TRANSMISSION LINE & SUBSTATION PROJECTS

COMPANY: ENTERGY SERVICES, INC.

CUSTOMER:

FACILITIES STUDY

EJO # F4PPMS0308

PID – AFS- 2013 – 001 (NRIS ONLY)

Revision:
2

Rev	Issue Date	Description of Revision	Prepared By	Approved By
A	05/30/13	For JET review	Ibrahim Khan	Rick Torres
B	06/12/13	Construction input based on JET comment	Ibrahim Khan	Rick Torres
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1	6/20/13	TPD Approval	RB	BW
2	6/26/13	ICT Review and Cost Assignment	WM	EL

TABLE OF CONTENTS

1. PROJECT SUMMARY 3

1.1. Background and Project Need 3
1.2. Scope Summary 3
1.3. Cost Summary 4
1.4. Schedule Summary 4

2. SAFETY REQUIREMENTS & GENERAL ASSUMPTIONS 4

3. SCOPE OF WORK 5

General 5

Construction: 6

4. COST 6

5. SCHEDULE 7

6. RISK ASSESSMENT 7

7. ATTACHMENTS 9

A. Table of Acronyms 9

1. PROJECT SUMMARY

1.1. Background and Project Need

This Affected System Impact Study is based on the AFS 2013-001 request for interconnection of 72MW of generation located at Morgan City 138 kV substation. The proposed in-service date for this facility is August 21, 2015. The requested interconnection will be evaluated for Network Resource Interconnection Service (NRIS).

The new service interconnection will electrically connect a new 1 x 1 combined cycle gas plant capable of a maximum 86.2 MVA at + 0.85 PF with a three-breaker ring bus to the point of interconnection at the Morgan City 138 kV substation.

ERIS and NRIS do not in and of themselves convey any transmission service.

1.2. Scope Summary

The System Impact Study has identified some transmission constraints required for NRIS. The following projects are required to be in service prior to the start of NRIS.

1.2.1 Upgrade Scott-Vatican (SLEMCO) 138 kV transmission line.

The Scott-Vatican (SLEMCO) 138 kV transmission line overloads for the loss of the Coughlin (CLECO) – Plaisance (CLECO) 138 kV transmission line. It is required that the Scott-Vatican 138 kV transmission line be upgraded from a capacity of 225 MVA to at least 249 MVA (1042A). The proposed line upgrade is 272 MVA.

The amount of capacity created by this upgrade is 47 MW, and the customer's use of the capacity created is 3 MW.

1.2.2 Financial Rights for Supplemental Upgrades.

The following Supplemental Upgrade is impacted by this NRIS request by the specified MW amount.

- Ray Braswell-Baxter Wilson 500 kV Line – 2 MW Impact
    - Estimated Unit Rate - $5,070/MW
    - Financial Rights - $10,140 ($5,070 x 2 MW)
    - Related Facilities Study – OASIS 1598291

1.3. Cost Summary

The estimated total project cost is $939,885. This cost does not include Tax Gross Up which may apply. Please note these are 2013 dollars and do not include tax gross-up if and where applicable (Tax Gross Up rate at this time is 27.15%).

The ICT has assigned $0 as Base Case upgrades and $939,885 as Supplemental Upgrade based on Attachment T of Entergy's Open Access Transmission Tariff ("OATT").

Financial Rights: As described in Section 1.2.2 above, $10,140 in financial rights payment will be required to the customer funding the Supplemental Upgrade that was impacted by this NRIS request. The cost does not include Tax Gross Up, which may be included.

1.4. Schedule Summary

The requested in-service date is 21 August 2015 and due to timings of line outages, Entergy would propose to complete the construction by December 2014 provided approval and funding to proceed with the project is granted by August 2013.

2. SAFETY REQUIREMENTS & GENERAL ASSUMPTIONS

Safety:

Safety is a priority with Entergy. Safety will be designed into substations and lines. The designs will be done with the utmost safety for personnel in mind for construction, operation, and maintenance of the equipment.

All employees working directly or indirectly for Entergy shall adhere to all rules and regulations outlined within the Entergy Safety manual. Entergy requires safety to be the highest priority for all projects. All Entergy and Contract employees must follow all applicable safe work procedures.

General Assumptions:

- Sufficient time will be allowed in approving the project enabling Entergy to prepare a Project Execution Plan and be able to complete the project as per schedule described below. Use of facility study and estimates is not favored to commence an approved project.
- Assumptions have been made in developing estimates without performing site visits, surveys, and soil borings. During Project Execution Plan these tasks will be completed and could have an impact on estimates and schedule.

- All costs above represent good faith estimates in today's dollars and are based on existing data and could change considerably after development of detailed execution plan. Price escalation for work in future years has not been included.

3. SCOPE OF WORK

3.1 Vatican – Scott 138 kV line upgrade from 225 to 249 MVA (1042A)

General

Line Data	MVA
Existing Line Rating	225
Required Line Rating (Minimum)	249
Proposed Line Rating (based on Equipment to be installed)	272
Affected line length	3.3 miles

Requirement is to increase line rating from 225 to 249 MVA (1,042A)

From one line diagrams, it appears that the line end substation Scott and customer owned substation Vatican have higher than 1042A switches and breakers and do not require an upgrade. This will be verified and the customer will be responsible for any upgrades if needed.

For 225 MVA, the normal for GSU is to operate the line at 167^0F.

If the line is operated at 199^0F, it will increase the rating to 1140 amps or 272 MVA at 138kV. This would require an additional 0.7 foot of vertical clearance in an average span of 600'.

In order to determine how many such spans require hardware modifications, a survey is required. Unfortunately, the data would not be available for 3 months or more. Therefore, an educated estimate has to be made based on previous experience of senior engineers in this business.

The estimate is for installing hardware on poles associated with 6 - 8 road crossings and also assumed that 3 poles may require replacement as a result of age, deterioration that would not enable us to add hardware to them.

Relay Settings:

Evaluation of settings on line ends will be performed and relays adjusted to insure no load encroachment allowing 272 MVA through the line

Construction:

All construction for each discipline will begin once all design packages have been received and reviewed. Supply Chain Vice President Approval will be required in order to complete any work on a Time and Material basis with a preferred vendor. All construction will be completed as per current Entergy standards and requirements. All transmission line construction will be completed utilizing EPZ grounding principles and 100% fall protection.

An outage will be required on the Scott to Vatican line while this construction is being completed. A crippling outage is assumed to not be required.

A total duration of roughly 3 - 4 weeks should be estimated for total outage duration for L-289.

The outage(s) on L-289 will be submitted in TAORS as “not returning to service at night”). This information is a high level estimate and could potentially change if the magnitude or definition of scope of work varies during detailed project evaluations.

4. COST

The ICT has reviewed and determined whether each required upgrade will be considered a Base Plan Upgrade or a Supplemental Upgrade. For more information on cost responsibility for Base Plan and Supplemental Upgrades, see Attachment T to Entergy’s OATT.

The costs shown in the table includes overheads and AFUDC, but do not include tax gross up. Entergy incurs a tax liability proportional to the amount of customer contributions. In addition to proposed project costs, the customer may be charged a “Tax gross-up” at applicable rates. Rates are subject to change. Current rate for EGSI-LA is 27.15% and is not included in any of the estimates.

Projected Costs including indirect cost in 2013 dollars

	TOTAL	Base Plan	Supplemental	FFR Payment
3.1 Scott to Vatican line hardware upgrade(3.3m)	$ 939,885		$ 939,885	
1.2.2.2 Ray Braswell-Baxter Wilson 500 kV Line	$ 10, 140			$ 10,140[+]

[+]The cost associated with the Financial Payment calculation has been finalized.

5. SCHEDULE

A detailed schedule will be prepared subsequent to customer approval to proceed with the project. In Service date of 21 August 2015 can be achieved; instead likelihood of getting line outage is improved during November/December; therefore December 31, 2014 can be achieved provided approval to proceed with the project and funding is completed by August 2013.

Summary:	**Completed by**
Submit FS to customer	Jun-13
Receive approval & funds to proceed with the project	Aug-13
Create FP/WO	Sep-13
Commence LIDAR survey	Oct-13
Receive LIDAR results	Dec-13
Commence PEP	Jan-14
Commence design	Mar-14
Order material	Apr-14
Issue design to construction	Jun-14
Receive material	Oct-14
Award contract	Oct-14
Commence line construction	Nov-14
Complete construction including setting changes	Dec-14

6. RISK ASSESSMENT

Risk	Comment	Impact
Material costs steel & Equipment	Rising steel, copper, fuel and other market conditions could greatly affect estimated cost.	****
Weather & Equipment Lead Times (Poles)	Unexpected delays on material lead times, unusually inclement weather will impact schedule but might impact AFUDC costs as well.	**

Outages may not be available	Preliminary schedule only considers general outage constraints. Specific project schedule may be delayed by days, weeks or months dependant on system conditions. Delays of months = increased project costs.	**
Scope based on design assumptions which may change	Varied impact on cost and schedule.	***

*-low impact to cost, ** - moderate impact to cost, ***- high impact to cost, **** - very high impact to cost.

7. ATTACHMENTS

A. ***Table of Acronyms***

ACSR	Aluminum Conductor Steel Reinforced
ACSS	Aluminum Conductor Steel Supported
ADEQ	Arkansas Department of Environmental Quality
AFUDC	Allowance for Funds Used During Construction
ATC	Available Transfer Capability
EES	Entergy Control Area
EHV	Extra-High Voltage
ICT	Independent Coordinator of Transmission
kV	Kilo-Volt
MCM	(M) Thousand Circular Mils
MVA	Mega-Volt Amp
MW	Mega-Watt
NPDES	National Pollution Discharge Elimination System
NOI	Notice of Intent
OASIS	Online Access and Same-time Information System
OATT	Open Access Transmission Tariff
OG&E	Oklahoma Gas & Electric
POD	Point of Delivery
POR	Point of Receipt
SES	Steam Electric Station
SOC	System Operations Center
SHPO	Arkansas State Historic Preservation Office
SHV	Super High Voltage
SW	Switch Station
SWEPCO	Southwest Electric Power Company
TOC	Transmission Operations Center
WMUC	City of West Memphis Control Area