

SPP Entergy ICT
Retrospective Generation
Interconnection Analysis
Phase 1A
Final Report

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December 2007



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Retrospective Generation Interconnection Analysis

Final Report

1 Introduction

1.1 Background

As Entergy's Independent Coordinator of Transmission, SPP is responsible for the administration of Entergy's Open Access Transmission Tariff in an independent and non-discriminatory manner. Among other things, this includes performing studies for generation interconnection requests.

As part of this study process, SPP must determine whether any transmission upgrades will be required in order to grant the requested service and what those upgrades should be. The Tariff further requires that such upgrades be classified as "Base Plan" or "Supplemental" for the purpose of determining the method of cost recovery and the establishment of transmission rights. Base Plan upgrades are those necessary to maintain the reliability of the system, while all other upgrades are Supplemental. This classification process is outlined in Attachment T of the Tariff effective November 17, 2006.

For interconnection upgrade costs that were incurred *before* the effective date of Attachment T, the Tariff requires that a review be undertaken to classify them according to the new Base Plan and Supplemental classifications so that their remaining costs will be recovered consistent with the new Tariff provisions.

The process of reviewing and classifying these previously-incurred interconnection costs is outlined in Section 5 of Attachment T.

1.2 Purpose

This purpose of this report is to document the process, methodologies, and assumptions used to review and classify these previously-incurred interconnection costs, and the resulting classifications. SPP conducted its first classification study on previously incurred interconnection costs in late 2006 and issued a report on December 1, 2006. As source information, Entergy provided both a list of upgrades and a summary of transmission service credits that had been issued for those upgrades. In conducting the first study, it was assumed that if credits had not been issued for an upgrade, or if no credits remained, then the upgrade had been "fully credited" as that term is used in Attachment T Section 5 of Entergy's OATT. Subsequent to the publication of the first report, it was determined that this assumption was based on a misinterpretation of the Tariff language, and that all upgrades should have been evaluated regardless of whether they had originally received, or been eligible for, transmission credits. SPP decided to repeat the first study, evaluating both upgrades that had and that had not received credits, including those upgrades that had been evaluated and classified in the first study. This Phase 1A report is the result of that second study. This report and the classifications contained herein supersede and replace the first study published on December 1, 2006.

1.3 Process Overview

The major steps of the review process are:

1. Determine which upgrades are eligible for review.
2. Categorize upgrades as Direct Interconnection, Required, or Optional.
3. Sub-categorize and classify Direct Interconnection upgrades
4. Analyze and classify Required upgrades.
5. Analyze and classify Optional upgrades and previously unclassified upgrades
6. Report the classification of all upgrades as Base Plan or Supplemental

The details of each step are further described in the body of this report.

1.4 Stakeholder Participation

Attachment T requires the ICT to consult with individual generation owners to get the benefit of their views of the upgrades that they funded and to ensure that they understand the classification process. To that end, SPP took the following steps:

- Impacted customers were contacted individually by telephone and email in early June 2007 to arrange a conference call.
- An overview of the study process and detailed information on each customer's upgrades was forwarded by email prior to the call.
- Conference calls were conducted between June 5 and August 16, 2007.
- During the conference calls, the study process was explained and customers' questions were answered. Information on costs, in-service dates and any other pertinent information was solicited from the customers.
- Several customers did provide information during and subsequent to the calls that was helpful to the study, and that information was taken into consideration in the classification process.
- Of the 21 impacted customers, one declined to schedule a conference call, in spite of multiple attempts by SPP to do so.

2 Summary of Results

The review resulted in the classification of 127 upgrades associated with 21 generation facilities. The classifications for specific upgrades are provided in the Appendices to this report.

3 Determination of Eligible Facilities

Attachment T and FERC orders limit the scope of the review to those customers, agreements, and upgrades that meet certain conditions:

1. The Interconnection Agreement must have been executed between January 1, 1997 and the effective date of Attachment T (November 17, 2006)

2. The Interconnection Agreement must not be the subject of a protest, request for rehearing, or other pending action before FERC.
3. The Interconnection Agreement does not contain *Mobile-Sierra* language.
4. The costs of the upgrades constructed in accordance with the Interconnection Agreement have not been fully credited back to the customer as of November 17, 2006.

Twenty-one generating facilities met all of the conditions for review:

PID# 2 – Sabine Cogeneration
PID# 3 – LS Power
PID# 4 – Pine Bluff Energy
PID# 7 – BASF Fina
PID# 9 – SRW Cogeneration
PID# 10 – Koch Power
PID# 11 – RS Cogeneration
PID# 22 – Calcasieu Power
PID# 23 – Southaven Power
PID# 25 – Duke Attala
PID# 32 – Dow Chemical
PID# 39 – Perryville Energy
PID# 44 – Chevron Oronite
PID# 46 – TPS McAdams
PID# 48 – TPS Dell
PID# 51 - Acadia Power Partners
PID# 55 - Warren Power
PID# 75 – Shell Chemical
PID# 83 – Bayou Cove Peaking Power
PID# 99 – CITGO Petroleum
PID# 141 – Hot Spring Power

The complete list of generation facilities with agreements executed between 1/1/97 and 11/17/06 is contained in Appendix A to this report.

4 Categorization as Direct Interconnection, Required, or Optional

Entergy provided a spreadsheet listing of all upgrades made in connection with one of the 37 interconnection agreements executed between 1/1/97 and 11/17/06. Entergy also provided copies of the current Interconnection Agreements, Interconnection Studies, Scoping Documents, and in some cases, models and supporting documentation, when available. Not all documentation was available in every instance, but sufficient information was provided to make a determination of the appropriate category.

Each upgrade was assigned to one of the three categories based on a review of the available documentation in accordance with the category definitions in Attachment T. In a few instances, additional information was solicited from Entergy in order to assign a category.

4.1 Principles Used in Classification

In the course of the initial categorization process, it became apparent that some upgrades could not be easily categorized. Therefore, it became necessary to use some engineering judgment. In doing so, due consideration was given to the overall goal of the review process and the intent of Attachment T. The general principles applied are:

1. A facility or upgrade that is necessary to accomplish or complete another upgrade will be considered part of the second upgrade and will be classified accordingly.
2. If an upgrade does not fit neatly into any of the specified categories, the classification that best fits is the one that will be used.
3. Nodal capacity is interpreted to mean the current-carrying capacity through the station or facility. Generally, this requires a change to the continuous rating of the buswork and jumpers and possibly breakers and switches, depending on the type of bus.
4. All upgrades made for increased continuous current carrying capacity are necessary to increase the output of the generator, and thus are properly classified as Optional.

4.2 Sub-categorize Direct Interconnection Upgrades

Direct Interconnection upgrades are defined as those necessary to interconnect the generator to the transmission system. These upgrades were further assigned to one of five sub-categories: (a) Green-field, (b) Green-field with distribution facilities, (c1) Expansion with no increased nodal capacity, (c2) Expansion with increased nodal capacity, (d) Reconfiguration of an existing facility.

According to Attachment T, sub-categories (a) and (c1) were deemed to be Supplemental. The other sub-categories were deferred for further analysis as described in Section 5.3 of Attachment T.

4.3 Analyze Required Upgrades

Required upgrades are defined as those necessary to maintain system reliability while accommodating the interconnection of the generator. For underrated breakers, a short-circuit study was performed using the as-built short circuit model. If the existing fault current with the generator off-line exceeded the pre-upgrade interrupting rating, the upgrade was deemed to be needed to maintain reliability and was classified as Base Plan. Otherwise it was classified Supplemental. Likewise, stability upgrades were subjected to a stability study. If the system was unstable without the upgrade and with the generator off-line, the upgrade was classified as Base Plan. Otherwise it was classified Supplemental, in accordance with Section 5.2.2 of Attachment T.

4.4 Analyze and Classify Optional Upgrades and Others Not Previously Classified

4.4.1 Study Procedure

Optional upgrades and upgrades not previously classified were analyzed according to Section 5.3 of Attachment T in order to determine if the upgrades were correctly classified as Supplemental or Base Plan. Prior to performing the study, the queue order of the upgrades was determined. The order was based on the effective date of the Interconnection Agreement, and then by the in-service date of each upgrade for the IA. The queue order for projects that required further analysis according to Section 5.3 of Attachment T is shown below in Table 1.

Table 1 - Queue Order of Upgrades

Queue Position	Project ID	Project Name	Facility Description	In – Service Date	IOA Effective Date
1	55	Warren Power, LLC	VICKSBURG-W VICKSBURG LINE UPGRADE	11/1/2000	5/17/2000
2	55	Warren Power, LLC	W VICKSBURG-N VICKSBURG LINE UPGRADE	12/7/2000	5/17/2000
3	55	Warren Power, LLC	SE VICKSBURG-BOVINA LINE UPGRADE	4/1/2001	5/17/2000
4	55	Warren Power, LLC	CLINTON-RAY BRASWELL LINE UPGRADE	5/1/2001	5/17/2000
5	46	TPS McAdams LLC	GREENWOOD-ACONA	6/8/2001	7/17/2000
6	46	TPS McAdams LLC	WINONA-KOSCUISKO	2/14/2002	7/17/2000
7	23	Southaven Power, LLC	CRENSHAW-COMO-TUNICA T/L UPGRADE	5/17/2002	11/18/2000
8	23	Southaven Power, LLC	HORN LAKE REPLACE DISCONNECT	6/5/2002	11/18/2000
9	23	Southaven Power, LLC	GETWELL-HERNANDO T/L	11/20/2002	11/18/2000

The study process was a series of load flow studies. Appendix B displays a flow chart of the study process. A contingency analysis was performed on the Base Case model. All of the upgrades listed above in Table 1 were removed from the Base Case model to create the “Retro” Case. A contingency analysis was run on the Retro Case, and the results were compared to the Base Case. It was found that there were new overloads created by removing the upgrades; the study then proceeded to the next phase.

In queue order, upgrades were inserted individually into the Retro Case. Once an upgrade was inserted, a contingency analysis was run on that case. The results were compared to the contingency analysis for the case that did not contain the upgrade. If overloads were relieved by a material amount, the upgrade was classified as Base Plan. If no overloads were relieved, or new overloads were created, the upgrade was classified as Supplemental. After the classification had been made, the upgrades were left in the model, and the next upgrade in the queue was selected.

As an example, in Case 1 Line A-B has a rating of 50 MVA. A contingency analysis was run on Case 1. Case 1 was modified by changing the rating of Line A-B to 200 MVA; this was saved as Case 2. A contingency analysis was run

on Case 2 and the results were compared to the results of the contingency analysis on Case 1 to determine the impact of upgrading Line A-B.

4.4.2 Generation Dispatch Assumptions

The Base Case Model used for the analysis is the same model that would be used for studying new generation interconnection requests, and contains the forecasted summer peak load and long-term firm transmission service. The generation in the model, including the three facilities in this study, is dispatched according to long-term firm transmission service agreements. This is consistent with the dispatch used to evaluate new interconnection requests.

4.4.3 Model

The model used for the analysis was the 2006 Summer Peak Base Case developed by Entergy and verified by the ICT. This model reflects current system conditions. There were several modifications made to the model described below.

In the Base Case model, the impedance on the line from Greenwood to Acona was found to be incorrect. The model was updated to reflect the current impedance of this line.

In the Base Case model, the rating on the Vicksburg-Vicksburg North did not reflect the upgrade that was performed under the Interconnection Agreement. This matter was brought to Entergy who researched it and determined that the line was still limited by terminal equipment at Vicksburg. For the purpose of this study, the line was modeled to reflect the upgrade that the generator constructed.

4.4.4 Principles Used in the Analysis

1. "Material Reduction" of overload is defined as 1%. If the reduction in the line loading is 1% or greater, it will be deemed to be a "material reduction" for the purposes of this analysis.
2. Load flow analysis will be limited to n-1 contingencies.
3. When evaluating projects that have long-term firm transactions, those will be retained in both the base case and the "retro" or comparison case.
4. Direct Interconnection and Required upgrades which could not be classified through the load-flow procedure of Section 5.3 will be classified using the general principle described in Section 5.3. If applicable planning and reliability criteria could be met in the absence of the upgrade, it is classified Supplemental. If not, it is classified Base Plan.

4.5 Application of Transmission Credits

To determine whether an upgrade has been fully credited, as required by Attachment T, transmission credits that have been issued to the generating facility were applied first to Optional upgrades, then to Required, then to Direct Interconnection. Within a category, credits were applied to upgrades in the order of their in-service date. The remaining upgrades that had not been fully credited were then assigned their final classification. As specified in Section 5.1 of Attachment T, the analysis covers upgrades made from 1/1/1997 through the effective date of

Attachment T which is 11/17/2006. Transmission Credits used for this study are as of 10/31/2006, the most recent data available as of the start of the ICT on 11/17/2006.

5 Cost Allocation

As described in Entergy's OATT Attachment T, Section 5.5, the Transmission Provider (Entergy) will file with the FERC any necessary amendments to the applicable IOA to implement the ICT's cost allocation determination, seeking cessation of outstanding credits or reimbursement of the customer for any uncredited balance, as applicable. Entergy, not SPP, is responsible for making this filing. Customers seeking further information on the status of such filings should contact Entergy. Customers who funded upgrades that were determined to be Supplemental will receive the accompanying financial transmission rights as set forth in Attachment T, Section 4 of Entergy's OATT.

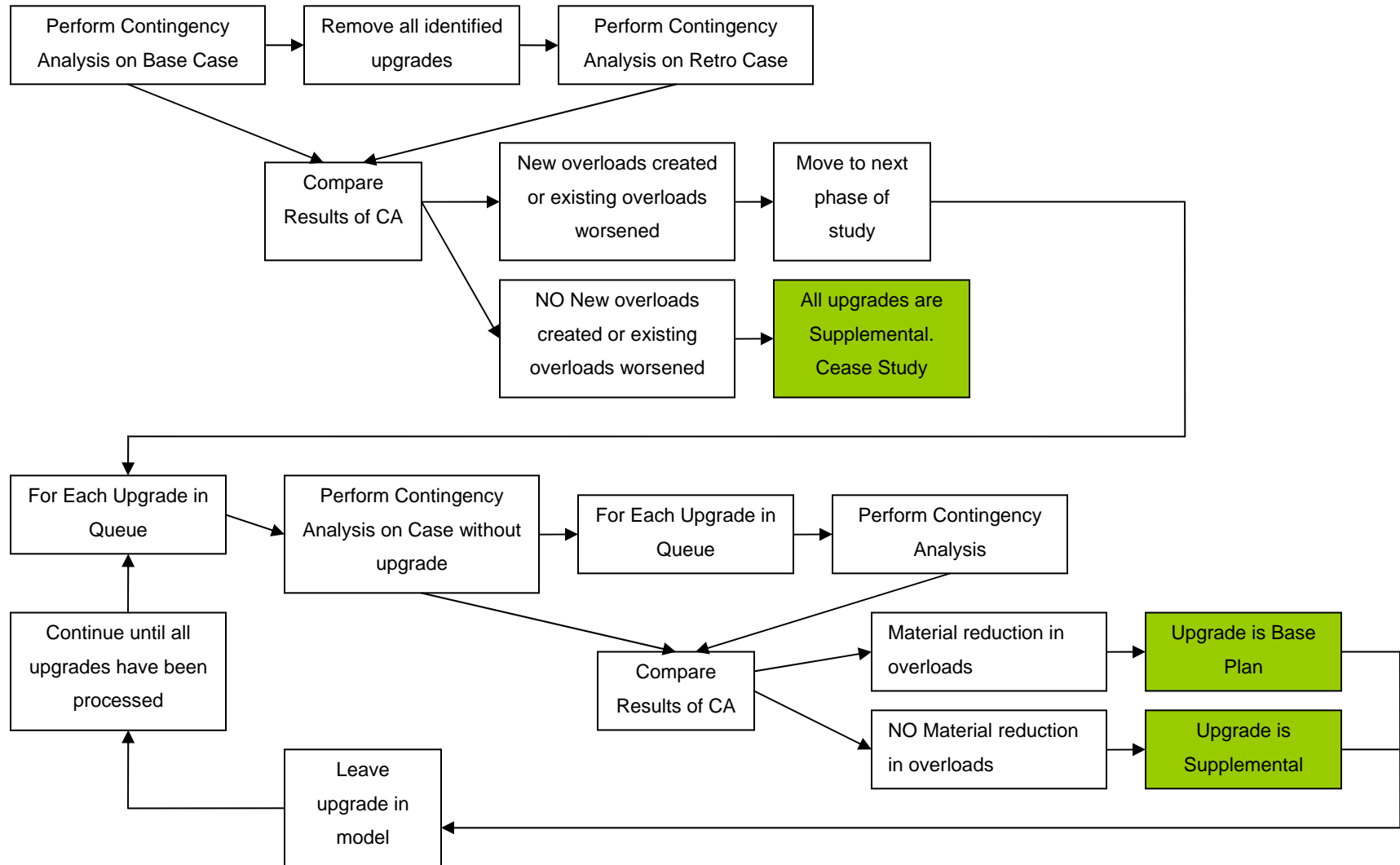
Appendix A: List of Generation Customers

#	Facility Name	Review Status
1	Tenaska Frontier Partnership, Ltd.	Excluded (1)
2	Sabine Cogen LP	Included – Appendix C
3	LSP Energy LP	Included – Appendix D
4	Pine Bluff Energy LLC	Included – Appendix E
6	Carville Energy LLC	Excluded (1)
7	BASF Corporation	Included – Appendix F
8	ExxonMobil Oil Corporation	Excluded (1)
9	SRW Cogeneration LP	Included – Appendix G
10	NRG Sterlington LLC	Included – Appendix H
11	RS Cogen LLC	Included – Appendix I
12	AECC Wrightsville	Excluded (2)
13	Occidental Chemical Corporation	Excluded (1)
16	KGen Hinds LLC	Excluded (2)
17	Calpine Corporation	Excluded (2)
22	Calcasieu Power LLC	Included – Appendix J
23	Southaven Power LLC	Included – Appendix K
25	Attala Transmission LLC	Included – Appendix L
29	Quachita Power LLC	Excluded (1)
32	The Dow Chemical Company	Included – Appendix M
39	Perryville Energy Partners LLC	Included – Appendix N
44	Chevron Oronite Company LLC	Included – Appendix O
46	TPS McAdams LLC	Included – Appendix P
48	TPS Dell LLC	Included – Appendix Q
51	Acadia Power Partners LLC	Included – Appendix R
55	Warren Power LLC	Included – Appendix S
65	Union Power Partners LP	Excluded (1)
66	KGen Hot Spring LLC	Excluded (2)
75	Shell Chemical LP	Included – Appendix T
78	Cottonwood Energy Company LP	Excluded (2)
83	Bayou Cove LLC	Included – Appendix U
90	Mississippi Delta Energy Agency	Excluded (1)
96	Reliant Energy Wholesale Generation LLC	Excluded (2)
99	CITGO Petroleum Corporation	Included – Appendix V
108	KGen Southaven LLC	Excluded (2)
125	SMEPA Silver Creek	Excluded (2)
136	Plum Point Energy Associates LLC	Excluded (2)
141	Hot Spring Power Company LLC (Tractebel)	Included – Appendix W

Notes:

- (1) Excluded from the review because the Interconnection Customer has a complaint pending before FERC regarding the IOA. (See Para 237 of FERC's April 24, 2006 Order in Docket ER05-1065.)
- (2) Excluded from the review because Entergy has a request for rehearing pending before FERC

Appendix B: Flow Chart of Study on Optional Upgrades and Others Not Previously Classified



Appendix C: Sabine Cogeneration (Project #2)

Customer information redacted

Appendix D: LS Power (Project #3)

Customer information redacted

Appendix E: Pine Bluff Energy (Project #4)

Customer information redacted

Appendix F: BASF Fina (Project #7)

Customer information redacted

Appendix G: SRW Cogeneration (Project #9)

Customer information redacted

Appendix H: Koch Power (Project #10)

Customer information redacted

Appendix I: RS Cogeneration (Project #11)

Customer information redacted

Appendix J: Calcasieu Power (Project #22)

Customer information redacted

Appendix K: Southaven Power (Project #23)

Customer information redacted

Appendix L: Duke Attala (Project #25)

Customer information redacted

Appendix M: Dow Chemical (Project #32)

Customer information redacted

Appendix N: Perryville Energy (Project #39)

Customer information redacted

Appendix O: Chevron Oronite (Project #44)

Customer information redacted

Appendix P: TPS McAdams (Project #46)

Customer information redacted

Appendix Q: TPS Dell (Project #48)

Customer information redacted

Appendix R: Acadia Power Partners (Project #51)

Customer information redacted

Appendix S: Warren Power (Project #55)

Customer information redacted

Appendix T: Shell Chemical (Project #75)

Customer information redacted

Appendix U: Bayou Cove Peaking Power (Project #83)

Customer information redacted

Appendix V: Citgo Petroleum (Project #99)

Customer information redacted

Appendix W: Hot Spring Power (Project #141)

Customer information redacted

Appendix X: Summary Table

Customer information redacted