



***System Impact Study  
PID 244  
13MW Uprate***

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## **Contents**

<b>EXECUTIVE SUMMARY.....</b>	<b>3</b>
<b>ENERGY RESOURCE INTERCONNECTION SERVICE.....</b>	<b>4</b>
<b>1. INTRODUCTION.....</b>	<b>4</b>
<b>2. LOAD FLOW ANALYSIS.....</b>	<b>4</b>
2.1 MODEL INFORMATION.....	4
2.2 LOAD FLOW ANALYSES.....	5
2.3 ANALYSIS RESULTS.....	5
<b>APPENDIX A: DATA PROVIDED BY CUSTOMER.....</b>	<b>27</b>
<b>APPENDIX B: APPROVED PROJECTS AND TRANSACTIONS IN STUDY MODE.....</b>	<b>37</b>

# Executive Summary

This System Impact Study is the second step of the interconnection process and is based on the PID-244 request for interconnection on Entergy's transmission system at New Roads, LA.

PID 244 intends to increase existing generator output in the Entergy transmission system by a proposed 13MW uprate of Big Cajun 2, Unit #1. PID 244 is an ERIS only project. The ERIS section contains a load flow (steady state) analysis. Neither a transient stability analysis nor a short circuit analysis was performed for this 13MW uprate of Big Cajun 2, Unit #1 because the study is for an existing generator in the Entergy transmission system. The requested in-service date for this facility is December 31, 2011.

Results of the System Impact Study contend that under ERIS the estimated upgrade cost with and without priors is \$0. See table below.

### Estimated Project Planning Upgrades for PID 244

Estimated cost With Priors*	Estimated cost Without Priors*
\$0	\$0

\*The costs of the upgrades are planning estimates only. Detailed cost estimates and solutions for the limiting elements will be provided in the Facilities Study.

# Energy Resource Interconnection Service

## 1. Introduction

This Energy Resource Interconnection Service (ERIS) is based on a request for interconnection on Entergy's transmission system. The objective of this study is to assess the reliability impact of the uprate of an existing facility on the Entergy transmission system with respect to the steady state of the system. It is also intended to determine whether the transmission system meets standards established by NERC Reliability Standards and Entergy's planning guidelines when the plant uprate is injected to Entergy's transmission system. If not, transmission improvements will be identified.

The System Impact Study process required a load flow analysis to determine if the existing transmission lines are adequate to handle the full output from the plant for simulated transfers to adjacent control areas

This ERIS System Impact Study was based on information provided by the Customer and assumptions made by Entergy's Transmission Technical System Planning group. All supplied information and assumptions are documented in this report. If the actual equipment installed is different from the supplied information or the assumptions made, the results outlined in this report are subject to change.

The load flow results from the ERIS study are for information only. ERIS does not in and of itself convey any transmission service.

## 2. Load Flow Analysis

### 2.1 Model Information

The load flow analysis was performed based on the projected 2014 summer peak load flow model. The loads were scaled based on the forecasted loads for the year. All firm power transactions between Entergy and its neighboring control areas were modeled for the year 2014 excluding short-term firm transactions on the same transmission interface. An economic dispatch was carried out on Entergy generating units after the scaling of load and modeling of transactions. The proposed 13MW generation and the associated facilities were then modeled in the case to build a revised case for the load flow analysis. Transfers were simulated between thirteen (13) control areas and Entergy using requesting generator as the source and adjacent control area as sink.

This study considered the following four scenarios:

<b>Scenario No.</b>	<b>Approved Future Transmission Projects</b>	<b>Pending Transmission Service &amp; Study Requests</b>
1	Not Included	Not Included
2	Not Included	Included
3	Included	Not Included
4	Included	Included

The generator step-up transformers, generators, and interconnecting lines were modeled according to the information provided by the Customer. Customer supplied data are shown in Appendix A. The data used to build the load flow and dynamic models are also shown in Appendix A.

## 2.2 Load Flow Analyses

### 2.2.1 Load Flow Analysis:

With the above assumptions implemented, the First Contingency Incremental Transfer Capability (FCITC) values are calculated. The FCITC depends on various factors: the system load, generation dispatch, scheduled maintenance of equipment, and the configuration of the interconnected system and the power flows in effect among the interconnected systems. The FCITC is also dependent on previously confirmed firm reservations on the interface.

### 2.2.2 Performance Criteria

The criteria for overload violations are as follows:

#### A) With All Lines in Service

- The MVA flow in any branch should not exceed Rate A (normal rating).

#### B) Under Contingencies

- The MVA flow through any facility should not exceed Rate A.

### 2.2.3 Power Factor Consideration / Criteria

Entergy, consistent with the FERC Large Generator Interconnection Procedures (LGIP) requires the customer to be capable of supplying at least 0.33 MVAR (*i.e.*, 0.95 lagging power factor) and absorbing at least 0.33 MVAR (*i.e.*, 0.95 leading power factor) for every MW of power injected into the grid. In the event that, under normal operating conditions, the customer facility does not meet the prescribed power factor requirements at the point of interconnection, the customer shall take necessary steps, such as the installation of reactive power compensating devices, to achieve the desired power factor.

## 2.3 Analysis Results

Summary of the analysis results are documented in following table for each scenario.

**Table 2-1: Summary of Results for PID-244 – ERIS Load Flow Study**

Interface		Summer Peak Case Used	FCITC Available for Scenario 1	FCITC Available for Scenario 2	FCITC Available for Scenario 3	FCITC Available for Scenario 4
AECI	Associated Electric Cooperative, Inc.	2014	0	0	0	0
AMRN	Ameren Transmission	2014	0	0	0	0
CLEC	CLECO	2014	0	0	0	0
AEP-W	American Electric Power - West	2014	0	0	0	0
EES	Entergy	2014	0	0	0	0
EMDE	Empire District Electric Co	2014	0	0	0	0
Lafa	Lafayette Utilities System	2014	0	0	0	0
LAGN	Louisiana Generating, LLC	2014	0	0	0	0

<b>Interface</b>		<b>Summer Peak Case Used</b>	<b>FCITC Available for Scenario 1</b>	<b>FCITC Available for Scenario 2</b>	<b>FCITC Available for Scenario 3</b>	<b>FCITC Available for Scenario 4</b>
LEPA	Louisiana Energy & Power Authority	2014	0	0	13	0
OKGE	Oklahoma Gas & Electric Company	2014	0	0	0	0
SMEPA	South Mississippi Electric Power Assoc.	2014	0	0	0	0
SOCO	Southern Company	2014	0	0	0	0
SPA	Southwest Power Administration	2014	0	0	0	0
TVA	Tennessee Valley Authority	2014	0	0	0	0

**TABLE 2-2: DETAILS OF SCENARIO 1 RESULTS: (WITHOUT FUTURE PROJECTS AND WITHOUT PENDING TRANSMISSION SERVICE & STUDY REQUEST)**

Limiting Element	Est. Cost	AECI	AEPW	AMRN	CLECO	EES	EMDE	LAF A	LAGN	LEPA	OKGE	SMEPA	SOCO	SPA	TVA
Addis - Big Cajun 1 230kV	Included in 2010 ICT Base Plan	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bull Shoals - Bull Shoals Dam SPA 161kV	Other Ownership						X								
Lake Conway - Mayflower 115kV	TBD													X	
Lakeover 500/115kV transformer	15,000,000											X			
Louisiana Station - Thomas 138kV	645,943	X	X	X	X	X	X	X	X	X	X		X	X	X
Melbourne - Sage 161kV	Included in 2010 ICT Base Plan						X				X			X	
Pleasant Hill 500/161kV transformer	TBD						X							X	
Port Hudson 230/138 transformer 1	TBD							X		X					
Port Hudson 230/138 transformer 2	TBD							X		X					
Ray Braswell 500/115kV transformer 1	8,100,000					X						X	X		X
Ray Braswell 500/230kV transformer ckt2	Committed to by others					X						X	X		X
Sterlington 500/115kV transformer 2	Committed to by others	X	X	X	X		X		X		X			X	
Vacherie - Waterford 230kV	TBD									X					

**TABLE 2-3: DETAILS OF SCENARIO 2 RESULTS: (WITHOUT FUTURE PROJECTS AND WITH PENDING TRANSMISSION SERVICE & STUDY REQUEST)**

Limiting Elements	Est. Cost	AECI	AEPW	AMRN	CLECO	EES	EMDE	LAF A	LAGN	LEPA	OKGE	SMEPA	SOCO	SPA	TVA
Addis - Big Cajun 1 230kV	Included in 2010 ICT Base Plan	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ameila Bulk - Bevil 230kV	TBD					X									
Bevil - Cypress 230kV	TBD					X									
Colonial Welsh - Lake Charles Bulk 138kV	TBD	X	X	X		X	X		X		X		X	X	X
Colonial Welsh TP - Hebert 138kV	TBD	X	X	X		X	X		X		X		X	X	X
Cypress 500/138kV transformer 1	TBD		X		X	X									
Cypress 500/230kV transformer	TBD		X			X									
Greenwood - Terrebonne 115kV	33,226,332	X	X	X	X	X	X	X	X		X		X	X	X
Grimes 345/138kV transformer 1	TBD								X						
Grimes 345/138kV transformer 2	TBD								X						
Grimes - Mt. Zion 138kV	121,500,000								X						
Hartburg - Inland Orange 230kV	Committed to by others		X			X									
Hartburg 500/230kV transformer 1	TBD		X			X									
Hebert - Bayou Cove 138kV	750,000	X	X	X		X	X		X		X		X	X	X
Helbig - McLewis 230kV	26,740,000		X			X									
Inland - McLewis 230kV	Committed to by others		X			X									
Lakeover 500/115kV transformer	8,100,000											X			
Louisiana Station - Thomas 138kV	645,943	X	X	X	X	X	X	X	X	X	X		X	X	X
McAdams 500/230kV transformer 1	Included in ICT 2010 Base	X	X	X			X				X		X	X	X
North Crowley - Scott1 138kV	Included in 2010 ICT Base				X			X							
Port Hudson - Thomas 138kV	TBD	X	X	X	X	X	X	X	X	X	X		X	X	X
Port Hudson 230/138 transformer 1	TBD							X		X					
Port Hudson 230/138 transformer 2	TBD							X		X					
Ray Braswell 500/115kV transformer 1	8,100,000					X						X	X		X



Limiting Elements	Est. Cost	AECI	AEPW	AMRN	CLECO	EES	EMDE	LAFa	LAGN	LEPA	OKGE	SMEPA	SOCO	SPA	TVA
Ray Braswell 500/230kV transformer ckt2	Committed to by others					X						X	X		X
Rex Brown W - Rex Brown C 115kV ckt 1	TBD											X			
Semere - Scott2 138kV	Included in 2010 ICT Base Plan							X							
Sterlington 500/115kV transformer 2	Committed to by others	X	X	X	X		X		X		X			X	
Vacherie - Waterford 230kV	TBD									X					

**TABLE 2-4: DETAILS OF SCENARIO 3 RESULTS: (WITH FUTURE PROJECTS AND WITHOUT PENDING TRANSMISSION SERVICE & STUDY REQUEST)**

Limiting Element	Est. Cost	AECI	AEPW	AMRN	CLECO	EES	EMDE	LAFa	LAGN	LEPA	OKGE	SMEPA	SOCO	SPA	TVA
Baxter Wilson 500/115kV transformer ckt2	Committed to by others	X	X				X				X			X	
Bull Shoals - Bull Shoals Dam SPA 161kV	Other Ownership						X								
Lakeover 500/115kV transformer	8,100,000											X			
Pleasant Hill 500/161kV transformer	TBD						X							X	
Ray Braswell 500/115kV transformer 1	8,100,000					X						X	X		X
Ray Braswell 500/230kV transformer ckt2	Committed to by others	X	X			X					X	X	X	X	X
Sterlington - Perryville 500kV	Committed to by others	X	X				X				X			X	
Sterlington 500/115kV transformer ckt3	Committed to by others	X	X	X	X		X	X	X		X			X	X

**TABLE 2-5: DETAILS OF SCENARIO 4 RESULTS: (WITH FUTURE PROJECTS AND WITH PENDING TRANSMISSION SERVICE & STUDY REQUEST)**

Limiting Element	Est. Cost	AECI	AEPW	AMRN	CLECO	EES	EMDE	LAFA	LAGN	LEPA	OKGE	SMEPA	SOCO	SPA	TVA
Ameila Bulk - Bevil 230kV	TBD					X									
Baxter Wilson 500/115kV transformer ckt2	Committed to by others	X	X				X				X			X	
Bevil - Cypress 230kV	TBD					X									
Cypress 500/138kV transformer 1	TBD		X			X									
Cypress 500/230kV transformer	TBD		X												
Grimes - Grimes 345/138kV transformer 1	TBD								X						
Grimes - Grimes 345/138kV transformer 2	TBD								X						
Hartburg - Inland Orange 230kV	Committed to by others		X			X									
Hebert - Bayou Cove 138kV	750,000	X	X	X		X	X		X		X		X	X	X
Helbig - McLewis 230kV	26,740,000		X			X									
Inland - McLewis 230kV	Committed to by others		X			X									
Lakeover 500/115kV transformer	8,100,000											X			
Louisiana Station - Thomas 138kV	645,943	X	X	X	X	X	X	X	X	X	X			X	X
McAdams 500/230kV transformer 1	Included in ICT 2010 Base Plan	X	X	X			X				X		X	X	X
Ray Braswell 500/115kV transformer 1	8,100,000					X						X	X		X
Ray Braswell 500/230kV transformer ckt2	Committed to by others					X						X	X		X
Rex Brown W - Rex Brown C 115kV ckt 1	TBD											X			
Sterlington - Perryville 500kV ckt2	Committed to by others	X	X				X				X			X	
Sterlington 500/115kV transformer ckt3	Committed to by others	X	X		X		X	X	X		X			X	X

### 2.3.1 DETAILS OF SCENARIO 1 – 2014

#### AECI

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

#### AEP-W

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

#### AMRN

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

#### CLECO

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0

#### EES

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

**EMDE**

<b>Limiting Element</b>	<b>Contingency Element</b>	<b>ATC</b>
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Bull Shoals - Bull Shoals Dam SPA 161kV	St. Joe - Hilltop 161kV	0
Bull Shoals - Bull Shoals Dam SPA 161kV	Everton - St. Joe 161kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Bull Shoals - Bull Shoals Dam SPA 161kV	Harrison East - Everton 161kV	0
Melbourne - Sage 161kV	Dell - Independence SES 500kV	0
Pleasant Hill 500/161kV transformer	ANO 500/161/22kV transformer	0
Melbourne - Sage 161kV	ANO - Fort Smith 500kV	0
Melbourne - Sage 161kV	Newport - Newport Industrial 161kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0
Melbourne - Sage 161kV	Newport AB - Newport Industrial 161kV	0
Bull Shoals - Bull Shoals Dam SPA 161kV	Bull Shoals - Lead HL 161kV	0
Melbourne - Sage 161kV	Cash - Newport AB 161kV	0
Bull Shoals - Bull Shoals Dam SPA 161kV	Clevcov - Lead HL 161kV	0
Melbourne - Sage 161kV	Sansouci - Shelby (TVA) 500kV	0
Melbourne - Sage 161kV	Cash - Jonesboro 161kV	0
Melbourne - Sage 161kV	Sage - Guion 161kV	0
Melbourne - Sage 161kV	Newport - Swifton 161kV	0
Melbourne - Sage 161kV	Mountain View - Guion 161kV	0

**LAF A**

<b>Limiting Element</b>	<b>Contingency Element</b>	<b>ATC</b>
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Port Hudson 230/138 transformer 2	Port Hudson 230/138 transformer 1	0
Port Hudson 230/138 transformer 1	Port Hudson 230/138 transformer 2	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0

**LAGN**

<b>Limiting Element</b>	<b>Contingency Element</b>	<b>ATC</b>
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0

**LEPA**

<b>Limiting Element</b>	<b>Contingency Element</b>	<b>ATC</b>
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Port Hudson 230/138 transformer 2	Port Hudson 230/138 transformer 1	0
Port Hudson 230/138 transformer 1	Port Hudson 230/138 transformer 2	0

Limiting Element	Contingency Element	ATC
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0
Vacherie - Waterford 230kV	Raceland - Waterford 230kV	0

### OKGE

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Melbourne - Sage 161kV	ANO - Fort Smith 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

### SMEPA

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	McAdams 500/230kV transformer 1	0
Ray Braswell 500/230kV transformer ckt2	Georgetown - Silver Creek 115kV	0
Ray Braswell 500/230kV transformer ckt2	Georgetown - Pop Spring 115kV	0
Ray Braswell 500/230kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Ray Braswell 500/230kV transformer ckt2	South Jackson - Pop Spring 115kV	0
Ray Braswell 500/230kV transformer ckt2	McAdams - Pickens 230kV	0
Ray Braswell 500/230kV transformer ckt2	Canton - Pickens 230kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover 500/115kV transformer	0
Ray Braswell 500/230kV transformer ckt2	Morton - ForindT2 (TVA) 115kV	0
Ray Braswell 500/230kV transformer ckt2	Magee - New Hebron 115kV	0
Ray Braswell 500/230kV transformer ckt2	Base Case	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Lakeover 500/115kV transformer	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

### SOCO

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	Lakeover - McAdams 500kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

## SPA

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Melbourne - Sage 161kV	Dell - Independence SES 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0
Melbourne - Sage 161kV	ANO - Fort Smith 500kV	0
Melbourne - Sage 161kV	Newport - Newport Industrial 161kV	0
Melbourne - Sage 161kV	Newport AB - Newport Industrial 161kV	0
Lake Conway - Mayflower 115kV	Pleasant Hill 500/161kV transformer	0
Pleasant Hill 500/161kV transformer	ANO 500/161/22kV transformer	0
Melbourne - Sage 161kV	Cash - Newport AB 161kV	0
Melbourne - Sage 161kV	Sansouci - Shelby (TVA) 500kV	0
Melbourne - Sage 161kV	Cash - Jonesboro 161kV	0
Melbourne - Sage 161kV	Sage - Guion 161kV	0
Melbourne - Sage 161kV	Newport - Swifton 161kV	0
Melbourne - Sage 161kV	Mountain View - Guion 161kV	0

## TVA

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	Ray Braswell 500/230kV transformer 1	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - McAdams 500kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

## 2.3.2 DETAILS OF SCENARIO 2 - 2014

### AECI

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Colonial Welsh TP - Hebert 138kV	Roy S. Nelson - Richard 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Colonial Welsh - Lake Charles Bulk 138kV	Roy S. Nelson - Richard 500kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

**AEP-W**

<b>Limiting Element</b>	<b>Contingency Element</b>	<b>ATC</b>
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Cypress 500/230kV transformer	Cypress 500/138kV transformer 1	0
Hartburg 500/230kV transformer 1	Cypress - Hartburg 500kV	0
Helbig - McLewis 230kV	Cypress - Hartburg 500kV	0
Inland - McLewis 230kV	Cypress - Hartburg 500kV	0
Hartburg - Inland Orange 230kV	Cypress - Hartburg 500kV	0
Hartburg - Inland Orange 230kV	Cypress - Hartburg 500kV	0
Inland - McLewis 230kV	Cypress - Hartburg 500kV	0
Cypress 500/138kV transformer 1	Cypress 500/230kV transformer	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Colonial Welsh - Lake Charles Bulk 138kV	Roy S. Nelson - Richard 500kV	0
Colonial Welsh TP - Hebert 138kV	Roy S. Nelson - Richard 500kV	0

**AMRN**

<b>Limiting Element</b>	<b>Contingency Element</b>	<b>ATC</b>
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Colonial Welsh TP - Hebert 138kV	Roy S. Nelson - Richard 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Colonial Welsh - Lake Charles Bulk 138kV	Roy S. Nelson - Richard 500kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

**CLECO**

<b>Limiting Element</b>	<b>Contingency Element</b>	<b>ATC</b>
Cypress 500/138kV transformer 1	Cypress 500/230kV transformer	0
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
North Crowley - Scott1 138kV	Wells 500/230kV transformer	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0

**EES**

<b>Limiting Element</b>	<b>Contingency Element</b>	<b>ATC</b>
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Hartburg - Inland Orange 230kV	Cypress - Hartburg 500kV	0
Hartburg - Inland Orange 230kV	Cypress - Hartburg 500kV	0
Inland - McLewis 230kV	Cypress - Hartburg 500kV	0
Inland - McLewis 230kV	Cypress - Hartburg 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Helbig - McLewis 230kV	Cypress - Hartburg 500kV	0
Bevil - Cypress 230kV	Hartburg 500/230kV transformer 1	0
Bevil - Cypress 230kV	Hartburg - Inland Orange 230kV	0
Bevil - Cypress 230kV	Inland - McLewis 230kV	0
Cypress 500/138kV transformer 1	Cypress 500/230kV transformer	0
Bevil - Cypress 230kV	Helbig - McLewis 230kV	0
Ameila Bulk - Bevil 230kV	Hartburg 500/230kV transformer 1	0
Ameila Bulk - Bevil 230kV	Hartburg - Inland Orange 230kV	0
Hartburg 500/230kV transformer 1	Cypress - Hartburg 500kV	0
Ameila Bulk - Bevil 230kV	Inland - McLewis 230kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Ameila Bulk - Bevil 230kV	Helbig - McLewis 230kV	0
Colonial Welsh TP - Hebert 138kV	Roy S. Nelson - Richard 500kV	0
Cypress 500/230kV transformer	Cypress 500/138kV transformer 1	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0
Colonial Welsh - Lake Charles Bulk 138kV	Roy S. Nelson - Richard 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

**EMDE**

<b>Limiting Element</b>	<b>Contingency Element</b>	<b>ATC</b>
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Colonial Welsh TP - Hebert 138kV	Roy S. Nelson - Richard 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Colonial Welsh - Lake Charles Bulk 138kV	Roy S. Nelson - Richard 500kV	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0



**LAFA**

Limiting Element	Contingency Element	ATC
Port Hudson 230/138 transformer 2	Port Hudson 230/138 transformer 1	0
Port Hudson 230/138 transformer 1	Port Hudson 230/138 transformer 2	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0
North Crowley - Scott1 138kV	Richard - Scott1 138kV	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0
North Crowley - Scott1 138kV	Wells 500/230kV transformer	0
North Crowley - Scott1 138kV	Roy S. Nelson - Richard 500kV	0
Semere - Scott2 138kV	Wells 500/230kV transformer	0

**LAGN**

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Grimes - Grimes 345/138kV transformer 2	Grimes - Grimes 345/138kV transformer 1	0
Grimes - Grimes 345/138kV transformer 1	Grimes - Grimes 345/138kV transformer 2	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Colonial Welsh TP - Hebert 138kV	Roy S. Nelson - Richard 500kV	0
Colonial Welsh - Lake Charles Bulk 138kV	Roy S. Nelson - Richard 500kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0
Grimes - Mt. Zion 138kV	Webre - Wells 500kV	0

**LEPA**

Limiting Element	Contingency Element	ATC
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Port Hudson 230/138 transformer 2	Port Hudson 230/138 transformer 1	0
Port Hudson 230/138 transformer 1	Port Hudson 230/138 transformer 2	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0
Vacherie - Waterford 230kV	Raceland - Waterford 230kV	0

**OKGE**

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0

Limiting Element	Contingency Element	ATC
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Colonial Welsh TP - Hebert 138kV	Roy S. Nelson - Richard 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Colonial Welsh - Lake Charles Bulk 138kV	Roy S. Nelson - Richard 500kV	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

### SMEPA

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	McAdams 500/230kV transformer 1	0
Ray Braswell 500/230kV transformer ckt2	McAdams - Pickens 230kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover 500/115kV transformer	0
Ray Braswell 500/230kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Ray Braswell 500/230kV transformer ckt2	Georgetown - Silver Creek 115kV	0
Ray Braswell 500/230kV transformer ckt2	Georgetown - Pop Spring 115kV	0
Ray Braswell 500/230kV transformer ckt2	South Jackson - Pop Spring 115kV	0
Ray Braswell 500/230kV transformer ckt2	Canton - Pickens 230kV	0
Ray Braswell 500/230kV transformer ckt2	Canton South - Canton 230kV	0
Ray Braswell 500/230kV transformer ckt2	Morton - ForindT2 (TVA) 115kV	0
Ray Braswell 500/230kV transformer ckt2	Base Case	0
Lakeover 500/115kV transformer	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Rex Brown W - Rex Brown C 115kV ckt 1	Ray Braswell 500/115kV transformer 1	0
Lakeover 500/115kV transformer	Ray Braswell 500/115kV transformer 1	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

### SOCO

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	Lakeover - McAdams 500kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Colonial Welsh TP - Hebert 138kV	Roy S. Nelson - Richard 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Colonial Welsh - Lake Charles Bulk 138kV	Roy S. Nelson - Richard 500kV	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

## SPA

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer 2	Eldorado EHV - Sterlington 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Colonial Welsh TP - Hebert 138kV	Roy S. Nelson - Richard 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Colonial Welsh - Lake Charles Bulk 138kV	Roy S. Nelson - Richard 500kV	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

## TVA

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	Ray Braswell 500/230kV transformer 1	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - McAdams 500kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Colonial Welsh TP - Hebert 138kV	Roy S. Nelson - Richard 500kV	0
Colonial Welsh - Lake Charles Bulk 138kV	Roy S. Nelson - Richard 500kV	0
Addis - Big Cajun 1 230kV	Big Cajun 2 - Webre 500kV	0
Port Hudson - Thomas 138kV	Webre - Wells 500kV	0
Greenwood - Terrebonne 115kV	Webre - Wells 500kV	0
Addis - Big Cajun 1 230kV	Enjay - Fancy 230kV	0
Addis - Big Cajun 1 230kV	Enjay - Jaguar 230kV	0

### 2.3.3 DETAILS OF SCENARIO 3 - 2014

#### AECI

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sheridan 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Ray Braswell 500kV	0
Sterlington - Perryville 500kV ckt2	Big Cajun 2 - Fancy Point 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Fancy Point - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Base Case	0
Baxter Wilson 500/115kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Baxter Wilson 500/115kV transformer ckt2	Baxter Wilson - Perryville 500kV	0

**AEP-W**

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Ray Braswell 500kV	0
Sterlington - Perryville 500kV ckt2	Big Cajun 2 - Fancy Point 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sheridan 500kV	0
Sterlington - Perryville 500kV ckt2	Bogalusa - Franklin 500kV	0
Sterlington - Perryville 500kV ckt2	Bogalusa - Adams Creek 500/230kV transformer	0
Sterlington - Perryville 500kV ckt2	Base Case	0
Baxter Wilson 500/115kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Baxter Wilson 500/115kV transformer ckt2	Baxter Wilson - Perryville 500kV	0

**AMRN**

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0

**CLECO**

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington 500/115kV transformer ckt3	Webre - Wells 500kV	0

**EES**

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0

**EMDE**

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Ray Braswell 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sheridan 500kV	0
Sterlington - Perryville 500kV ckt2	Big Cajun 2 - Fancy Point 500kV	0
Sterlington - Perryville 500kV ckt2	Fancy Point - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Base Case	0
Baxter Wilson 500/115kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Baxter Wilson 500/115kV transformer ckt2	Baxter Wilson - Perryville 500kV	0
Pleasant Hill 500/161kV transformer	ANO 500/161/22kV transformer	0
Bull Shoals - Bull Shoals Dam SPA 161kV	St. Joe - Hilltop 161kV	0
Bull Shoals - Bull Shoals Dam SPA 161kV	Everton - St. Joe 161kV	0
Bull Shoals - Bull Shoals Dam SPA 161kV	Harrison East - Everton 161kV	0

Limiting Element	Contingency Element	ATC
Bull Shoals - Bull Shoals Dam SPA 161kV	Bull Shoals - Lead HL 161kV	0
Bull Shoals - Bull Shoals Dam SPA 161kV	Clevcov - Lead HL 161kV	0

#### Lafa

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Webre - Wells 500kV	0

#### LAGN

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Mount Olive 500kV	0
Sterlington 500/115kV transformer ckt3	Webre - Wells 500kV	0

#### LEPA

Limiting Element	Contingency Element	ATC
NONE	NONE	13

#### OKGE

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Ray Braswell 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sheridan 500kV	0
Sterlington - Perryville 500kV ckt2	Big Cajun 2 - Fancy Point 500kV	0
Sterlington - Perryville 500kV ckt2	Fancy Point - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Bogalusa - Franklin 500kV	0
Sterlington - Perryville 500kV ckt2	Base Case	0
Baxter Wilson 500/115kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Baxter Wilson 500/115kV transformer ckt2	Baxter Wilson - Perryville 500kV	0

#### SMEPA

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	McAdams 500/230kV transformer 1	0
Ray Braswell 500/230kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Ray Braswell 500/230kV transformer ckt2	McAdams - Pickens 230kV	0
Ray Braswell 500/230kV transformer ckt2	Georgetown - Silver Creek 115kV	0
Ray Braswell 500/230kV transformer ckt2	Georgetown - Pop Spring 115kV	0
Ray Braswell 500/230kV transformer ckt2	South Jackson - Pop Spring 115kV	0
Ray Braswell 500/230kV transformer ckt2	Canton - Pickens 230kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover 500/115kV transformer	0
Ray Braswell 500/230kV transformer ckt2	Canton South - Canton 230kV	0
Ray Braswell 500/230kV transformer ckt2	Morton - ForindT2 (TVA) 115kV	0
Ray Braswell 500/230kV transformer ckt2	Base Case	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0

## SOCO

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	Lakeover - McAdams 500kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0

## SPA

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Ray Braswell 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sheridan 500kV	0
Sterlington - Perryville 500kV ckt2	Big Cajun 2 - Fancy Point 500kV	0
Sterlington - Perryville 500kV ckt2	Fancy Point - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Base Case	0
Baxter Wilson 500/115kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Baxter Wilson 500/115kV transformer ckt2	Baxter Wilson - Perryville 500kV	0
Pleasant Hill 500/161kV transformer	ANO 500/161/22kV transformer	0

## TVA

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Ray Braswell 500/230kV transformer ckt2	Ray Braswell 500/230kV transformer 1	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - McAdams 500kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0

## 2.3.4 DETAILS OF SCENARIO 4 - 2014

### AECI

Limiting Element	Contingency Element	ATC
Sterlington - Perryville 500kV ckt2	Franklin - McKnight 500kV	0
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sheridan 500kV	0
Sterlington - Perryville 500kV ckt2	Big Cajun 2 - Fancy Point 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Fancy Point - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Independence SES - Keo 500kV	0
Sterlington - Perryville 500kV ckt2	Base Case	0
Baxter Wilson 500/115kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0

Limiting Element	Contingency Element	ATC
Baxter Wilson 500/115kV transformer ckt2	Baxter Wilson - Perryville 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0

#### AEP-W

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Ray Braswell 500kV	0
Sterlington - Perryville 500kV ckt2	Big Cajun 2 - Fancy Point 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sheridan 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sterlington 500kV	0
Baxter Wilson 500/115kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Sterlington - Perryville 500kV ckt2	Fancy Point - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Base Case	0
Baxter Wilson 500/115kV transformer ckt2	Baxter Wilson - Perryville 500kV	0
Hartburg - Inland Orange 230kV	Cypress - Hartburg 500kV	0
Inland - McLewis 230kV	Cypress - Hartburg 500kV	0
Helbig - McLewis 230kV	Cypress - Hartburg 500kV	0
Cypress 500/138kV transformer 1	Cypress 500/230kV transformer	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Cypress 500/230kV transformer	Cypress 500/138kV transformer 1	13

#### AMRN

Limiting Element	Contingency Element	ATC
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0

#### CLECO

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington 500/115kV transformer ckt3	Webre - Wells 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0

#### EES

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Hartburg - Inland Orange 230kV	Cypress - Hartburg 500kV	0
Inland - McLewis 230kV	Cypress - Hartburg 500kV	0

Limiting Element	Contingency Element	ATC
Bevil - Cypress 230kV	Hartburg 500/230kV transformer 1	0
Bevil - Cypress 230kV	Hartburg - Inland Orange 230kV	0
Bevil - Cypress 230kV	Inland - McLewis 230kV	0
Helbig - McLewis 230kV	Cypress - Hartburg 500kV	0
Cypress 500/138kV transformer 1	Cypress 500/230kV transformer	0
Bevil - Cypress 230kV	Helbig - McLewis 230kV	0
Ameila Bulk - Bevil 230kV	Hartburg 500/230kV transformer 1	0
Ameila Bulk - Bevil 230kV	Hartburg - Inland Orange 230kV	0
Ameila Bulk - Bevil 230kV	Inland - McLewis 230kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0
Ameila Bulk - Bevil 230kV	Helbig - McLewis 230kV	0

### EMDE

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sheridan 500kV	0
Sterlington - Perryville 500kV ckt2	Big Cajun 2 - Fancy Point 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Ray Braswell 500kV	0
Sterlington - Perryville 500kV ckt2	Fancy Point - McKnight 500kV	0
Baxter Wilson 500/115kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Sterlington - Perryville 500kV ckt2	Base Case	0
Baxter Wilson 500/115kV transformer ckt2	Baxter Wilson - Perryville 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0

### Lafa

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Webre - Wells 500kV	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0

### LAGN

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Mount Olive 500kV	0
Sterlington 500/115kV transformer ckt3	Webre - Wells 500kV	0
Grimes - Grimes 345/138kV transformer 2	Grimes - Grimes 345/138kV transformer 1	0
Grimes - Grimes 345/138kV transformer 1	Grimes - Grimes 345/138kV transformer 2	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0



## LEPA

Limiting Element	Contingency Element	ATC
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0

## OKGE

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sheridan 500kV	0
Sterlington - Perryville 500kV ckt2	Big Cajun 2 - Fancy Point 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Ray Braswell 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Fancy Point - McKnight 500kV	0
Baxter Wilson 500/115kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Sterlington - Perryville 500kV ckt2	Base Case	0
Baxter Wilson 500/115kV transformer ckt2	Baxter Wilson - Perryville 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0

## SMEPA

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	McAdams 500/230kV transformer 1	0
Ray Braswell 500/230kV transformer ckt2	Lakeover 500/115kV transformer	0
Ray Braswell 500/230kV transformer ckt2	McAdams - Pickens 230kV	0
Ray Braswell 500/230kV transformer ckt2	Georgetown - Silver Creek 115kV	0
Ray Braswell 500/230kV transformer ckt2	Georgetown - Pop Spring 115kV	0
Ray Braswell 500/230kV transformer ckt2	South Jackson - Pop Spring 115kV	0
Ray Braswell 500/230kV transformer ckt2	Canton - Pickens 230kV	0
Ray Braswell 500/230kV transformer ckt2	Canton South - Canton 230kV	0
Ray Braswell 500/230kV transformer ckt2	Morton - ForindT2 (TVA) 115kV	0
Ray Braswell 500/230kV transformer ckt2	Base Case	0
Lakeover 500/115kV transformer	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
Lakeover 500/115kV transformer	Ray Braswell 500/115kV transformer 1	0
Rex Brown W - Rex Brown C 115kV ckt 1	Ray Braswell 500/115kV transformer 1	0
Lakeover 500/115kV transformer	Ray Braswell 500/230kV transformer 1	0
Lakeover 500/115kV transformer	Ray Braswell 500/230kV transformer 2	0

## SOCO

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2	Lakeover - McAdams 500kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 7 ckt2	0

Limiting Element	Contingency Element	ATC
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0

### SPA

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - McKnight 500kV	0
Sterlington - Perryville 500kV ckt2	Franklin - Grand Gulf 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sheridan 500kV	0
Sterlington - Perryville 500kV ckt2	Big Cajun 2 - Fancy Point 500kV	0
Sterlington - Perryville 500kV ckt2	Eldorado EHV - Sterlington 500kV	0
Sterlington - Perryville 500kV ckt2	Baxter Wilson - Ray Braswell 500kV	0
Sterlington - Perryville 500kV ckt2	Fancy Point - McKnight 500kV	0
Baxter Wilson 500/115kV transformer ckt2	Sterlington - Perryville 500kV ckt1 and ckt2	0
Sterlington - Perryville 500kV ckt2	Base Case	0
Baxter Wilson 500/115kV transformer ckt2	Baxter Wilson - Perryville 500kV	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0

### TVA

Limiting Element	Contingency Element	ATC
Sterlington 500/115kV transformer ckt3	Eldorado EHV - Sterlington 500kV	0
Ray Braswell 500/230kV transformer ckt2	Ray Braswell 500/230kV transformer 1	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - McAdams 500kV	0
Ray Braswell 500/230kV transformer ckt2	Lakeover - Ray Braswell 500kV	0
Ray Braswell 500/115kV transformer 1	Ray Braswell 500/230kV transformer ckt1 and ckt2	0
McAdams 500/230kV transformer 1	Choctaw - FrenchCamp 500kV (TVA)	0
Louisiana Station - Thomas 138kV	Webre - Wells 500kV	0
Hebert - Bayou Cove 138kV	Roy S. Nelson - Richard 500kV	0

# APPENDIX A: DATA PROVIDED BY CUSTOMER

Entergy Services, Inc.  
 FERC Electric Tariff  
 Third Revised Volume No. 3

Original Sheet No. 3

## Attachment A to Appendix 1 Interconnection Request

### LARGE GENERATING FACILITY DATA

#### UNIT RATINGS

kVA 695,000 °F 95 Voltage 24,000  
 Power Factor 0.90  
 Speed (RPM) 3600  
 Short Circuit Ratio 0.5  
 Stator Amperes at Rated kVA 16,719  
 Max Turbine MW 588 net °F 95  
611 MW gross

Connection (e.g. Wye) Wye  
 Frequency, Hertz 60  
 Field Volts 485 VDC

#### COMBINED TURBINE-GENERATOR-EXCITER INERTIA DATA

Inertia Constant, H = 2.7 kW sec/kVA  
 Moment-of-Inertia, WR<sub>2</sub> = 6.31x 10<sup>5</sup> lb. ft.<sup>2</sup>

#### REACTANCE DATA (PER UNIT-RATED KVA)

	DIRECT AXIS	QUADRATURE AXIS
Synchronous – saturated	X <sub>dv</sub> <u>1.78</u>	X <sub>qv</sub> <u>1.71</u>
Synchronous – unsaturated	X <sub>di</sub> <u>1.78</u>	X <sub>qi</sub> <u>1.71</u>
Transient – saturated	X' <sub>dv</sub> <u>0.230</u>	X' <sub>qv</sub> <u>N/A</u>
Transient – unsaturated	X' <sub>di</sub> <u>0.250</u>	X' <sub>qi</sub> <u>0.477</u>
Subtransient – saturated	X" <sub>dv</sub> <u>0.162</u>	X" <sub>qv</sub> <u>0.162</u>
Subtransient – unsaturated	X" <sub>di</sub> <u>0.195</u>	X" <sub>qi</sub> <u>0.197</u>
Negative Sequence – saturated	X <sub>2v</sub> <u>0.162</u>	
Negative Sequence – unsaturated	X <sub>2i</sub> <u>0.198</u>	
Zero Sequence – saturated	X <sub>0v</sub> <u>0.120</u>	
Zero Sequence – unsaturated	X <sub>0i</sub> <u>0.120</u>	
Leakage Reactance	X <sub>lm</sub> <u>0.12 sat</u> <u>0.14 unsat</u>	

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**FIELD TIME CONSTANT DATA (SEC)**

Open Circuit	$T'_{do}$	<u>4.00</u>	$T'_{qo}$	<u>0.531</u>
Three-Phase Short Circuit Transient	$T'_{d3}$	<u>0.546</u>	$T'_{q1}$	—
Line to Line Short Circuit Transient	$T'_{d2}$	<u>0.863</u>		
Line to Neutral Short Circuit Transient	$T'_{d1}$	<u>1.071</u>		
Short Circuit Subtransient	$T''_d$	<u>0.023</u>	$T''_{q1}$	<u>0.023</u>
Open Circuit Subtransient	$T''_{do}$	<u>0.032</u>	$T''_{qo}$	<u>0.062</u>

**ARMATURE TIME CONSTANT DATA (SEC)**

Three Phase Short Circuit	$T_{a3}$	<u>0.15</u>
Line to Line Short Circuit	$T_{a2}$	<u>0.15</u>
Line to Neutral Short Circuit	$T_{a1}$	<u>0.14</u>

NOTE: If requested information is not applicable, indicate by marking "N/A."

**MW CAPABILITY AND PLANT CONFIGURATION  
 LARGE GENERATING FACILITY DATA**

**ARMATURE WINDING RESISTANCE DATA (PER UNIT)**

Positive	$R_1$	<u>0.0037</u>
Negative	$R_2$	<u>0.022</u>
Zero	$R_0$	<u>0.011</u>

Rotor Short Time Thermal Capacity  $I_r^2t =$  8.89

Field Current at Rated kVA, Armature Voltage and PF = 4371 amps

Field Current at Rated kVA and Armature Voltage, 0 PF = 5518 amps

Three Phase Armature Winding Capacitance = 0.5862 microfarad

Field Winding Resistance = 0.0791 ohms 25°C

Armature Winding Resistance (Per Phase) = 0.001442 ohms 25°C

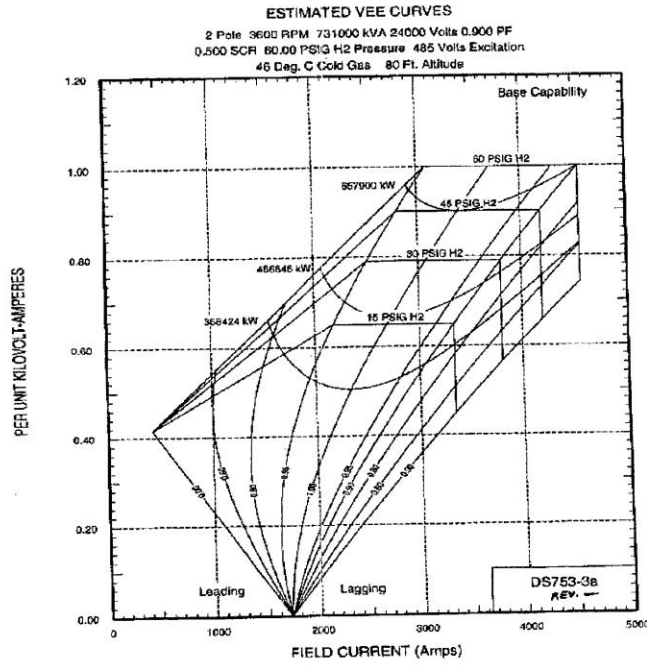
### **CURVES**

Provide Saturation (DS753-1A), Vee (DS753-3A), Reactive Capability (DS753-2A), Capacity Temperature Correction curves. Designate normal and emergency Hydrogen Pressure operating range for multiple curves.

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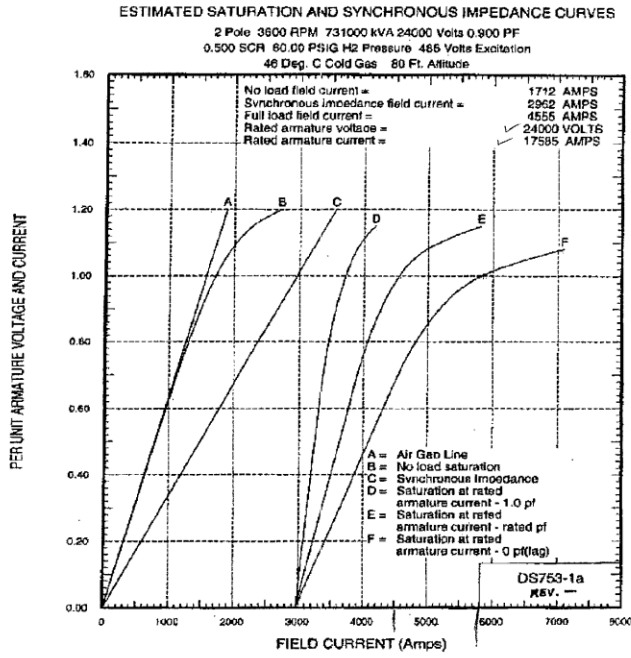
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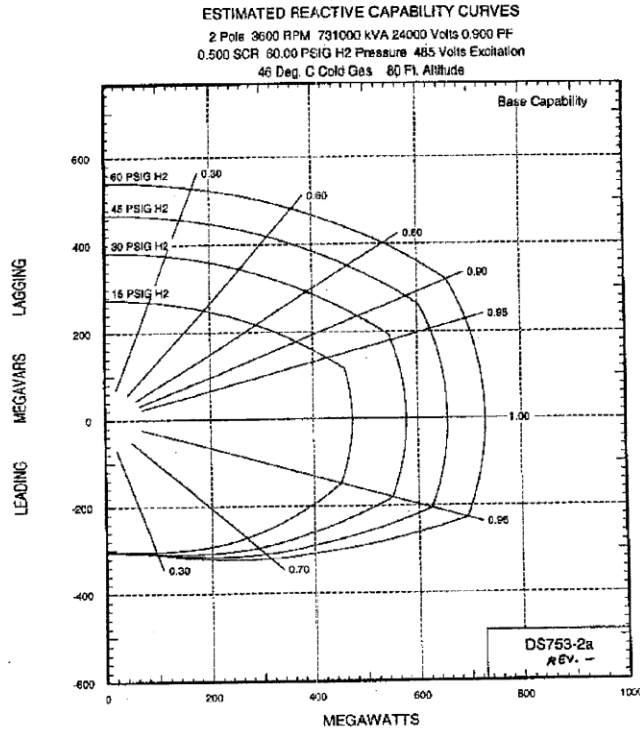
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**GENERATOR STEP-UP TRANSFORMER DATA RATINGS**

Capacity 615 / 689 Self-cooled/Maximum Nameplate kVA

Voltage Ratio(Generator Side/System side/Tertiary)  
22.9 / 500 / N/A kV

Winding Connections (Low V/High V/Tertiary V (Delta or Wye))  
Delta / Wye/ N/A

Fixed Taps Available 5 rated at +/- 2 1/2 %

Present Tap Setting 500 (center tap) or tap 3

**IMPEDANCE**

	Phase A	Phase B	Phase C
	9.25%	9.31%	9.38%
Positive	$Z_1$ (on self-cooled kVA rating) <u>80 X/R</u>		
Zero	$Z_0$ (on self-cooled kVA rating) <u>N/A %</u> ___X/R		

(delta/wye transformer)

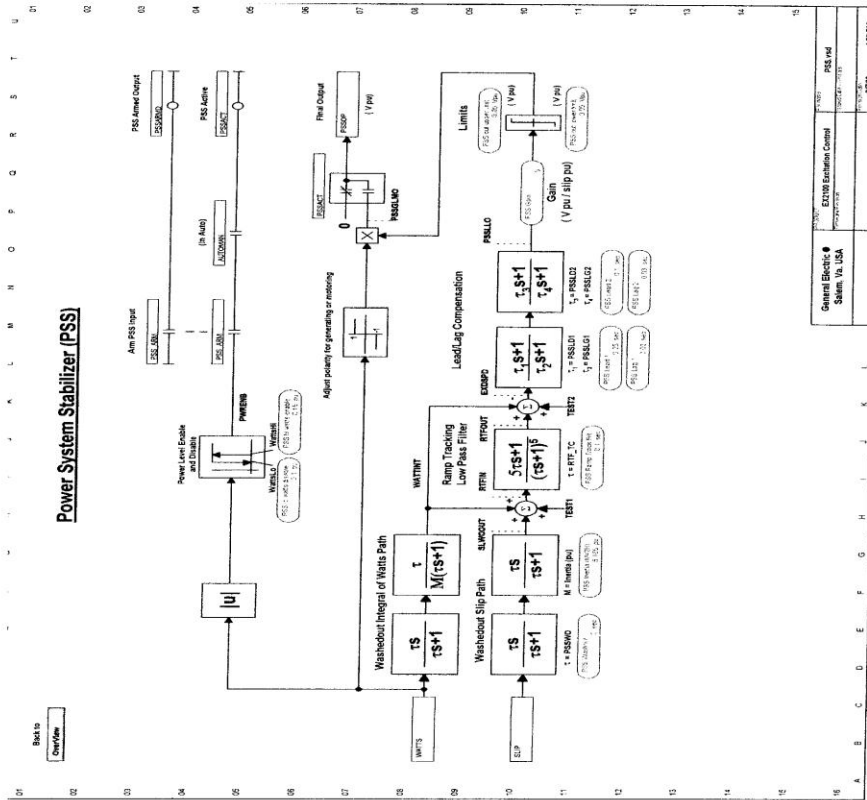
**EXCITATION SYSTEM DATA**

Identify appropriate IEEE model block diagram of excitation system and power system stabilizer (PSS) for computer representation in power system stability simulations and the corresponding excitation system and PSS constants for use in the model.

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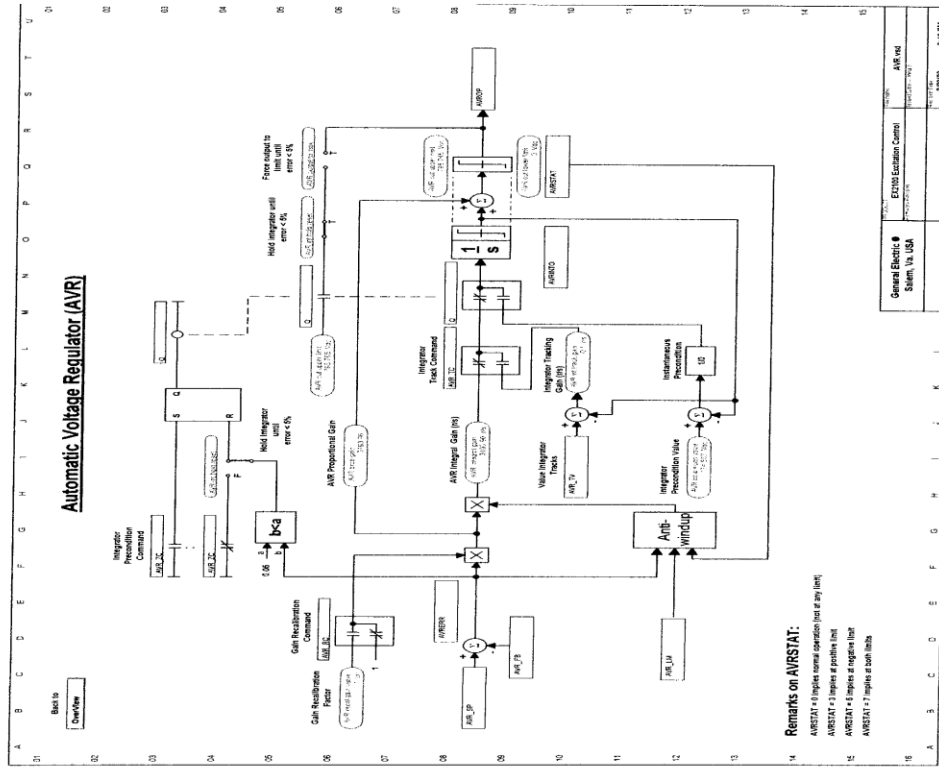
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**GOVERNOR SYSTEM DATA**

Identify appropriate IEEE model block diagram of governor system for computer representation in power system stability simulations and the corresponding governor system constants for use in the model.



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## APPENDIX B: Approved Projects and Transactions in Study Mode

Year	Approved Future Projects
2009 – 2013	2009F EAI Danville 161 kV Substation Rev 0.idv
	2009S EAI Blytheville POD - AECC Rev 1.idv
	2009S EAI Conway West - Donaghey 161 kV Line Reconductor.idv
	2009S EAI Gillette 115 kV Substation.idv
	2009S EAI Hamlet 161 kV Substation Rev 1.idv
	2009S EAI Sarepta Project Rev 0.idv
	2009W EAI Harrison East to Everton Road 161 kV Line Rev 1.idv
	2010S EAI AECC Avilla POD Rev 2.idv
	2010S EAI Coffeerville POD - AECC Rev 0.idv
	2010S EAI Melbourne - Sage 161 kV Line Upgrade Line Rev 0.idv
	2010S EAI Parkin to Twist 161 kV Line Trap Rev 0.idv
	2010S EAI Transmission Service (OG&E) Rev 0.idv
	2010S EAI Warren East 115 kV Substation Install Capacitor Bank Rev 1.idv
	2010Z EAI Beebe 115 kV Substation - Install Capacitor Bank Rev 0.idv
	2010Z EAI Donaghey - Conway South 161 kV Rev 1.idv
	2010Z EAI SMEPA (Plum Point) Rev 1.idv
	2011S EAI Osage Creek-Grandview New Line Rev 2.idv
	2012S EAI Albright (HS Hamilton) Substation 2014 Load.idv
	2012S EAI Cofer Road (Crawford) Substation 2014 Load Rev 0.idv
	2011W EAI Transmission Service (Aquilla) Rev 0.idv
	2012S EAI Westar Transmission Service Rev 0.idv
	2009S EGSL Acadia 138 kV Substation capbank.idv
	2010Z EGSL Addis to Cajun 230kV line upgrade.idv
	2011S EGSL Acadiana Area Improvement Project Phase 1 Rev 1.idv
	2011S EGSL Alchem - Monochem 138 kV line upgrade.idv
	2011S EGSL Construct New Youngsville 138 kV Sub (run AAIP 1 first).idv
	2012S EGSL Acadiana Area Improvement Project Phase 2 (run AAIP 1 first).idv
	2012S EGSL Construct new Nelson to Moss Bluff 230 kV line.idv
	2012S EGSL Tejac to Marydale Upgrade 69 kV line.idv
	2012S EGSL ELL Loblolly-Hammond Build 230kV Line.idv
	2014S Gulf Oxygen Load Correction.idv
	2009W ELLN Delhi 115 kV Substation - Add Cap Bank.idv
	2010W ELLN Delhi 115 kV Substation - Add series reactor.idv
	2010Z ELLS Bogalusa to Adams Creek 230 kV No 2.idv
	2010Z ELLS Snakefarm to Kenner 115 kV line upgrade.idv
	2011S ELLN Sarepta Project.idv
	2012S ELLS Bayou LaBoutte Construct new 500-230 kV Substation.idv
	2012 ELLN Ouachita Project Set 2 Run Second.idv
	2013S ELLN Ouachita Projects Set 1 Run First.idv
	2009W EMI Grenada-Winona-Greenwood Area Improvement Phase I.idv
	2010S EMI Grand Gulf Uprate Project.idv
	2010S EMI Indianola-Greenwood 115 kV Line Upgrade.idv
	2010S EMI Magee 115 kV substation - Replace switches.idv
	2010Z EMI TVA Affected System Upgrades.idv
	2011S EMI Church Road Substation (2014 load).idv
	2011S EMI Sunnybrook-only-2011.idv
	2011S EMI Waterways - Vicksburg East 115 kV Line Upgrade.idv
	2011Z EMI Florence - Florence SS - Star 115 kV Line Upgrade.idv
	2011Z EMI Grand Gulf Uprate add vars.idv

Year	Approved Future Projects
	2012S EMI Grenada-Winona-Greenwood Area Improvement Phase II.idv
	2012S EMI Ridgeland-Madison Reliability Improvement (Sunnybrook-2014).idv
	2009F ETI Gulfway 230kV Substation.idv
	2009S ETI Beaumont 69 kV Improvement Plan Option 2.idv
	2009S ETI Newton Bulk Replace Re-tap CT to Increase Rating on Holly Springs Line.idv
	2009S ETI Porter-Tamina Replace Breaker & Switches.idv
	2009W ETI Fawil Upgrade 138-69 kV Auto.idv
	2010S ETI Temco and Shepherd 138kV Substations.idv
	2010S ETI Western Region Reliability Improvement Plan Phase 3 Interim (Part 1).idv
	2010W ETI Western Region Reliability Improvement Plan Phase 3 Interim (Part 3).idv
	2011S ETI Grand Gulf Uprate Project.idv
	2011S ETI Western Region Reliability Improvement Plan Phase 3 Interim (Part 2).idv
	2011W ETI Tamina to Cedar Hill 138 kV line.idv

Prior Generation Interconnection NRIS requests that were included in this study:

PID	Substation	MW	In Service Date
PID 221	Wolfcreek	875	In Service
PID 223	PID-223 Tap	125	10/1/2010
PID 224	PID-224 Tap	100	12/1/2009
PID 233	PID-233	150	4/30/2011
PID 237	Lakeover 500kV	550	9/1/2010

Prior transmission service requests that were included in this study:

OASIS #	PSE	MW	Begin	End
1668165	Entergy Services (SPO)	600	1/1/2013	1/1/2043