TRANSMISSION / DISTRIBUTION PROJECTS

COMPANY:ELI-N

CUSTOMER: ENTERGY SERVICES (EMO)

FACILITIES STUDY

EJO # F4PPGS0396

TRANSMISSION SERVICE REQUEST

OASIS 1478781

Revision:
1

Rev	Issue Date	Description of Revision	Revised By	Project Manager
A		Edited and submitted to team members for their input	Ibrahim Khan	Charles Newell
0	11/01/07	Team input formalized and submitted to PD	Ibrahim Khan	Charles Newell
1	11/13/07	ICT Determine Status of Upgrades	James Lyle	Jody Holland

Table of Acronyms

ACSR	**Aluminum Conductor Steel Reinforced**
ACSS	**Aluminum Conductor Steel Supported**
ADEQ	**Arkansas Department of Environmental Quality**
AEPW	**American Electric Power West**
AFUDC	**Allowance for Funds Used During Construction**
ANO	**Arkansas Nuclear One**
ATC	**Available Transfer Capability**
CLECO	**Central Louisiana Electric Company**
CSWS	**Central & Southwest Control Area**
EES	**Entergy Control Area**
EHV	**Extra-High Voltage**
ICT	**Independent Coordinator of Transmission**
kV	**Kilo-Volt**
MCM	**(M) Thousand Circular Mils**
MDEA	**Mississippi Delta Energy Agency**
MEP	**Mississippi Electric Power**
MPS	**Missouri Public Service**
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**
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**

1. EXECUTIVE SUMMARY

EMO - Entergy (Customer) has submitted a Transmission Service Request for 804 MW of firm transmission service. The time period for this transfer is from 1/1/2008 until 1/1/2058. The direction of the transaction is from Entergy EES to Entergy EES. The planning study identifies various substation and line equipment upgrades and rebuilds in order to mitigate undesirable system conditions.

Customer requested a facility study to provide an estimated cost of necessary transmission upgrades. The estimated cost of these transmission facilities does not include a grossed-up cost of Entergy's income tax burden. However these tax gross-ups may apply.

Under Entergy's Independent Coordinator of Transmission which became effective on November 17, 2006, Entergy will recover these costs based on the Attachment T to our OATT. Based on Attachment T, the ICT has determined these costs to be classified as Supplemental Upgrades.

2. SAFETY AWARENESS

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.

Should the work contained within this Facility Study be approved, a detailed Safety Plan will be formulated and incorporated within the project plan.

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.

3. SCOPE SUMMARY

The Planning Study has identified six transmission constraints. The constraints can be addressed in the following manner:

3.1 Overload of Sterlington 500/115kV autotransformer #1 or #2 for the loss of Sterlington 500/115kV autotransformer #2 or #1

The Sterlington Substation has a 500/115 kV autotransformer installed and available for service. The autotransformer is de-energized because there is a short circuit limitation restricting the use of three autotransformers with both Sterlington units turned on. It is required that the Sterlington 115kV bus be split in order to place the 3rd Sterlington autotransformer in-service. The split bus #1 contains the transmission lines to Walnut Grove (Swartz), Oak Ridge, IPCO, and Selman. The

split bus #2 contains the transmission lines to Drew, Downsville, Marion, Meridian, N. Crossett, and Walnut Grove (Lamkin). The Sterlington 500/115kV autotransformers #1 and #2 are placed on split bus #1, and the 3rd 500/115kV autotransformer is placed on split bus #2.

3.2 Overload of Sterlington 500/115kV autotransformer #3 for the loss of Sterlington 500/115kV autotransformer #1 or #2

The Sterlington 500/115kV autotransformer #3 on split bus #2 will overload for the loss of Sterlington 500/115kV autotransformer #1 or #2. It is required that a fourth Sterlington 500/115kV autotransformer be added with capacity of 600MVA.

3.3 Overload of Sterlington-Drew 115kV and Walnut Grove-Swartz 115kV transmission lines for the loss of Sterlington-Walnut Grove (Lamkin) 115kV transmission line

The Sterlington-Drew 115kV and Walnut Grove-Swartz 115kV transmission lines will overload for the loss of the Sterlington-Walnut Grove (Lamkin) 115kV transmission line. It is required that the Sterlington-Drew 115kV transmission line be upgraded from a capacity of 185 MVA to a capacity of 228 MVA or greater. It is also required that the Walnut Grove-Swartz 115kV transmission line be upgraded from a capacity of 228 MVA to a capacity of 267 MVA or greater. It is verified through AM that Sterlington-Drew 115kV transmission line has not been upgraded to 228 MVA.

3.4 Install a 2nd 500/115kV autotransformer at Baxter Wilson

A 2nd 500/115kV autotransformer at Baxter Wilson with a capacity of 560 MVA is required to eliminate the following overloads:

- Ray Braswell-Bolton 115kV line for the loss of Baxter Wilson 500/115kV auto
- Greenville-SE Greenville 115kV line for the loss of Baxter Wilson 500/115kV auto
- Sterlington-Oak Ridge 115kV line for the loss of Baxter Wilson 500/115kV auto
- Oak Ridge-Delhi 115kV line for the loss of Baxter Wilson 500/115kV auto
- Sterlington-N. Bastrop Tap 115kV line for the loss of Sterlington-IPCO 115kV line
- Alto-Winnsboro 115kV line for the loss of Plantation-Murray 115kV line
- Swartz-Alto 115kV line for the loss of Franklin-Meadville 115kV line

3.5 Overload of Swartz-Alto 115kV transmission line for the loss of S. Vicksburg-Port Gibson 115kV transmission line

The Swartz-Alto 115kV transmission line will overload for the loss of the S. Vicksburg-Port Gibson 115kV transmission line. It is required that the Swartz-Alto 115kV transmission line be upgraded from a capacity of 114 MVA to a capacity of 228 MVA or greater.

3.6 Replace 115kV breaker at Vicksburg

With both Baxter Wilson transformers in service, the duty fault current level at Vicksburg 115kV is 27kA. The only breaker that will have to be upgraded is Breaker #J7446 which is currently rated at 25kA.

4. SCOPE DETAILS

4.1 Sterlington 115 kV Substation

Electrical:

It is required that the Sterlington 115kV bus be split in order to place the existing 4th Sterlington autotransformer in-service. Split bus #1 contains transmission lines to Walnut Grove (Swartz), Oak Ridge, IPCO, and Selman, and ties to 500/115kV autotransformers #3 and #4. Split bus #2 contains transmission lines to Drew, Downsville, Marion, Meridian, N. Crossett, and Walnut Grove (Lamkin) and ties to autotransformer #1 and autotransformer bank #2. The bus needs to be physically cut between bays 11 and 12; tie breaker is not required.

The Walnut Grove (Lamkin) Transmission Line will be relocated from bay 4 to bay 13 by building bus from the transmission dead-end structure to a new dead-end located in front of bay 13. Work in Bay 13 includes new equipment and structures to tie the line to both north and south buses.

Bay 10 will tie the new 500/115kV autotransformer with a new 2-level dead-end structure to terminate the Bastrop line on top and transformer tie on bottom. Work includes new equipment and structures to tie the autotransformer to both north and south buses.

The relay room will be expanded to accommodate additional panels.

The substation WO will allocate the bus work required for the line relocation and the transmission line WO will cover removal from existing bay, termination of line on to bus using a flying tap and termination from dead-end to the new bay.

Electrical Equipment:
(4) 115kV breakers 3000A 63kA
(4) Switches 115kV 2000A
(4) Switches 115kV 3000A
(2) Ground Switches 115kV
(3) AX2E DE structure
(8) CE Switch support
(69) 115kV low bus supports
(12) 115kV high bus supports
(8) E pedestals
(1) Dead-end structure two-level
(165) 115kV post insulators
2500 ft of rigid bus
1000 square ft control house extension

Site

The area required for the expansion of the 115kV yard is approximately 1 acre. Due to the poor soil conditions, geotextile fabric is required across the entire site. In addition approximately 3-5 ft of fill will be required to bring the new portion of the site up to the elevation of the existing 115kV substation. Approximately 1,900 tons of limestone and 7,500 cu.yards of fill will be required for site prep.

Foundations

1000ft of 2" PVC conduit
3500ft of grounding conductor
Foundations for the 2-level dead end will be a new design, all others will be similar to existing foundations already installed:
(4) Circuit breaker dead-tank
(8) CCVT pedestal
(12) High bus support
(69) Low bus support
(4) CE switch support
(1) Full tension two-level Dead-end structure
(3) Reduced tension Dead-end structure

Relay Design:

500/115kV Autotransformer #4 Lowside Protection

Primary protection will be a SEL-311L line current differential relay.
Backup protection will be a SEL-421 line distance relay, which will also provide breaker failure, reclosing, and synch for the two (2) associated 115kV breakers. The supervisory control switches (43SUPV) for these breakers are not needed on the relay panel, since this function is handled centrally near the RTU.

Relay Communications

Two (2) fiber-optic ADSS cables enclosed inner duct routed in existing cable trench are required between Sterlington 500kV and 115kV switchyard control houses.

Two (2) SEL-2506 fiber-optic remote I/O modules are required to dually transmit/receive trip, breaker failure initiate, and lockout commands for the breakers associated with the 500/115kV Autotransformer #4.

One (1) SEL-2032 will be required to support communications (dialup, SCADA, etc.) with the new relays.

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
	115kV Circuit Breaker	22
	115kV Disconnect Switch	18
	115kV Insulators	14
	Steel Structures	20
2	115kV Breaker Control Panel	16
9	115kV CCVT's	30
	Bus Differential Panel	16
1	Potential Transfer Panel	16

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

A small amount of grading work and fence relocation will be required to relocate Walnut Grove/Monroe 115 kV line. Outages will likely be required on South Bus No. 1 & No. 2 and North Bus No. 1 & No. 2 in order to perform foundation work. Control house is expected to be enlarged and should not require any outages. Electrical and relay work will require some non outage construction work followed by an outage on the North & South Busses to install new PT's needed to split the bus. Also outages will be required on each of the busses to connect in new construction. An outage will be required to tie in the relocated bus work on the Walnut Grove/Monroe 115 kV line. Relay testing and checkout will be required on the new Walnut Grove/Monroe line terminal, new bus differentials, new autotransformer connection and all other associated breakers, equipment, etc. All work will be coordinated with work in the 500 kV yards which will drive the duration of this project. Work will likely take approximately one year to complete from grading work to commissioning of new facilities.

Assumptions made in scoping and estimates:

None documented by the team

4.2 Sterlington 500 kV Substation

Electrical

Add a second 500/115kV, 396/492/616 MVA, 7.92% impedance autotransformer with buried tertiary in the new 500 kV outdoor 500 kV substation for paralleling with the existing unit.
To add the new autotransformer it is necessary to expand the ring bus towards Old Sterlington Road to add one more node and relocate Perryville line 2 to prevent autotransformer #3 & #4 from sharing a breaker

The 115 kV will tie via overhead line to the 115kV yard. A separate line WO will be used.

Electrical Equipment:
(1) 500/115kV autotransformer
(2) 500kV breakers
(6) 500kV Switches 3000A with motor operator
(2) 500kV Ground Switches
(1) Full tension dead-end structure
(1) Autotransformer dead-end structure
(53) Low bus support
(42) High bus support
(24) Low switch supports
(27) High switch supports
(12) Equipment Pedestals (CCVT or Surge Arrester)
(4) Shield wire structures
165 Post insulators
6200ft 500kV aluminum bus with damper conductor
3000ft Shield wire
(12) Yard lights

Site

The area required for the expansion of the 500kV yard is approximately 5.4 acre. Due to the poor soil conditions, geotextile fabric is required across the entire site. In addition approximately 3-5 ft of fill will be required to bring the new portion of the site up to the elevation of the existing 500kV substation. It is assumed that the site is heavily wooded and approximately 2' of soil will need to be excavated to ensure the removal of all tree stumps and roots. Approximately 10,000 tons of limestone and 50,000 cu. yards of fill will be required for site prep.

Foundations

1000' Cable trough – poured in place
1000' 2" PVC Conduit
15,000ft of grounding
Foundations for the following equipment will use similar to existing designs.
(1) auto-transformer w/oil containment
(2) dead-tank breakers
(1) Full tension dead-end structure
(1) Autotransformer dead-end structure
(53) Low bus support
(42) High bus support
(24) Low switch support
(27) High switch support
(12) Equipment pedestals (CCVT or surge arrester)
(4) Shield wire structures
(14) Yard lights
1320ft of pile driving for autotransformer foundation

Relay Design:

500/115kV Autotransformer #4 Protection

- Dual SEL-387 transformer differential relays with CT inputs from the high-side breakers and the autotransformer low side will be used for Auto #4 differential protection. A SEL 311L will be used to protect the low side of Auto #4.
- 500/115kV Perryville #2 Line Protection; CT inputs from the new breakers will need to be wired to the existing Perryville 2 line panel.
- The existing bus differential scheme will not need revision.
- 500kV Breaker Control & Protection (Qty =2)
- Breaker failure, reclosing, and synch will be handled by a SEL-351 relay.
- The supervisory control switches (43SUPV) are not needed on the relay panels, since this function is handled centrally near the RTU.
- 500kV Motor Operated Switch Control (Qty=5)
- Interlocks (52b contacts) from associated breakers are required.
- The supervisory control switch (43SUPV) is not needed on the relay panels, since this function is handled centrally near the RTU.
- These controls will be centrally located on a single panel.
- 500kV Instrument Transformers
- Three (3) Perryville 2 line CCVTs will be relocated to reflect the line movement. The Auto #4 CCVT will be installed.
- Relay Communications
- Two (2) fiber-optic ADSS cables, enclosed in inner-duct, routed in existing cable
- Trenches are required between Sterlington 500kV and 115kV switchyard control houses.
- Two (2) SEL-2506 fiber-optic remote I/O modules are required to dually transmit/receive trip, breaker failure initiate, and lockout commands for the breakers associated with the 500/115kV Autotransformer #4.
- One (1) SEL-2032 will be required to support communications (dialup, SCADA, etc.) with the new relays.

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
	500/115kV Autotransformer	104-116
	500kV Breaker	26
	500kV Switch	26
	500kV Insulators	14
	500kV Bus	14
2	500kV Breaker Control Panel	16
1	500kV CCVT	16
2	MOS Panel	10
2	Auto Diff Panel	16

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

The substation will have to be expanded on the south end. The substation addition that was installed two years ago required extensive work on the substation pad requiring the installation of two types of filter fabric to help stabilize the soil. Also an iron ore type fill was used to help strengthen the fill materials. This will require a little more time on the site grading work but should not cause any unforeseen problems. The foundation work may require some concrete to be poured utilizing slurry materials. This will most likely be limited to the deeper piers used for shield wire and dead end structures. Oil containment will be provided underneath the autotransformer. Outages will be required on two points on the ring bus during foundation construction. Electrical and relay work will require some non outage construction work followed by outages on the ring bus. The Perryville No. 2 line will be relocated to a different node on the ring bus and will require a outage. Also an outage on Autotransformer No. 3 will be required to tie in the new construction. All work will be coordinated with work in the 115 kV yard. Work will likely take approximately one year to complete from grading work to commissioning of new facilities.

Assumptions made in scoping and estimates:

None documented by the team

4.3 Baxter Wilson 500 kV Substation

Electrical:

Transformer Yard

Add a 3 phase 500/115kV, 560 MVA transformer with tertiary bushings brought out for connecting reactors in future. It should be capable of operating in parallel with the existing unit. See assumption section. Addition tertiary equipment will include station service capability of 500KVA, adequate grounding protection including transformers and limiting reactors, etc.

500kV Yard

The 500kv yard will include the addition of one folded bay connected to the existing West and East 500kVbus. The new bay will consisting of two breakers, their associated 4 isolating switches and one A phase CVT. The node connection to the transformer will include one disconnect switch with ground switch and surge arresters. All switches shall be motor operated. Associated EHV bus work, support structures and insulators shall be installed.

115kV Connection

The connection from the transformer to the 115kV yard shall include four structures with 42 ft pull off for strung bus. The existing Tallulah line must be relocate with three prop structure as part of the T-line asset. Rigid bus will be installed from the transformer pull off, under the Tallulah 115kV line, to a structure pull off for strung bus to the 115kV yard. Two structures shall be installed to support the strung bus to the 115kV yard. A separate

WO for line work will be established. However for the purposes of this scope the estimates ($162,000 full financial) are included in the substation cost.

115kV Yard

The 115kV yard additions will include the installation of one bay including two breakers, 4 associated isolating switch, one ground switch, three arresters, and three CVT's. Associated bus work, support structures and insulators shall be installed as well. Due to the paralleling of two transformers, the 115 kV fault level will exceed the existing breaker ratings. Therefore, all breakers will be replaced by 63 kA rating breakers. Breakers must be removed and disposed properly and these include 11 oil circuit breakers.

Substation upgrades

Shielding shall be installed for the 500kV yard and the 115kV stung bus.
Station service to be reviewed and added if required through tertiary or other sources
The existing control house shall be expanded.

Site:

The area required for the expansion of the 500kV yard is approximately 2 acre. Due to the poor soil conditions, approximately 2' of excavation is required across the entire site. In addition approximately 6 ft of fill will be required to bring the new portion of the site up to the elevation of the existing 500kV substation. Approximately 3,600 tons of limestone and 30,000 cu. yards of fill will be required for site prep.

Foundations:

Foundations used will be similar to existing foundation at the Baxter Wilson 500kV and 115kV yards respectively.
Foundations required:

- 115kV Breaker support slab
- 115kV High elevation bus support
- 115kV Low elevation bus support
- 115kV High elevation switch support
- 115kV Low elevation switch support
- 115kV Arrester & CVT support
- 115kV Deadend pull off
- 500kV Transformer slab
- 500kVTransformer oil containment
- 500kV Breaker support slab
- 500kV High elevation bus support
- 500kV Low elevation bus support
- 500kV High elevation switch support
- 500kV Low elevation switch support
- 500kV CCVT & Arrester support
- Shield Pole

Cable trench shall extend from the control house expansion to the new transformer and additional conduit shall be installed to the new equipment. The grounding system shall be upgraded for the system changes and the ground grid shall be expanded for the new equipment.

Relay Design:

Provide and install primary and back-up protection for new autotransformer tied to the 500kV new two (2) breakers of the existing folded ring bus arrangement and to the new two (2) breakers of the 115kV breaker and half station. Replacement required of the existing (13) 115Kv breakers so to accommodate new fault current. Modification required for existing 500kV protection scheme, to operate together with new scheme. Modification required for existing 115kV protection scheme, to operate new breaker replacements/additions and new autotransformer tie to 500kV system.

- Design, purchase, and install a primary/backup autotransformer panel, which includes Nxphase T-pro relay, SEL 387 and SEL 351A relays. The Nxphase T-pro is the autotransformer primary 500/115kV differential protection zone and metering, which wraps from the high side bushing and low side bushing. The first SEL 387 is for the autotransformer backup 500/115kV differential protection and the backup high side bus differential protection, which wraps from the high side breaker J22BX and breaker J22CX and the new 500kV Autotransformer low side bushing. The second SEL 387 is the autotransformer backup 500/115kV differential protection and the backup low side bus differential protection, which wraps from the low side breaker J15BX and breaker J15CX and the new 500kV Autotransformer low side bushing creating a low side bus autotransformer zone of protection. The SEL 351A will monitor the tertiary winding and this relay will be used for alarm purposes only. Furthermore, sudden pressure protection is located in this panel.
- Design, purchase, and install a primary autotransformer high side bus differential panel, which includes the SEL 587Z relay is the 500kV bus differential zone of protection from the high side breaker J22BX and breaker J22CX to the high side bushing of the autotransformer.
- Design, purchase, and install a primary autotransformer high side bus differential panel, which includes the Nxphase B-Pro relay is the 115kV bus differential zone of protection from the low side breaker J15BX and breaker J15CX to the low side bushing of the autotransformer. Verify during design phase if an impedance relay protecting from the low side breakers looking past the autotransformer is necessary.
- Design, purchase, and install two (2) breaker control panels for the two new 500kV circuit breakers installed. Use the breaker control panel drawings done at typical 500kV Project as a reference. These drawings are slightly different from the standard because the breakers disconnect control switches have been added to the breaker control panel.
- Design, purchase, and install two (2) breaker control panels for the new 115kV circuit breakers being installed. The new 115kV breakers will give a double breaker configuration for the 115kV section.
- Modifications to the existing 115kV bus differential panel will be necessary to include the addition of the 115kV breakers.

- Modifications to the existing D20 RTU with a GE Harris D20-ME board to work with new SEL2032, Orion unit and four new status cards.
- Design, purchase, and install junction boxes and indoor distribution junction box as per Entergy Standard Bus Potential Junction Box for High Voltage Metering and Relaying #PM2402, latest revision.
- Install two (2) breaker control panels (2-500kVbreakers)
- Install two (2) breaker control panels (2-115kVbreakers)
- Install one gang MOS control panel. (5 switches)
- Modify existing Bus Differential Panels (Primary East / West Bus & Backup East / West Bus)
- Install one (1) 500kV primary XFMR bus diff panels
- Install one (1) 500/115kV dual primary/backup XFMR diff panels with Tertiary winding protection.
- Install one (1) 115kV backup bus diff panels XFMR bus diff panels
- Install one (1) SEL2032 with associated connections
- Install one (1) Orion Unit with associated connections
- Install one (1) 500kV CVT's
- Install three (3) 115kV CVT's
- Install four (4) Differential CT junction boxes
- Install one (1) marshalling junction boxes
- Install two (2) XFMR interface monitoring junction box
- Install one (1) CVT junction boxes (500kV – CVT)
- Install one (1) CVT junction boxes (115kV – CVT)
- Install one (1) lot of Shielded Control Cable ,Control Cable and fiber optic cable
- Autotransformer and Breaker Control, indication, alarms, and analog will have to be wired up, configured, and programmed for the RTU.
- The RTU is a Harris D20 unit that will have to be upgraded with the latest software and expanded with S status cards and K control cards.
- Upgrade existing DFR panel to accommodate new autotransformer

Revenue, interstate or inter-utility metering

Not Applicable

Relay Settings including DFRs:

Transformer and Bus Differential Work Associated with New Equipment

Calculate and Develop Relay Settings for new Autotransformer Diff Relays at Baxter Wilson

Calculate and Develop Relay Settings for new Breaker Control Relays at Baxter Wilson

Calculate and Develop Relay Settings for new Bus Differential Relays at Baxter Wilson

Transformer and Bus Differential Work Associated with Existing Equipment

Review/Update Relay settings for Existing 500/115 kV Autotransformer Diff Relays at Baxter Wilson

Review/Update Relay Settings for Existing 500 kV, and 115 kV Bus Differential Relays at Baxter Wilson

Review/Update Relay Settings for Existing 500 kV and 115 kV Breaker Control Relays at Baxter Wilson

Line Work Associated with Existing Equipment (500 kV)

Review/Update Relay Settings for the incoming lines to Baxter Wilson

Line Work Associated with Existing Equipment (115 kV)

Review/Update Relay Settings for the incoming lines to Baxter

Local RTU and TOC work

Function description (Control/Status/Alarm/Analogue)	Number of functions to be added	Number of functions to be deleted	Comment
5 Analogue, 150 Alarms, 18 Control	TBD	TBD	TBD

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
2	500kV Breaker Control Panel	16
2	MOS Panel	10
2	Autotransformer Panel	16
3	Bus Differential Panel	16
2	115kV Breaker Control Panel	16
3	115kV CCVT's	30
1	500kV CCVT	30
2	500kV Breakers	26
15	115kV Breakers	22
1	500kV Autotransformer	28
5	500kV Switches	26
4	115kV Switches	18
12	Arresters	18
1 Lot	Structures	26
1 Lot	Shieldwire/Conductor	24
247	Insulators	16
5000 ft	Rigid Bus	20
1	Station Service Transformer	40

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

The substation will have to be expanded on the north side of the 500 kV yard. This will require considerable fill materials and will probably require the removal of up to two feet of existing silt type materials. The foundations are near a river bottom and could require some concrete to be poured utilizing slurry materials. This will most likely be limited to the deeper piers used for shield wire and dead end structures. Oil containment will be provided underneath the autotransformer. Outages will be required in on 115 kV bus No. 1 & No. 2 and 500 kV east and West buses during foundation construction. Electrical and relay work will require some non outage construction work followed by outages on the 500 kV ring bus and the two 115 kV busses.

Depending on planning recommendations, if existing 115 kV breakers have to be replaced due to inadequate fault current ratings, then outages will be required on associated lines, transformers and generators while the breakers are replaced. The Tallulah 115 kV line will most likely have to be relocated to assure proper safe working and electrical clearances between new 500 kV bus and the 115 kV line. A new dead end tower will have to be installed and an outage will be required when the conductor is relocated. Work will likely take a minimum of one year to complete from grading work to commissioning of new facilities.

Assumptions made in scoping and estimates:

- No obstructions such as pipelines, etc
- The bridges and roads in the neighborhood of Baxter Wilson are capable of handling weight of a 3 phase transformer. Should this not be possible, we would have to resort to 3 single phase units with a considerable impact on cost. A decision during design phase will be made.

4.4 Vicksburg 115kV Substation

Electrical:

Transformer Yard

Remove breaker # J7446 and install new 115kV breaker to upgrade the fault interrupting capability above 27kA.

Site:

No work.

Foundations:

Re-use existing foundation. Install conduit and grounding to new breaker.

Relay Design:

- Provide connection diagram and associated drawings to install replacement breaker.
- Wire new breaker.

Revenue, interstate or inter-utility metering

Not Applicable

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
1	115kV Breakers	22

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

A new breaker foundation will be required which will likely require an outage to the Ray Braswell line. During electrical and relay construction work the Ray Braswell line will also have to be taken out of service during the entire construction duration.

Assumptions made in scoping and estimates:

None documented by the team

4.5 Swartz 115kV Substation

Electrical:

Remove two 1200A switches along with one ground switch and replace them by 2000A switches

Site:

Perimeter grounding work to be completed

Foundations:

Conduit need to be installed

Relay Design:

1200A line traps need to be replaced by 2000A

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
1	115kV Switches	22

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

Switches will be replaced during outage for the line work

Assumptions made in scoping and estimates:

None documented by the team

4.6 Sterlington to Drew 115 kV line upgrade

Upgrade capacity of Drew line from185 MVA to 228 MVA or greater

Scope of Line Design

- Remove 10.13 miles of 1027 ACSR conductor
- Remove 10.13 miles of existing shield wire
- Install 10.13 miles of 1272 ACSR Bittern on existing lattice pole structures
- Install 10.13 miles of 24 fiber 0.528" dia. OPGW
- Replace insulators and hardware

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
253000 lbs	1272 ACSR Bittern	12
59000 ft	0.528 OPGW	14
21000 ft	7 No. 7 Alumoweld	12
320	Polymer Insulators	10

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

- Mobilize line contractor and receive materials.
- Take a 12 week outage on Sterlington-Drew Line section.
- Replace insulators, install existing conductor and shield wire in blocks, and string in new conductor and OPGW shield wire.
- Total construction duration – approximately 14 weeks.

Assumptions made in scoping and estimates:

- The estimates will be based on reconductoring 10.13 miles of the 16.7 miles of line
- No Distribution underbuilt
- No existing structures need to be replaced

4.7 Walnut Grove to Swartz 115 kV line

Requirement is to increase capacity from 228 MVA to 267 MVA or greater.
The line length is 11.4 miles and will be rebuilt because the original construction was performed in 1965 and does not meet existing loading and clearance standards.

Scope of Line Design

- Remove 11.4 miles of wood H-frame transmission line including poles, insulators, conductors, shield wire, guy wire, etc.
- Install 11.4 miles of single pole, single circuit transmission line using 1590 ACSR Lapwing conductor, polymer insulators, 24 fiber 0.528" dia. OPGW shield wire, and vibratory pile foundations where required.

ROW or Permit issue known at this time:

Not known at the time of developing this scope

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
105	Poles	16
80	Foundations	16
360000 lbs	1590 ACSR Lapwing	12
68000 ft	0.528 OPGW	14
350	Polymer Insulators	10

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

- Mobilize line contractor and receive materials.
- Take a 20 week outage on Walnut Grove-Swartz line section.
- Rebuild line with new structures, insulators, conductor and OPGW shield wire.
- Total construction duration – approximately 22 weeks.

Assumptions made in scoping and estimates:

- No Distribution underbuild
- Foundations will be needed on approximately 75% of the structures

4.8 Swartz to Alto 115 kV line

Requirement is to increase capacity from 114 MVA to 228 MVA or greater.
The line length is 17.9 miles and will be rebuilt because the original construction was performed in 1947 and does not meet existing loading and clearance standards.

Scope of Line Design

- Remove 17.9 miles of wood H-frame transmission line including poles, insulators, conductors, shield wire, guy wire, etc.
- Install 17.9 miles of single pole, single circuit transmission line using 1272 ACSR Bittern conductor, polymer insulators, 24 fiber 0.528" dia. OPGW shield wire, and vibratory pile foundations where required.

ROW or Permit issue known at this time:

- Interstate Highway Crossing required
- Railroad Crossing Required
- May require river crossing permit for Boeuf River

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
170	Poles	16
130	Foundations	16
450000 lbs	1272 ACSR Bittern	12
110000 ft	0.528 OPGW	14
560	Polymer Insulators	10

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

- Mobilize line contractor and receive materials.
- Take a 32 week outage on Swartz-Alto line section.
- Rebuild line with new structures, insulators, conductor and OPGW shield wire.
- Total construction duration – approximately 35 weeks.

Assumptions made in scoping and estimates:

- No Distribution underbuild
- Foundations will be needed on approximately 75% of the structures

4.9 Sterlington 115 kV tie from transformer to 115 kV bus

Construct 0.3 mile of overhead line to connect new transformer 115 kV side to the 115 kV bus.

Scope of Line Design

- Remove 0.15 mile of transmission line including poles, insulators, conductors, shield wire, guy wire, etc.
- Install 0.15 mile of single pole, double circuit transmission line using 2x1780 ACSR Chukar conductor, polymer insulators, 24 fiber 0.528" dia. OPGW shield wire, and vibratory pile foundations where required.
- Install 0.15 mile of single pole, single circuit transmission line using 2x1780 ACSR Chukar conductor, polymer insulators, 24 fiber 0.528" dia. OPGW shield wire, and vibratory pile foundations where required.

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
8	Poles	16
6	Foundations	16
25000 lbs	1780 ACSR Chukar	12
2000 ft	0.528 OPGW	14
33	Polymer Insulators	10

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

- To be determined during scoping.

Assumptions made in scoping and estimates:

- No Distribution underbuild
- Foundations will be needed on approximately 75% of the structures

4.10 Relocate Tallulah dead-end in the area of transformer at Baxter Wilson

Line removal and reconstruction work equal to that of constructing a 0.1 mile length of line is required to provide space for proposed transformer tie line.

Scope of Line Design

- Remove 0.1 mile of transmission line including poles, insulators, conductors, shield wire, guy wire, etc.

- Install 0.1 mile of single pole, single circuit transmission line using 954 ACSR Cardinal conductor, polymer insulators, 7 no. 7 shield wire, and vibratory pile foundations where required.

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
2	Poles	16
1	Foundations	16
2800 lbs	954 ACSR Cardinal	12
1000 ft	7 No. 7 Alumoweld	12
12	Polymer Insulators	10

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

- To be determined during scoping.

Assumptions made in scoping and estimates:

- 1 foundation will be required

4.11 Re-terminate Perryville 500 kV Line on new dead-end structure at Sterlington

Remove line from existing dead-end structure; terminate it on the new dead-end structure on the new bay. Relocate existing 115kV underbuild line to by-pass proposed 500kV construction.

Scope of Line Design

- Remove 0.1 mile of 500 kV transmission line.
- Install 0.1 mile of 500kV transmission line using 954 ACSR Rail conductor, polymer insulators, 7 no. 7 shield wire, and vibratory pile foundations where required.
- Relocate 1 span of 115 kV underbuild line using 1 new 3-pole dead-end structure and existing conductor.

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
6	Poles	16
6	Foundations	16

11000 lbs	954 ACSR Rail	12
30	Polymer Insulators	10

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

- To be determined during scoping. A 1-2 week outage will be required on the Sterlington-Perryville 500kV line and on the Sterlington-Perryville IPCO 115kV line.

Assumptions made in scoping and estimates:

- Foundations will be needed for all structures
- Existing 115kV conductor can be re-used

4.12 Relocate Walnut Grove to New Bay – 115 kV at Sterlington

Remove line from existing dead-end structure, terminate line on new rigid bus with a flying pass and make connection to structure on the new bay. A low profile rigid bus will be built by Substations by extending the fence and grounding.

Scope of Line Design

Remove 2 existing terminal structures and associated conductors, insulators, shield wire, etc. Install 2 new terminal structures and associated hardware to connect with proposed rigid bus and substation line bay dead end structures.

Long Delivery items with lead times:

Quantity	Equipment	*Lead Time (weeks)
6	Poles	16
6	Foundations	16
1000 lbs	1780 ACSR Chukar	12
20	Polymer Insulators	10

***Lead Times are as of June 2007**

Construction Methodology, duration of construction and outages required:

- To be determined during scoping.

Assumptions made in scoping and estimates:

- Existing DE str will need to be relocated
- Foundations will be needed on all of the structures

4.13 NORTH BASTROP RELIABILITY PROJECT

- See attached Project Execution plan
- Entergy has currently deferred this project beyond 2013 and should this project not be completed by the time the customer commences work on this OASIS, costs associated with this project will be borne by the customer.

5. COSTS

The ICT has reviewed and determined each required upgrade to be considered 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 include overheads and AFUDC (55%), but do not include tax gross up. The estimated tax gross-up rate is 30.948%. The costs shown are considered to be accurate to within +/-25%.

Projected Costs in 2007 Dollars w/o Escalation

Description	Estimated Completion Year	Direct Cost 2007 dollars	Indirect Cost 2007 dollars	Total Cost 2007 dollars
4.1 Sterlington 115 kV	**09/2010**	$2,558,866	$1,407,376	$3,966,242
4.2 Sterlington 500 kV	**09/2010**	$12,517,059	$6,884,382	$19,401,441
4.3 Baxter Wilson 500 kV	**09/2010**	$13,618,608	$7,490,234	$21,108,842
4.4 Vicksburg 115 kV	**12/2008**	$133,000	$7,490,234	$206,150
4.5 Swartz 115 kV	**12/2008**	$140,842	$77,463	$218,305
4.6 Sterlington to Drew 115 kV line	**05/2009**	$2,424,900	$1,333,695	$3,758,595
4.7 Walnut Grove - Swartz 115 kV line	**08/2009**	$5,188,000	$2,853,400	$8,041,400
4.8 Swartz - Alto 115 kV line	**08/2009**	$7,615,100	$4,188,305	$11,803,405
4.9 115 kV Transformer tie - Sterlington	**09/2010**	$282,000	$155,100	$437,100
4.10 Relocate Tallulah dead-end at Baxter Wilson	**09/2010**	$133,000	$73,150	$206,150
4.11 Re-terminate Perryville line on new structure	**09/2010**	$324,000	$178,200	$502,200
4.12 Relocate Walnut Grove to New Bay – 115 kV at Sterlington	**09/2010**	$133,000	$73,150	$206,150
4.13 North Bastrop Reliability Project	**Beyond 2013**			$17,982,408
Total with OH and excluding TGU		$45,068,375	$24,787,606	$87,838,388

Note: The indirect cost could vary from those existing used at the time of this study

The cost of purchasing expensive energy during line or substation element outages is not included in the above cost.

ICT Cost Allocation

Description	Base Case	Supplemental Upgrades
4.1 Sterlington 115 kV		$3,966,242
4.2 Sterlington 500 kV		$19,401,441
4.3 Baxter Wilson 500 kV		$21,108,842
4.4 Vicksburg 115 kV		$206,150
4.5 Swartz 115 kV		$218,305
4.6 Sterlington to Drew 115 kV line		$3,758,595
4.7 Walnut Grove - Swartz 115 kV line		$8,041,400
4.8 Swartz - Alto 115 kV line		$11,803,405
4.9 115 kV Transformer tie – Sterlington		$437,100
4.10 Relocate Tallulah dead-end at Baxter Wilson		$206,150
4.11 Re-terminate Perryville line on new structure		$502,200
4.12 Relocate Walnut Grove to New Bay – 115 kV at Sterlington		$206,150
4.13 North Bastrop Reliability Project	$17,982,408	
Total with OH and excluding TGU	$17,982,408	$69,855,981

6. SCHEDULE

A detailed schedule will be prepared subsequent to customer approval. If outage cannot be obtained or must be sequenced due to seasonal requirements, additional time will be required to complete the upgrades. The following are rough durations

I. Project Definition

Includes surveys, soil borings, and Project Execution Plan - 24 Weeks

II. Transmission lines:

Includes design, ROW acquisition, permits, material procurement, and construction - 52 weeks

III. Substations:

Includes design, material procurement (transformer the longest delivery item), and construction - 124 weeks

Notes to Duration Schedules:

- Most of the construction work requiring outages will be performed during off-peak load season. Line outages will be discussed with the SOC and TOC and the assumption is made that line outages will be executed as planned. However, last minute denial of outages by the SOC/TOC along with resulting schedule delay is possible.
- Transmission Line and Substation projects will begin subsequent to Definition phase Project Execution Plan

- Schedule durations are high level estimates at this time. Upon project approval, a detailed schedule will be produced.
- Schedule durations provide Transformer 500 kV substations to be the last one to go in service in 09/2010 should the definition phase be started in December 2007. Equipment could be purchased during the definition phase with customer approval and the durations could be minimized. Upon project approval, a detailed schedule will be produced.
- **Based on the project duration schedule, the upgrades necessary to facilitate granting of this service will not be completed prior to the requested start of service. Should approval to proceed be given in December 2007, facility construction will not be completed until September 2010.**

7. CONFIRMED RESERVATIONS

OASIS#		PSE	MW	Begin	End
140912		NRG Power Marketing	103	01/01/98	01/01/08
250778	(delisting)	Entergy Services, Inc. (EMO)	1	07/02/98	07/01/11
392740		Ameren Energy Inc.	165	04/12/99	01/01/09
569011		Entergy Services, Inc. (EMO)	242	03/01/00	01/01/14
731017		South Mississippi Electric Power Assoc.	75	01/01/01	06/01/09
759196		Entergy Services (EMO)	143	01/01/01	01/01/21
759294		East Texas Electric Cooperative	31	01/01/01	01/01/18
810207		South Mississippi Electric Power Assoc.	300	01/01/02	01/01/20
810234		South Mississippi Electric Power Assoc.	300	01/01/02	01/01/20
850239		Municipal Energy Agency of Mississippi	19	05/01/01	01/01/10
850304		Municipal Energy Agency of Mississippi	13	05/01/01	06/01/10
851493		Municipal Energy Agency of Mississippi	13	05/01/01	06/01/10
1019492		South Mississippi Electric Power Assoc.	51	01/01/02	01/01/18
1024194		City Water & Light, Jonesboro	83	01/01/03	01/01/10
1024198		City Water & Light, Jonesboro	168	01/01/03	01/01/10
1035455		South Mississippi Electric Power Assoc.	280	01/01/03	01/01/08

OASIS#		PSE	MW	Begin	End
1036858		South Mississippi Electric Power Assoc.	280	01/01/08	01/01/21
1084342		East Texas Electric Cooperative	50	01/01/05	01/01/09
1084344		East Texas Electric Cooperative	50	01/01/05	01/01/09
1084345		East Texas Electric Cooperative	75	01/01/05	01/01/09
1096986		Tennessee Valley Auth BPT	73	09/01/03	09/01/13
1099991		City Water & Light, Jonesboro	83	01/01/10	01/01/16
1099997		City Water & Light, Jonesboro	168	01/01/10	01/01/16
1105665		Entergy Services, Inc. (EMO)	185	02/01/03	02/01/16
1105666		Entergy Services, Inc. (EMO)	91	02/01/03	02/01/27
1105668		Entergy Services, Inc. (EMO)	206	02/01/03	02/01/27
1126821		Entergy Services, Inc. (EMO)	101	05/01/04	05/01/29
1139973		South Mississippi Electric Power Assoc.	95	05/01/03	12/30/28
1139975		South Mississippi Electric Power Assoc.	95	05/01/04	12/31/29
1139977		South Mississippi Electric Power Assoc.	95	05/01/05	12/31/29
1139982		South Mississippi Electric Power Assoc.	130	01/01/03	01/01/20
1151106		Entergy Services, Inc. (EMO)	20	06/01/10	06/01/29
1161925		Cleco Power LLC (Gen)	12	08/01/03	01/01/10
1161927		Cleco Power LLC (Gen)	7	08/01/03	01/01/10
1161928		Cleco Power LLC (Gen)	7	08/01/03	01/01/10
1168061		Entergy Services, Inc. (EMO)	80	08/01/04	02/01/28
1168408		Entergy Services, Inc. (EMO)	247	08/01/04	02/01/28
1192287	(1140407)	Entergy Services, Inc. (EMO)	725	01/01/05	09/01/33
1202470		NRG Power Marketing	91	04/01/04	04/01/09
1210356		Entergy Services, Inc. (EMO)	290	07/01/05	07/01/07
1210357		Entergy Services, Inc. (EMO)	100	07/01/05	07/01/07
1272606	(renewal)	Entergy Services, Inc. (EMO)	150	05/01/05	05/01/07
1286481		Merrill Lynch Commodities	11	01/01/00	01/01/10
1289686	(delisting)	Entergy Services Inc. (EMO)	1	06/01/07	06/01/30
1294132		Entergy Services, Inc. (EMO)	526	01/01/06	01/01/35
1309874		East Texas Electric Cooperative	75	01/01/09	01/01/17
1309875		East Texas Electric Cooperative	50	01/01/09	01/01/17

OASIS#		PSE	MW	Begin	End
1309876		East Texas Electric Cooperative	50	01/01/09	01/01/17
1310448	(1284799) (delisting)	Entergy Services Inc. (EMO)	1	06/01/07	06/01/30
1321868	(renewal)	NRG Power Marketing	320	01/01/06	01/01/07
1328125		CLECO Power Marketing	35	01/01/06	01/01/11
1340017		Plum Point Energy Associates	40	03/01/10	03/01/40
1340019		Plum Point Energy Associates	35	03/01/10	03/01/40
1340028		Plum Point Energy Associates	50	03/01/10	03/01/30
1340029		Plum Point Energy Associates	50	03/01/10	03/01/30
1340665		Entergy Services, Inc. (EMO)	200	01/01/06	01/01/09
1340673		Entergy Services, Inc. (EMO)	50	06/01/07	06/01/08
1340674		Entergy Services, Inc. (EMO)	50	06/01/08	06/01/09
1346435		Entergy Services, Inc. (EMO)	100	06/01/07	06/01/08
1346437		Entergy Services, Inc. (EMO)	100	06/01/08	06/01/09
1346440		Entergy Services, Inc. (EMO)	200	06/01/07	06/01/08
1346441		Entergy Services, Inc. (EMO)	200	06/01/08	06/01/09
1346444		Entergy Services, Inc. (EMO)	179	02/01/07	02/01/08
1348508		CLECO Power Marketing	10	01/01/06	01/01/10
1352704	(1340032)	Plum Point Energy Associates	5	03/01/10	03/01/40
1353140		Constellation Energy Group	10	01/01/06	01/01/07
1353141		Constellation Energy Group	5	01/01/06	01/01/07
1353344	(renewal)	Merrill Lynch Commodities	85	10/01/05	10/01/06
1353393	(renewal)	Merrill Lynch Commodities	4	11/01/05	11/01/06
1356328		Municipal Energy Agency of Mississippi	40	06/01/10	06/01/40
1366979		MidAmerican Energy	50	01/01/06	01/01/07
1366980		MidAmerican Energy	50	01/01/06	01/01/07
1366981		MidAmerican Energy	50	01/01/06	01/01/07
1366982		MidAmerican Energy	50	01/01/06	01/01/07
1371416		NRG Power Marketing	100	03/01/06	03/01/07
1371481	(delisting)	Entergy Services, Inc. (EMO)	1	01/01/06	01/01/07
1372645		Morgan Stanley Commodities Group	102	01/01/07	01/01/08
1372646		Morgan Stanley Commodities Group	102	01/01/07	01/01/08
1373112		Louisiana Energy & Power	61	01/01/06	01/01/07

OASIS#		PSE	MW	Begin	End
		Authority			
1373643		City of Conway	25	03/01/10	03/01/40
1373714		East Texas Electric Cooperative	63	01/01/10	01/01/30
1375001		NRG Power Marketing	3	07/01/06	07/01/07
1375299		Louisiana Generating LLC	11	03/01/06	03/01/11
1375300		Louisiana Generating LLC	8	03/01/06	03/01/11
1375301		Louisiana Generating LLC	5	03/01/06	03/01/11
1375559		CLECO Power LLC	675	12/01/06	12/01/16
1376208		Louisiana Energy & Power Authority	6	02/01/06	02/01/07
1380484		Osceola Light & Power	9	09/01/09	09/01/39
1381068		Plum Point Energy Associates	100	06/01/10	06/01/11
1381247		Constellation Energy Group	140	01/01/06	01/01/07
1381248	(1349801)	City of West Memphis	70	01/01/06	01/01/07
1381312		Constellation Energy Group	240	01/01/06	07/01/07
1381317		Constellation Energy Group	70	01/01/06	01/01/07
1381318		Constellation Energy Commodities Group	70	01/01/06	01/01/07
1381322		Constellation Energy Commodities Group	6	01/01/06	06/01/07
1381398		Constellation Energy Group	34	01/01/06	01/01/36
1381400		Constellation Energy Group	34	01/01/06	01/01/36
1381404		Constellation Energy Group	17	01/01/06	01/01/36
1381406	(1325187)	Constellation Energy Group	17	01/01/06	01/01/36
1382543		Mid American Energy Company	100	03/01/06	03/01/07
1382544		Mid American Energy Company	100	03/01/06	03/01/07
1383852		AECC	550	01/01/07	01/01/17
1385131		Ameren	12	06/01/06	06/01/07
1385835	(1363730)	City of Prescott	22	04/01/06	04/01/09
1385842		South Mississippi Electric Power Assoc.	100 38	01/01/09 01/01/10	01/01/10 01/01/11
1387272		CLECO Power	11	04/01/06	04/01/16
1387274		CLECO Power	16	04/01/06	04/01/07
1387275		CLECO Power	16	04/01/07	04/01/08
1389008		NRG Power Marketing	270	06/01/07	06/01/08
1389848		Louisiana Energy & Power	6	02/01/07	02/01/08

OASIS#		PSE	MW	Begin	End
		Authority			
1389848		Louisiana Energy & Power Authority	6	02/01/07	02/01/08
1393874		NRG Power Marketing	5	09/01/06	09/01/07
1394479		Louisiana Generating LLC	2	06/01/06	06/01/07
1396788		Constellation Energy Commodities	70	06/01/06	06/01/07
1401985		Constellation Commodities Group	42	08/01/06	08/01/36
1403756		Constellation Commodities Group	100	01/01/07	01/01/08
1403757		Constellation Commodities Group	100	01/01/07	01/01/08
1406786		South Mississippi Electric Power Assoc.	100	04/01/10	04/01/40
1407894		Morgan Stanley Commodities Group	102	01/01/08	01/01/09
1407895		Morgan Stanley Commodities Group	102	01/01/08	01/01/09
1408199		South Mississippi Electric Power Assoc.	100	04/01/10	04/01/40
1408981		NRG	92	01/01/07	01/01/10
1410022	(1340037)	City of North Little Rock	60	03/01/10	03/01/40
1412068		NRG	103	01/01/07	01/01/08
1413110		NRG Power Marketing	100	01/01/07	01/01/09
1413255		American Electric Power Service Corp	225	01/01/07	01/01/09
1414925		Constellation Commodities Group	22	01/01/07	01/01/08
1414927		Constellation Commodities Group	50	01/01/07	01/01/08
1416650		NRG Power Marketing	100	01/01/07	01/01/08
1422496		Constellation Commodities Group	57	01/01/07	01/01/08
1422498		Constellation Commodities Group	9	01/01/07	01/01/08
1425495		East Texas Electric Cooperative	50	03/01/10	03/01/45
1431621		South Mississippi Electric Power Assn.	200	01/01/07	01/01/08
1432487		Arkansas Electric Cooperative Corp.	50	12/01/07	12/01/19
1443976	(1424383)	Constellation Commodities Group	9	01/01/07	01/01/08
1435972		Entergy Services, Inc. (EMO)	150	05/01/07	05/01/10
1435973		Entergy Services, Inc. (EMO)	135	05/01/08	05/01/10

OASIS#		PSE	MW	Begin	End
1436590		MidAmerican Energy	50	01/01/07	01/01/08
1436591		MidAmerican Energy	50	01/01/07	01/01/08
1436592		MidAmerican Energy	50	01/01/07	01/01/08
1436593		MidAmerican Energy	50	01/01/07	01/01/08
1440358		NRG Power Marketing	100	03/01/07	03/01/08
1442295		NRG Power Marketing	3	07/01/07	07/01/09
1442453		NRG Power Marketing	320	06/01/07	06/01/26
1448054		NRG Power Marketing	103	01/01/08	01/01/09
1448057		NRG Power Marketing	103	01/01/08	01/01/09
1449494		Entergy Services, Inc. (EMO)	154	06/01/07	06/01/09
1449495		Entergy Services, Inc. (EMO)	322	06/01/09	06/01/59
1449881		Cargill Power	103	01/01/08	01/01/09
1452308		NRG Power Marketing	100	01/01/08	01/01/09
1452603		NRG Power Marketing	100	09/01/07	09/01/08
1435303		East Texas Electric Coop	150	01/01/07	01/01/40
1453402		NRG Power Marketing	103	01/01/09	01/01/10
1456636		CLECO Power LLC	10	10/01/07	10/01/12
1458787		Louisiana Energy & Power Authority	2	03/31/07	03/31/08
1464028		East Texas Electric Coop	168	01/01/10	01/01/40
1466197		NRG Power Marketing	206	01/01/09	01/01/10
1466561		Constellation Energy	50	01/01/08	01/01/09
1466562		Constellation Energy	25	01/01/08	01/01/09
1470811		East Texas Electric Coop	186	01/01/10	01/01/40
1477069		Entergy Services	10	11/01/07	11/01/37
1477256		NRG Power Marketing	103	01/01/08	01/01/09

Pre-888 Transactions

OASIS #		PSE	MW	Begin	End
1219160		NRG Power Marketing	91	04/01/09	04/01/14
1306068		Entergy Services, Inc. (EMO)	1718	02/01/05	01/01/07
1306069		Entergy Services, Inc. (EMO)	741	02/01/05	01/01/07
1306070		Entergy Services, Inc. (EMO)	1867	02/01/05	01/01/07
1306071		Entergy Services, Inc. (EMO)	1142	02/01/05	01/01/07
1306072		Entergy Services, Inc. (EMO)	59	02/01/05	01/01/07
1306073		Entergy Services, Inc. (EMO)	148	02/01/05	01/01/07
1306074		Entergy Services, Inc. (EMO)	194	02/01/05	01/01/07
1306075		Entergy Services, Inc. (EMO)	1157	02/01/05	01/01/07
1306076		Entergy Services, Inc. (EMO)	1219	02/01/05	01/01/07

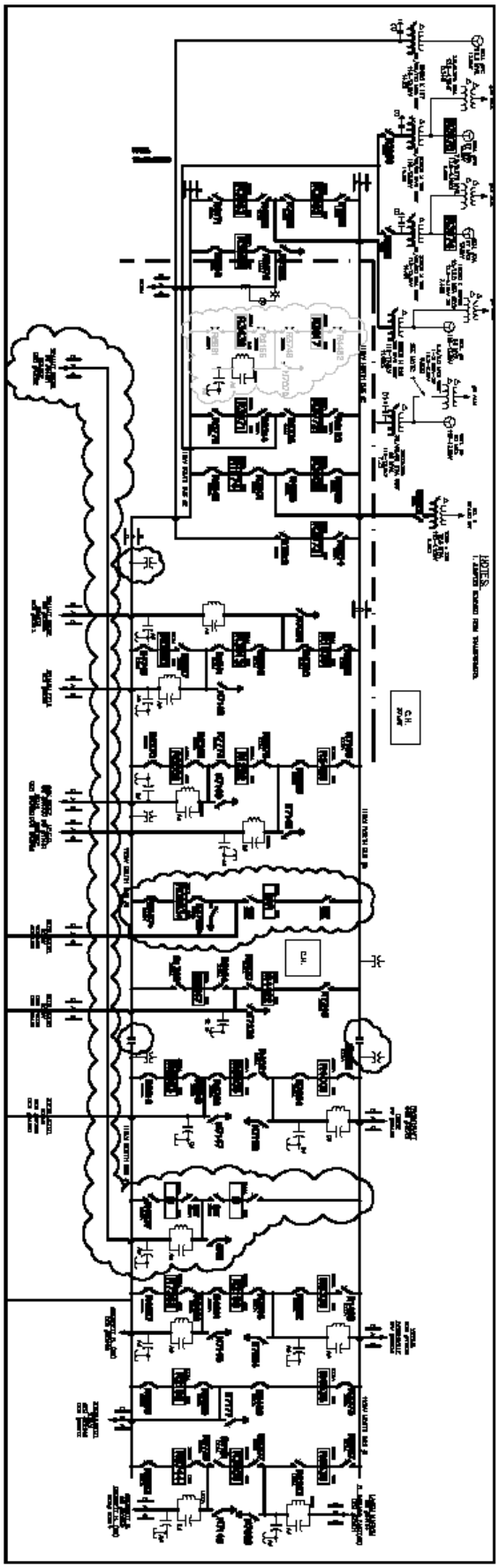
OASIS #		PSE	MW	Begin	End
1306077		Entergy Services, Inc. (EMO)	683	02/01/05	01/01/07
1306078		Entergy Services, Inc. (EMO)	140	02/01/05	01/01/07
1306079		Entergy Services, Inc. (EMO)	456	02/01/05	01/01/07
1306080		Entergy Services, Inc. (EMO)	739	02/01/05	01/01/07
1306081		Entergy Services, Inc. (EMO)	183	02/01/05	01/01/07
1306082		Entergy Services, Inc. (EMO)	64	02/01/05	01/01/07
1306083		Entergy Services, Inc. (EMO)	870	02/01/05	01/01/07
1306084		Entergy Services, Inc. (EMO)	129	02/01/05	01/01/07
1306085		Entergy Services, Inc. (EMO)	140	02/01/05	01/01/07
1306086		Entergy Services, Inc. (EMO)	130	02/01/05	01/01/07
1306087		Entergy Services, Inc. (EMO)	65	02/01/05	01/01/07
1306088		Entergy Services, Inc. (EMO)	947	02/01/05	01/01/07
1306089		Entergy Services, Inc. (EMO)	61	02/01/05	01/01/07
1306090		Entergy Services, Inc. (EMO)	304	02/01/05	01/01/07
1306092		Entergy Services, Inc. (EMO)	351	02/01/05	01/01/07
1306094		Entergy Services, Inc. (EMO)	692	02/01/05	01/01/07
1306095		Entergy Services, Inc. (EMO)	1641	02/01/05	01/01/07
1306096		Entergy Services, Inc. (EMO)	433	02/01/05	01/01/07
1306097		Entergy Services, Inc. (EMO)	1926	02/01/05	01/01/07
1306098		Entergy Services, Inc. (EMO)	946	02/01/05	01/01/07
1306099		Entergy Services, Inc. (EMO)	1233	02/01/05	01/01/07
1332606		East Texas Electric Cooperative	55	01/01/06	01/01/17
1412155		Entergy Services, Inc. (EMO)	1718	01/01/07	01/01/38
1412156		Entergy Services, Inc. (EMO)	741	01/01/07	01/01/38
1412158		Entergy Services, Inc. (EMO)	1867	01/01/07	01/01/38
1412160		Entergy Services, Inc. (EMO)	1142	01/01/07	01/01/38
1412161		Entergy Services, Inc. (EMO)	59	01/01/07	01/01/38
1412162		Entergy Services, Inc. (EMO)	148	01/01/07	01/01/38
1412163		Entergy Services, Inc. (EMO)	194	01/01/07	01/01/38
1412164		Entergy Services, Inc. (EMO)	1157	01/01/07	01/01/38
1412165		Entergy Services, Inc. (EMO)	1219	01/01/07	01/01/38
1412166		Entergy Services, Inc. (EMO)	683	01/01/07	01/01/38
1412167		Entergy Services, Inc. (EMO)	140	01/01/07	01/01/38
1412168		Entergy Services, Inc. (EMO)	456	01/01/07	01/01/38
1412169		Entergy Services, Inc. (EMO)	739	01/01/07	01/01/38
1412170		Entergy Services, Inc. (EMO)	183	01/01/07	01/01/38
1412171		Entergy Services, Inc. (EMO)	64	01/01/07	01/01/38
1412172		Entergy Services, Inc. (EMO)	870	01/01/07	01/01/38
1412173		Entergy Services, Inc. (EMO)	129	01/01/07	01/01/38
1412174		Entergy Services, Inc. (EMO)	140	01/01/07	01/01/38
1412175		Entergy Services, Inc. (EMO)	130	01/01/07	01/01/38
1412176		Entergy Services, Inc. (EMO)	65	01/01/07	01/01/38
1412177		Entergy Services, Inc. (EMO)	947	01/01/07	01/01/38
1412178		Entergy Services, Inc. (EMO)	61	01/01/07	01/01/38
1412179		Entergy Services, Inc. (EMO)	304	01/01/07	01/01/38
1412180		Entergy Services, Inc. (EMO)	351	01/01/07	01/01/38

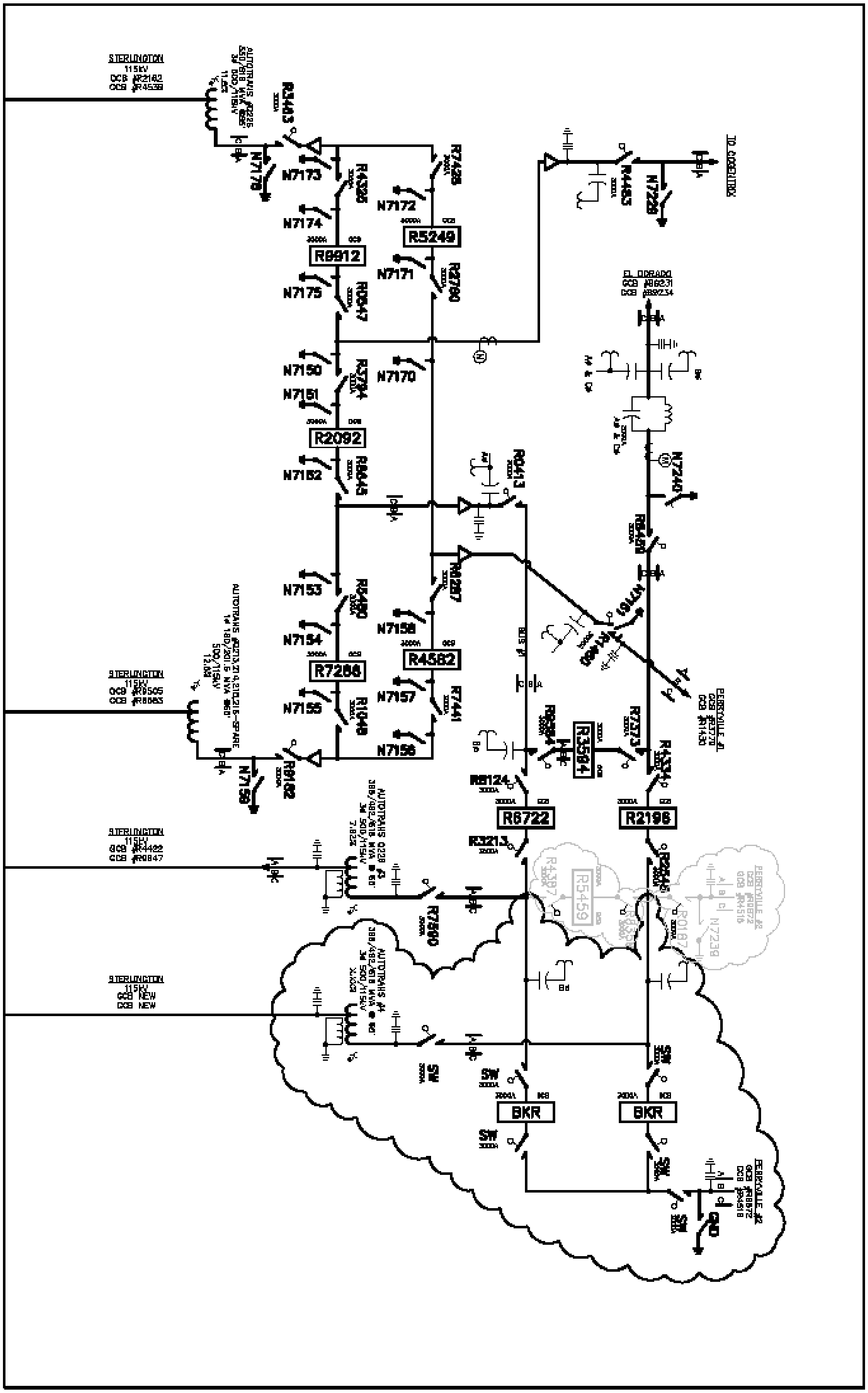
OASIS #		PSE	MW	Begin	End
1412181		Entergy Services, Inc. (EMO)	692	01/01/07	01/01/38
1412182		Entergy Services, Inc. (EMO)	1641	01/01/07	01/01/38
1412183		Entergy Services, Inc. (EMO)	433	01/01/07	01/01/38
1412184		Entergy Services, Inc. (EMO)	1926	01/01/07	01/01/38
1412185		Entergy Services, Inc. (EMO)	946	01/01/07	01/01/38
1412186		Entergy Services, Inc. (EMO)	1233	01/01/07	01/01/38

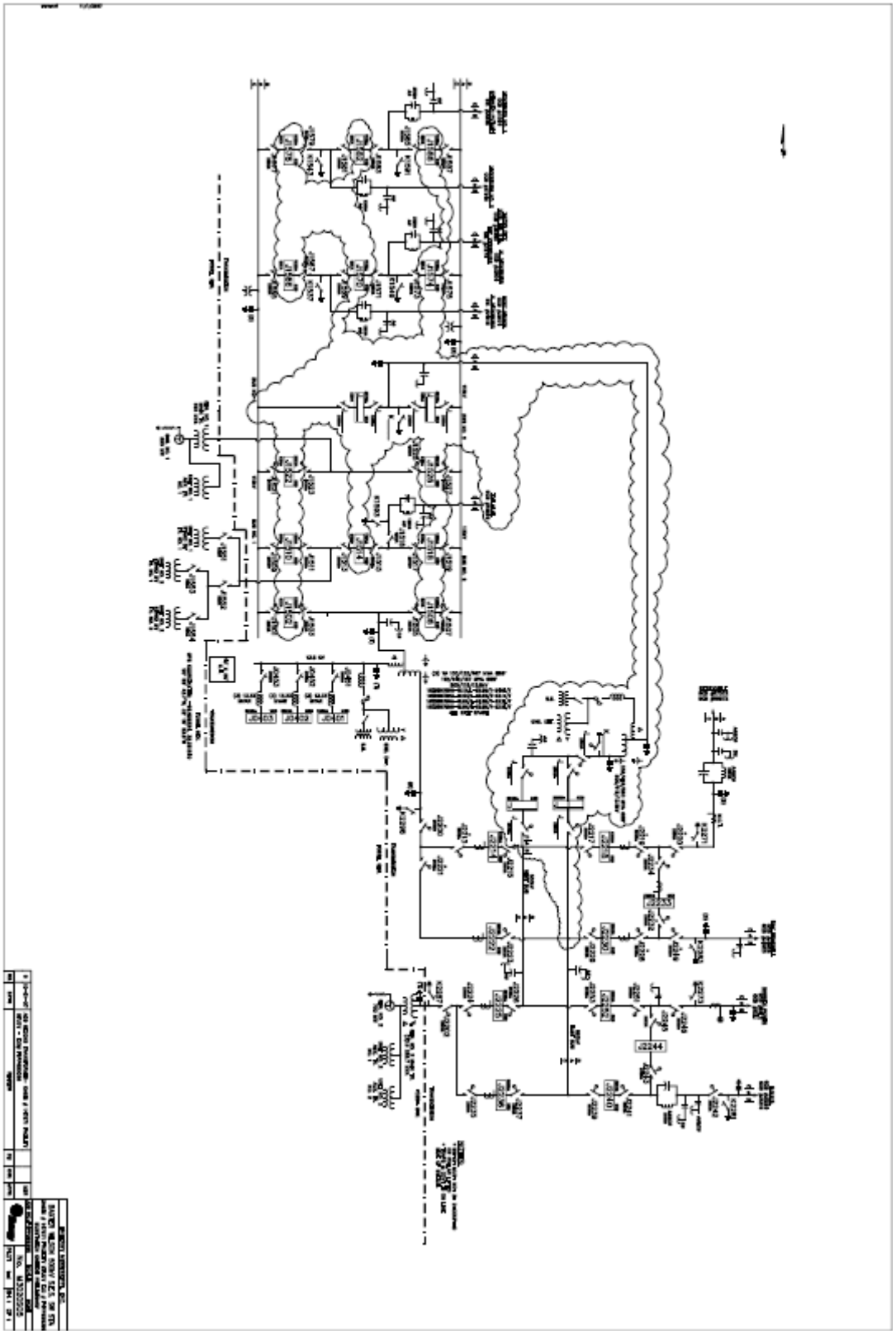
STUDY QUEUE

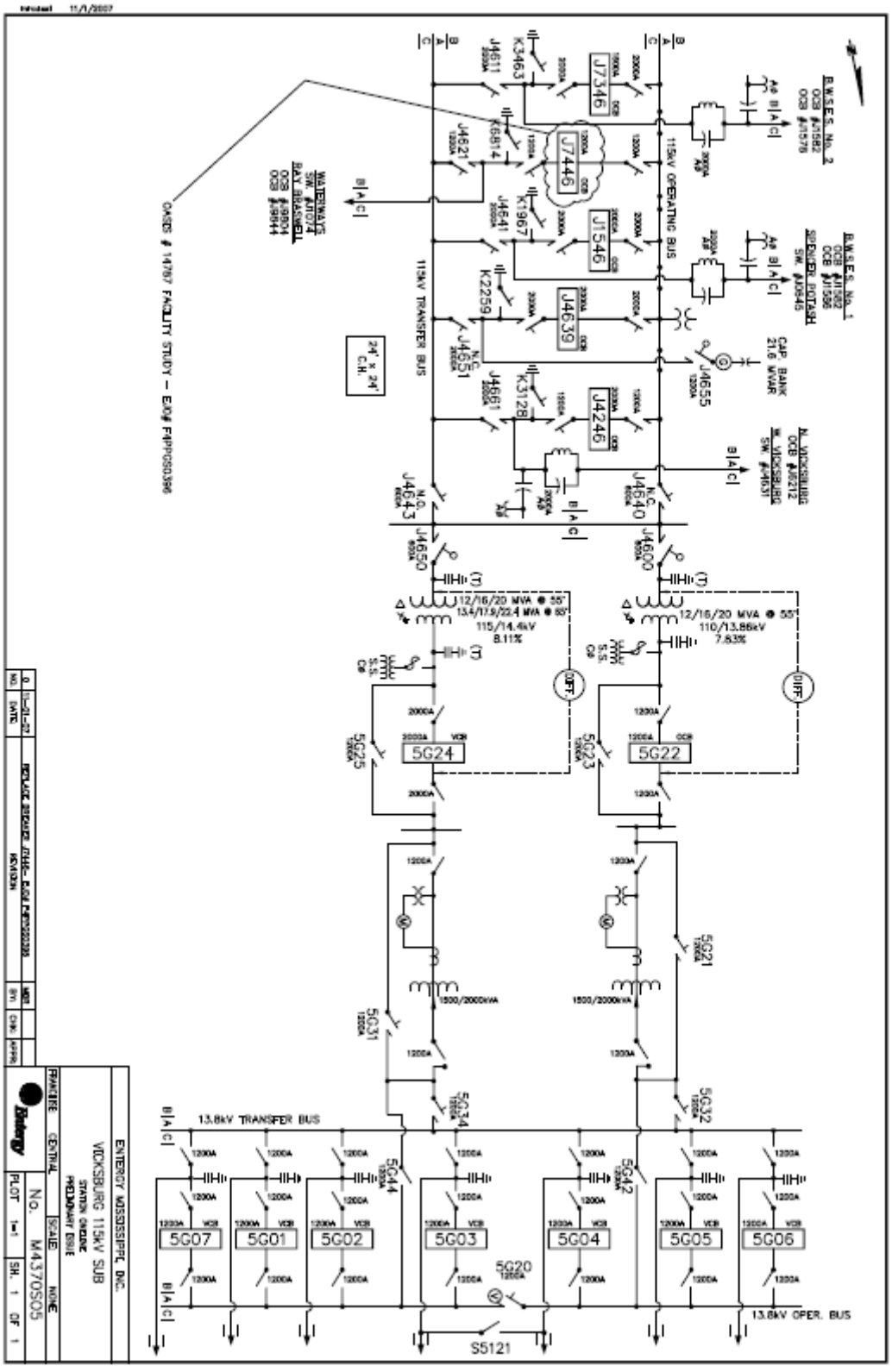
OASIS		PSE	MW	Begin	End
1338849		Louisiana Energy & Power Authority	45	9/1/2005	9/1/2010
1460876		Aquilla Networks – MPS	75	03/01/09	03/01/29
1460878		Aquilla Networks – MPS	75	03/01/09	03/01/29
1460879		Aquilla Networks – MPS	75	03/01/09	03/01/29
1460881		Aquilla Networks – MPS	75	03/01/09	03/01/29
1460900		Louisiana Energy & Power Auth	116	01/01/09	01/01/30
1468113		Muni energy Agcy of Miss	20	06/01/11	06/01/41
1468285		Mid American Energy	103	09/01/07	09/01/08
1468286		Mid American Energy	103	09/01/07	09/01/08
1470484		City of W. Memphis	20	01/01/11	01/01/41
1471303		Cargill Power Markets, LLC	103	01/01/08	01/01/09
1475343		Constellation Energy	25	01/01/08	01/01/09
1477639		Westar Energy Generation & Mktg	27	06/01/10	06/01/40
1477639		Westar Energy Generation & Mktg	15	06/01/10	06/01/11

8. ATTACHMENTS




STERLINGTON
R5249
R8912
R2092
R7286
R4582
R6722
R2196
R3594
BKR
BKR
EL DORADO
TO DOGEN TRK




115kV OPERATING BUS
115kV TRANSFER BUS
13.8kV TRANSFER BUS
13.8kV OPER. BUS
J7346
J7446
J1546
J4639
J4246
J4650
J4600
J4643
J4640
J4655
J4651
5G24
5G22
5G25
5G23
5G21
5G31
5G32
5G34
5G44
5G42
5G07
5G01
5G02
5G03
5G04
5G05
5G06
5G20
S5121
12/16/20 MVA @ 55°
115/14.4kV
8.11%
12/16/20 MVA @ 55°
110/13.86kV
7.83%
1500/2000kVA
1500/2000kVA
CAP. BANK
21.6 MVAR
B.W.S.E.S. No. 2
B.W.S.E.S. No. 1
SPINNER POINT
WATERWAYS
BAY BRASWELL
N. VICKSBURG
OASIS # 14787 FACILITY STUDY – EJO# FAPP0503966
VICKSBURG 115kV SUB
ENTERGY MISSISSIPPI, INC.
PLOT No. M437050S
SCALE: NONE
SH. 1 OF 1

Transmission / Substation Projects
Company: Entergy Transmission
Customer: N.LA

Work Order Numbers: TL9575 – Sterlington to North Crossett Line cut-in; TL9582 – Log Cabin S/S to North Bastrop fiber optic installation; TS9575 – North Bastrop; TSXXXX – Sterlington; TSXXXX – Bastrop; TSXXXX – Oak Grove; TSXXXX – North Crossett; TSxxxx – Log Cabin

Funding Project Number: F1PCU75170

Sterlington to Bastrop Project

Cut-in line between Sterlington to North Crossett and bring new 7.0 mile of double circuit 1272 ACSR into North Bastrop; Replace shield wire by 24 pair OPGW between North Bastrop and Log Cabin substation (approximately 3.9m), replace splice box for OPGW outside Log Cabin by a 4 port box, extend OPGW from splice box to Log Cabin S/S and install ADSS into relay room , replace power line carrier in Log Cabin relay room by communication equipment for fiber optics for transmitting blocking signals for relay protection to Oak Grove, Bastrop and N Bastrop, Convert North Bastrop to a 3-Breaker Substation; modify relaying at Sterlington, North Crossett, Bastrop, Oak Grove

Revision: 3

Project Team:

Name	Position	Location	Tel.	E-Mail
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P.E.P Revision History

Rev	Issue Date	Description of Revision	Revised By	Program Manager
A	5/7/04	Revised for Design Comments and Issued to Construction, ROW, Regulatory, Asset Management, D-Lines, SCADA for Review and Approval	Paul Legrand, Carlos Cruz Montano, Fernando Coye, Tim Kern, Joe Bui, Jerry Highstreet and Mark Able	Charles Newell
B	5/24/04	Revised for Construction, ROW, Regulatory, Asset Management, D-Lines and SCADA Comments and Issued to JET / Supervisors for Review and Approval	Will Hobdy, Tammy Adams, Murry Witcher John Sistrunk, Doug Dollar, Paul Legrand, Carlos Cruz Montano, Fernando Coye, Tim Kern, Joe Bui, Jerry Highstreet and Mark Able	Charles Newell
C	6/10/04	Revised for JET / Supervisor Approval Comments and Issued for Manager / Peer Group Review and Approval	Paul Legrand, Steve Parrish, Carlos Cruz Montano, Brian Story, Tim Kern, Terry Clement, Milton Bostic, Joe Bui, Dan Glaser, Paul Leist	Charles Newell
0	7/19/04	Revised for Manager and Peer Review Comments and Issued as Revision 0 for Budget Approval and Project Execution	Mark Able	Charles Newell

1	8/26/04	Revised for Changes to the Scope of Work: 1) Add Conversion of Log Cabin to a 3-Breaker Substation, 2) Revise North Bastrop to a 3-Breaker Substation from a 4-Breaker Substation, and 3) Revise the 3.7 Mile North Bastrop Tap to North Bastrop Rebuild to 0.2 Mile North Bastrop Tap to Log Cabin Rebuild	Carlos Cruz Montano, Fernando Coye, Paul Legrand, Paul Leist, Will Hobdy, Mark Able	Charles Newell
1A	3/26/07	Revised for team input	Ibrahim Khan	Charles Newell
1B	5/06/07	Revised deleting Log Cabin and adding D/C to north Bastrop from Log Cabin tap	Ibrahim Khan	Charles Newell
1C	5/29/07	WH's revised outage table and sequence of construction	Ibrahim Khan	Charles Newell
1D	6/03/07	Edited including adding team information	Ibrahim Khan	Charles Newell
2	06/07/07	Incorporated Marnie, Tim Kern, Will Hobdy and Charlies comments and submitted to PGM for approvals	Ibrahim Khan	Charles Newell
2A	7/12/07	Modified PEP - establishing 4 terminal network and for team input	Ibrahim Khan	Charles Newell
2B	8/7/07	Revised including revisions for OPGW into Log Cabin	Ibrahim Khan	Charles Newell
3	8/14/07	Submitted to PGM for approval	Ibrahim Khan	Charles Newell

TABLE OF CONTENTS
PROJECT EXECUTION PLAN (P.E.P.)

9. EXECUTIVE SUMMARY:

The 115kV line from Sterlington to Bastrop in North Louisiana is 11 miles long. Loss of the Sterlington to Bastrop 115kV line will result in 82% to 89% voltage levels from Bastrop to Oak Grove to Darnel. The 115kV line from Sterlington to IPPCO cannot be opened most of the year. The objective of this project is to build a transmission loop from Sterlington to North Bastrop to Bastrop to relieve low voltages caused by single contingencies.

The benefits provided by this project will be to alleviate the anticipated violation of NERC Planning Standard I.A.S2.M2 performance criteria associated with Category 'B' contingencies.

Rejection of this project will prolong the transmission system's exposure to outages and possible equipment damage and will result in violation of NERC Planning Standard I.A.S2.M2.

The total estimated cost is $16,964,536 including $5,278,512 in indirect cost. See section 5, page 26 for estimates, page 27 for cash flow by jurisdiction, and page 28 for list of contingencies.

The target date for completion of the project is 03/31/09. Work at North Bastrop, lines and remote stations will be completed in a sequential order starting in September 2008.

10. PROJECT STRATEGIC PLANNING – Key Execution Strategies

Assumptions and Their Potential Effects

- ROW for the 7m new transmission line has all been acquired in previous phase except for one track.
- The wood pecker bird issue would amicably be resolved – otherwise diversion of line and uncertainties including delay and escalation is cost would occur. (by the time of revision 3 of this document, this issue has

been resolved)

Availability of funds:

Funding approval (FP) should be completed by the end of September 2007 enabling commencement of design and start of construction in February 2008.

Outage Assumptions:

Crippling outages will be available during the entire construction phase.

Entergy Safety Procedures and Guidelines

General safety policy and guidelines are provided in the “Entergy Transmission Safety Manual”, which can be accessed via link:

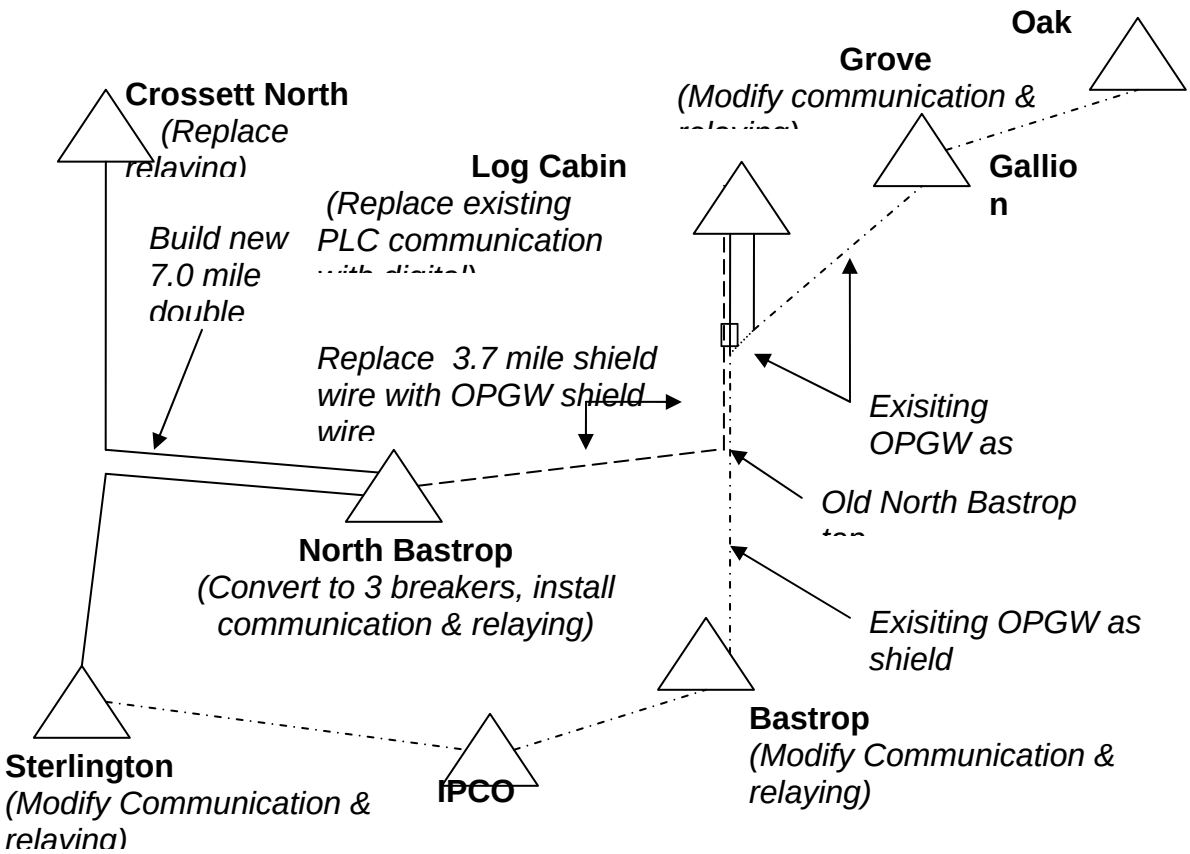
http://lr_web.ar.entergy.com/op_supp/safety/manual/manual.htm

11. SCOPE:

Detailed Scope Statement

The 115kV line from Sterlington to Bastrop in North Louisiana is 11 miles long. Loss of the Sterlington to Bastrop 115kV line will result in 82% to 89% voltage levels from Bastrop to Oak Grove to Darnel. The 115kV line from Sterlington to IPPCO cannot be opened most of the year. The objective of this project is to build a transmission loop to relieve low voltages caused by single contingencies.

The current proposal is to tap the existing line from Sterlington to North Crossett and build 7.0 miles of double-circuit 1272 ACSR In-and-Out line to the North Bastrop substation.



An existing 115kV line from North Bastrop to Log Cabin S/S will be terminated into a new breaker at North Bastrop. The existing 3.7 mile of shield wire between North Bastrop & Basrtop tap will be replaced by OPGW (24 fibers). Existing splice box outside Log Cabin will be replaced by a 4 port box. It will house OPGW from Bastrop, N Bastrop, Oak Grove and OPGW going to Log Cabin and connections will be made to communicate between all 4 ends. Existing shield wire between pole outside Log Cabin and Log Cabin will be replaced by OPGW from the splice box. One splice box will be installed inside Log Cabin on A frame for termination of OPGW and from the splice box ADSS cable will be installed inside a buried conduit leading into the relay room for termination into fiber optic SEL-2510 communication equipment.

Blocking scheme at Log Cabin will be modified removing power line carrier keying. Instead, the fiber optic communication will be used for this purpose.

All work will be done at Entergy expense but equipment ownership and maintenance will be by LAGen.

The T-line spans inside the North Bastrop substation will be relocated from over the new expansion to an adjacent area.

The North Bastrop substation will be upgraded to a two-bus substation consisting of three (3) line bays with breakers and two (2) transformer bays.

Modifications will also be made to line relaying at Sterlington, North Crossett, Bastrop and Oak Grove.

New Multiplexing communication equipment will be installed at North Bastrop, Bastrop Sterlington and Oak Grove. This will increase the capacity of the eight fiber backbone system, allowing digital protection, SCADA, intranet and voice communication at North Bastrop Substation /Service center, Bastrop, Sterlington, and Oak Grove. The existing West Monroe/Greenville fiber optic backbone will need to be severed at Log Cabin, breaking out four of the eight existing fibers (backbone) between Bastrop and Oak Grove and connecting the four fiber pairs to the new fibers going into to North Bastrop.

Scope Details

Substation(s)

North Bastrop TS9575:

The North Bastrop substation will be upgraded to a two bus station with three (3) line bays with breakers.

Site Work

Significant site work needs to be performed at North Bastrop Substation to address drainage problems while this major expansion project takes place. This plan provides for the following:

- The site survey was performed in 2004
- Soil borings were ordered in April 2007
- Strip grass and sterilize topsoil.
- Grade new area of substation.

- Install new drainage.
- Add a 6” layer of crushed rock.
- Extend fence to allow installation of new operating bus and addition of new transmission line bays for Sterlington and Crossett North lines. This work includes removal of southeast section of existing fence (approximately 270’) and installation of new access gates.
- Modify and extend access road to allow maintenance vehicles to access breakers.

Foundation Work

A special consideration will be addressed during detailed design for the new control house. Substation drainage problems will be addressed in the site portion of the scope. Also, the substation has experienced occasional flooding over the past years due to a nearby creek. Consequently, the foundation for the new control house will be set at least 24” higher than other foundations to eliminate flood possibility. The foundation scope for this project is as follows:

- Remove one slab foundation 1.5 cyds (storage building) to accommodate the new control house:
- Install new foundations for the following structures and equipment:
  - one (1) AX tower
  - two (2) AM towers
  - five (5) “CE” towers
  - forty-five (45) bus support columns – (39) low bus and (6) high
  - three (3) 115kV breakers
  - eight (8) E towers
  - one (1) outdoor alarm junction box
  - two (2) 115kV circuit switchers
  - two (2) junction box foundations near transformer for slip over CT’s
  - one (1) 16’x 36’ control building
- Install new perimeter grounding and connect to fence, access gates, and existing ground grid as per Entergy standards. Tie all new

foundations to ground grid.

- Install new section of cable trough for new breakers and tie to new control building and existing trough.
- Install conduit as required

Electrical Work

Crossett North Line Bay:

Install new transmission line bay for consisting of the following equipment:

- One(1) AX tower with shield extension as a lead in structure with one A phase line trap hung in suspension to bus below supported by detail ”Y” bus support brackets
- Four (4) “E” tower for one CVT with associated junction box and three (3) metering CT’s with one junction box
- One (1) AM tower with steel for switch operating mechanisms and CVT mounting shelf to accommodate arresters
- one (1) “CE” tower,
- one (1) 115kV 2000A vertical break disconnect switch with ground
- two (2) 115kV 2000A vertical break disconnect switches,
- one (1) 115kV 2000A 40kA breaker
- three (3) arresters
- Bus, insulators and fittings.

Sterlington Line Bay:

Install new transmission line bays consisting of the following equipment:

- One (1) AM tower with steel for switch operating mechanisms
- one (1) “CE” tower
- one (1) “E” Tower
- one (1) 115kV 2000A vertical break disconnect switch with ground
- two (2) 115kV 2000A vertical break disconnect switches
- one (1) 115kV 2000A 40kA breaker
- three (3) arresters mounted per drawing L0070E50
- mount A phase CVT with junction box per drawing L0070E50
- Bus, insulators and fittings.

Log Cabin Line Bay:

Remove the following equipment

- One (1) coupling capacitor unit
- One (1) line tuning unit

Replace the motor operator on switch R4335 with a swing handle manual operator

Complete existing line bay for new bus arrangement:

- one (1) “CE” tower,
- two (2) 115kV 2000A vertical break disconnect switches,
- one (1) 115kV 2000A 40kA breaker
- three (3) arresters mounted on per drawing L0070E50
- install A phase CVT with junction box on existing E tower
- Bus, insulators and fittings.

Transformer #X168 Bay:

Remove spring-operated ground switch

Replace the motor operator on switch R3543 with a swing handle manual operator

Connect the existing transformer #X168 bay to the new operating bus with the following new equipment and structures:

- One (1) “CE” tower
- one (1) 115kV 2000A vertical break disconnect switch
- one (1) 115kV 1200A circuit switcher mounted on 16’ structure.
- Three (3) high single phase bus supports columns
- bus, insulators and fittings.

Replace three (3) existing HV arresters and install three (3) LV arresters. Mounting brackets may be required.

Install slip over CT’s on high voltage bushings of transformer and associated conduit and junction box near transformer #168.

Transformer #X185 Bay:

Remove Mark V circuit switcher R7160. This will be replaced by a switch.

Connect the existing transformer #X185 bay to the new operating bus with the following new equipment and structures:

- one (1) “CE” tower
- two (2) 115kV 2000A vertical break disconnect switch (one replaces circuit switcher R7160

- one (1) 115kV 1200A circuit switcher mounted on 16' structure.
- three (3) high single phase bus supports columns
- bus connections, insulators and fittings.

Replace three (3) existing HV arresters and install three (3) LV arresters. Mounting brackets may be required.

Install slip over CT's on high voltage bushings of transformer and associated conduit and junction box near transformer #185.

General/Common Equipment:

- Extend existing operating bus (designer to match elevation of existing bus): twelve (12) single phase low bus support columns, insulators and aluminum tubing. This will become the transfer bus.
- Install new operating bus: thirty-three (33) single phase low bus support columns, insulators and aluminum tubing.
- Three (3) E towers for operating bus CVT's with one junction box
- Install steel to mount one outdoor alarm junction box, 36" x 42"
- Install six (6) lighting fixtures (one per bay).
- Install one (1) new pre-fabricated control building (16' x 36').
- Remove one (1) small storage building to accommodate the new control house
- Designer to perform lightning protection analysis and provide lightning protection as required (cost to provide lightning protection, if needed, is not included in the cost estimate).

Relay/Configuration

North Crossett Line Bay:

- Install one (1) standard line/breaker control panel with unblocking carrier scheme, using the Pulsar UPLC carrier.
- Install one (1) 2000A line trap relocated from Sterlington.
- Install one (1) 115kV CCVT with carrier accessories for indication, synch check and carrier transmission.
- Install one (1) line tuner.
- Install one (1) CCVT line potential junction box.
- Install three (3) metering CT's for company inter-tie.

Sterlington Line Bay:

- Install one (1) standard line/breaker control panel with fiber connection.
- Install one (1) 115kV CCVT for indication and synch check.
- Install one (1) CCVT line potential junction box.

Log Cabin/Oak Gove/Bastrop Line Bay:

- Install one (1) standard line/breaker control panel with fiber connection.
- Install one (1) 115kV CCVT for indication and synch check.
- Install one (1) CCVT line potential junction box.

General/Common Equipment:

- Install one (1) bus differential panel (microprocessor based).
- Install one (1) outdoor alarm junction box.
- Install one (1) metering CT junction box (mounted outside).
- Install one (1) bus potential distribution junction box (mounted inside).
- Install three (3) CCVTs for bus potentials.
- Install one (1) bus potential junction box.
  AC transfer switch exists in metal-clad switchgear.
- Move one (1) transformer differential panels.
- SEL-2032 communication processor w/ cable, SEL Starcom modem, & Teltone line-sharing switch are all existing and will be reused.
- Install new battery, charger and test switch in new relay building
- Install one (1) G.E. Telenetics modem.
- Install one (1) 200A battery test switch.
- Install one (1) D20 RTU consisting of:
  * One (1) ME motherboard kit.
  * One (1) 125VDC power supply.
  * One (1) telenetics modem.
  * One (1) RTU termination cabinet.
  * Four (4) D20 S card kits.
  * One (1) D20 A card kit.
  * One (1) D20 K card kit with 4 KI cards.
- Install one (1) stand-alone DC panel.
- Install one (1) stand-alone AC panel.

- Install one (1) DC inverter on 19" rack.
- Install one (1) DC transducer
- Install voice and data circuits (ADSS Cable & Hardware, Misc. Fiber Components, Patch Panel, Fiber Jumpers , DC-DC converter, Relay Rack, Fiber Optic Mux, Channel Bank/DACS, Misc. Components coordinated by telecom)
- Install one (1) indoor alarm junction box.
- Install six (6) 2000:5A slip-over CTs (three on each transformer for bus differential protection).
- Install two (2) CT junction boxes for transformer slip-over CT's.
- Install new single meter panel for Crossett North #2. Meter panel at Sterlington is a dual panel and cannot be moved. We will leave the existing transformer metering panel in service in the old building.
- Install one 12 point local control panel.
- Install two (2) breaker enclosures with receptacles for gas handling equipment.
- Install one (1) Lot of control cable, approx. 25,000 ft.
- A conduit and fiber will be run to the North Bastrop office
- Remove one (1) MOS panel
- Remove one (1) Tejas RTU.

. At North Bastrop, the existing equipment that is wired to the Tejas RTU shall be moved over to the new D20 RTU.

<u>Settings:</u>

A System Impact Study has been conducted. During design, the system will be modeled and settings provided for the following relays at North Bastrop:

- North Bastrop to Oak Grove/Bastrop/Log Cabin 4 terminal Line: new SEL-421 and SEL-311C
- North Bastrop to Sterlington Line: new SEL-421 and SEL-311C
- North Bastrop to Crossett North Line: new SEL-421 and SEL-311C
- New bus differential panel
- New transformer differential panels

RTU Configuration:

An RTU configuration will be developed and provided to Asset Management for installation.

ITEM	DESCRIPTION OF ASSUMPTION, NOTES/COMMENTS
1	Fiber optic communication equipment will be needed. This equipment shall be bought and installed by the Communication Group. Also the phone line needs to be transferred to the new house.
2	The existing 200Ah battery set, battery rack, and 25A battery charger needs to be transferred from the old house to the new house.
3	All existing devices need to be wired to the new D20 RTU.

Sterlington TSXXXX:

Site Work

- None.

Foundation Work

- Install (2) 2” runs of conduit from new CCVT to cable trough.
- Install (1) 2” conduit for fiber optic.

Electrical Work

Existing line from Sterlington to Crossett North will now terminate at North Bastrop Substation; relay communication on this line will be through fiber optic.

- Remove existing line trap.
- Remove existing CCVT.
- Install new CCVT on existing structure.
- Install junction box on existing structure.

Relay / Configurations Work

The Sterlington to North Bastrop line section will utilize a POTT scheme via fiber. This calls for the existing blocking line/breaker panel at Sterlington to be replaced with the new standard fiber line/breaker panel.

- Install one (1) standard line/breaker control panel with fiber connection for breaker R7265. Breaker R2199 is being controlled by the Vienna dual line/breaker control panel.
- Install one (1) CVT (existing CVT is old and needs to be replaced).
- Install one (1) CCVT junction box.
- Install one (1) Lot of control cable (approx. 5000 ft.).
- Upgrade telecomm equipment (Misc. Fiber Components, Fiber Jumpers, Fiber Optic Mux, Channel Bank/DACS, Misc. Components coordinated by telecom)
- G.E. Telenetics modem. EXISTING
- ME motherboard kit. EXISTING
- The RTU has plenty of spare status points and the existing control points will be reused. Two more control points for the LSR will be needed and we will use old generator breaker points.
- The station has a SEL 2032 with associated modem and teltone. The SEL 2032 has 9 spare ports to accommodate the new relays.
- Remove one (1) line/breaker control panel with blocking carrier scheme this panel utilizes KD4, KD41, KRP relays and TC blocking carrier set.
- Remove one (1) ground relay panel.
- Remove one (1) line trap.
- Remove one (1) CVT.
- Remove one (1) line tuner.
- Disable Crossett North #2 meter panel.

<u>Settings:</u>

A System Impact Study has been conducted. During design, the system will be modeled and settings provided for the following relays at Sterlington:

- Sterlington to North Bastrop Line: new SEL-421 and SEL-311C
- Sterlington to Bastrop Line: update CEY52A and GCXG (Zone 2 and 3)
- Sterlington to Crossett North Line: update KD-10 and SDG-4T (Zone 2 and 3)

RTU Configuration:

An RTU configuration will be developed and provided to Asset Management for installation.

ITEM	DESCRIPTION OF ASSUMPTION, NOTES/COMMENTS
1	This station has two battery sets. The DC supply for the primary and backup relaying should be separated.
2	Fiber optic communication equipment will be needed. This equipment shall be bought and installed by the Communication Group.

Oak Grove TSXXXX:

Site Work

- None.

Foundation Work

- Install (2) 2” conduits for bus potential devices.
- Install (1) 2” conduit for fiber optic.

Electrical Work

Existing line from Oak Grove to Gallion, to Log Cabin terminating at Bastrop will now terminate at North Bastrop. Relay communication on this line will be through fiber optic. In addition, new bus potential devices will be required on the operating bus.

- Remove existing line trap.
- Install bus potential junction box on existing structure.
- Remove existing (3) CCVTs and replace them by new ones on the

existing supports

Relay / Configurations Work

- Install one (1) standard line/breaker control panel with fiber connection.
- Install three (3) CCVTs for bus potentials (the outer phase CCVTs are old and need to be replaced).
- Install one (1) CCVT junction boxes to bring in all 3 CCVT's. Indoor bus distribution box will be reused.
- Line sensing CCVT is new and will not be replaced.
- DC panel has three (3) spare 30A DC breakers (Heinmann).
- Teltone substation line-sharing switch. EXISTING
- Install one (1) SEL 2032 w/ cable.
- Install one (1) G.E. modem (To connect Teltone to RTU).
- Install one (1) Starcom modem.
- Install one (1) Lot of cable (approx. 5000 ft.).
- Install one (1) ME motherboard kit. M motherboard is existing.
- Upgrade telecomm equipment (Misc. Fiber Components, Fiber Jumpers, Fiber Optic Mux, Channel Bank/DACS, Misc. Components coordinated by telecom)
- Remove one (1) line/breaker control panel with blocking carrier scheme this panel utilizes KD4, KD41, KRP relays and TC blocking carrier set.
- Remove Bastrop ground distance panel.
- Remove one (1) line trap.
- Remove one (1) line tuner.
- Remove three (3) CCVTs on bus.

<u>Settings:</u>

A System Impact Study has been conducted. During design, the system will be modeled and settings provided for the following relays at Oak Grove:

- Oak Grove – North Bastrop Line: new SEL-421 and SEL-311C with special emphasis on reclosing for testing fault on feeder at Log Cabin

and restoring load

- Oak Grove to L.V. Bagby Line: update KD and SEL-311C (Z1,Z2,Z3)
- L.V. Bay to Oak Grove Line: update GOC JBCG-53

RTU Configuration:

An RTU configuration will be developed and provided to Asset Management for installation.

ITEM	DESCRIPTION OF ASSUMPTION, NOTES/COMMENTS
1	Fiber optic communication equipment will be needed. This equipment shall be bought and installed by the Communication Group.

North Crossett TSXXXX:

Site Work

- None.

Foundation Work

- None.

Electrical Work

Existing line from North Crossett to Sterlington will now terminate at North Bastrop Substation; existing CVT on A phase to be removed and existing CVT on C phase to be moved to A phase.

Relay / Configurations Work

The North Crossett to North Bastrop will utilize the unblocking scheme. This calls for the existing blocking line/breaker panel at North Crossett to be replaced with the new standard unblocking line/breaker panel.

- Install one (1) standard line/breaker control panel with unblocking carrier scheme using a Pulsar UPLC Carrier.
- Install six (6) 30A DC breakers (Siemens ED2 breakers)
- Install one (1) Lot of control cable (approx. 5000ft.)

- Install one (1) CCVT on A phase.
- Install one (1) CCVT junction box.
- Install one (1) Orion 5R communications processor.
- Install one Line Tuning pack.
- Remove one (1) line/breaker control panel with blocking carrier scheme this panel utilizes KD4, KD41, KRP relays and TC blocking carrier set

Settings:

A System Impact Study has been conducted. During design, the system will be modeled and settings provided for the following relays at Crossett North:

- Crossett North to North Bastrop Line: new SEL-421 and SEL-311C
- Crossett North to Sterlington Line: update KD-41 (Z3) and IRP-9

Settings will also be provided for other Arkansas Substations, Monticello East and Lake Village Bagby, as follows:

- Monticello East to Crossett North Line: update JBCG-53
- Lake Village to Crossett North Line: update JBCG-53

RTU Configuration:

An RTU configuration will be developed and provided to Asset Management for installation.

ITEM	DESCRIPTION OF ASSUMPTION, NOTES/COMMENTS
1	The existing relaying utilizes a blocking scheme; however, the new panel will utilize an unblocking scheme. Relay Settings may need to assign a new frequency.
2	The C phase CCVT can be used to replace the A phase CCVT. The C phase CCVT has carrier accessories on it.

Bastrop TSXXXX:

Site Work

- None.

Foundation Work

- Install (1) 2” conduit for fiber optic.

Electrical Work

Existing line from Bastrop to Oak Grove will now terminate at North Bastrop Substation. Relay communications on this line will be through fiber optic.

- Remove existing line trap.
- Install junction box.

Relay / Configurations Work

The Bastrop to North Bastrop line section will utilize a POTT scheme via fiber. This calls for the existing blocking line/breaker panel at Bastrop to be replaced with the new standard fiber line/breaker panel.

- Install one (1) standard line/breaker control panel with fiber connection.
- Upgrade telecomm equipment (Misc. Fiber Components, Fiber Jumpers, Fiber Optic Mux, Channel Bank/DACS, Misc. Components coordinated by telecom)
- Teltone substation line sharing switch. EXISTING
- SEL 2032. EXISTING
- SEL Starcom modem. EXISTING
- G.E. Telenetics modem. EXISTING
- RTU motherboard is a D20ME. EXISTING - Spare alarm and control points exist.
- Install one (1) Lot of control cable (approx. 1,500 ft.)
- Replace three (3) bus CCVT’s.
- Install one (1) bus potential junction box.
- Remove one (1) line/breaker control panel with blocking carrier scheme this panel utilizes KD4, KD41, KRP relays and TC blocking carrier set.

- Remove one (1) line trap.
- Remove one (1) line tuner.

Settings:

A System Impact Study has been conducted. During design, the system will be modeled and settings provided for the following relays at Bastrop:

- Bastrop to North Bastrop Line: new SEL-421 and SEL-311C
- Bastrop to Sterlington Line: update KD (Z1,Z2,Z3) and IRP-8

RTU Configuration:

An RTU configuration will be developed and provided to Asset Management for installation.

ITEM	DESCRIPTION OF ASSUMPTION, NOTES/COMMENTS
1	R3923 has two sets of slip-over CTs, one set on each side of the breaker. The set on the 2, 4, 6 side has reversed polarity.
2	Fiber optic communication equipment will be needed. This equipment shall be bought and installed by the Communication Group.

Log Cabin TSXXXX:

Since Entergy does not own any equipment in Log Cabin, LAGen has agreed to procure ADSS, conduit, SEL2510, revise logic removing power line carrier blocking and replacing it by ADSS communication at their cost. Entergy will provide supervision as required. OJ Bruilette of LAGen has agreed to secure approval from Will Day – VP, allocate $25k in 2008 budget and let CPM know (phone call 08-14-07)

Site Work

- None.

Foundation Work

- Install (1) 2” conduit for fiber optic.

Electrical Work

Install 2 splice boxes on line dead-end structures (line from N Bastrop and line to Oak Grove) and provide hardware to attach the OPGW routed to the splice boxes. Route ADSS cables from splice boxes in conduits to the relay room

Relay / Configurations Work

LAGen will disable the power line carrier blocking scheme and instead utilize new fiber optic based communication equipment SEL2510 to send blocking signals to Oak Grove, N Bastrop and Bastrop ends.

SCADA

Item / Description	Add	Remove
RTU Type (new/existing)	1	1
High Voltage Breakers	3	0
Motor Operated Switches	2	0
Fault Interrupter Switches	2	0
Line/Breaker Panels	7	5
Xfmr. Diff. Panels	2	2
Bus Diff. Panel	2	0
CCVTs for Bus Potentials	11	0
Meter Panel	1	1
* All other existing equipment at North Bastrop	Lot	0

Transmission Lines Work

Sterlington to N. Crossett – New 7.0 Mile In and Out to North Bastrop, TL9575:

A new 115kV 7.0 mile long double circuit transmission line consisting of 1272 Bittern conductor on single-pole and two pole structures will be constructed as part of this work. One 7#7 Alumoweld shield wire and one 24 fiber OPGW will be provided. The OPGW will deadend into a splice box at the tap point for a future connection to a fiber line from Sterlington.

This Project Execution Plan to construct the new line provides for the following:

- Obtain surveys to facilitate ROW acquisition, transmission line design and construction.

- Acquire a 100 feet wide ROW approximately 7.0 miles long (8 landowners).
- Obtain soil borings to facilitate transmission line design.
- Provide a ROW clearing specification.
- Perform detail design and provide a transmission line construction specification.
- Obtain environmental delineation to facilitate construction.
- Obtain a Storm Water Pollution Prevention Plan and implement / maintain related mitigation measures.
- Obtain necessary permits (railroad crossing, river crossing, road crossing, etc.).
- Clear 100 feet wide ROW approximately 7 miles long (approximately 3.5 miles is wooded, 2.5 miles is open farmland and 1 mile is adjacent to railroad ROW).
- Provide access roads adjacent to and along the new ROW as required for construction.
- Design, procure and install approximately forty five (45) single pole steel or concrete structures with necessary hardware.
- Design, procure and install approximately seventeen (17) free-standing or guyed 2 pole dead- end and angle structures with necessary hardware.
- Design, procure and install 1272 Bittern conductor.
- Design, procure and install one (1) 7#7 Alumoweld shield wire. (7 miles)
- Design, procure and install one (1) 24 fiber OPGW and hardware. (7 miles)
- Design, procure and install approximately four-hundred thirty-five (435) dead-end and braced post insulators.

North Bastrop to Log Cabin line TL9582:

- Replace existing shield wire on line between North Bastrop and Log Cabin S/S by a 24 pair OPGW and terminate the line on to a dead-

end structure at North Bastrop. Terminate OPGW in splice boxes at N Bastrop and Log Cabin.

- Outside Log Cabin S/S on line poles, replace existing OPGW splice box by 4 port box. Replace existing shield wire by 24 strands OPGW on line between Log Cabin S/S and transmission poles outside Log Cabin substation (relating to N Bastrop/Bastrop line). Replace Terminate the OPGW in splice box in Log Cabin and existing splice box at the tap and make connections with fibers on 8 pair existing OPGW enabling communication between Oak Grove, Log Cabin, Bastrop and N Bastrop.

3.2.3.3 Distribution Wire Scope

3.2.3.3.1 None

12. MATERIALS MANAGEMENT PLAN

4.1 Long Lead Time Equipment

Substation Long Lead Materials

Quantity	Material Description	Duration (Weeks)
13	115kV CVTs	36
1	Control House (16’ x 36’)	28
2	2030 115kV Circuit Switchers	22
1	Lot – Insulators	22
11	115kV 2000A Switches, 3 with ground	20
3	115kV, 2000A, 40kA Breakers	20
3	Dead-end Structures	20
1	Lot – Substation Steel	20
7	Line / Breaker Control Panels	12
2	Transformer Differential Panels	12
2	Bus Differential Panel	12
21	Arresters	16
1	Lot – Bus	14

6	2000:5 Slipover CTs	12

T-Lines Long Lead Materials

Quantity	Material Description	Duration (Weeks)
86	Concrete or Steel Poles	14 to 24
490,000 lbs	Conductor – 1272 ACSR	24
10.7 miles	24 Fiber OPGW	24
475	Insulators	16

13. PROJECT CONTROLS PLAN:

5.1 Scoping Estimate

Description	Direct Responsibility
TL9575 – Sterlington to North Crossett #2: In and Out to North Bastrop (ELI)	$7,328,980
TL9582 – North Bastrop to Log Cabin - 24 fiber OPGW	$479,170
TSxxxx – Log Cabin S/S (EL	$47,038
TS9575 – N Bastrop: Convert to 3-Breakers	$2,930,398
TSXXXX – North Crossett: Line Relay Modifications (EAI)	$187,983
TSXXXX – Bastrop: Line Relay Modifications	$234,014
TSXXXX – Oak Grove: Line Relay Modifications	$260,992
TSXXXX – Sterlington ELI	$217,450
Direct total	$11,686,024
FVET based indirect + 3% contingency for ELI	$5,278,512
Total	$16,964,536

5.2 **CASHFLOW:**

Description	2007	2008	2009	Total
Direct Responsibility – ELI	$554,000	$10,700,523	$243,518	$11,498,041
Indirect Responsibility – ELI	$271,318	$4,762,079	$148,115	$5,181,513
Total ELI	$825,318	$15,462,603	$391,633	$16,679,554
Direct Responsibility – EAI	$ 6,465	$ 175,032	$ 6,486	$ 187,983
Indirect Responsibility - EAI	$ 3,336	$ 90,317	$ 3,347	$ 96,999
Total EAI	$ 9,801	$ 265,349	$ 9,832	$ 284,982
Total Direct	$ 560,465	$ 10,875,555	$ 250,004	$11,686,024
Total Indirect	$ 274,654	$ 4,852,396	$ 151,462	$ 5,278,512
TOTAL	$ 835,119	$ 15,727,951	$ 401,465	$16,964,536

5.3 Baseline Estimate

Due to large number and memory requirement, the base-lined Cost Estimate is stored in eroom. See address in attachment section on last page.

5.4 Baselined Schedule:

A schedule is prepared based on FP and RCRC approval by 01 October 2007.

5.5 Contingencies

Certain types of estimated cost areas are subject to a greater risk of changing than others due to many factors such as market conditions, weather, productivity, estimate accuracy, etc. Typically, contingency funds are established to address

the possible occurrence of these risks. The Change Management Process is used to control the use of these contingency funds. For this project, the following cost risks and associated contingencies are proposed.

- Material → 0% to 5% → Say 3% contingency
- Construction Labor → 3% to 9% → Say 9%
- Other Labor → 3% to 8% → Say 6% contingency

Activity	**Contingency/Risk**	**Reason for contingency**	**Amount $**	**Date risk is averted and dollars could be removed**
Electrical material	6%	Increase in material cost and steel cost	$23,830	After all material has been ordered
Relay material	3%	Increase in raw material cost and cable amount	$20,076	After all material has been ordered
7m Line material	3%	Increase in material cost or change in design	$83,042	After all material has been ordered
7m Line labor	6%	Incidental due to change in priorities, etc	$14,280	After 60% design completion
7m Line contract, etc	9%	Change in weather, labor situation, line design changes, route issues, etc	$349,900	After 70% completion
3.7m Line	5%	Increase in material and contract cost or change in design	$22,818	After all material has been ordered and contract is awarded
OH	3% of 44% for ELI and 0% of 51.6% for EAI	Unpredictability and lack of ability to control	$150,918	End of every quarter after doing FVET calculations and on the basis of last 3 month average
Total in contingencies			**$620,958**	

5.6 Outage Plan

Outage Number	Reason	Duration
1	**De-Energize Sterlington to Crossett North #2 Transmission Line** Cut-In North Bastrop Modify Sterlington Relaying Modify North Crossett Relaying	5 days
2	De-Energize N. Bastrop to Log Cabin Tap (N. Bastrop tap line) to replace shield wire by OPGW	96 days
3	8 pair backbone communication Fiber between Bastrop and Oak Grove need to be broken and spliced with 4 pairs from N Bastrop. Careful Planning to keep the outage to a minimum will be required	

5.7 Gate Reviews

A gate review will be performed at the end of each phase to verify requirements are met before entering into the next phase. However, if all requirements are not met and Project Manger approves the project can move on into the next phase.

6.0 RESOURCE PLAN

IV. Resources and Contracting Strategy

- ROW Acquisition Labor – ROW acquisition labor shall be provided by contract and in-house labor.
- Design Labor – Design labor (all disciplines) shall be provided by in-house resources.
- Materials – All materials shall be ordered by Design and procured via Purchase Order or Stores.
- Construction – All construction-related labor (except relay installation and checkout) shall be contract labor. Asset Management shall provide in-house labor for all relay installation and checkout. Construction contracts shall be competitively bid to pre-qualified contractors. Each contract shall be awarded on a lump-sum basis with provisions for

extras.

- Other Labor – Project Management, Construction Management and other support labor shall be provided by in-house resources.

7.0 QUALITY PLAN

- Definition Phase – The Project Team shall develop the scope of work based upon safety, constructability, operability, maintainability, specific Transmission System Planning requirements, specific Asset Planning requirements, specific Asset Management requirements, field verification and other established requirements as applicable.
- Design Phase – Per established processes, designs shall be reviewed for constructability and shall undergo quality reviews by JET / supervisors before the completed specifications are issued to Construction.
- Materials – Where possible, materials shall be standard and obtained from established vendors. Where appropriate, vendor data reviews shall be performed by Design with support from the Project Team as required. Certain materials may require pre-acceptance checks as required by the specifications.
- Construction – Construction activities shall be coordinated and supervised by the on-site Construction Representative. Special testing requirements (i.e. concrete testing) shall be performed in accordance with specifications.

8.0 CONSTRUCTION MANAGEMENT PLAN

8.1 Project Execution

8.1.1 Constructability Reviews

- Constructability reviews will be performed at specified percent complete for Transmission line, Substation and relay design. This interval is to be determined by the project team.

8.1.2 Sequenced Construction Plan

1) At North Bastrop, construct a new Operating Bus and install four breakers and other equipment during non-outage construction.

2) Construct a new 7.0 mile In and Out from the existing Sterlington to North Crossett transmission line to North Bastrop Substation in the new ROW during non-outage construction.

3) De-energize the Sterlington to North Crossett transmission line and cut in the new double-circuit transmission line to North Bastrop during outage construction. Complete relay modifications at Sterlington and North Crossett during outage construction.

4) Energize the new transmission lines from North Bastrop to Sterlington and to North Crossett. Commission all related equipment at North Bastrop, Sterlington and North Crossett.

5) After the North Bastrop load has been shifted from the existing radial line to the new double-circuit line, de-energize the North Bastrop tap and replace shield wire by 24 fiber OPGW.

6) De-Energize the Bastrop to Log Cabin line section, replace splice box on pole, replace shield wire into Log Cabin by OPGW, replace power line carrier logic equipment by SEL device, and replace shield wire into the S/S by OPGW and terminate it in the splice box in the substation yard.

7) De-energize the Log Cabin to Oak Grove transmission line and complete relay modifications at Oak Grove and Log Cabin for fiber optic.

8) Install Circuit Switchers to existing transformer banks at N. Bastrop.

9) Energize the transmission line from North Bastrop to Oak Grove with tap to Log Cabin. Commission all related equipment at Oak Grove, Log Cabin and N Bastrop.

8.1.3 Lay-Down Areas

1) Areas within or adjacent to existing substations will be used to stage substation material and equipment.

2) Areas along the ROW or nearby secure substations will be used to stage transmission line material and equipment.

8.2 Safety - Special Considerations for Construction

There are no special considerations for construction. This will be further reviewed prior to construction.

9.0 RISK MANAGEMENT PLAN

9.1 Risk Identification

Risk Assessment

The following are identified risks and how the Project Team will mitigate:

Identified Risk	Quantified Value(Cost or Schedule)	Response Development
Ability to acquire ROW to meet the schedule	Will impact schedule day per day	Acquire easement as early as possible
Survey not completed in a timeframe that supports the overall transmission line schedule	Will impact schedule on a day per day basis.	Obtain survey as soon as possible.
Soil borings not completed in a timeframe that supports the overall transmission line schedule	Will impact schedule on a day per day basis.	Work has already commenced
Wellheads and numerous gathering system flow-lines in vicinity of new transmission line ROW	Will impact schedule day per day	Identify wellhead and flow-line locations early in design and confirm before excavating.
New equipment vendor data received in a manner that supports the design schedule	Will impact schedule on a day per day basis.	Clearly define vendor data schedule in purchase orders and expedite vendor data.
Ability to get transmission line outage	Will impact schedule day per day	Schedule in TAORS 6 months in advance of construction
Single line feed exposure	Not quantified	Coordinate with Customers and execute construction as efficiently as possible
Environmental Delineation including wood pecker issue	Significant impact to schedule and costs depending on findings	Acquire delineation as early as possible
Wetland permit	Significant impact to schedule and costs if required	Acquire permit as early as possible

10.0 REGULATORY, ROW, LEGAL AND ENVIRONMENTAL COMPLIANCE PLAN(S):

Potential major environmental issues associated with the N. Bastrop/Log Cabin project include regulations pertaining to:

- § National Pollutant Discharge Elimination System storm water discharges associated with construction activities--storm water pollution prevention plan, siltation/erosion control BMP's, siltation/erosion control BMP inspections and NOI/NOT submittal,
- § Clean Water Act Section 404 dredge and fill--wetland permit, conditions of issuance compliance and impact mitigation,
- § Endangered Species Act--threatened and endangered species incidental take, habitat impacts and mitigation,
- § Historic Preservation Section 106--SHPO historic/cultural resource impact,
- § River and Harbors Act Section 10--navigable in-fact stream line crossing and
- § Potential CERCLA issues—if substation areas are contaminated.

Regarding, the latter issue, Jerry Roberts has provided Jeff with a Phase I environmental site assessment report for the Log Cabin substation site that was conducted in November 2004. The consultant recommendation in that report was that a subsurface investigation for PCB contamination be conducted on the site prior to acquisition or commencement of construction activities on the site.

Given this, the reported presence of red-cockaded woodpecker nest habitat and the likely presence of jurisdictional wetlands along the line route; a project environmental impact analysis should be conducted on the substation sites and proposed line route to better define the permit requirements and risks. $50,000 should be adequate to define these issues, and proceed with development of a storm water pollution prevention plan and preliminary CWA 404 jurisdictional determination. The analysis will only define potential problems. Definition of expenses for mitigating wetland or T&E species impacts, as well as siltation/erosion control best management practice installation and maintenance, or remediation of any PCB contamination at the Log Cabin site will be more complete after the initial assessment is completed. An additional potential budget issue will be costs associated with installation of oil spill diversionary structures at the substation sites. Environmental Management will need to evaluate the risk of oil discharge to surface water.

In order to proceed with securing a consultant to perform the study, preliminary plan and profile drawings, preliminary construction scopes defining ROW clearing practices, line support structure details and substation grading/excavation requirements; and line route maps are required.

ROW permits include:

- Highway / Creek crossing permits
- Permits for entire project

11.0 PROJECT CLOSURE:

11.1 Lessons Learned

Refer to corresponding Section of the P.E.P. “Guide” for additional guidance. A typical “Lessons Learned” process and suggested checklist are available in the hyperlinked document below (also available in “stand-alone” format in PMO e-room):

A suggested letter and questionnaire (see hyperlinked template document, below, also available in “stand-alone” format in PMO eRoom) should be provided to each attendee, along with an agenda, prior to the “Lessons Learned” meeting in order that everyone understand the process and comes prepared.

12.0 COMMUNICATIONS PLAN:

12.1 Reoccurring Reports

- Project Schedule – To be updated by all and provided weekly by Scheduler
- Project Cost Reports – To be provided monthly by Cost Analyst to Project Team for input
- Construction Cost Data Sheets – To be provided by Construction
- Material Status Reports – To be maintained on-line by Project Support Services
- Monthly Status Reports – To be provided by Project Manager

List of Attachments to the Project Execution Plan

	Item	Method	Location
A	Cost Estimates	e-room, files not being inserted here due to their large number and size	https://eroom.entergy.com/eRoom/ProjectsII/ENOI-ELI2/0_a1804
B	Switching one-line diagrams, operational one-line diagram and other drawings	e-room, files not being inserted here due to their large number and size	The elaborated path for above address is: my erooms/ELI North/Active Projects/North Bastrop/Definition
C	Schedule	e-room, files not being inserted here due to their large number and size	The elaborated path for above address is: my erooms/ELI North/Active Projects/North Bastrop/Definition
D	FVET	e-room, files not being inserted here due to their large number and size	The elaborated path for above address is: my erooms/ELI North/Active Projects/North Bastrop/Definition