@spp.org · 501.688.1708

SPP Southwest Power Pool

Overview of Study Assumptions

- Upgrades will be evaluated through powerflow 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
  - 2018 Summer Peak Base Case Model (Entergy and SPP RTO MDWG)
  - Includes (approved, proposed, and horizon) 2012-2016 Construction Plan (CP) projects and Board Approved SPP RTO 2012 STEP projects
- Change Model(s)
  - Add transfer and other study project requirements
  - Analyze transfer results
  - Develop and test transmission upgrades to relieve constraints

Contingency Scan

- **Entergy Internal Monitored and Contingent Elements:**
  - **115 kV and above element ties to Areas outside of Entergy's footprint**
  - **115 kV and above elements within Entergy's footprint**
- **SPP Internal Monitored and Contingent Elements:**
  - **345 kV and above Transmission elements in Control Areas non-adjacent to Entergy's footprint**
  - **115 kV and above elements in Control Areas adjacent to Entergy's footprint**
- **Category A: The model will be evaluated under normal, system-intact conditions**
- **Category B: N-1 Contingency Scan (not breaker-to-breaker)**
- **Category C: Limited Multiple Contingency Scan**

Step 1 Analysis (High-level)

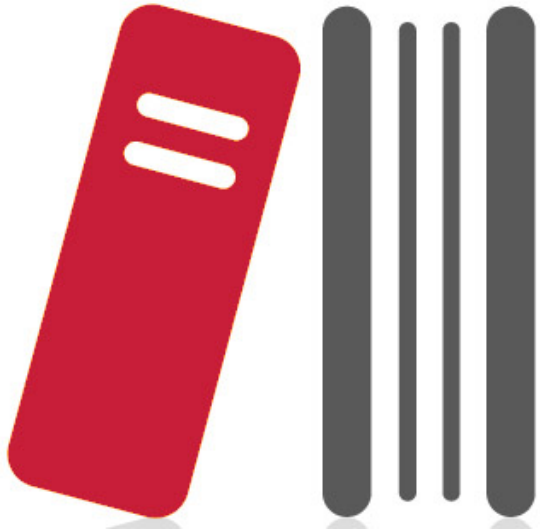
- **Assumptions:**
  - **The high-level project proposals for 2012 Cycle should increase transfer capability between a Control Area in SPP and a Control Area in Entergy (including Entergy) specifying a transfer amount (POR/POD, MW)**
  - **Planning-level cost estimates and construction timelines**
  - **MUST DC analysis of FCITC**

Step 2 Analysis (Detailed)

- **Assumptions:**
  - **A 2011 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.**

Related information

- ESRPP Background and Objectives
- 2012 ESRPP Cycle Schedule



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Questions