

DERWICK

DERWICK ASSOCIATES CORP.

EDC LA RAISA LM6000 POWER PLANT PROJECT PRICING

2 x LM6000 EPC Pricing Breakdown

	US Dollars	Bolivars
Civil Works		
Site Preparation, Earth Moving, Tank Containment		2,076,800
Concrete, Foundations, Paving & Structural		21,196,305
Mechanical		
Mechanical Balance of Plant Equipment	17,708,000	
Mechanical Labor & Local Materials		18,587,995
Erection Labor & Rental Equipment		20,408,560
Electrical		
Electrical Balance of Plant Equipment	8,628,000	
Electrical Labor & Local Materials		16,562,585
Engineering, Project Management, Transportation, Site Supervision, Testing, Startup and Commissioning	7,273,000	12,464,855
Total Project Construction Price	33,609,000	91,297,100
Technical Support for (6) Months following Startup	350,000	600,000
Spare Parts for (2) Years Operation	3,200,000	
Total Project Cost	37,159,000	91,897,100

ProEnergy EPC

Job Description: "Two each LM 6000 PC's Simple Cycle"

RECAP OF COST ESTIMATE
(1,000'S)

Project Name: La Raisa LM 6000 Power Plant
Customer: EDC
Location: La Raisa, Venn
Bid Due Date: 21-May-10

Date: 27-Jul-09
Quote No: T 9036-2
Est By: WTS

21-May-10

I. Balance of Plant

				USD	8.0 Bsf portion
<u>100 Civil Structural</u>					
101 Site Preparation		140	calc		
102 Excavation - Fill	Mhrs	70	calc		
103 Concrete Foundations	9,283	1,485	calc		
104 Concrete Pilings		-	calc		
105 Paving Asphalt - Concrete		725	calc		
106 Gravel - Sand		105	calc		
107 Structural Steel		147	calc		
108 Fencing		23	calc		
109 Architectural Treatment		-	calc		
110 Evaporation Pond		250	calc		
		2,944		2,944	589
					18,843
<u>200 Buildings</u>		311	calc	311	
<u>300 Mechanical</u>	Mhrs				
310 Major Mechanical Equipment		5,005	calc	5,005	
320 Pipe, Valves & Fitting labor	17,280	911	calc	182	5,832
330 Mechanical Subcontractor	18,918	998	calc	200	6,385
340 Pipe, Valves & Fitting Material		580	calc	580	
		7,494		7,494	
<u>400 Electrical</u>					
410 Major Electrical Equipment		2,098	calc	2,098	
420 Substation Equipment		810	calc	810	
430 Plant Electrical Subcontractor	18,364	968	calc	194	6,198
440 Substation Subcontractor	1,210	64	calc	13	408
450 Conduit, Cable & Wire Material		780	calc	780	
460 Conduit, Cable & Wire Labor	20,160	1,063	calc	213	6,805
		5,783		5,783	
<u>500 Instrumentation</u>					
510 CEMS		-	calc		
520 Plant Instrumentation		140	calc		
530 Instrumentation Subcontractor	1,800	95	calc		
		235		235	235
<u>600 DCS System / Communications</u>					
610 Hardware / Software		205	calc		
620 Telephone System		20	calc		
630 Public Address System		20	calc		
640 TV / Security		40	calc		
		285		285	285
<u>700 Plant Erection</u>					
700 Plant Erection	17,640	930	calc		
750 Plant Dismantling		-	plgd/1000		

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RECAP OF COST ESTIMATE

(1,000'S)

755 Plant Dismantling Labor			-	plgd/1000			
Total El/Mech Mhrs	95,371		930		930	186	5,954
<u>800 Equipment Rental</u>			988	calc	988	198	6,324
<u>900 Painting</u>			284	calc	284	57	1,818
<u>1000 Transportation</u>							
1001 US Inland Transportation			500	calc		500	
1002 Ocean/Air Freight			2,000	plgd /1000		2,000	
1003 Destination Inland Freight			600	plgd /1000			4,800
1004 Customs / Duties (plant equip & mat'l)			-	plgd /1000			
1005 Unload & Receive Mat'l at Site			250	plgd /1000			2,000
1006 Receive, Inspect, Inventory			-	plgd /1000			
1007 Storage			-	plgd /1000			
1008 Local Registrations Fees, License, Etc.			-	plgd /1000			
1009 Transport of Damaged Goods for Repair			-	plgd /1000			
			3,350		3,350		
<u>1100 Site Costs</u>			412	calc	412		3,293
<u>1200 Engineering</u>							
1201 EPC Eng Labor			1,060	calc			
1202 Local Eng			290	calc			
			1,350		1,350	1,350	
<u>1300 Project Management</u>							
1310 Project & Construction			1,139	calc			
1320 Inspectors			230	calc			
			1,369		1,369	1,369	
<u>1400 Travel & Perdiem</u>			433	calc			
1410 Project Meal Expense			-	calc			
			433		433	433	
<u>1500 Technical Reps</u>		\$/day					
1501 GTG Tech Rep	360	2,200	792	plgd /1000			
1502 Fire Water	-	2,000	-	plgd /1000			
1503 Gas Compressor	30	2,000	60	plgd /1000			
1504 Chiller	30	2,000	60	plgd /1000			
1505 Water Treatment	-	2,000	-	plgd /1000			
1506 Commission / S/U / Trng	70	2,000	140	plgd /1000			
1507 Controls Rep	30	2,000	60	plgd /1000			
1508 Evap Cooler	-	2,000	-	plgd /1000			
1509 SCR	-	2,000	-	plgd /1000			
			1,112		1,112	1,112	
<u>1600 Project Tests</u>							
1601 Soil Boring / Compaction			25	plgd /1000			
1602 Concrete			35	plgd /1000			
1603 X Ray			35	plgd /1000			
1604 Plant Performance and Reliability			120	plgd /1000			
1605 Emission Tests			-	plgd /1000			
1606 Protective Relays			15	plgd /1000			

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RECAP OF COST ESTIMATE
(1,000'S)

1607 Acoustics / Noise Test			-	plgd /1000				
			230		230		230	
1700 Legal			45	plgd /1000	45		45	
1800 Insurance / Securities								
1810 Bonds			-	plgd /1000				
1820 Builders All Risk			-	plgd /1000				
1830 Marine / Cargo			-	plgd /1000				
1840 Professional			-	plgd /1000				
			-		-			
1900 Taxes			-	calc	-			
2000 Commissions			-	plgd /1000	-			
2100 Project Contingency / Risk								
2110 Project Contingency			500	plgd / 1000				
2120 GT Performance			-	plgd / 1000				
2130 Schedule LD			-	plgd / 1000				
2140 Material Escalation	5%	9,698	485	calc				
2150 Labor Contingency	5%	5,030	251	calc				
			1,236		1,236		1,236	
BOP Cost					28,791		20,209	68,660
% Markup			25%		6,000		6,000	
BOP Sales Price					34,791		26,209	
BOP Sales Price					34,791		26,209	68,660
Local Municipal & Social			7.5%					5,149
IVA			16%					10,986
Total BOP Sales Price Incl. Taxes							26,209	84,795
II. Project Scope Adders								
5010 Price Adder for LM6000 PD Repairs							400	
5020 Price Adder for Inlet Chilling							7,000	6,500
5030 Spare Parts for (2) Years							3,200	
5040 Technical Support for (6) Months							350	600
III. Overall Project Pricing							37,159	91,895

Joaquin Mavares

From: David Whisenhunt
Sent: Thursday, May 27, 2010 5:37 PM
To: abetancourt@derwickassociates.com; ptrebbau@derwickassociates.com
Cc: Omar Pettit; Joaquin Mavares
Subject: La Raisa Pricing Comparison

Gentlemen,

The 2009 La Raisa LM6000 Proposal was Priced as follows:

US\$ 19,069,000
BsF 20,356,900

This pricing was based on our cost estimate done in July of last year which is basically a year ago.

The 2010 La Raisa LM6000 Proposal has been priced as follows:

US\$ 33,609,000
BsF 91,297,100

The price increase is based on the following additional scope:

Inlet Chilling System		
275,000 Gal, SS Demin Tank and additional pumps requested by EDC	US\$ 7,000,000	
Auxiliary Switchgear and Aux Transformer Upgrades	US\$ 750,000	
High Voltage Paralleling, Protective Relaying and Additional Equip. Requested by EDC	US\$ 1,700,000	
Transportation of BOP Equipment from Origin to Site	US\$ 540,000	
Price Escalation of Materials (wire, cable, pipe, etc) 10% of \$13,280,000	US\$ 2,900,000	
Total Adders from Last Year's Pricing	US\$ 1,328,000	
US\$14,218,000		

2010 Pricing	US\$ 33,609,000
Less Adders	(14,218,000)
Net Price	US\$ 19,391,000

This should resolve the issue of where the price increase came from.

David Whisenhunt

President

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La Raisa LM6000 Plant

Project Progress Payment Schedule

	US \$	BsF
Down Payment Due Upon Contract Signing	50%	30%
Milestone 1		
Civil Works		
Site Preparation Complete		
Gas Turbine Foundations Poured for equipment	10%	20%
Milestone 2		
Gas Turbines Set on Foundations	10%	20%
Milestone 3		
Gas Turbines,		
Assembly of Major Gas Turbines	15%	15%
Modules Complete, Exhaust Stacks Erected		
Milestone 4		
Pre commissioning Complete	10%	10%
All Mechanical Equipment Flushed and Checked		
All Hydrostatic Testing Complete		
All Pumps Rotated and Tested		
All Mechanical Systems Ready for Startup		
All Electrical Equipment Statically Tested		
All Electrical Systems Read for Startup		
Milestone 5		
Commissioning & Testing Complete	5%	5%
Gas Turbines Tested and Ready for Commercial Operation		
All Mechanical Auxillary Ready for Commercial Operation		
All Electrical Auxiliary Equipment Tested and Ready for Commercial Operation		

TECHNICAL SCOPE DOCUMENT

Presented To:

C.A. La Electricidad de Caracas

For:

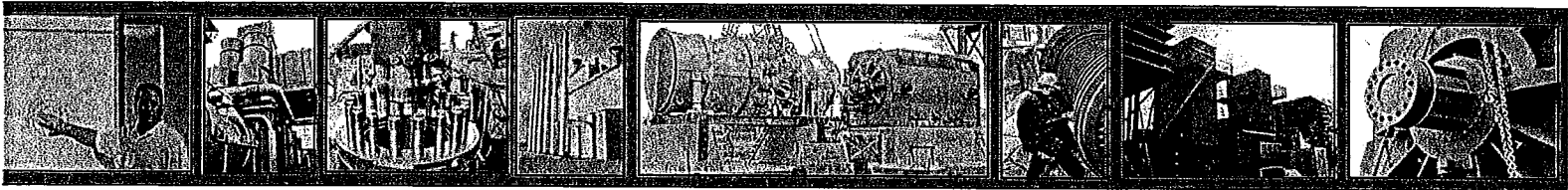
LM6000 PC & PD Plant with Inlet Chilling

La Raisia Power Plant Phase 2

By

DERWICK

DERWICK ASSOCIATES CORP.



Proposal T-9036
Updated May 27, 2010

This document is privileged and contains confidential information intended for use only by
EDC

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Section 1 Introduction

Derwick Associates Corp. (Contractor) is pleased to provide this Technical Proposal to install a nominal 98 MW Gas Turbine Simple Cycle Power Plant addition to the LaRaisia Power Plant.

This turnkey proposal includes installing the following Owner supplied equipment:

- One (1) gas fueled GE LM 6000PC gas turbine generator package
- One (1) gas fueled GE LM 6000PD gas turbine generator package

Contractor will furnish all engineering, required balance of plant equipment, contract locally for the required subcontractors to accomplish the site construction, construction tools, equipment rental and project management.

Contractor will furnish commissioning, start-up, and performance testing services for the LM6000PC unit. The commissioning of LM6000PD is also included however, this is much more complicated than the PC unit and will require much more time to complete.

Additional Scope

Contractor has agreed to include additional scope as defined in the Spreadsheet located in Section 10. This spreadsheet was developed by EDC / Asincro to define the additional scope to be supplied by the Contractor. This spreadsheet also clarifies various items in this TSD as well. This spreadsheet supersedes the scope defined in Sections 2 & 3 of the TSD.

Water Pipeline

Contractor through the use of a qualified local subcontractor will also construct a water supply pipeline to the site based on the specifications provided by EDC and Asincro. Unlike the balance of the project, the construction of the pipeline will be furnished on a Cost Plus Basis based on the labor and materials used to construct the pipeline. The definition of the pipeline scope of supply is not included in the various sections of this TSD document. The final scope will be provided following the selection of the pipeline contractor.

This Technical Scope Document will become an exhibit to the EPC Contract.

THIS DOCUMENT IS CONFIDENTIAL. IT IS DESIGNED AND INTENDED FOR EDC'S USE. THIS DOCUMENT IS FOR THE SOLE PURPOSE OF EVALUATING CONTRACTOR'S PROPOSAL FOR THE (2) GE LM 6000 PC POWER PROJECT ADDITION.

Section 2.0 Scope of Work and Equipment

The Scope of Work and Supply is comprised of the following outlined items:

Major Generation Equipment

The installation of (1) each Owner Supplied GE LM 6000 PC gas turbine generator package and (1) Owner Supplied GE LM6000 PD generator. The units are complete with turbine control panels, auxiliary skids and inlet filters. Note: These units do not include motor control centers, modular control rooms or exhaust stacks. These will be included in the balance of plant supplied by the Contractor.

GE LM 6000 interface points are as follows:

Equipment System	General Electric
<ul style="list-style-type: none"> All supply piping, including Fuel Gas, Liquid Fuel, Demineralized Water, Lube Oil, Compressed Air, Instrument Air, and Optional Inlet Air Chilling 	<ul style="list-style-type: none"> Flanged or threaded connection on GE LM 6000 GTG base plates.
<ul style="list-style-type: none"> Inlet Air-to-Filter 	<ul style="list-style-type: none"> Atmosphere
<ul style="list-style-type: none"> Turbine/Generator Ventilation Air 	<ul style="list-style-type: none"> Atmosphere
<ul style="list-style-type: none"> Turbine Exhaust 	<ul style="list-style-type: none"> Flange & Expansion Joint for connection to Exhaust Stack
<ul style="list-style-type: none"> Instruments on the LM 6000 Base plate 	<ul style="list-style-type: none"> Terminal box on base plate
<ul style="list-style-type: none"> Instrument wiring in Turbine Control Panel 	<ul style="list-style-type: none"> Terminal in Turbine Control Panel
<ul style="list-style-type: none"> High Voltage Connections 	<ul style="list-style-type: none"> Bus bar in LM 6000 generator line side cubicle
<ul style="list-style-type: none"> Generator Ground Connections 	<ul style="list-style-type: none"> LM 6000 Neutral cubicle
<ul style="list-style-type: none"> Electric Motors 	<ul style="list-style-type: none"> With cables & conduits from Control Module
<ul style="list-style-type: none"> Ladders and Platforms for Air Filter 	<ul style="list-style-type: none"> Ladders and Platforms for Inlet Air Filter and Vent Fans

2.0 Balance of Plant

The contractor will design and install the facility as described in the following sections of this document and as clarified in the associated Clarification Document included in Section 12. The design will include the necessary Structural, Mechanical, Electrical, Instrumentation, and Control System to install the above Major Equipment.

The Balance of Plant scope of supply will be comprised of the following:

- Contractor will provide complete design of the facility including civil, structural, buildings, mechanical, electrical, instrumentation and control
- Contractor will provide concrete foundations, plant gravel, and access roads
- Owner is providing a reasonably level site which Contractor has visited and based its plant layout on
- Owner is providing an entrance road to the site which Contractor has visited.
- Owner will provide (2) 13.8 KV to 230 KV, 60 to 75 MVA GSU Transformers
- Contractor will procure from a Venezuelan supplier, oil for the (2) GSU Transformers
- Contractor will provide Installation of the complete Power Plant with the inter-ties as described later in this document and including:
 - Mechanical installation of the various items of equipment with the associated inter-ties of, gas fuel, liquid fuel, sanitary sewer, and waste water
 - Electrical installation of the plant including the 13.8Kv interconnect cable, plant electrical for BOP equipment, area lighting, grounding, lightning protection, and cathodic protection
 - Installation of Instrumentation and Control System including plant instrumentation, metering, and Plant remote DCS PLC

2.1 BOP Major Mechanical Systems

2.1.1 Simple Cycle Exhaust Stack

The Contractor will supply and install 45 ft. exhaust stacks in accordance with the standards set out by GE for each LM 6000 machine.

2.1.2 Plant Fuel Gas System

The Contractor will install the plant fuel gas system outlined as follows:

- Interconnect to PDVSA gas metering station above ground at the Plant boundary as described on the Plot Plan
- Install two (2) redundant coalescing filter separators on a common skid including redundant pressure regulators

- Furnish and Install the fuel gas compression plant with two (2) ea. 100% Gas Compressors to raise the available supply pressure to the required 650 psi. supply pressure to the gas turbines
- Install all plant fuel gas carbon steel piping, valves and fittings from plant inlet fuel gas interconnect to the fuel gas regulator filter
- Install stainless steel piping from the fuel gas filter to the gas turbine generator

2.1.3 Plant Liquid Fuel System (Not Included in this Proposal)

At EDC's option and as a change order, the Contractor can offer to design, supply, install and interconnect with the existing plant liquid fuel system outlined as follows:

- Supply and Install a Liquid Fuel Treatment System expansion
- Supply and Install two (2) 50% capacity liquid fuel forwarding pumps
- Supply and Install two (2) 100% capacity liquid fuel filter/regulator skids
- Supply and install all additional liquid fuel Stainless Steel piping, valves and fittings from the plant treated liquid fuel day storage tanks to the liquid fuel filter regulator skids
- Supply and Install two (2) liquid fuel injection pump skids
- Supply and install Stainless Steel piping, valves and fittings from the liquid fuel filter regulator skids to the Gas Turbine Generator package fuel connection

2.1.4 Water and Demineralized Water System

Contractor will Supply and install the plant Water Treatment System expansion outlined as follows:

Contractor Supplied Equipment

- Supply and Install an expansion to the Multi-Media filter and R.O. systems
- Supply and install GE EDI Demineralized system addition as required to meet the GE engine specification
- Provide and Install two (2) 50% capacity Demin water forwarding pumps
- Provide and Install two (2) 100% capacity Demin Water filter/regulator skids
- Provide and install all plant Demin water Stainless steel or HDPE piping, valves and fittings from the plant Demin Water storage tanks, to the Demin injection pumps and to the (2) Demin water injection connections at each of the GE LM 6000 GTGs

2.1.5 Oily Water Drain System – as provided with FT8 Plant

The Contractor will furnish and install the oily water drain system as follows:

- Furnish and install PVC or HDPE below ground piping and fittings from concrete oil containment units located at:

- 1) All Transformers

2) Gas Turbine Generator Auxiliary Skids

Piping is to be routed to the oily water separator and then to the waste oil storage tank. Provisions are to be made to pump out the waste oil to a truck for disposal, which will be provided by the Owner.

2.1.6 Plant Fire Water System

The Contractor will furnish and install a header expansion to the Firewater System that includes:

- Furnish and Install headers in accordance with NFPA Codes. All piping to be carbon steel.
- Monitors and Hydrants installed in accordance with NFPA Codes
- Portable fire extinguishers as required

2.1.7 Instrument and Service Air Systems

The instrument and service air systems will be as follows:

- Furnish and install one (1) set of two (2) instrument and service air screw compressors with associated dryer and air storage tanks
- Furnish and install Stainless Steel tubing, valves, fittings and instruments for instrument and service air systems from the air compressors to various required areas throughout plant for instrument air and service air. Furnish the appropriate quick connect connectors

2.2 BOP Electrical Systems

2.2.1 13.8 KV System

The Contractor will perform the following work on the 13.8 KV system:

- Install two (2) Contractor furnished 13.8 KV 3,000 amp generator circuit breakers with PTs and CTs
- Furnish and install all 13.8 KV cabling, bus work, cable tray etc. from the generators to the generator circuit breakers.
- Furnish and install two (2) 13.8 KV 1200 A Feeder Breakers
- Furnish and install all five (5) fused disconnects for auxiliary transformer
- Furnish and install four (3) 13.8KV / 480 volt auxiliary power transformer

2.2.2 480V System

The Contractor will provide the 480V system as follows:

- Furnish and install one (1) 480 V water MCC

- Furnish and install two (2) 480 V GTG MCC
- Furnish and install one (1) 480V Gas Compressor MCC with two (2) starters
- Furnish and install cable tray / conduit with cabling from transformers to MCCs and from MCCs to plant 480V equipment and motors
- Furnish and install underground conduit, duct banks, or overhead cable tray mounted on the pipe racks

2.2.3 120/208 System

The Contractor will provide the 120/208 system as follows:

- Furnish and install 480V/120/208V transformers, distribution panels and lighting panels as required with associated conduits, fittings and wire.

2.2.4 Plant Area Lighting

The Contractor will provide the plant area lighting as follows:

- Furnish and install area lighting consisting of two (2) 25 ft galvanized metal poles with two (2) 400 watt metal halide floodlights on each pole sufficient to illuminate both GTG's and common areas to 50 lux

2.2.5 Ground Grid

The Contractor will provide the ground grid for the plant as follows:

- Furnish and install plant ground grid expansion with associated ground rods and connections to plant equipment, buildings and fence in accordance with Paragraph 12.2.21 of the EDC specification

2.2.6 Plant Electrical Cable Tray

The Contractor will provide the plant electrical cable tray work as follows:

- Furnish and install galvanized steel cable trays throughout plant. Cable trays to be mounted on pipe racks, cable trenches or within buildings for routing plant cabling. A separate cable tray will be installed for each of the 15/5KV systems, 480V system, and instrumentation system cables

2.2.7 Underground Conduit and Cable Systems

The Contractor will provide the plant underground conduit and cable system as follows:

- Furnish and install rigid galvanized conduit or PVC encased in concrete for all underground power, control and instrumentation systems

2.2.8 Lightning Protection

The Contractor will provide lightning protection as follows:

- Furnish and install lightning protection on each gas turbine exhaust stack.

2.2.9 Batteries / Chargers / UPS Systems

The Contractor will perform the following work on the batteries / chargers / UPS systems:

- Furnish and install BOP UPS system for remote DCS PLC and associated equipment
- Furnish and install one (1) 125V DC battery and charger for 13.8KV plant switchgear

Note: 24 VDC batteries and chargers are to be supplied as part of the GE LM 6000 package

2.3 Plant Instrument and Control Systems

2.3.1 BOP Control System

The Contractor will furnish and install a BOP control system consisting of:

- One (1) DCS PLC system expansion and HMI's to be located in the main control room
- Provide and install remote PLC panels as required in certain areas of the site and interfaced back to the main control room DCS
- Two (2) GE package supplied HMI's to interface with DCS System
- Contractor will transfer software licenses to the Owner at the completion of the project. This will include the license documentation passwords and keys. It will be the responsibility of the owner to maintain these licensing articles for the time when the software needs to be reinstalled
- The Contractor supplied DCS shall allow for system expansion through the addition of controllers, operator stations in the control panels, process I/O systems and / or process controllers while the equipment associated with the controller/computer are in manual mode. Modifications can be preformed while the Power Plant is operational and the equipment in question is in manual mode. Proper safety precautions must be adhered to. "Tag out" procedures may be required.
- Operator stations in the control room can be expanded while in remote mode and the Power Plant is operational.
- Various vendor supplied PLCs for the major equipment will use either function block or ladder logic programming. The Balance of Plant PLC will use ladder logic programming.
- Gas detectors to be located in plant area per applicable codes and standards. (Natural Gas supply is not odorized).

2.3.2 Plant Instrumentation Devices

- Gas Turbine Control Panel is supplied with each LM6000 gas turbine mounted in Control Module supplied by GE
- Contractor to furnish and install instrument devices, both pneumatic and electric, consisting of meters, pressure, flow, temperature and level where required

2.3.3 Electronic Wiring and Pneumatic Piping

- Contractor to furnish and install necessary instrument wiring and pneumatic piping with associated Swagelok fittings, etc.

2.4 230 KV Substation – Not Included: Contractors Scope stops at 13.8KV side of GSU Transformer.

2.4.1 Generator Step-up Transformers (GSUs)

- Contractor to install two (2) each Owner Supplied 60 to 75 MVA generator step-up transformers with 13.8KV delta to 230 KV wye windings

2.4.2 Protective Relaying

- Contractor to supply and install protective relaying for the GSU transformers and provide interface points for other substation protective relay equipment provided by Owner

2.4.3 Site Work

- Contractor to prepare the site and provide the following:
 - Foundations for the GTGs, fuel and water tank area, GSU transformers, buildings, truck off-load and gas compressor
 - Driveways and roads
 - Gravel

2.5 Plant Communication System

- Contractor to provide communication and public address system for the new plant in accordance with 16.10 & 17 of the terminos de referencia.
- Contractor to furnish temporary telephones and email capability for construction communication purposes.
- Permanent telephone lines for operation of the plant will be provided by Owner.

2.6 Plant Civil and Structural

- Site preparation, rough grading, and finished grading to be furnished by Contractor based on an existing site requiring minimal cut and fill.
- Contractor to furnish and install all plant reinforced concrete foundations designed to IBC 2003. GSU foundation shall have 9" freeboard.
- Contractor to furnish and install concrete containment curbs and equipment foundations, including liquid fuel offloading area.
- Contractor to furnish and install plant gravel and asphalt paving as shown on the Plot Plans.
- Contractor to provide structural steel pipe racks to support overhead piping and cable trays. Pipe racks to be located as shown on Plot Plan drawings.

2.7 Plant Buildings

Contractor to furnish and install:

- Demin Water Treatment Building expansion
- Gas Compressor Shed expansion
- Electrical / Control Building with pump shed

2.8 Plant Equipment Erection

- Contractor to unload all Plant equipment delivered to site.
- Contractor will provide all cranes and support equipment and manpower as required to erect the gas turbine generators.
- Contractor to provide for erection of all BOP equipment.

2.9 Cranes, Equipment and Tools

Contractor to furnish or provide for all plant construction required cranes, fork lifts, back hoes, hydraulic lifts, welding machines, air compressors, generators, temporary lights, trucks, pick-ups, etc.

2.10 Transportation

Contractor will provide the transportation of the BOP equipment to site.

2.11 Lubricants and Chemicals

- Contractor will supply and install all lubricants, lube oils and chemicals for furnished equipment.
- Contractor to supply and install non-PCB oil for GSU transformers.

2.12 Spares

- Contractor will make provision to supply, receive and store all commissioning spare parts furnished for equipment during start-up and commissioning.
- Contractor to provide Owner with recommended list of spare parts for the BOP equipment supplied by Contractor.

2.13 Construction Offices and Storage Facilities

- Contractor to provide construction offices for Contractor, Technical Representatives (3), and Owner.
- Owner is providing the site which has sufficient lay down area and site for construction offices and construction utilities (electrical and potable water)
- Contractor to provide fenced storage and a lay down area and around the construction site during construction.
- Contractor to provide sanitation facilities for Contractor, & Owner personnel during construction.
- Contractor to provide communication facilities for construction.

2.14 Engineering and Project Management

- Contractor to provide detailed engineering and specifications for all disciplines involved for the power plant including civil and concrete foundations.
- Contractor to provide project management complete with construction management, quality control / quality assurance, scheduling, administration, warehousing, and expediting including regular monthly reporting of all disciplines.
- Contractor to arrange for and provide fully qualified technical representatives during erection, testing, start-up, commissioning for the LM6000PC gas turbine generator unit and Chillers. Owner to contract with GE directly for the commissioning, start-up and testing of the LM6000PD package.
- Contractor to provide startup, commissioning and testing of BOP associated systems.

- Contractor to provide operator and maintenance training for Power Plant on the Gas Turbine Generator Packages and Balance of Plant.
- Contractor to provide one (1) electronic and two (2) hard copies in English and Spanish of the O&M manuals, training manuals, engineering calculations, commissioning and start-up manuals, test manuals, as-built drawings, design specifications and warranty manuals for plant equipment.

2.15 Cathodic Protection

Cathodic Protection will be provided for all steel underground piping.

Section 3.0 Balance of Plant Equipment Supply Matrix

Material/Responsibility	Qty	Description
Owner	1 Lot	Removal of all unused building foundations, underground piping, etc. on the proposed project site
	1 Lot	Natural Gas Pipeline and supply metered at inter-tie point within 50' of Plant Boundary
	1 Lot	Fuel Gas for Commissioning / Start-up that meets GE Fuel Specifications
	1 Lot	Raw Water Supply to site boundary
	1 Lot	Raw Water for Commissioning and Startup
	1 Lot	Waste Water and Waste Oil Truck Removal
	1 Lot	Permits for Environmental, Importation, Transportation, Building, Operations, etc. to allow plant construction and commercial operations
	1 Lot	Construction Commissioning 480V three phase power
	1 Lot	Access Roads to site
	1 Lot	Any required Electric Utility 13,8KV to 230 KV Tie-In interconnect to the Utility
	1 Lot	Import Duties and Taxes
	1 Lot	Construction lay down area as available on the existing site
	1 Lot	Right of Way, easements, etc. to allow proposed interconnects as required
		Gas Turbine Generator
	2	GE Frame LM6000 PC (60Hz) Gas Turbine Generator packages
	2	Turbine Control Panels
	2	Generator Control Panels and Protection Panels - 24 VDC Batteries and Chargers
	2	13.8 KV to 230 KV GSU Transformers , 60 – 75 MVA
Contractor – Responsibility Civil / Structural	1 Lot	Site Soil Borings & Studies to design Foundations
	1 Lot	Site Preparation, Rough Grading, Excavation, final grading and fencing
	1 Lot	Temporary Power Distribution
	1 Lot	Plant Concrete Foundations
	1 Lot	Plant Paving, Gravel and Pads for the GTG Turbines and Generators
	1 Lot	Structural piping supports, platforms, ladders, and Misc structural steel supports. (Note: Platforms and ladders for the exhaust stacks to be furnished by Owner)
	1 Lot	Erection of the (2) Owner Furnished GE LM 6000 PC Gas Turbine Generators, Exhaust Stacks, Control Modules and associated accessories.

Buildings

	1	Demin Water Treatment System expansion & Forwarding Pump Building expansion
	1	Gas Compressor shed expansion
	1	Control Room, Electrical building and pump shed
	1	Water Treatment Building expansion
Mechanical		
	2	Exhaust 45' Stacks with Silencers
	1	Fuel Gas Plant expansion ESD Valve
	2	100 % Fuel Gas Compressors
	1	Fire Water System expansion including, Loop, Monitors and Hydrants
Material/Responsibility Contractor (continued)	1	Duplex Instrument Air Compressor
	Qty	Description
Mechanical		
	2	GTG Duplex Demin Water Filter Skids
	1	Water Treatment System expansion consisting of Multi-Media filters and R.O. System
	1	Demineralized Water Treatment system (EDI) expansion
	2	Demin Water forwarding Pumps
	1 Lot	Pipe, Valves and Fittings with Insulation as required
	1 Lot	Mechanical Labor
Electrical		
	2	13.8KV 3000 Amp, NEMA 3R Generator Breakers
	5	13.8 KV Fused Disconnects (Station Service) NEMA 3R
	1	13.8 KV/4160 V 1500 KVA Fuel Gas Compressor
	4	13.8 KV/480 V 500 KVA Transformers
	1	4160 V MCC for Fuel Gas Compressor
	2	480 V GTG MCC's
	1	480 V Water MCC
	1	480 V Gas Compressor MCC
	1 Lot	BOP 480/220 V Transformers, Lights, Panels etc
	1	120 V UPS System for Control Room
	1	Plant Grounding Grid
	1 Lot	125 VDC Battery & Charger
	1 Lot	Lightning Protection 50 lux
	1 Lot	Cathodic Protection for underground steel piping
	1 Lot	Area Lighting
	1 Lot	480 V Welding Receptacles
	1 Lot	Electrical Labor
	1 Lot	Local Subcontractor(s) Civil, Electrical & Mechanical Craft Labor
Instrumentation & Control		
	1 Lot	Plant Instrumentation
	1	Remote DCS PLC

Construction	1 Lot	I&C Installation and Construction
	1 Lot	Major Equipment Erection
	1 Lot	Mechanical Installation and Construction
	1 Lot	Construction Tools, Rental Equipment & Rental Cranes
	1 Lot	Lubricants, Chemicals, Filters, etc. for Plant Commissioning and Start up
	1 Lot	Balance of Plant Start up and Commissioning Spare Parts
	1 Lot	Transportation of all BOP Equipment to site
	1 Lot	Plant Commissioning and Performance Testing
	1 Lot	Overall Plant Training
Engineering	1 Lot	Conceptual and Detail Design engineering (Total Plant)
	1 Lot	Project Manuals including O&M, Warranty, and Engineering Calculations
	1 Lot	As Built Drawings
	1 Lot	Recommended Vendor Spare Parts List
Material/Responsibility Contractor (continued) Project Management	Qty	Description
	1 Lot	Project Management with QA/QC, Safety, and Training
	1 Lot	Construction Permits
	1 Lot	Local Business Taxes
	1 Lot	Project manuals including project procedures, Systems Turnover Manuals, project implementation, QA/QC, safety and training
	1 Lot	Training of Operators for the LM 6000 GTGs and BOP

Section 4.0 Design Basis and Interconnect Points

4.1 Design Conditions

Design Conditions

Site Elevation (Meters above Mean Sea Level)	283.6
Multi-year median temperature:	27.5°C
Maximum dry bulb temperature:	33°C (95°F)
Maximum wet bulb temperature:	28.3°C (82.94°F)
Multi-year median relative humidity:	69%
Median annual precipitation:	813mm (32 in)
(Majority during the months of October and November)	
Predominant wind direction:	Northeast
Maximum average multiannual wind velocity:	78km/h
Seismic Zone	4
Fuel Gas Supply Pressure	250 psig minimum
Plant Gas Fuel Consumption Rate (2) LM6000	<u>20.8</u> mmscfd *
High Voltage Interconnect @ GSU Bushings	230KV Substation (By Owner)
Instrument Air System add	185 scfm by Contractor
Demin Water required add	<u>65</u> gpm
Demin Water Storage - existing	1,000 m ³ (275,000 gal)
Raw Water Storage (Includes Fire water) existing	2,400 m ³ (675,000 gal)
Raw Diesel Fuel Storage existing	5,000 m ³ (2 x 675,000 gal) existing
Clean Diesel Fuel Storage (2) existing	3,000 m ³ (2 x 275,000 gal) existing

* assumes 900 - 1050 BTU/SCF natural gas quality

4.2 Interconnect Points

Interconnect Points

Fuel Gas	250 psig at PDVSA Metering & Regulating Station within Site
Plant Waste Water	At existing waste water tank discharge pump
Plant Waste Oil	At existing waste oil tank discharge pump
230 KV	At GSU High Side Bushings
Raw Water Supply	At existing Raw Water Tank

THIS DOCUMENT IS CONFIDENTIAL. IT IS DESIGNED AND INTENDED FOR EDC'S USE. THIS DOCUMENT IS FOR THE SOLE PURPOSE OF EVALUATING CONTRACTOR'S PROPOSAL FOR THE GE LM6000 POWER PROJECT.

Section 5.0 Expected Performance – Using Natural Gas– With/Without Inlet Chilling (Not Guaranteed)

La Raisia II

Simple Cycle

Site Elevation 930.4 Feet

Design Temperature 81.5 F

Relative Humidity 69%

ID GTPRO 331

With Chiller

	LM6000 PC SPT	LM6000 PD SPT	
Gross Power KW	49594	45376	94970
Net Power KW	46580	42508	89088
Aux & Losses KW	3014	2868.3	5882.3
LHV Gross Heat Rate (BTU/kWh)	8534	8149	8341.5
LHV Net Heat Rate (BTU/kWh)	9086	8699	8892.5
LHV Gross Electric Eff %	39.99	41.87	40.93
LHV Net Electric Eff %	37.56	39.23	38.395
LHV Fuel (kBTU/h)	423228	369782	793010
HHV Fuel (kBTU/h)	468559	409389	877948
Fuel Gas (KPPH)	21.27	18.58	39.85
Fuel Gas (MMSCFD)	10.92	9.54	20.46
Liquid Fuel (KPPH)	0	0	0
Liquid Fuel (GPM)	0	0.00	0.00
Water for Nox (KPPH)	24.92	0	24.92
Water for Nox (GPM)	49.86	0.00	49.80
SPT Water (KPPH)	3.687	4.10	7.787
SPT Water (GPM)	7.37	8.2	15.56

	GPM	GPD (24)	3 D	5D
RAW Water Total	91	130961	392882	654804
Water Total	65	94216	282649	471082

	LM6000 PC SPT	LM6000 PD SPT	Total
Gas Fuel	10.92	9.54	20.46 (MMSCFD)
Demin Water for GF	57	8	65 GPM
RAW Water for GF	80	11	91 GPM

14.21 p
82 T
69 %RH
1029 m
930.4 ft elev.

1X GE LM6000SPT

14.07 p
40 T
1017.8 m

3.687 m
Natural gas 21.27 m
LHV 423228 kBTU/h
77T

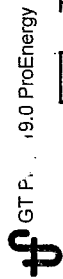
14.72 m
180 T
Water 24.92 m

1052.9 m

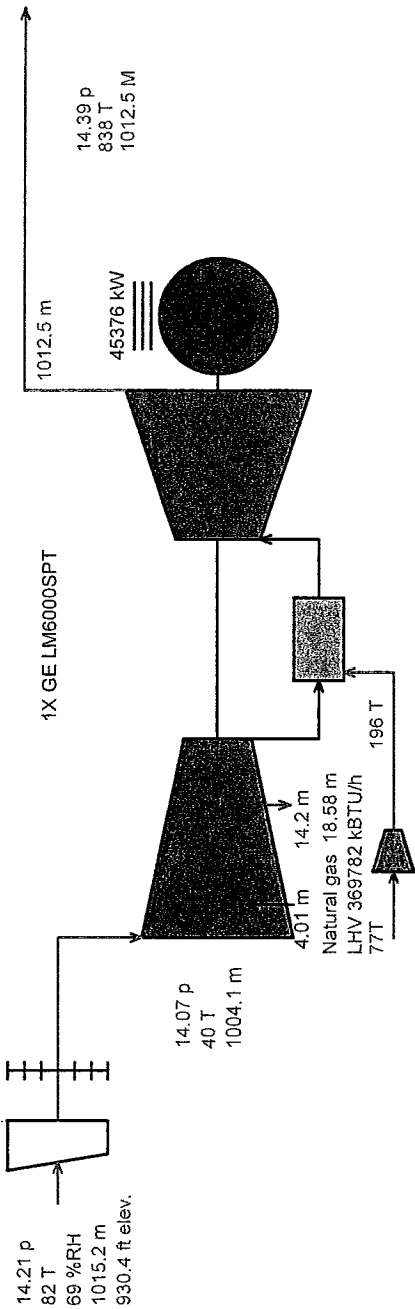
14.39 p
835 T
1052.9 M
25 ppm NOx

49594 kW

Net Power 46580 kW
LHV Heat Rate 9086 BTU/kWh
71.68 %N2
12.69 %O2
3.36 %CO2
11.4 %H2O
0.8617 %Ar



Net Power 42508 kW
LHV Heat Rate 8699 BTU/kWh



p[psia], T[F], M[kpph], Steam Properties: ThermoFlow - STQUIK

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Section 5.0 Expected Performance – Using Natural Gas– With/Without Inlet Chilling (Not Guaranteed)

La Raisa II

Simple Cycle

Site Elevation

930.4 Feet

Design Temperature

81.5 F

Relative Humidity

69%

ID GTPRO

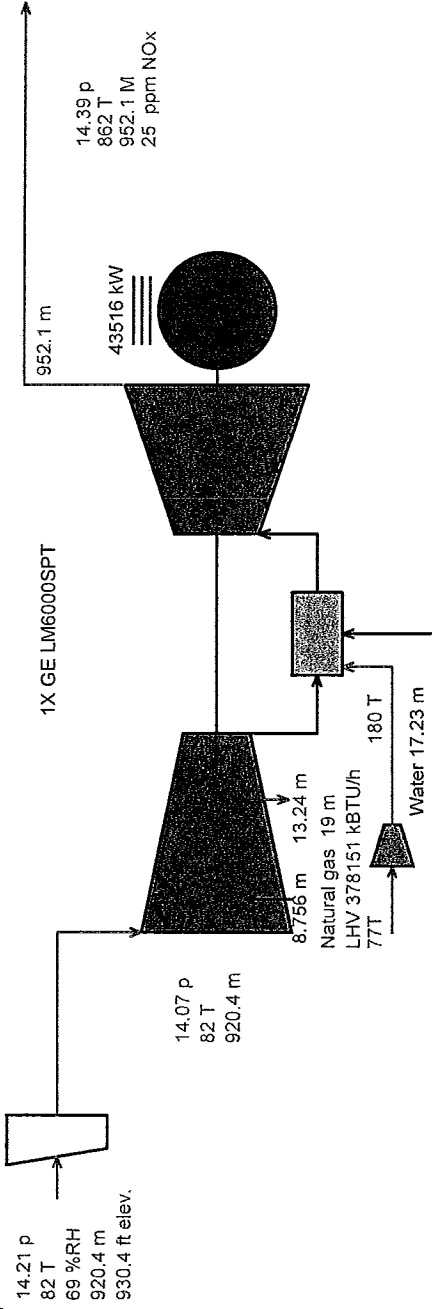
331

Without Chiller

	LM6000 PC SPT	LM6000 PD SPT	
Gross Power KW	43516	40811	84327
Net Power KW	42387	39776	82163
Aux & Losses KW	1128.9	1035.2	2164.1
LHV Gross Heat Rate (BTU/kWh)	8690	8414	8552
LHV Net Heat Rate (BTU/kWh)	8921	8633	8777
LHV Gross Electric Eff %	39.27	40.56	39.915
LHV Net Electric Eff %	38.25	39.53	38.89
LHV Fuel (kBTU/h)	378151	343370	360,761
HHV Fuel (kBTU/h)	418653	380147	798800
Fuel Gas (KPPH)	19	17.26	36.26
Fuel Gas (MMSCFD)	9.75	8.86	18.62
Liquid Fuel (KPPH)	0	0	0
Liquid Fuel (GPM)	0	0.00	0.00
Water for Nox (KPPH)	17.23	0	17.23
Water for Nox (GPM)	34.47	0.00	34.43
SPT Water (KPPH)	8.756	8.68	17.438
SPT Water (GPM)	17.50	17.4	34.85

	GPM	GPD (24)	3 D	5D
RAW Water Total	96	138783	416348	693913
Demin Water Total	69	99844	299531	499218

	LM6000 PC SPT	LM6000 PD SPT	Total
Gas Fuel	9.75	8.86	18.62 (MMSCFD)
Demin Water for GF	52	17	69 GPM
RAW Water for GF	72	24	96 GPM



6.0 Plant and Equipment Warranties

Balance of Plant Warranties – Contractor will obtain from all equipment vendors their warranty on the material and equipment provided. These warranties will be for a term of 12 months from commercial operation (full power) date and if a replacement is required, for a term of 12 months following such replacement. The warranty for each component will include replacement of the item as well as the Contract labor cost to replace and install.

This vendor warranty information will be assembled and packaged into a Warranty Manual. The Warranty Manual will provide vendor name and contact information, component description, and model number. The warranty Manual will be provided to the Owner.

Section 7.0 Project Management and Organization (TYPICAL & NOT PROJECT SPECIFIC)

A project specific plan will be submitted following the project kick-off.

7.1 Project Management Execution

7.1.1 Project Management Team (Typical)

The Contractor will assemble a well qualified and experienced team of individuals who have worked together on many previous projects.

The team will be comprised of:

- Project Manager
- Administration Manager
- Project Technical Consultants
- Construction Manager
- Purchasing / Expediter
- Scheduling
- QA/QC
- Project Engineering Manager
- Site Erection
- Commissioning / Start up Managers
 - Mechanical
 - Electrical
- Mechanical Construction Superintendent
- Electrical Construction Superintendent
- Training

The team as outlined above has worked together on many gas turbine generator power plants within the US as well as internationally. They have successfully completed a number of "Fast Track" projects internationally.

7.1.2 Project Manuals

One of the first tasks to be initiated is the preparation of the project specific project manuals. These manuals are listed:

- Project Procedures
- Project Implementation
- Project Engineering Calculations
- Project Warranties
- QA/QC
- Safety

- Training
- Operation and Maintenance
- Commissioning, Start Up, and Turnover
- Project Performance Test

Project Schedule

Along with the commencement of preparation of the project manuals, the detailed project schedule will be started. This detailed schedule will be developed utilizing Microsoft Project. The project schedule will be a living document which will be continually updated by a full time assigned scheduler for the life of the project. The proposed project schedule is included in Section 8.0.

7.1.3 Project Engineering

Preliminary conceptual engineering has been developed during the proposal phase which consists of:

- General Arrangement Plot Plan
- Process Flow Diagram
- One Line Diagrams

The conceptual drawings listed above are immediately completed after project Notice to Proceed. This entails updating the various drawings based on final agreed upon items with the Owner and/or Owner's Engineer. The Process Flow Diagram is completed with the latest heat and material balance. The One Line Diagrams are further developed to reflect loads, breaker / fuse sizing, DL power, etc. The Control System Drawing is likewise further completed reflecting agreed upon HMI's, printers, Balance of Plant Equipment PLC's, etc.

The conceptual engineering is completed utilizing the project technical consultants (responsible for proposal preparation) and the detailed engineering team to guarantee a smooth hand over to the detailed engineering phase.

During the conceptual engineering phase, specifications are finalized for all engineered equipment to be purchased. On a "Fast Track" project most of the engineered equipment has been preliminarily specified with only final checks and agreed upon modifications made.

Detailed engineering will be completed utilizing the conceptual drawings previously described and with Owner approval. This detailed engineering will include: engineering protocol for drawings and specification.

As-built drawings will be completed upon completion of the installation phase of the project.

7.1.4 Owner Approval

It is proposed that three approval steps be in place for the engineering phase of the project. These steps would be 30%, 60%, and 90%. The Owner or Owner's Representative could travel to the Contractor or vice versa at the Owner's request.

7.1.5 Project Procurement

Major engineered equipment which has been specified during the proposal and configuration phases of the project are submitted on the agreed upon approval process and when approved will be purchased.

The Balance of Plant Equipment and materials (normally short delivery) will be itemized and listed during detailed engineering. A decision will be made as to who will furnish (Contractor or Subcontractor) based on job conditions, locations, etc.

7.1.6 Construction Phase On Site

The project management team will move to the site for the construction phase of the project. This phase is further described as follows:

1. Mobilization

A mobilization and construction lay down plan will have been prepared as part of the Project Implementation Manual. This would include setting up the normal required items.

- Construction offices
- Site utilities
- Secure and non-secure lay down areas
- Communications
- Project management housing, transportation, food, etc.
- Arrangements for major equipment rental
- Surveys, soil tests, etc.

2. Project Construction

Project construction will be carried out utilizing local subcontractors and materials where feasible. Contractor will furnish construction management and detailed supervision of all disciplines.

3. Commissioning and Turnover

Commissioning and Turnover Manuals will be prepared for each discrete system making up the power plant. An experienced and knowledgeable commissioning and turnover team will be assigned under the supervision of a well qualified start-up manager. This team will commission on a "priority system" basis the various systems to provide for plant start up. It is desired that plant operation and maintenance personnel be involved to provide valuable hands on experience.

4. Training

Operation and maintenance training will be conducted in two phases:

- General Electric LM 6000 GTG equipment classroom at the site subject to plant operator preference.
- On site balance of plant operation and maintenance.

Formal training manuals will be prepared with formal on site training to be conducted.

5. Plant and Performance Testing

Plant and performance test documents will be prepared and submitted for approval. The formal tests will be conducted on an agreed time with the necessary Owner's Representatives attending.

8.0 PROJECT SCHEDULE

A Project Schedule for the installation of (1) LM6000 PC and (1) LM6000 PD Gas Turbine Generator will be provided following the project kickoff meeting.

Section 9.0 TYPICAL PROJECT QA/QC PLAN (NOT PROJECT SPECIFIC)

A PROJECT SPECIFIC QA/QC PLAN WILL BE PROVIDED FOLLOWING PROJECT KICK-OFF

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- I. INTRODUCTION
- II. ORGANIZATION
- III. PLAN TASKS AND PROCEDURES
 - A. Construction Design
 - 1. Design Documentation Review-Drawings
 - 2. Design Documentation Review-Specifications
 - 3. Drawing Control
 - B. Subcontracted Design
 - C. Material Procurement
 - 1. Procurement Procedures
 - 2. Equipment / Material Specification Preparation
 - D. Test Plans
 - 1. Measurement and Test Equipment
 - 2. Documentation
 - 3. Definition of Test Types
 - E. Corrective Action
- IV. INSPECTION REQUIREMENTS
 - A. Responsibilities
 - B. Classification of Test
 - 1. Factory Testing
 - 2. Operational System Test (OST)
 - 3. Performance Tests
 - C. Test Documentation
- V. PROJECT SPECIFIC INSPECTIONS AND TESTS
 - A. Site Preparation
 - B. Ground Grid
 - C. Concrete Foundations, Walls, and Slabs
 - D. Electrical
 - E. Structural Steel
 - F. Piping and Welding
 - G. Instrumentation
 - H. Documentation
- VI. SHIPPING AND HANDLING

Section 10.0 Exceptions and Clarifications

For clarification of the project the following exceptions and assumptions are stated:

10.1 The Scope of Supply of this document does not include the following outlined items:

- Real estate property on which the Power Project is to be sited.
- Local, state, and/or government taxes associated with the Owner's corporations.
- Local, state, and/or government taxes associated with the Contractor furnished equipment.
- Any site environmental cleanup or modifications to site.
- Environmental permits. (Note: Contractor will assist in obtaining all permits where applicable.)
- Local county or state construction permit. (Contractor will assist in obtaining.)
- Fuel gas for blow down, flushing, commissioning, start-up, and operation.
- Supply of Owner furnished items as outlined in Section 2.0 of this Proposal.
- Operating spares. (Contractor will submit a list of recommended spare parts.)
- Engineering, Design or Construction per specifications and requirements different than those submitted and verbally agreed to for the 2 x LM6000 GTG's on this same site.
- Scope of Work including the GSU 230KV connection to Owner's 230KV substation.

10.2 This proposal is also based on the following assumptions:

- Owner to supply to Contractor or receive the items outlined in Section 3.0
- Owner will provide all authority required to make the proposed utility interconnects.
- Owner will provide complete site for use as described in the TSD and associated drawings.
- Contractor to furnish and install "first fill" lubricants and chemicals for the plant.
- Contractor will provide soil borings to be utilized for site design.

- Owner to provide site survey as necessary
- Owner to provide custody transfer fuel metering and interconnect point at sit boundary as shown on drawings.
- Owner to provide fuel for plant commissioning and start-up.
- Owner to provide rights-of-way for roadways, entrances, pipeline, and transmission line to the Power Project.
- Performance guarantees, administration of warranty conditions will be discussed and agreed upon and inserted into the appropriate sections of this document at contract signing.
- Contractor will transfer software licenses to the Owner at the completion of the project. This will include the license documentation passwords and keys. It will be the responsibility of the owner to maintain these licensing articles for the time when the software needs to be reinstalled.
- The Contractor supplied DCS shall allow for system expansion through the addition of controllers, operator stations in the control panels, process I/O systems and / or process controllers while the equipment associated with the controller/computer are in manual mode. Modifications can be preformed while the Power Plant is operational and the equipment in question is in manual mode. Proper safety precautions must be adhered to. "Tag out" procedures may be required.
- Operator stations in the control room can be expanded while in remote mode and the Power Plant is operational.
- Various vendor supplied PLCs for the major equipment will use either function block or ladder logic programming. The Balance of Plant PLC will use ladder logic programming. The Gas Turbines will utilize a GE designed control system.
- Owner accepts the use of Contractors proposed Codes, Standards and Specifications for this project.

10.3 Contractor's Key Issues in Owner's Specifications Referenced include:

- **Natural gas tightly limited relief to atmosphere (Because of No odorizing) – *joint discussions are required to resolve.***
- **COVENIN Specifications and it applies in any other nation, based upon the most demanding. – *This is a fast track project and it is not realistic to expect non-standard specifications.***

- COVENIN 1294 Hydrants
- COVENIN 200 "National Electric Code"
- COVENIN 758 "Manual Alarm Stations"
- COVENIN 823 "instructive guide on detection systems, alarm and fire fighting"
- COVENIN 1041 Central Board of detection and fire alarm"
- COVENIN 1176 "detectors. General"
- COVENIN 1329 fire protection systems. Symbols"
- COVENIN 1377 "automatic fire detection. Components"
- COVENIN 1382 "hot spot detector"
- COVENIN 1420 "optical smoke detector (photoelectric)
- COVENIN 1443 "ionization smoke detectors"
- Codes, Standards, and publications
- Venezuela Commission for Industrial Standards (COVENIN)
- Basic Engineering
 - Logic and functional diagrams
 - Drawings of architectural details – *Not included in our standard "fast track" project.*
 - Plans for details of security systems, fire detection
 - Currently operating philosophy of the plant is simple cycle
 - Plan workshop
 - EDC reserves right to approve development of all basic and detailed engineering, and acquisition of all the teams that make up this range, including any other equipment that may compromise the efficiency and reliability of the plant. - *Design uses available "off the shelf" equipment to meet schedule*
- RULES OF THE EDC – *We do not know what this means*
- Operations rules – *We do not know what this means*
- Standards of Materials – *Design basis is USA and World Standards*
- Other Rules – *Needs defined*

10.4 Additional Scope

The following Spreadsheet defines the Additional Scope which has been requested by Owner and agreed to by Contractor.

EDC/AS

Nro.		Section	Name of section	Technical Scope Document Derwick	EDC/Asincro comment	Answer Pro Energy-Derwick xx-xx-10
See Technical Scope Document for LM 6000 La Raisa Power Plant by Derwick with EDC/Asincro comments						
1	1.0		Introducción	Turnkey proposal	Fast-track, with three steps of approval made by the owner or the owner's representative. (7.1.5.)	Sect. 7.1.5 relates to the 30/60/90 design review. Since this approach didn't work on La Raisa I, we have developed a new approach for La Raisa II which is described in the attached document.
2	1.0		Introducción	Commissioning of PD	Contractor shall comply with the schedule of the project	PD commissioning is much more complex and is totally dependent on how long it takes to "Map" the control system. We cannot commit to a definite schedule for the PD.
3	2.0		Scope of Work and Equipment	GE LM 6000 Generator	gas turbine generator package	We don't understand this comment.
4	2.0		Scope of Work and Equipment	Do not include MCC	Installation of mcc, modular control rooms and exhaust stacks shall be included	The MCCs, Exh SK, Control Rm included in a prefab metal building with HVAC
5	2.0		Scope of Work and Equipment	Fuel gas liquid	Liquid fuel does not apply	No liquid fuel
6	2.0		Scope of Work and Equipment	Optional inlet air chilling	Option with chiller is recommended	Chiller is now included in our scope of supply
7	2.0		Scope of Work and Equipment	Connection to stack	It is scope of both PC and PD?	Yes
7-A	2.0		Balance of plant	Contractor will procure oil	Oil will be supplied by owner	OK
8	2.0		Balance of plant	Mechanical installation	Demin water, waste oil, drainage, etc	Included
9	2.0		Balance of plant	Mechanical installation	Liquid fuel does not apply	No liquid fuel
10	2.0		Balance of plant	DCS PLC	Shall be DCS for all turbines and BOP	Yes
11	2.0		Balance of plant	Control System	and Protection	Yes
12	2.1.2		Plant Fuel Gas System	Inreconnect to PDVSA gas metering	header near	At header adjacent of compressors
13	2.1.2		Plant Fuel Gas System	Compressor supply pressure	675 - 681 psig for the PC and PD respectively.	700 psig with regulators
14	2.1.3		2.1.3 Liquid fuel system	Liquid fuel system	Liquid fuel does not apply	No liquid fuel
15	2.1.4		Water and Demi System	Demin System	Demin water modules shall be similar to existing demin modules of P&W FT8	Expansion of existing demin treatment system
16	2.1.4		Water and Demi System	Demin water pumps	Add spare pump of 50% capacity for 3x50%	The additional pump and piping is now included.
17	2.1.4		Water and Demi System	Demin filters	Filters shall be duplex type	Yes
18	2.1.4		Water and Demi System	Demin piping	Shall be stainless steel	Yes
19	2.1.4		Water and Demi System	Demin system	Add 3x50% raw water pumps	The additional pump and piping is now included.
20	2.1.4		Water and Demi System	Demin system	Add 275,000 demin tank	This is now included in our scope of supply.
21	2.1.5		Oily Water Drain System	Drain system	and gas turbine generator drains	Yes
22	2.1.6		Plant Fire water System	Fire water system	Design shall be according to PDVSA standards	Quoted to same standards as the existing LaRaisa I system
23	2.1.6		Plant Fire water System	Fire water system	Water Spray Systems for transformers	Same as above
24	2.1.7		Instrument and Service Air System	dryer	Add filters	Comes with dryer and filters
25	2.1.7		Instrument and Service Air System	compressors	piping can be routed from existing service compressors to LM 6000 area and save compressors installation	We need one air compressor for pair of LM 6000s
26	2.2.1		13.8 kV System	fused disconnects	Shall be circuit breakers	Agree
27	2.2.2		13.8/4,16 kV System	Auxiliary power transformer	It should be noted that 1X 13,8/4160 KV Aux. Trf shall be supplied plus one spare. Total 2	This is now included in our scope of supply.
28	2.2.2		13.8/4,16 kV System	three (3) MCCs	one (1) MCC	One 4.16KV starter per compressor
29	2.2.5		Plant area Lighting	metal halide floodlights	High Pressure Sodium	OK
30	2.2.6		Ground grid	ground grid expansion	According to IEEE 685	This will be designed and installed to the same standard as that on La Raisa I
31	2.2.7		Plant Electrical cable tray	on pipe racks	Shall be cable trench	Same as La Raisa I
32	2.2.9		Lightning protection	Exhaust stacks	Not only the stacks, but the buildings, structures, etc within the project area that need to be protected against the Lightning discharge.	Agreed.

33	2.2.10	Batteries/Chargers/PC System	DCS PLC	Shall be DCS for all turbines and BOP	The existing DCS will be expanded to include these additional units
34	2.3.1	BOP Control system	DCS PLC	Shall be DCS for all turbines and BOP	Ditto
35	2.3.1	BOP Control system	HMI's to interface	We understand there will be a remote panel to control the two (2) LM 6000 as well.	Ditto
36	2.3.1	BOP Control system	DCS expansion	include	Ditto
37	2.3.1	BOP Control system	DCS System	but the new system shall be a state of the art	Ditto
38	2.3.1	BOP Control system	DCS System	The new DCS shall include all the new configuration for the existing three (3) P & W turbines and the two (2) GE 7EA turbines in La Ralsa Plant	Ditto
39	2.4.1	GSU's	GSU's	Contractor scope stops at high voltage side of the transformer (high voltage 230 KV bushing). Contractor shall install the transformers and accessories	Our scope ends at the Low Side bushings of the GSU's which is the same as on La Ralsa. We will set, assemble and dress out the GSU transformers. We will supply all cable and connection to the low side of bushings.
40	2.4.2	Protective Relaying	relay	Protective relay panel	This is now included in our scope of supply.
41	2.4.3	Site Work	Compressors foundations	Contractor will supply foundations for three (3) compressors, installing two at this moment	Agreed
42	2.6	Plant Civil and structural	Concrete foundations designed to IBC	GTG and all Concrete foundations shall be designed as per COVENIN Standards for Industrial Buildings and Seismic Foundations,, 1756, etc.	These will be designed and constructed according to the same standards as those on La Ralsa.
43	2.7	Plant Buildings	Gas Compressor shed expansion	please clarify	This shed has now been deleted.
44	2.12	Spares	Provision to supply	Contractor shall supply all consumables and spare parts during start up and commissioning and a list of spare parts for two years operation for turbines and BOP equipment	This is now included in our scope of supply.
45	2.14	Engineering and Project management	Detailed engineering	Contractor provide engineering (drawings and documents) for approval of Asincro/EDC	Yes
46	2.14	Engineering and Project management	Provide project management	Safety and Health Supervisors, as required by Local Ordinances, Inpsasel, etc.	Yes same as was done on La Ralsa.
47	2.14	Engineering and Project management	Chiller	Is this chiller for the inlet air?	The chiller is for the gas turbine inlet.
48	2.14	Engineering and Project management	Contractor to provide	Contractor to provide O&M service for at least 6 months after C/O	This is now included in our scope.
49	2.14	Engineering and Project management	electronic and hard copies	One set was included in turbines supply	Yes this is included.
50	2.15	Cathodic Protection	underground piping	and tanks	Yes
51	3.0	Balance of Plant	Connection of gas	Connection will be in a header tie in.	Yes
52	3.0	Balance of Plant	Erection of 2 exhaust stacks	Supplied by contractor?	Yes
53	3.0	Balance of Plant	gas compression shed expansion	Of which shed ?	The original Shed that was to be used on the gas compressors has been eliminated.
54	3.0	Balance of Plant	Buildings	Add fire Water Pumping Station Shed Expansion	This is not required since there will not be an additional fire water pump/system installed.
55	3.0	Balance of Plant	ESD valve	Please eliminate this valve	Agreed
56	3.0	Balance of Plant	100% fuel gas compressors	One for each turbine (1 x 1)	Agreed - 2x 100% with no backup.
57	3.0	Balance of Plant	Water tank, pumps	According to comments in 2.1.4	Yes
58	3.0	Balance of Plant	1/3.8 KV/4160 V fuel gas compressors	They should be two (2)	Agreed
59	3.0	Balance of Plant	Area Lighting	El Area Lighting debe ser 50 Lux.	Agreed
60	3.0	Balance of Plant	Instr. And control	DCS no PLC	It is a PLC based DCS
61	4.1	Design Conditions	Tanks	Add new demin water tank of 275,000 Gal	The size of the existing demin water tank was originally designed according to EDC's specifications to supply not only La Ralsa 1 but also the expansion. An additional 275,000 gal tank will now be added to our scope.

62	4.2	Interconnect points	Fuel gas	header near EMR	We don't understand this comment.
63	5.0	Expected performance	with chiller	This option is recommended. Difference is 7 MW	The chiller is now included in our scope.
64	7.1.7	Construction Phase on site	training	Is advisable to include an extended O&M support after start up and during the period of 6 months of initial commercial operation.	This is now included in our scope of supply.
65	8.0	Project Schedule	Schedule	Please supply schedule and list of products in each phase	This will be done upon kick off of the project
66	9.0	Project QA/QC Plan	Turnkey proposal	Fast-track, with three steps of approval made by the owner or the owner's representative. (7.1.5.)	Same as item 4
67	9.0	Project QA/QC Plan	Equipment and material specification	Equipment and material specification shall be provided to the client or client's representative for revision	This will be done according to the same procedure as was followed on La Raissa I
68	9.0	Project QA/QC Plan	Purchase Order	Vendor's bids shall be revised by the owner or owner's representative before purchase	Same as above
69	9.0	Project QA/QC Plan	Field purchase order	Vendor's bids shall be revised by the owner or owner's representative before purchase	Same as above
70	9.0	Project QA/QC Plan	Site Preparation	Grain, density, Humidity analysis of soil material shall be done before earth moving. Compaction analysis during the backfill shall be done for each compacted layer of 25 to 30 cms thickness.	The site has already been backfilled and compacted on La Raissa I. We will do density test after excavation of the main foundations on La Raissa II.
71	9.0	Project QA/QC Plan	Concrete foundations	Soil study, including at least 3 borings in the centerline of major equipment foundation, like the turbine generator shall be done in order the structural engineer may recommend the subsoil improvement or preparation.	We will do this.
72	9.0	Project QA/QC Plan	Concrete foundations	1. The selection of appropriate cement for concrete. 2. Determine the level of acceptance of allowed slump and temperature for each concrete mixing truck. 3. Carry on the required concrete strength test at 7, 14 and 28 days of poured. 4. Carry out a conservative procedure of curing the concrete after poured, by adding appropriate additives to avoid concrete superficial cracks, like ANTISOL from Sika, and to maintain a permanent wetting of concrete surface.	We will follow the same specifications as La Raissa I.
73	9.0	Project QA/QC Plan	Electrical	Confirm adequate insulation of cable terminals, etc. To use thermo contractile sleeves for the cable terminations.	Will Comply
74	9.0	Project QA/QC Plan	Structural Steel	For all the structural steel it will be required the certificates of origin, certificate of mill batch, for each dia. of steel rebar, etc.	We will do the same as we did on La Raissa I.
75	9.0	Project QA/QC Plan	Part II Tests	Painting tests shall be included	This is now included in our scope of supply.
76	9.0	Project QA/QC Plan	Part II Standards and codes	PDVSA standards apply for fire system. Please include	Quoted to same standards as La Raissa I.
77	9.0	Project QA/QC Plan	Part II Standards and codes	API 650 for tanks	Yes
78	9.0	Project QA/QC Plan	Part II Standards and codes	IEEE Std. 665 - Standards for Generating Station Grounding	We will use the same standards as La Raissa I.
79	9.0	Project QA/QC Plan	Tests for liquid fuel system	It does not apply	No liquid fuel
80	9.0	Project QA/QC Plan	Tests	add demin tank	Same as Comment on Line 65.
81	9.0	Project QA/QC Plan	Welder Qualifications	API 650 for tanks	Agreed
82	9.0	Project QA/QC Plan	Cable insulation testing	A cable failing a Hi-Pot Test will be tagged, segregated and removed from the job site.	Agreed
83	10.0	Exceptions and clarification	Any site environmental cleanup	Please clarify. Contractor shall clean area after construction	We will clean up any waste of trash generated by Dewick during construction.

84	10.0	Exceptions and clarification	Operating spares	Contractor will supply a list of recommended spare parts for two years of operation	We will provide a separate proposal to cover this.
85	10.0	Exceptions and clarification	3 FT8 GTG's	2 LM 6000	Agreed
86	10.0	Exceptions and clarification	COVENIN specs.	COVENIN standards are strictly required in Republica Bolivariana de Venezuela. Specific cases will be studied by the owner or owner's representative, and any deviation from this standards will be made after EDC's approval	We will design and build to the same standards that we used on La Ralsa I.
87	10.0	Exceptions and clarification	Right to approve	EDC ratifies that reserves this right	We don't understand this comment
88	10.0	Exceptions and clarification	Rules of the EDC	Design shall be made according to EDC's internal standards, including those of design and operation	We will design and build to the same standards that we used on La Ralsa I.
89	11.0	Drawings	Overview General Arrangement Plot Plan	Please update according to plot plan TER-01-0102-PLA-C-0072 REV 1	We will update this once EDC provides it to us.
90	11.0	Drawings	Overview General Arrangement Plot Plan	Derwick's scope shall include 13.8 kV connection from the generators to the GSU transformers	Agreed
91	11.0	Drawings	General Arrangement Plot Plan 1 (turbine arrangement)	It is not accordance to Derwick drawing 0923-10-001 hoja 1 Rev 0	The drawings in the TSD were preliminary. All drawings will be updated prior to the first drawing submittal.
92	11.0	Drawings	General Arrangement Plot Plan 1	Please update according to plot plan TER-01-0102-PLA-C-0072 REV 1	Same as above
93	11.0	Drawings	General Arrangement Plot Plan 1	Liquid fuel does not apply	Same as above
94	11.0	Drawings	General Arrangement Plot Plan 2	New meter skid does not apply	Same as above
95	11.0	Drawings	General Arrangement Plot Plan 2	Please update according to plot plan TER-01-0102-PLA-C-0072 REV 1	Same as above
96	11.0	Drawings	General Arrangement Plot Plan 3	Add equipment mentioned in 2.1.4	Same as above
97	11.0	Drawings	General Arrangement Plot Plan 3	Please update according to plot plan TER-01-0102-PLA-C-0072 REV 1	Same as above
98	11.0	Drawings	Process flow diagram 2	Fuel gas metering station does not apply	Same as above
99	11.0	Drawings	Process flow diagram 2	Add 3x50% raw water pumps	This is now included in our scope of supply.
100	11.0	Drawings	Process flow diagram 2	Add new demin water tank of 275,000 Gal	This is now included in our scope of supply.
101	11.0	Drawings	Process flow diagram 2	Change to 3x50% demin forwarding pumps	This is now included in our scope of supply.
102	11.0	Drawings	One line diagram 1	Verify with manufacturers if it is possible to make this connection from SWGR-400 y SWGR-500	Will Comply
103	11.0	Drawings	One line diagram 1	CT's connections. This installation shall be made by Derwick	This is now included in our scope of supply.
104	11.0	Drawings	One line diagram 1	Is preferable to make the connection this way	We don't understand this comment
105	11.0	Drawings	One line diagram 1	Two 13.8/4.16 kv transformers connected to a 4.16 kV switchgear are required to feed gas compressor	This is now included in our scope of supply.
106	11.0	Drawings	One line diagram 1	Breakers are required	Agreed
107	11.0	Drawings	One line diagram 1	Synchronization shall be possible at 13.8 kV and at 230 kV. Synchronizer shall be provided and installed by Derwick	This is now included in our scope of supply.
108	11.0	Drawings	One line diagram 2	Verify with manufacturers if it is possible to make this connection from SWGR-400 y SWGR-500	Will Comply
109	11.0	Drawings	One line diagram 3	Synchronization shall be possible at 13.8 kV and at 230 kV. Synchronizer shall be provided and installed by Derwick	This is now included in our scope of supply.
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111					
112					
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Engineering Submittals for La Raisa II

ProEnergy will provide the engineering package in accordance with the following seven milestone submittals. Each submittal will be followed by a review period of several days in which the client/owner may make comment. At the conclusion of the review, agreed upon changes will be incorporated, and the drawing will be issued for construction.

All drawings will be submitted IFC at revision 0. If comments warrant changes to the drawings, then they will be revised with a numeric revision; i.e., 1, 2, 3.

Drawings will be continuously released for comment and issued for construction. Construction revisions will be incorporated on an as-needed basis. Non-critical revisions will be tracked, red-lined, and revised in the as-built submittal.

- 1. Base Submittal – Review - IFC**
 - a. Geotechnical
 - b. Topographic Drawing
 - c. General Arrangement
 - d. Conceptual One Line Diagram(s)
 - e. Process Flow Diagram(s)
- 2. Civil/Centerline Structural Submittal – Review - IFC**
 - a. Grading Plan
 - b. Centerline Structural Foundations
 - c. Foundation Location Plan
- 3. Electrical/Mechanical Submittal – Review - IFC**
 - a. One Line Diagram(s)
 - b. Process & Instrument Diagrams (P&IDs)
 - c. DCS Architecture
- 4. Underground Submittal – Review – IFC**
 - a. Grounding plot plan
 - b. Mechanical plot plan
 - c. Electrical plot plan
 - d. Pipe Routing Plan
 - e. Conduit/Cable Tray Routing Plan

- f. Hazardous Area Location Drawing

5. Lists

- a. Electrical Equipment List
- b. Mechanical Equipment List
- c. Valve List
- d. Line List
- e. Instrument and Specialty Valve List

6. Major BOP Submittal

- a. Structural foundations
 - i. GSU(s)
 - ii. Tank(s)
 - iii. Compressor(s)
- b. Building(s)
 - i. Layouts
 - ii. Electrical
 - iii. HV AC

7. BOP

- a. Structural
 - i. Remaining BOP Foundations
 - ii. Structural Steel Supports Electrical
- b. Electrical
 - i. Three Line Diagrams
 - ii. Schematics
 - iii. Grounding Plot Plans
 - iv. Panel Schedules
 - v. Equipment Drawings
 - vi. Area Lighting
 - vii. Cable Schedule
 - viii. Conduit Schedule
 - ix. Cathodic Protection
- c. Mechanical
 - i. Mechanical valve list
 - ii. Mechanical line list
 - iii. Piping plot plans
 - iv. Piping Isometrics
 - v. Installation details
- d. Instrument & Control

- i. Input/Output list
- ii. Logic diagrams
- iii. Instrument list
- iv. Instrument specifications

LM 6000 INLET CHILLING PROPOSAL

1.0 Project Overview

1.1. Background

Electricidad de Caracas ("Owner") has purchased (1) LM6000 PC and (1) LM6000 PD gas turbine generator packages. These units are to be transported from their current locations in the United States to the proposed La Raisa power plant site in Venezuela for installation by ProEnergy EPC Services and Derwick Associates ("Contractor"). Both of the LM6000 packages were purchased on an as-is basis from third party owners with no warranty or performance guarantees.

1.2 Introduction

Owner has requested a proposal from Contractor for Inlet Chilling of both of the LM6000 Machines including the following:

- Electric Driven Centrifugal Chiller Plant.
- Inlet Chiller Coils for the LM6000 PC Unit.
- All pipe, valves and fittings installed at site.
- All electrical equipment necessary to power and control the chiller.
- Start-up and commissioning of the Chiller Plant.

2.0 Design Basis

In response to the request by Owner, Contractor has performed a study to determine the amount of chilling that will be required to supply both of the LM6000 machines.

3.0 Scope of Supply

(2) Trane 2000 Ton Centrifugal Chillers

- Chilled Water Pumps
- Cooling Water Pumps
- Cooling Tower with basin and support structure
- Chemical Injection System
- Interconnecting Pipe, Valves & Fittings
- Electrical cabling, MCC and Controls

Gas Turbine Inlet Cooling Coils

- Installation into existing gas turbine filter houses
- Installation of interconnect piping and supports to chiller

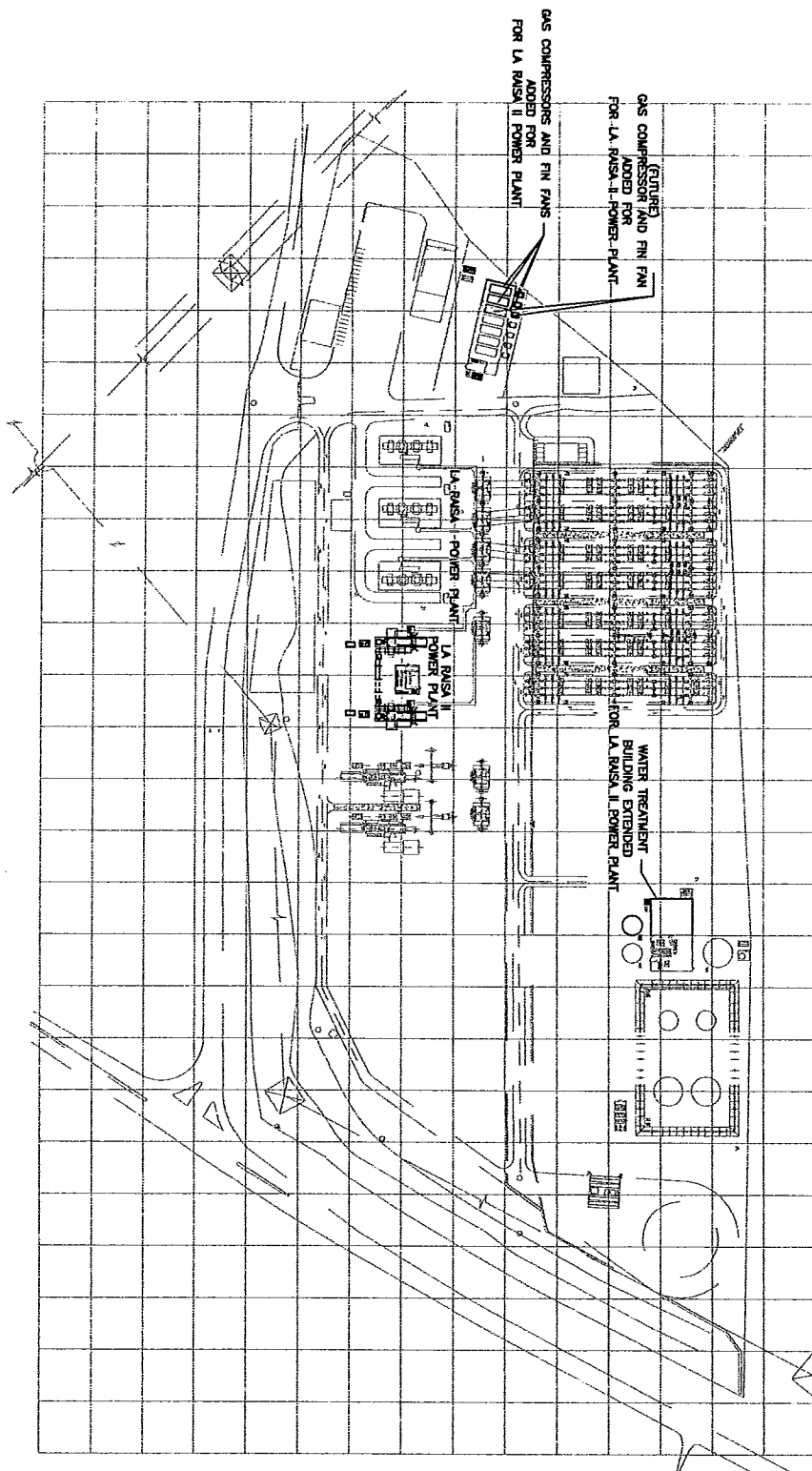
4.0 Delivery

The delivery and installation of this system will be completed within 60 days after completion of the LM6000 installation and commissioning.

Section 11.0 Drawings

Please find on the following pages the following preliminary project drawings.

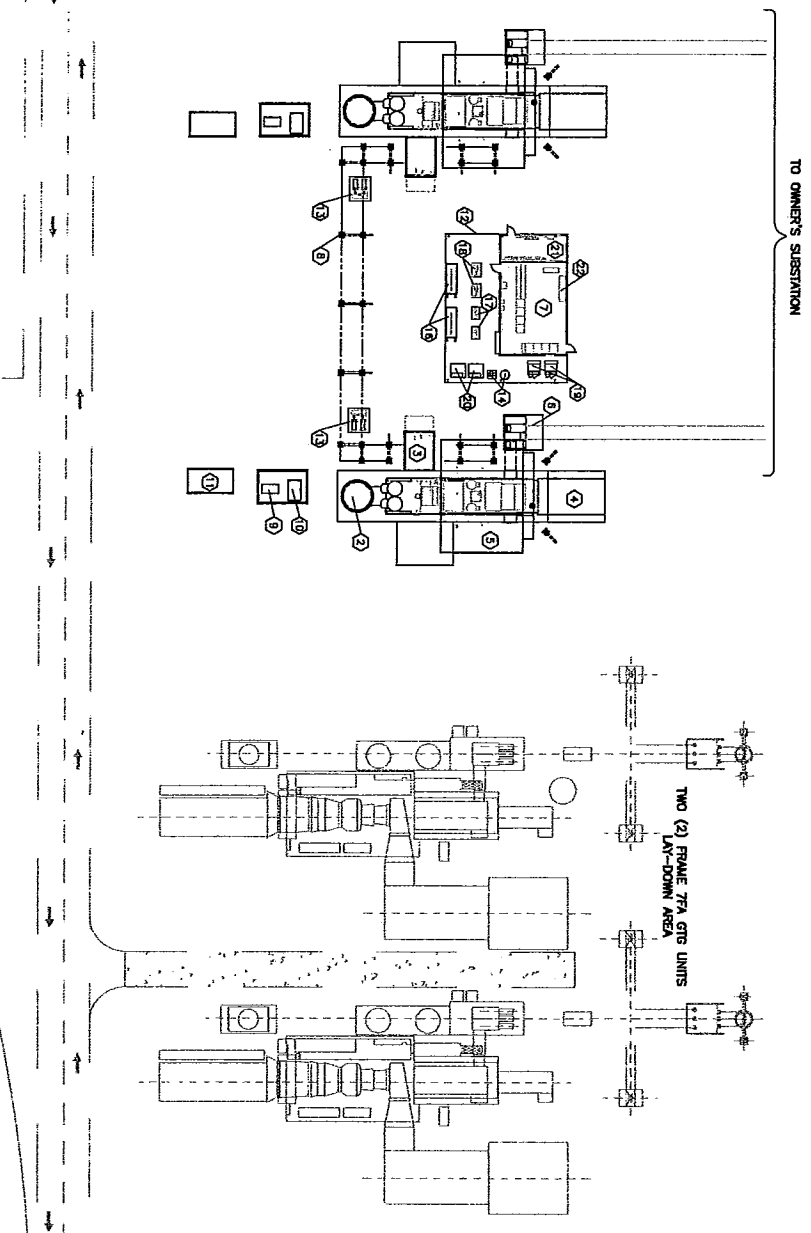
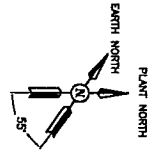
Overview General Arrangement Plot Plan	10-001 Sh 1
General Arrangement Plot Plan	10-002 Sh 1
General Arrangement Plot Plan	10-002 Sh 2
General Arrangement Plot Plan	10-002 Sh 3
Process Flow Diagram	50-001 Sh 1
Process Flow Diagram	50-001 Sh 2
One Line Diagram	60-001 Sh 1
One Line Diagram	60-001 Sh 3
One Line Diagram	60-002 Sh 1
One Line Diagram	60-003 Sh 1
One Line Diagram	60-004 Sh 1
One Line Diagram	60-005 Sh 1



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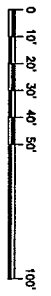
GRAPHIC SCALE

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- LEGEND:**
- ① LA-8000 GAS TURBINE
 - ② EXHAUST STACK
 - ③ AUXILIARY SHED
 - ④ GENERATOR REMOVAL AREA
 - ⑤ TURBINE REMOVAL AREA
 - ⑥ 15 KV AMTCHGEAR
 - ⑦ MCC AREA (TURBINE)
 - ⑧ PIPE BACK
 - ⑨ LIQUID FUEL FILTER
 - ⑩ LIQUID FUEL BOOSTER SHD.
 - ⑪ FUEL GAS FILTER SHD.
 - ⑫ PUMP SHED
 - ⑬ LUBE OIL FIN FAN COOLER
 - ⑭ AIR DRYER AND RECEIVER TANK
 - ⑮ CONTROL AND AUXILIARY BUILDING
 - ⑯ WATER INJECTION SHD (2 REQUIRED)
 - ⑰ SPRAY SHD (2 REQUIRED)
 - ⑱ DEAN FILTER SHD (2 REQUIRED)
 - ⑲ AUXILIARY TRANSFORMER (480 V)
 - ⑳ AIR COMPRESSOR
 - ㉑ BATTERY ROOM
 - ㉒ TCR AREA (TURBINE)

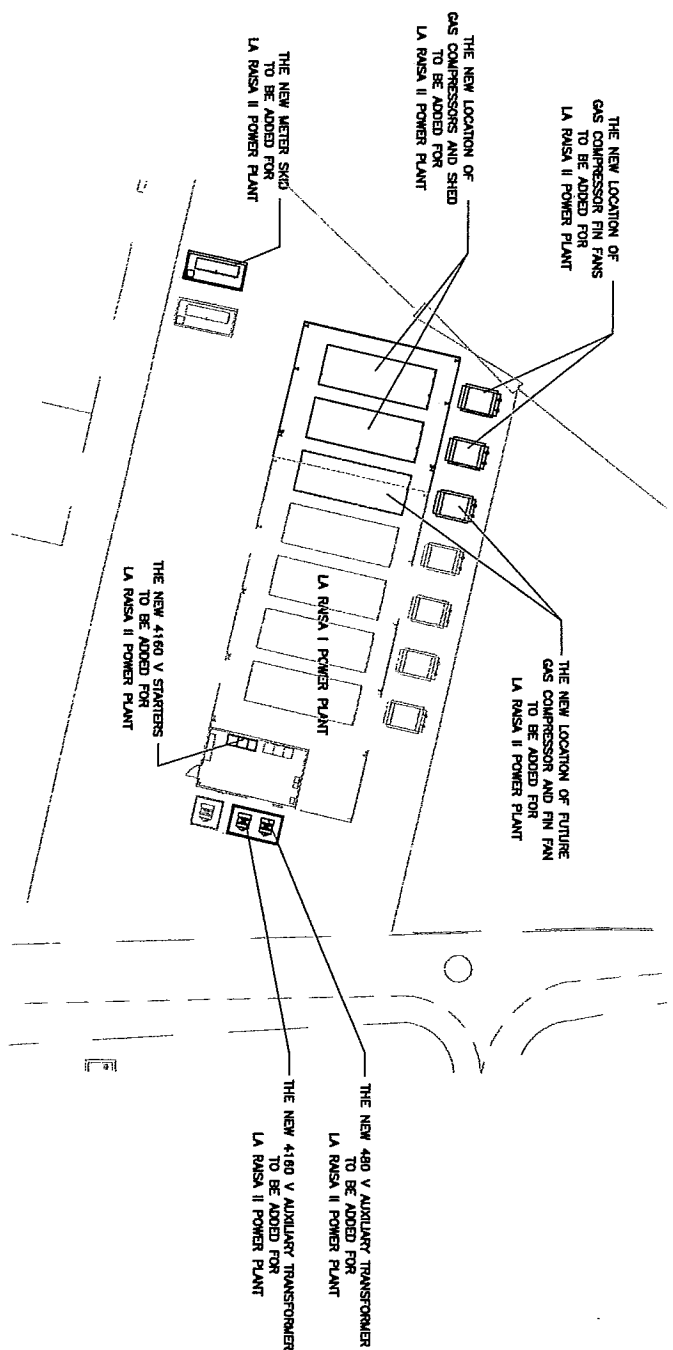
SEE DRAWING NUMBERS 10-002 SH 2
FOR GAS COMPRESSORS, ACRD, AND
BUILDING EXTENDED.



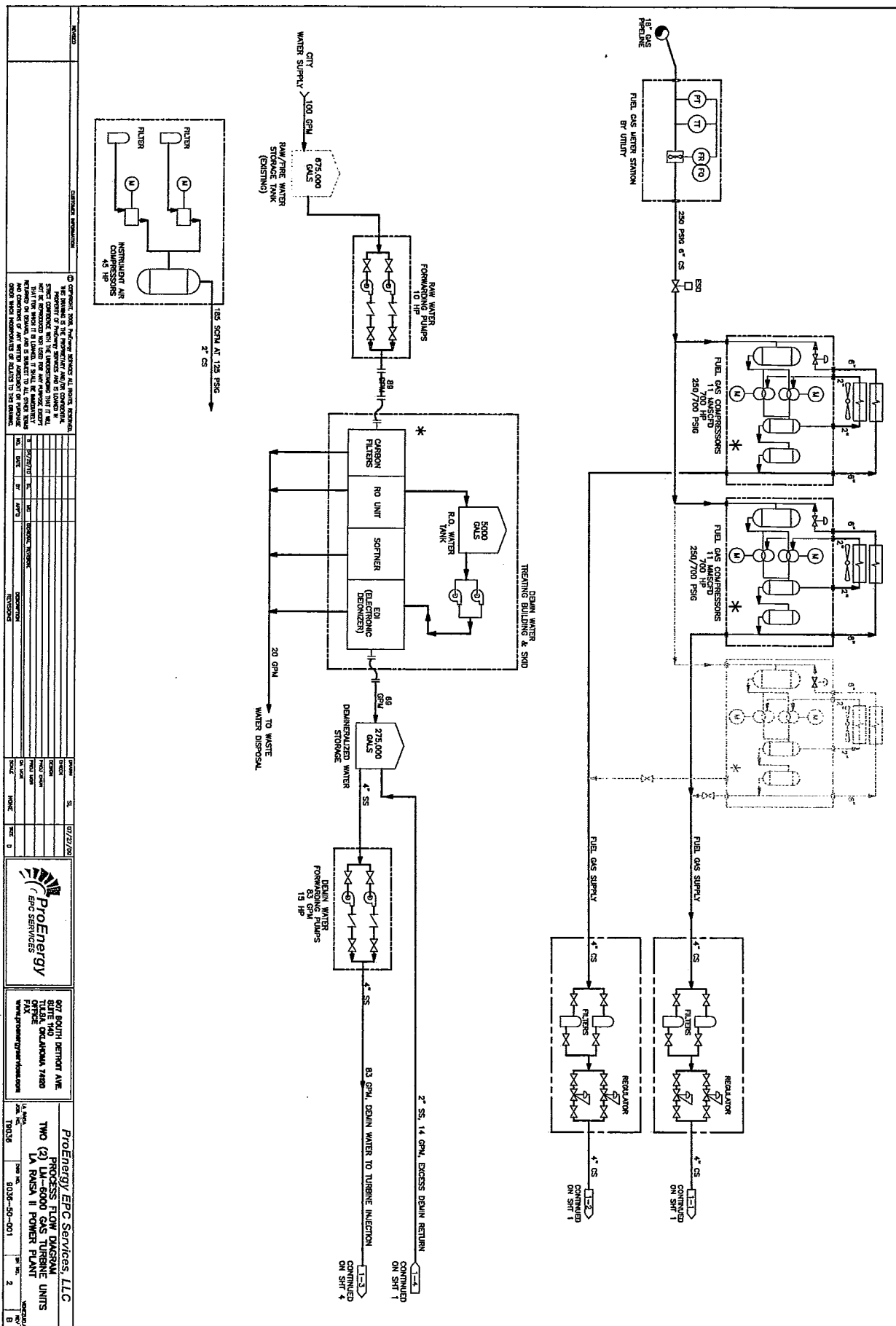
PROENERGY EPC SERVICES, LLC
GENERAL ARRANGEMENT PLANT PLAN
TWO (2) LA-8000 GAS TURBINE UNITS
LA-RACK II POWER PLANT

807 SOUTH BENTON AVE.
SUITE 100
TULSA, OKLAHOMA 74106
TEL: 918-438-1111
FAX: 918-438-1112
WWW.PROENERGYEPC.COM

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ProEnergy
EPC SERVICES

807 SOUTH DENTON AVE.
SUITE 300
TULSA, OKLAHOMA 74106
TX
www.proenergyservices.com

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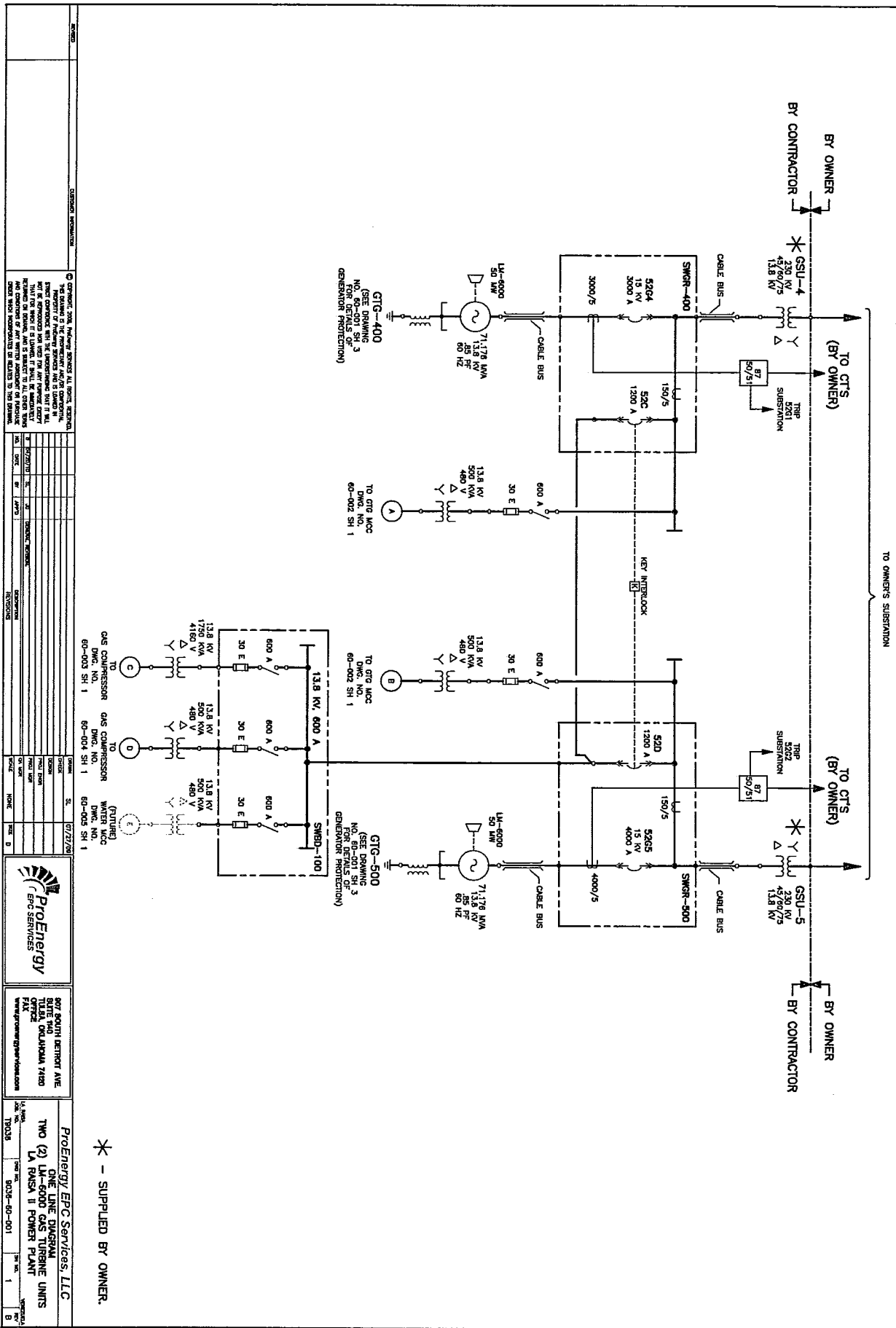
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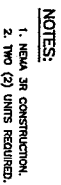
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1	ADD	07/27/00	SL			OWNER'S SUBSTATION
2	ADD	07/27/00	SL			CONTRACTOR'S SUBSTATION
3	ADD	07/27/00	SL			INTERCONNECTIONS
4	ADD	07/27/00	SL			EQUIPMENT
5	ADD	07/27/00	SL			PROTECTION
6	ADD	07/27/00	SL			TESTING
7	ADD	07/27/00	SL			OPERATION
8	ADD	07/27/00	SL			MAINTENANCE
9	ADD	07/27/00	SL			SAFETY
10	ADD	07/27/00	SL			ENVIRONMENT
11	ADD	07/27/00	SL			LEGAL
12	ADD	07/27/00	SL			FINANCE
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14	ADD	07/27/00	SL			OTHER
15	ADD	07/27/00	SL			REVISIONS

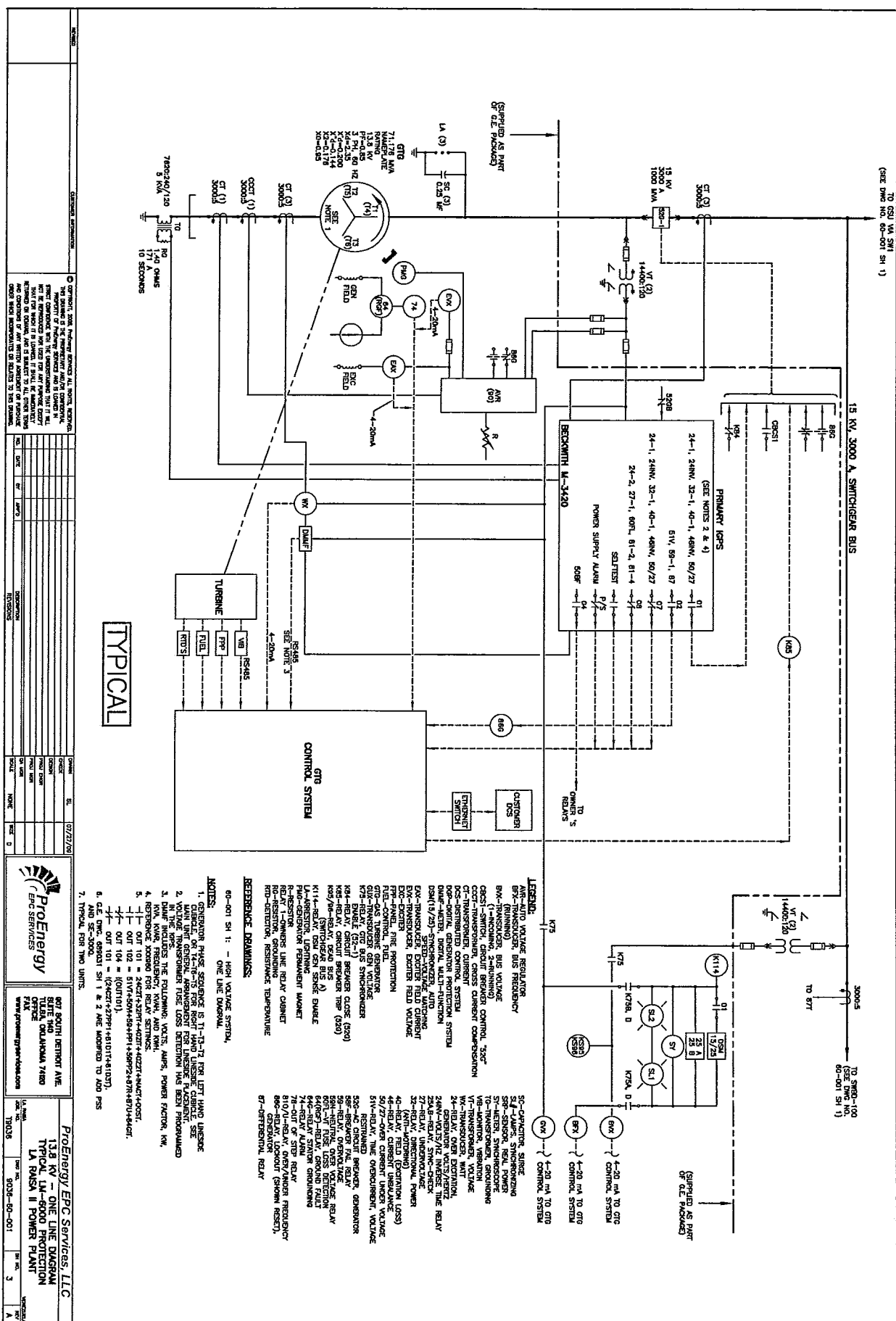


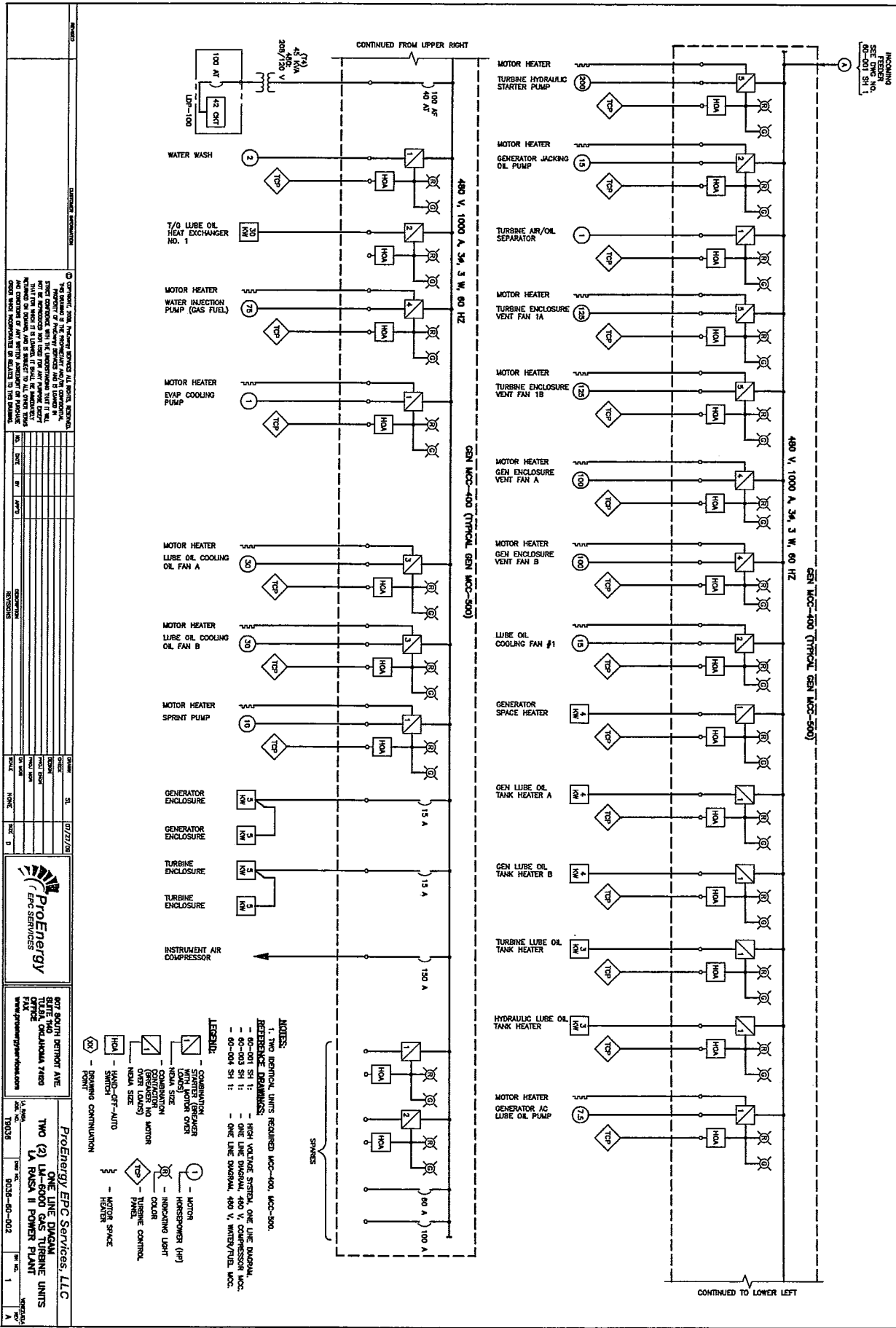
807 SOUTH DETROIT AVE.
TULSA, OKLAHOMA 74106
TEL: 918-439-1234
FAX: 918-439-1235
WWW.PROENERGYEPC.COM

ProEnergy EPC Services, LLC
ONE LINE DIAGRAM
TWO (2) LM-6000 GAS TURBINE UNITS
LA PASA II POWER PLANT
TWO (2) LM-6000 GAS TURBINE UNITS
LA PASA II POWER PLANT
TWO (2) LM-6000 GAS TURBINE UNITS
LA PASA II POWER PLANT

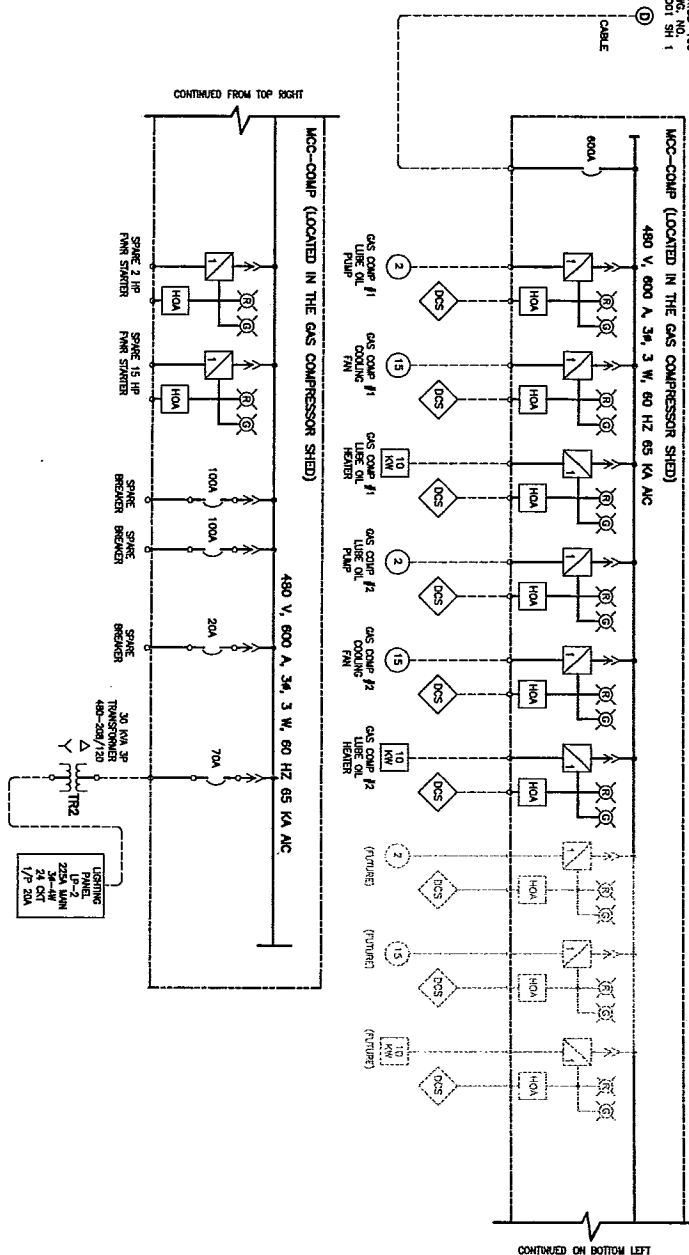


<p>PROENERGY EPC SERVICES, LLC</p> <p>ONE LIME DIAGRAM - 15 IN VSMYCHGAR TWO (2) LM-6000 GAS TURBINE UNITS LA RASDA II POWER PLANT</p> <p>1/4 INCH 170X8</p> <p>9031-001-001</p> <p>2</p> <p>1</p> <p>170X8</p>									
<p>ProEnergy EPC SERVICES</p> <p>NOT SOUTH METHOD AVE SUITE 100 TULSA, OKLAHOMA 74103 OFFICE FAX www.proenergyepc.com</p>									
<p>PROENERGY EPC SERVICES, LLC</p> <p>ONE LIME DIAGRAM - 15 IN VSMYCHGAR TWO (2) LM-6000 GAS TURBINE UNITS LA RASDA II POWER PLANT</p> <p>1/4 INCH 170X8</p> <p>9031-001-001</p> <p>2</p> <p>1</p> <p>170X8</p>									





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801 SOUTH MEMPHIS AVE
TULSA, OKLAHOMA 74106
OFFICE
www.proenergyllc.com

ProEnergy EPC Services, LLC
ONE LINE DIAGRAM - GAS COMPRESSOR MCC
TWO (2) 480-600 GAS TURBINE UNITS
LA PASA II POWER PLANT

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ProEnergy EPC Services, LLC

ONE LINE DIAGRAM - GAS COMPRESSOR UNIT
TWO (2) 14"-6000 GAS TURBINE UNITS
LA PASA II POWER PLANT

LA PASA II
TWO

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