



***Feasibility Study
PID 253
150MW Plant***

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Rev	Issue Date	Description of Revision	Revised By	Project Manager
0	5/3/11	Post Feasibility Study	EC	BR
1	5/18/11	Revised FCITC Table	BC	BR
2	5/26/11	Interconnection facilities cost added to Sections 1 and 4	EC	BR

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Energy Resource Interconnection Service

1. Introduction

This Energy Resource Interconnection Service (ERIS) is based on the Customer's request for 150MW interconnection on Entergy's transmission system between the East Opelousas and Vatican substations located at the proposed Colton 138kV substation. The proposed commercial operation date of the project is December 31, 2013. The objective of this study is to assess the reliability impact of the new facility on the Entergy transmission system as well as its effects on the system's existing short circuit current capability. 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 is connected to Entergy's transmission system. If not, transmission improvements will be identified.

The Feasibility 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. A short circuit analysis is performed to determine if the generation would cause the available fault current to surpass the fault duty of existing equipment within the Entergy transmission system.

This ERIS Feasibility Study was based on information provided by the Customer and assumptions made by Entergy's Independent Coordinator of Transmission (ICT) planning group and 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.

It was determined that there are no Entergy transmission system upgrades required for this ERIS request. The estimated cost of interconnection facilities is \$7.5 Million; which covers the cost of the construction of a new 138kV, 3-element ring bus substation at the Customer's point of interconnection.

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

2. Short circuit Analysis/Breaker Rating Analysis

2.1 Model Information

The short circuit analysis was performed on the Entergy system short circuit model using ASPEN software. This model includes all generators interconnected to the Entergy system or interconnected to an adjacent system and having an impact on this interconnection request, IPP's with signed IOAs, and approved future transmission projects on the Entergy transmission system.

2.2 Short Circuit Analysis

The method used to determine if any short circuit problems would be caused by the addition of the PID-253 generation is as follows:

Three phase and single phase to ground faults were simulated on the Entergy base case short circuit model and the worst case short circuit level was determined at each station. The PID-253 generator was then modeled in the base case to generate a revised short circuit model. The base case short circuit results were

then compared with the results from the revised model to identify any breakers that were under-rated as a result of additional short circuit contribution from PID-253 generation. Any breakers identified to be upgraded through this comparison are mandatory upgrades.

2.3 Analysis Results

The results of the short circuit analysis indicated that the additional generation due to PID 253 generation caused no increase in short circuit current such that they exceeded the fault interrupting capability of the high voltage circuit breakers within the vicinity of the PID 253 plant **with and without priors**. Priors included are: 221, 231, 238, 240, 244, 247, 250, 251 and 252.

2.4 Problem Resolution

As a result of the short circuit analysis findings, no resolution was required on the Entergy Transmission System.

3. Load Flow Analysis

3.1 Model Information

The load flow analysis was performed based on the projected 2014 summer peak load flow model. Approved future transmission projects in the 2011-2013 ICT Base Plan were used in the models for scenarios three and four. These upgrades can be found on Entergy's OASIS web page <http://www.oatioasis.com/EES/EESDocs/Disclaimer.html>. 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 PID 253 generation interconnection point was modeled on the existing East Opelousas – Vatican 138kV line at proposed Colton 138kV substation. These 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 the requesting generator as the source and adjacent control area as sink.

This study considered the following four scenarios:

Scenario No.	Approved Future Transmission Projects	Pending Transmission Service & Study Requests
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.

3.2 Load Flow Analysis

3.2.1 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.

3.2.2 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.

3.2.3 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.

3.3 Analysis Results

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

Table 3.3.1: Summary of Results for PID 253 150MW – 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	-1052	-1140	-853	127
AEPW	American Electric Power West	2014	-1255	-2504	-502	-1682
AMRN	Ameren Transmission	2014	-1008	-1091	-900	134
CLEC	CLECO	2014	-4	-36	150	150

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
EES	Entergy	2014	-591	-3221	-674	-1711
EMDE	Empire District Electric Co	2014	-1097	-3372	-761	113
LAFA	Lafayette Utilities System	2014	-714	-864	150	150
LAGN	Louisiana Generating, LLC	2014	-519	-32	-698	150
LEPA	Louisiana Energy & Power Authority	2014	-162	-650	-143	-473
OKGE	Oklahoma Gas & Electric Company	2014	-1147	-3091	-678	101
SMEPA	South Mississippi Electric Power Assoc.	2014	*	*	*	*
SOCO	Southern Company	2014	-1034	-876	-1151	150
SPA	Southwest Power Administration	2014	-1102	-3475	-798	119
TVA	Tennessee Valley Authority	2014	-943	-1013	-1044	150

*Actual rating of supplemental upgrade was not used to calculate FCITC

4. Facilities at the Point of Interconnection

The Interconnection Customer's designated Point of Interconnection (POI) is the proposed Colton 138kV substation. It is projected an additional 138kV, 3-element ring bus configuration will be required with the construction of the substation. The estimated cost for a 138kV, 3-element ring bus configuration substation is \$7.5 Million. This cost is based on parametric estimating techniques for a "typical" site. Cost may significantly change based on specific project parameters that are not known at this time. Costs specific to this interconnection will be developed during the Facilities Study. The interconnection customer is responsible for constructing all facilities needed to deliver generation to the POI.

TABLE 3.3.2: DETAILS OF SCENARIO 1 RESULTS: (WITHOUT FUTURE PROJECTS AND WITHOUT PENDING TRANSMISSION SERVICE & STUDY REQUEST)

Limiting Elements	Est. Cost	AECI	AEPW	AMRN	CLECO	EES	EMDE	LAFA	LAGN	LEPA	OKGE	SMEPA	SOCO	SPA	TVA
Bonin - Cecelia 138kV	11,760,000									X					
Carroll 230/138kV transformer (CLECO)	9,350,000	X	X	X		X	X				X	X	X	X	X
Conroe 1 - Conroe 2 138kV	TBD		X												
Conway - Wyandotte 138kV	4,200,000	X	X	X		X	X		X		X	X	X	X	X
East Leesville - Rodemacher 230kV (CLECO)	42,940,000	X	X	X		X	X		X		X	X	X	X	X
French Settlement - Sorrento 230kV	7,200,000	X	X	X			X				X	X	X	X	X
Habetz - Richard 138kV	Included in 2011 ICT Base Plan								X						
Inland - McLewis 230kV	Included in 2011 ICT Base Plan					X									
International Paper - Mansfield 138kV (CLECO)	15,960,000	X	X	X			X				X		X	X	X
International Paper - Wallake 138kV (CLECO)	15,120,000	X	X	X			X				X		X	X	X
Jackson Miami - Jackson Monument Street 115kV	2,520,000											X			
Judice - Scott1 138kV	6,720,000	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mossville - Roy S. Nelson 138kV	2,520,000					X									
Pleasant Hill 500/161kV transformer	Included in 2011 ICT Base Plan													X	

Limiting Elements	Est. Cost	AECI	AEPW	AMRN	CLECO	EES	EMDE	LAFA	LAGN	LEPA	OKGE	SMEPA	SOCO	SPA	TVA
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	TBD									X		X			
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Committed to by others											X			
Scott1 - Bonin 138kV	4,200,000				X			X	X	X					
Semere - Scott2 138kV	13,440,000							X							
Toledo - Leesville (CLECO) 138kV	Included in 2011 ICT Base Plan	X	X	X		X	X				X	X	X	X	X
Toledo - VP Tap 138kV	Included in 2011 ICT Base Plan	X	X	X		X	X				X	X	X	X	X
Vatican - Colton Road 138kV	10,080,000							X							
Willow Glen - Evergreen 230kV ckt 2	3,600,000									X					

TABLE 3.3.3: 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	LAFA	LAGN	LEPA	OKGE	SMEPA	SOCO	SPA	TVA
Big Three - Carlyss 230kV	Included in 2011 ICT Base Plan		X			X	X				X			X	
Bonin - Cecelia 138kV	11,760,000									X					
Colonial Academy - Richard 138kV	9,240,000							X							
Coly - Vignes 230kV - Supplemental Upgrade	TBD									X					
Cypress 500/138kV transformer 1	18,770,000		X			X									
Cypress 500/230kV transformer	19,110,000		X			X									
Florence - South Jackson 115kV - Supplemental Upgrade	TBD											X			
French Settlement - Sorrento 230kV	7,200,000	X	X	X			X				X	X	X	X	X
Habetz - Richard 138kV	Included in 2011 ICT Base Plan							X							
Hartburg - Inland Orange 230kV	Included in 2011 ICT Base Plan					X									
Hartburg - Inland Orange 230kV - Supplemental Upgrade	Committed to by others					X									
Hartburg 500/230kV transformer 1	19,110,000					X									
Helbig - McLewis 230kV	Included in 2011 ICT Base Plan					X									
Inland - McLewis 230kV	Included in 2011 ICT Base Plan					X									

Limiting Elements	Est. Cost	AECI	AEPW	AMRN	CLECO	EES	EMDE	LAFA	LAGN	LEPA	OKGE	SMEPA	SOCO	SPA	TVA
Inland - McLewis 230kV - Supplemental Upgrade	Committed to by others					X									
International Paper - Mansfield 138kV (CLECO)	15,960,000		X								X				
Jackson Miami - Jackson Monument Street 115kV	2,520,000											X			
Jackson Miami - Rex Brown 115kV	1,680,000											X			
Judice - Scott1 138kV	6,720,000	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mossville - Roy S. Nelson 138kV	2,520,000					X									
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	TBD									X		X			
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Committed to by others											X			
Scott1 - Bonin 138kV	4,200,000			X		X		X						X	
Semere - Scott2 138kV	13,440,000							X							
Vatican - Colton Road 138kV	10,080,000							X							
Willow Glen - Evergreen 230kV ckt 2	3,600,000									X					

TABLE 3.3.4: 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
Bonin - Cecelia 138kV	11,760,000									X					
Carroll 230/138kV transformer (CLECO)	9,350,000	X	X	X		X	X				X	X	X	X	X
Conroe 1 - Conroe 2 138kV	TBD		X												
Conway - Wyandotte 138kV	4,200,000											X			
East Leesville - Rodemacher 230kV (CLECO)	42,940,000	X	X	X		X	X		X		X	X	X	X	X
International Paper - Mansfield 138kV (CLECO)	15,960,000	X	X	X			X				X		X	X	X
International Paper - Wallake 138kV (CLECO)	15,120,000	X	X	X			X				X		X	X	X
Jackson Miami - Jackson Monument Street 115kV	2,520,000											X			
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	TBD									X		X			
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Committed to by others											X			
Scott1 - Bonin 138kV	4,200,000														

TABLE 3.3.5: DETAILS OF SCENARIO 4 RESULTS: (WITH FUTURE PROJECTS AND WITH PENDING TRANSMISSION SERVICE & STUDY REQUEST)

Limiting Elements	Est. Cost	AECI	AEPW	AMRN	CLECO	EES	EMDE	LAFA	LAGN	LEPA	OKGE	SMEPA	SOCO	SPA	TVA
Bonin - Cecelia 138kV	11,760,000									X					
Cypress 500/138kV transformer 1	18,770,000		X			X									
Cypress 500/230kV transformer	19,110,000		X			X									
Florence - South Jackson 115kV - Supplemental Upgrade	TBD											X			
Hartburg - Inland Orange 230kV - Supplemental Upgrade	Committed to by others					X									
Helbig - McLewis 230kV	Included in 2011 ICT Base Plan					X									
Inland - McLewis 230kV - Supplemental Upgrade	Committed to by others					X									
International Paper - Mansfield 138kV (CLECO)	15,960,000	X	X	X			X				X			X	
Jackson Miami - Jackson Monument Street 115kV	2,520,000											X			
Jackson Miami - Rex Brown 115kV	1,680,000											X			
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	TBD									X		X			
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Committed to by others											X			
Willow Glen - Evergreen 230kV ckt 2	3,600,000									X					

3.3.1 DETAILS OF SCENARIO 1 – 2014

AECI

Limiting Element	Contingency Element	ATC
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1052
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1052
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-771
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-402
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-356
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-302
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-223
Toledo - VP Tap 138kV	Colfax - Rodemacher 230kV	-29
Toledo - Leesville (CLECO) 138kV	Colfax - Rodemacher 230kV	10
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	82
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	84
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	90
Toledo - VP Tap 138kV	Colfax - Montgomery 230kV	101
French Settlement - Sorrento 230kV	Fairview - Gypsy 230kV	119
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	125
Conway - Wyandotte 138kV	Oak Grove - T300/331 138kV	135
French Settlement - Sorrento 230kV	Fairview - Madisonville 230kV	138
Toledo - Leesville (CLECO) 138kV	Colfax - Montgomery 230kV	144

AEPW

Limiting Element	Contingency Element	ATC
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1255
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1255
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-449
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-339
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-262
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-188
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-176
Toledo - VP Tap 138kV	Colfax - Rodemacher 230kV	-22
Conroe 1 - Conroe 2 138kV	Oak Ridge - Porter 138kV	-17
Toledo - Leesville (CLECO) 138kV	Colfax - Rodemacher 230kV	8
Toledo - VP Tap 138kV	Colfax - Montgomery 230kV	75

Limiting Element	Contingency Element	ATC
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	83
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	86
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	92
Toledo - Leesville (CLECO) 138kV	Colfax - Montgomery 230kV	111
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	130
French Settlement - Sorrento 230kV	Fairview - Gypsy 230kV	137
Toledo - Leesville (CLECO) 138kV	Colfax - Montgomery 230kV	202
French Settlement - Sorrento 230kV	Franklin - Mcknight 500kV	230

AMRN

Limiting Element	Contingency Element	ATC
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1008
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1008
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-813
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-411
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-370
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-319
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-228
Toledo - VP Tap 138kV	Colfax - Rodemacher 230kV	-30
Toledo - Leesville (CLECO) 138kV	Colfax - Rodemacher 230kV	11
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	81
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	84
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	90
Toledo - VP Tap 138kV	Colfax - Montgomery 230kV	105
French Settlement - Sorrento 230kV	Fairview - Gypsy 230kV	116
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	124
Conway - Wyandotte 138kV	Oak Grove - T300/331 138kV	134
French Settlement - Sorrento 230kV	Fairview - Madisonville 230kV	135
Toledo - Leesville (CLECO) 138kV	Colfax - Montgomery 230kV	149

CLECO

Limiting Element	Contingency Element	ATC
Scott1 - Bonin 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	-4
Scott1 - Bonin 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	85
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	91
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	95
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	101

EES

Limiting Element	Contingency Element	ATC
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-591
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-434
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-242
Mossville - Roy S. Nelson 138kV	Hartburg - Roy S. Nelson 500kV	-117
Toledo - VP Tap 138kV	Colfax - Rodemacher 230kV	-58
Toledo - Leesville (CLECO) 138kV	Colfax - Rodemacher 230kV	15
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	74
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	77
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	82
Inland - McLewis 230kV	Cypress - Hartburg 500kV	102
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	126
Conway - Wyandotte 138kV	Oak Grove - T300/331 138kV	136

EMDE

Limiting Element	Contingency Element	ATC
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1097
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1097
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-686
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-387
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-334
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-269
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-215
Toledo - VP Tap 138kV	Colfax - Rodemacher 230kV	-27
Toledo - Leesville (CLECO) 138kV	Colfax - Rodemacher 230kV	10
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	82
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	85
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	90
Toledo - VP Tap 138kV	Colfax - Montgomery 230kV	95
French Settlement - Sorrento 230kV	Fairview - Gypsy 230kV	123
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	126
Conway - Wyandotte 138kV	Oak Grove - T300/331 138kV	136
Toledo - Leesville (CLECO) 138kV	Colfax - Montgomery 230kV	136
French Settlement - Sorrento 230kV	Fairview - Madisonville 230kV	143

LAFA

Limiting Element	Contingency Element	ATC
Semere - Scott2 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	-714
Semere - Scott2 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	-637
Habetz - Richard 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	-395
Semere - Scott2 138kV	Wells 500/230kV transformer	-387
Habetz - Richard 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	-334
Habetz - Richard 138kV	Wells 500/230kV transformer	-76
Habetz - Richard 138kV	Acadian - Bonin 230kV (LAFA)	-32
Scott1 - Bonin 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	-1
Scott1 - Bonin 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	25
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	85
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	89
Habetz - Richard 138kV	Flander - Acadian 230kV (LAFA)	92
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	94
Vatican - Colton Road 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	126
Vatican - Colton Road 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	139

LAGN

Limiting Element	Contingency Element	ATC
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-519
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-289
Scott1 - Bonin 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	-4
Scott1 - Bonin 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	71
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	82
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	85
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	91
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	132
Conway - Wyandotte 138kV	Oak Grove - T300/331 138kV	142

LEPA

Limiting Element	Contingency Element	ATC
Bonin - Cecelia 138kV	Colonial Academy - Richard 138kV	-162
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	Franklin - Grand Gulf 500kV	-118
Bonin - Cecelia 138kV	Acadia GSU - Colonial Academy 138kV	-39
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	40
Bonin - Cecelia 138kV	Acadia GSU - Scanlan 138kV	41
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	41
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	44
Scott1 - Bonin 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	60
Willow Glen - Evergreen 230kV ckt 2	Willow Glen - Evergreen 230kV ckt 1	78

OKGE

Limiting Element	Contingency Element	ATC
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1147
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1147
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-610
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-372
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-312
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-239
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-207
Toledo - VP Tap 138kV	Colfax - Rodemacher 230kV	-25
Toledo - Leesville (CLECO) 138kV	Colfax - Rodemacher 230kV	9
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	82
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	85
Toledo - VP Tap 138kV	Colfax - Montgomery 230kV	89
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	91
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	127
French Settlement - Sorrento 230kV	Fairview - Gypsy 230kV	127
Toledo - Leesville (CLECO) 138kV	Colfax - Montgomery 230kV	129
Conway - Wyandotte 138kV	Oak Grove - T300/331 138kV	138
French Settlement - Sorrento 230kV	Fairview - Madisonville 230kV	148

SMEPA

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	McAdams 500/230kV transformer 1	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Eldorado EHV - Sterlington 500kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	McAdams - Pickens 230kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Canton - Pickens 230kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	SilverCreekTie(SMEPA) - Prentiss (SMEPA) 161kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Lakeover 500/115kV transformer	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Mosel (SMEPA) - Creek (SMEPA) 161kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Canton South - Canton 230kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Colum (SMEPA) - Morow (SMEPA) 161kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Southwest Lonestar (SMEPA) - Prentiss (SMEPA) 161kV	*

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Base Case	*
Jackson Miami - Jackson Monument Street 115kV	South Jackson 230/115kV transformer 1	-928
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-543
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-517
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-445
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-445
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-288
Jackson Miami - Jackson Monument Street 115kV	Jackson Forrest Hill - Ray Braswell 115kV	-183
Jackson Miami - Jackson Monument Street 115kV	Jackson HICO - Rex Brown E 115kV	-143
Jackson Miami - Jackson Monument Street 115kV	Jackson HICO - North Jackson 115kV	-143
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	Franklin - Grand Gulf 500kV	-71
Toledo - VP Tap 138kV	Colfax - Rodemacher 230kV	-44
Jackson Miami - Jackson Monument Street 115kV	Jackson Forrest Hill - Southwest Jackson 115kV	-18
Toledo - Leesville (CLECO) 138kV	Colfax - Rodemacher 230kV	15
Jackson Miami - Jackson Monument Street 115kV	Klean - Jackson Northeast 115kV	35
Jackson Miami - Jackson Monument Street 115kV	Ray Braswell - West Jackson 115kV	64
French Settlement - Sorrento 230kV	Fairview - Gypsy 230kV	72
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	78
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	81
French Settlement - Sorrento 230kV	Fairview - Madisonville 230kV	83
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	87
Jackson Miami - Jackson Monument Street 115kV	Klean - Flowood 115kV	103
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	114
Conway - Wyandotte 138kV	Oak Grove - T300/331 138kV	124

SOCO

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-1034
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-809
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-809
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-457
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-441
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-406
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-254
Toledo - VP Tap 138kV	Colfax - Rodemacher 230kV	-36
Toledo - Leesville (CLECO) 138kV	Colfax - Rodemacher 230kV	12
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	80
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	83
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	88
French Settlement - Sorrento 230kV	Fairview - Gypsy 230kV	104
French Settlement - Sorrento 230kV	Fairview - Madisonville 230kV	120
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	120
Toledo - VP Tap 138kV	Colfax - Montgomery 230kV	126
Conway - Wyandotte 138kV	Oak Grove - T300/331 138kV	130

SPA

Limiting Element	Contingency Element	ATC
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1102
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1102
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-721
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-391
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-341
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-283
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-217
Toledo - VP Tap 138kV	Colfax - Rodemacher 230kV	-28
Toledo - Leesville (CLECO) 138kV	Colfax - Rodemacher 230kV	10
Pleasant Hill 500/161kV transformer	ANO 500/161/22kV 3 Winding Transformer	77
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	82
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	85

Limiting Element	Contingency Element	ATC
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	90
Toledo - VP Tap 138kV	Colfax - Montgomery 230kV	97
French Settlement - Sorrento 230kV	Fairview - Gypsy 230kV	123
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	126
Conway - Wyandotte 138kV	Oak Grove - T300/331 138kV	136
Toledo - Leesville (CLECO) 138kV	Colfax - Montgomery 230kV	139
French Settlement - Sorrento 230kV	Fairview - Madisonville 230kV	143

TVA

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-943
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-935
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-935
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-434
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-406
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-370
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-241
Toledo - VP Tap 138kV	Colfax - Rodemacher 230kV	-33
Toledo - Leesville (CLECO) 138kV	Colfax - Rodemacher 230kV	11
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	81
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	84
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	89
French Settlement - Sorrento 230kV	Fairview - Gypsy 230kV	110
Toledo - VP Tap 138kV	Colfax - Montgomery 230kV	116
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	122
French Settlement - Sorrento 230kV	Fairview - Madisonville 230kV	127
Conway - Wyandotte 138kV	Oak Grove - T300/331 138kV	132

3.3.2 DETAILS OF SCENARIO 2 - 2014

AECI

Limiting Element	Contingency Element	ATC
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1140
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1140
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-32
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-29
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-24

AEPW

Limiting Element	Contingency Element	ATC
Big Three - Carlyss 230kV	Cypress - Hartburg 500kV	-2504
Cypress 500/138kV transformer 1	Cypress 500/230kV transformer	-2406
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1359
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1359
Cypress 500/230kV transformer	Cypress 500/138kV transformer 1	-1209
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-33
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-30
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-24
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	108

AMRN

Limiting Element	Contingency Element	ATC
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1091
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1091
Scott1 - Bonin 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	-39
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-32
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-29
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-24
Scott1 - Bonin 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	37

CLECO

Limiting Element	Contingency Element	ATC
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-36
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-33
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-26

EES

Limiting Element	Contingency Element	ATC
Inland - McLewis 230kV	Cypress - Hartburg 500kV	-3221
Helbig - McLewis 230kV	Cypress - Hartburg 500kV	-2895
Hartburg - Inland Orange 230kV - Supplemental Upgrade	Cypress - Hartburg 500kV	-2841
Hartburg - Inland Orange 230kV	Cypress - Hartburg 500kV	-2769
Inland - McLewis 230kV - Supplemental Upgrade	Cypress - Hartburg 500kV	-2409
Big Three - Carlyss 230kV	Cypress - Hartburg 500kV	-2279
Cypress 500/138kV transformer 1	Cypress 500/230kV transformer	-1652
Cypress 500/230kV transformer	Cypress 500/138kV transformer 1	-804
Hartburg 500/230kV transformer 1	Cypress - Hartburg 500kV	-686
Mossville - Roy S. Nelson 138kV	Hartburg - Roy S. Nelson 500kV	-55
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-29
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-27
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-22
Scott1 - Bonin 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	37

EMDE

Limiting Element	Contingency Element	ATC
Big Three - Carlyss 230kV	Cypress - Hartburg 500kV	-3372
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1189
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1189
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-32
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-29
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-24

LAFA

Limiting Element	Contingency Element	ATC
Semere - Scott2 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	-864
Semere - Scott2 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	-787
Habetz - Richard 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	-493
Semere - Scott2 138kV	Wells 500/230kV transformer	-465
Habetz - Richard 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	-431
Habetz - Richard 138kV	Wells 500/230kV transformer	-112
Habetz - Richard 138kV	Acadian - Bonin 230kV (LAFA)	-106
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-34
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-31
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-25
Scott1 - Bonin 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	-14
Scott1 - Bonin 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	13
Habetz - Richard 138kV	Flander - Acadian 230kV (LAFA)	19
Colonial Academy - Richard 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	77

Habetz - Richard 138kV	Richard - Wells 500kV	96
Vatican - Colton Road 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	134
Vatican - Colton Road 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	148

LAGN

Limiting Element	Contingency Element	ATC
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-32
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-29
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-24

LEPA

Limiting Element	Contingency Element	ATC
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	Franklin - Grand Gulf 500kV	-650
Willow Glen - Evergreen 230kV ckt 2	Willow Glen - Evergreen 230kV ckt 1	-531
Coly - Vignes 230kV - Supplemental Upgrade	A.A.C. - Polsky Carville 230kV	-442
Coly - Vignes 230kV - Supplemental Upgrade	A.A.C. - Licar 230kV	-417
Coly - Vignes 230kV - Supplemental Upgrade	Belle Helene - Licar 230kV	-336
Bonin - Cecelia 138kV	Colonial Academy - Richard 138kV	-244
Bonin - Cecelia 138kV	Acadia GSU - Colonial Academy 138kV	-122
Coly - Vignes 230kV - Supplemental Upgrade	Belle Helene - Woodstock 230kV	-67
Coly - Vignes 230kV - Supplemental Upgrade	Vulchlor - Woodstock 230kV	-66
Bonin - Cecelia 138kV	Acadia GSU - Scanlan 138kV	-42
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-16
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-14
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-12

OKGE

Limiting Element	Contingency Element	ATC
Big Three - Carlyss 230kV	Cypress - Hartburg 500kV	-3091
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1242
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1242
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-32
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-29
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-24
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	147

SMEPA

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	McAdams 500/230kV transformer 1	-8605
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	McAdams - Pickens 230kV	-7581
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Lakeover 500/115kV transformer	-7438
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Eldorado EHV - Sterlington 500kV	-7413
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	SilverCreekTie(SMEPA) - Prentiss (SMEPA) 161kV	-7201
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Canton - Pickens 230kV	-7184
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Mosel (SMEPA) - Creek (SMEPA) 161kV	-7171
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Ray Braswell 500/115kV transformer 1	-7123
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Sweatt (SOCO) - Lost Gap (SOCO) 115kV	-7039
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Colum (SMEPA) - Morow (SMEPA) 161kV	-7036
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Base Case	-6711
Jackson Miami - Jackson Monument Street 115kV	South Jackson 230/115kV transformer 1	-1440
Jackson Miami - Jackson Monument Street 115kV	Jackson HICO - Rex Brown E 115kV	-601
Jackson Miami - Jackson Monument Street 115kV	Jackson HICO - North Jackson 115kV	-601
Jackson Miami - Jackson Monument Street 115kV	Jackson Forrest Hill - Ray Braswell 115kV	-595
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-482
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-482
Jackson Miami - Jackson Monument Street 115kV	Jackson Forrest Hill - Southwest Jackson 115kV	-430
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	Franklin - Grand Gulf 500kV	-394
Jackson Miami - Jackson Monument Street 115kV	Klean - Jackson Northeast 115kV	-389
Jackson Miami - Jackson Monument Street 115kV	Klean - Flowood 115kV	-321
Jackson Miami - Jackson Monument Street 115kV	North Jackson - Jackson Canton Road 115kV	-307
Jackson Miami - Jackson Monument Street 115kV	Ray Braswell - West Jackson 115kV	-280
Jackson Miami - Rex Brown 115kV	South Jackson 230/115kV transformer 1	-105
Florence - South Jackson 115kV - Supplemental Upgrade	Bogalusa - Adams Creek 500/230kV transformer	-32
Florence - South Jackson 115kV - Supplemental Upgrade	Bogalusa - Franklin 500kV	-32

Limiting Element	Contingency Element	ATC
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-31
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-28
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-23
Florence - South Jackson 115kV - Supplemental Upgrade	Choctaw MS (TVA) - Clay (TVA) 500kV	126

SOCO

Limiting Element	Contingency Element	ATC
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-876
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-876
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-32
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-29
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-23

SPA

Limiting Element	Contingency Element	ATC
Big Three - Carlyss 230kV	Cypress - Hartburg 500kV	-3475
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1193
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1193
Scott1 - Bonin 138kV	Cocodrie (CLECO) - Vil Plat (CLECO) 230kV	-39
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-32
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-29
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-24
Scott1 - Bonin 138kV	Vil Plat (CLECO) - West Fork (CLECO) 230kV	37

TVA

Limiting Element	Contingency Element	ATC
French Settlement - Sorrento 230kV	Bogalusa - Adams Creek 500/230kV transformer	-1013
French Settlement - Sorrento 230kV	Bogalusa - Franklin 500kV	-1013
Judice - Scott1 138kV	Sellers Road (CLECO) - Labbe (LAFA) 230kV	-32
Judice - Scott1 138kV	Sellers Road (CLECO) - Segura (CLECO) 230kV	-29
Judice - Scott1 138kV	Segura (CLECO) 230/138kV transformer'	-23

3.3.3 DETAILS OF SCENARIO 3 - 2014

AECI

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-853
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-518
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-389
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-353
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-320

AEPW

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-502
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-428
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-278
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-265
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-208
Conroe 1 - Conroe 2 138kV	Oak Ridge - Porter 138kV	13

AMRN

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-900
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-532
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-404
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-372
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-328

CLECO

Limiting Element	Contingency Element	ATC
NONE	NONE	150

EES

Limiting Element	Contingency Element	ATC
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV	-674

Limiting Element	Contingency Element	ATC
	(CLECO)	
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-564
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-349

EMDE

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-761
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-497
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-362
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-315
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-307

Lafa

Limiting Element	Contingency Element	ATC
NONE	NONE	150

LAGN

Limiting Element	Contingency Element	ATC
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-698
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-432

LEPA

Limiting Element	Contingency Element	ATC
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	Franklin - Grand Gulf 500kV	-143
Bonin - Cecelia 138kV	Colonial Academy - Richard 138kV	110

OKGE

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-678
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-476
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-336
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-294
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-281

SMEPA

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	McAdams - Pickens 230kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Eldorado EHV - Sterlington 500kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Canton - Pickens 230kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Magee (TVA) - Creek (TVA) 161kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Colum (SMEPA) - SW Lonestar (SMEPA) 161kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Canton South - Canton 230kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Pelahatchie - Rankin 115kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Lakeover 500/115kV transformer	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Base Case	*
Jackson Miami - Jackson Monument Street 115kV	South Jackson 230/115kV transformer 1	-794
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-697
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-616
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-431
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	Franklin - Grand Gulf 500kV	-86
Jackson Miami - Jackson Monument Street 115kV	Jackson Forrest Hill - Ray Braswell 115kV	-2
Jackson Miami - Jackson Monument Street 115kV	Klean - Jackson Northeast 115kV	139
Conway - Wyandotte 138kV	T300/331 - Willow Glen 138kV	145

SOCO

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-1151
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-602
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-489
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-476
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-372

SPA

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-798
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-502
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-370
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-330
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-310

TVA

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-1044
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Rodemacher 230kV	-566
Carroll 230/138kV transformer (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-448
International Paper - Wallake 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	-432
East Leesville - Rodemacher 230kV (CLECO)	Colfax - Montgomery 230kV	-350

32.3.4 DETAILS OF SCENARIO 4 - 2014

AECI

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	127

AEPW

Limiting Element	Contingency Element	ATC
Cypress 500/138kV transformer 1	Cypress 500/230kV transformer	-1682
Cypress 500/230kV transformer	Cypress 500/138kV transformer 1	-558
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	75

AMRN

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	134

CLECO

Limiting Element	Contingency Element	ATC
NONE	NONE	150

EES

Limiting Element	Contingency Element	ATC
Hartburg - Inland Orange 230kV - Supplemental Upgrade	Cypress - Hartburg 500kV	-1711
Inland - McLewis 230kV - Supplemental Upgrade	Cypress - Hartburg 500kV	-1255
Cypress 500/138kV transformer 1	Cypress 500/230kV transformer	-1148
Helbig - McLewis 230kV	Cypress - Hartburg 500kV	-914
Cypress 500/230kV transformer	Cypress 500/138kV transformer 1	-369

EMDE

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	113

LAFA

Limiting Element	Contingency Element	ATC
NONE	NONE	150

LAGN

Limiting Element	Contingency Element	ATC
NONE	NONE	150

LEPA

Limiting Element	Contingency Element	ATC
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	Franklin - Grand Gulf 500kV	-473
Bonin - Cecelia 138kV	Colonial Academy - Richard 138kV	53
Willow Glen - Evergreen 230kV ckt 2	A.A.C. - Polsky Carville 230kV	127

OKGE

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	101

SMEPA

Limiting Element	Contingency Element	ATC
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	McAdams - Pickens 230kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Northside - Rex Brown 230kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Canton - Pickens 230kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Lakeover 500/115kV transformer	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Eldorado EHV - Sterlington 500kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Magee (TVA) - Creek (TVA) 161kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Northside - Ray Braswell 230kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Colum (SMEPA) - SW Lonestar (SMEPA) 161kV	*
Ray Braswell 500/230kV transformer ckt2 - Supplemental Upgrade	Base Case	*
Jackson Miami - Jackson Monument Street 115kV	South Jackson 230/115kV transformer 1	-1296
Jackson Miami - Jackson Monument Street 115kV	Jackson Forrest Hill - Ray Braswell 115kV	-412
Ray Braswell - Baxter Wilson 500kV - Supplemental Upgrade	Franklin - Grand Gulf 500kV	-285
Jackson Miami - Jackson Monument Street 115kV	Klean - Jackson Northeast 115kV	-276
Jackson Miami - Jackson Monument Street 115kV	Jackson HICO - North Jackson 115kV	-260
Jackson Miami - Jackson Monument Street 115kV	Jackson HICO - Rex Brown E 115kV	-260
Jackson Miami - Jackson Monument Street 115kV	Jackson Forrest Hill - Southwest Jackson 115kV	-252

Limiting Element	Contingency Element	ATC
Jackson Miami - Jackson Monument Street 115kV	Klean - Flowood 115kV	-210
Jackson Miami - Jackson Monument Street 115kV	Ray Braswell - West Jackson 115kV	-117
Florence - South Jackson 115kV - Supplemental Upgrade	Bogalusa - Adams Creek 500/230kV transformer	-79
Florence - South Jackson 115kV - Supplemental Upgrade	Bogalusa - Franklin 500kV	-79
Jackson Miami - Jackson Monument Street 115kV	Lake Castle - Lakeover 230kV	-75
Jackson Miami - Rex Brown 115kV	South Jackson 230/115kV transformer 1	10
Florence - South Jackson 115kV - Supplemental Upgrade	Choctaw MS (TVA) - Clay (TVA) 500kV	52
Florence - South Jackson 115kV - Supplemental Upgrade	South Jackson - Pop Spring 115kV	78
Florence - South Jackson 115kV - Supplemental Upgrade	Kemper (SOCO) - Kemper1 (SOCO) 230kV	86
Florence - South Jackson 115kV - Supplemental Upgrade	Franklin - Grand Gulf 500kV	98
Florence - South Jackson 115kV - Supplemental Upgrade	Georgetown - Pop Spring 115kV	99
Florence - South Jackson 115kV - Supplemental Upgrade	Georgetown - Silver Creek 115kV	105
Florence - South Jackson 115kV - Supplemental Upgrade	Sturgis MS (TVA) - NW Louisville (TVA) 161kV	137
Florence - South Jackson 115kV - Supplemental Upgrade	Ellicott (SOCO) - BarryCC2 (SOCO) 230kV	140

SOCO

Limiting Element	Contingency Element	ATC
NONE	NONE	150

SPA

Limiting Element	Contingency Element	ATC
International Paper - Mansfield 138kV (CLECO)	Dolet Hills - S.W. Shreveport 345kV (CLECO)	119

TVA

Limiting Element	Contingency Element	ATC
NONE	NONE	150

APPENDIX A: Prior Generation Interconnection and Transmission Service Requests Used in Study Models

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

PID	Substation	MW	In Service Date
	NONE		

Prior transmission service requests that were included in this study:

OASIS #	PSE	MW	Begin	End
74597193	NRG Power Marketing	300	1/1/2013	1/1/2018
74597198	NRG Power Marketing	300	1/1/2013	1/1/2018
74728369	Brazos Electric Coop	100	1/1/2012	1/1/2017
74728395	Brazos Electric Coop	100	1/1/2012	1/1/2017
74728400	Brazos Electric Coop	100	1/1/2012	1/1/2017
74728415	Brazos Electric Coop	100	1/1/2012	1/1/2017
74728420	Brazos Electric Coop	100	1/1/2012	1/1/2017
74789476	Entergy Services (SPO)	1	1/1/2012	1/1/2016
74799834	Cargill Power Markets	101	7/1/2012	7/1/2017
74799836	Cargill Power Markets	101	7/1/2012	7/1/2017
74799837	Cargill Power Markets	101	7/1/2012	7/1/2017
74799848	Cargill Power Markets	101	7/1/2013	7/1/2018
74799851	Cargill Power Markets	101	7/1/2013	7/1/2018
74799853	Cargill Power Markets	101	7/1/2013	7/1/2018
74899933	Entergy Services (SPO)	322	2/1/2011	2/1/2041
74899954	Entergy Services (SPO)	1	2/1/2011	2/1/2014
74899956	Entergy Services (SPO)	100	2/1/2011	2/1/2014
74899968	Entergy Services (SPO)	1	2/1/2013	2/1/2015
74899969	Entergy Services (SPO)	1	2/1/2012	2/1/2015
74899972	Entergy Services (SPO)	1	1/1/2015	1/1/2045
74899974	Entergy Services (SPO)	1	1/1/2015	1/1/2045
74899976	Entergy Services (SPO)	1	1/1/2015	1/1/2045
74899980	Entergy Services (SPO)	584	1/1/2015	1/1/2045
74899988	Entergy Services (SPO)	1	6/1/2012	6/1/2022
74899989	Entergy Services (SPO)	485	6/1/2012	6/1/2022
74899993	Entergy Services (SPO)	1	6/1/2012	6/1/2042
74899996	Entergy Services (SPO)	450	6/1/2012	6/1/2042
74900000	Entergy Services (SPO)	620	6/1/2012	6/1/2042
74900014	Entergy Services (SPO)	35	6/1/2012	6/1/2042
74900016	Entergy Services (SPO)	20	6/1/2012	6/1/2042
74901827	Entergy Services (SPO)	1	2/1/2011	2/1/2041
75009400	Entergy Services (SPO)	1	1/1/2012	1/1/2042
75009407	Entergy Services (SPO)	1	1/1/2012	1/1/2042