



## *Entergy SPP RTO Regional Planning Process*

### *Study Scope*

*May 2012*

#### **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 Regional Planning Parties (Entergy and SPP RTO) utilize the ESRPP to perform these studies and coordinate regional stakeholder communication. Each party assesses the simultaneous feasibility of the expansion plans and the consistency of data and assumptions and reports any inconsistencies or incompatibilities to the coordinating party. The Regional Planning Parties 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 Regional Planning Parties 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 Regional Planning Parties will also provide approximate costs and timelines associated with the identified transmission enhancements to facilitate the stakeholder's 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 Regional Planning Parties will then perform additional analysis, which may include additional coordination with external processes. The Regional Planning Parties 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 powerflow 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 focus on EHV expansion, rather than upgrading the underlying system. Upgrades will be designed as long-term (more than 6 years) solutions, however projects addressing constraints in the near-term (within 5 years) will also be considered. Stakeholder input will be considered throughout the study process.

## **Study Process**

### Project Recommendations

#### High-Level (Step 1)

The high-level study 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)

#### Detailed (Step 2)

A 2011 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 2012-2016 Approved Entergy Construction Plan (CP) projects and Board Approved SPP RTO 2012 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 section below.

### Initial Results

There will be a meeting in August 2012 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 Stakeholder Policy Committee (SPC) and SPP Transmission Working Group (TWG) will be updated when project results are made available. The final project summary report will be completed First Quarter 2013.

## **Model Assumptions**

### Powerflow models

1. Base model
  - A. 2018 Summer Peak Base Case model (Entergy and SPP RTO MDWG)
  - B. Includes 2012-2016 Construction Plan (CP) projects (approved, proposed, and horizon)
  - C. Includes Board Approved SPP RTO 2012 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 Rate A thermal 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 (Flows less than 100% of Rate B; voltages between 0.90 and 1.05 per unit).

#### **Category C**

1. A limited multiple contingency scan, as defined by the ICT SPC or SPP TWG, 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 (Flows less than 100% of Rate B; 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. ESRPP Net Conference: 2011 ESRPP Final Report and 2012 ESRPP kick-off meeting (review, discuss scope, and nominate studies):  
May 24, 2012
2. Email Nominations: Stakeholders nominate studies via email to [ESRPP@spp.org](mailto:ESRPP@spp.org):  
May 24 - June 8, 2012
3. Email Vote: Stakeholders vote for studies via email to [ESRPP@spp.org](mailto:ESRPP@spp.org):  
June 11 - June 20, 2012
4. ESRPP Posting: Results of Stakeholder vote are posted:  
June 22, 2012
5. Entergy Summit/ESRPP Meeting: Initial Results of Step 1 and 2 Studies:  
August 7, 2012
6. ESRPP Net Conference: Presentation of Final Report:  
First Quarter 2013

<b>Area #</b>	<b>Area Abbrev.</b>	<b>Area Name</b>
502	CLEC	Central Louisiana Electric Company
503	LAFA	Lafayette Utilities System
504	LEPA	Louisiana Energy & Power Authority
515	SWPA	Southwestern Power Administration
520	AEPW	American Electric Power System West
523	GRDA	Grand River Dam Authority
524	OKGE	Oklahoma Gas & Electric Company
525	WFEC	Western Farmers Electric Cooperative
526	SPS	Southwestern Public Service Company
527	OMPA	Oklahoma Municipal Power Authority
531	MIDW	Midwest Energy, Incorporated
534	SUNC	Sunflower Electric Power Corporation
536	WERE	Westar Energy, Incorporated
540	GMO	Greater Missouri Operations Company
541	KCPL	Kansas City Power and Light Company
542	KACY	Board of Public Utilities of Kansas City, Kansas
544	EMDE	Empire District Electric Company
545	INDN	City of Independence, Missouri – Power & Light
546	SPRM	City Utilities of Springfield
600	NPPD	Nebraska Public Power District
645	OPPD	Omaha Public Power District
650	LES	Lincoln Electric System

Monitor Voltage Range	Category A (N-0)			Category B (N-1)			Category C (N-2 / N-1-1)			Comments
CELE	0.95	to	1.05	0.92	to	1.05	0.92	to	1.05	
LAFA	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
LEPA	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
SWPA	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
AEPW	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
GRRD	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
OKGE	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
WFEC	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
SWPS	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
OMPA	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
MIDW	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
SEPC	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
WERE-L	0.93	to	1.05	0.93	to	1.05	0.93	to	1.05	WERE-L < 230kV
WERE-H	0.95	to	1.05	0.95	to	1.05	0.95	to	1.05	WERE-H >= 230kV
MKEC	0.95	to	1.05	0.95	to	1.05	0.95	to	1.05	
MIPU	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
KCPL	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
KACY	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
EMDE-L	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	EMDE-L < 161kV
EMDE-H	0.95	to	1.05	0.92	to	1.05	0.92	to	1.05	EMDE-H >= 161kV
INDN	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
SPRM	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
ERCOT	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
WSCC	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
NPPD	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
LES	0.95	to	1.05	0.95	to	1.05	0.95	to	1.05	
OPPD	0.95	to	1.05	0.95	to	1.05	0.95	to	1.05	
Internal-2	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	Areas 301, 304, & 305
AECI	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
Tier1	0.95	to	1.05	0.90	to	1.05	0.90	to	1.05	
ENTR	0.95	to	1.05	0.92	to	1.05	0.92	to	1.05	
Bus 525830	0.95	to	1.05	0.925	to	1.05	0.925	to	1.05	Tuco 230kV
Bus 532797	0.985	to	1.03	0.98	to	1.03	0.98	to	1.03	Wolf Creek
Bus 646251	-	-	-	1.001863	to	1.047205	1.001863	to	1.047205	S1251 5 OPPD FCS