

**CASE PARTICIPATION
OF
TED ROBERTSON**

<u>Company Name</u>	<u>Case No.</u>
Missouri Public Service Company	GR-90-198
United Telephone Company of Missouri	TR-90-273
Choctaw Telephone Company	TR-91-86
Missouri Cities Water Company	WR-91-172
United Cities Gas Company	GR-91-249
St. Louis County Water Company	WR-91-361
Missouri Cities Water Company	WR-92-207
Imperial Utility Corporation	SR-92-290
Expanded Calling Scopes	TO-92-306
United Cities Gas Company	GR-93-47
Missouri Public Service Company	GR-93-172
Southwestern Bell Telephone Company	TO-93-192
Missouri-American Water Company	WR-93-212
Southwestern Bell Telephone Company	TC-93-224
Imperial Utility Corporation	SR-94-16
St. Joseph Light & Power Company	ER-94-163
Raytown Water Company	WR-94-211
Capital City Water Company	WR-94-297
Raytown Water Company	WR-94-300
St. Louis County Water Company	WR-95-145
United Cities Gas Company	GR-95-160
Missouri-American Water Company	WR-95-205
Laclede Gas Company	GR-96-193
Imperial Utility Corporation	SC-96-427
Missouri Gas Energy	GR-96-285
Union Electric Company	EO-96-14
Union Electric Company	EM-96-149
Missouri-American Water Company	WR-97-237
St. Louis County Water Company	WR-97-382
Union Electric Company	GR-97-393
Missouri Gas Energy	GR-98-140
Laclede Gas Company	GR-98-374
United Water Missouri Inc.	WR-99-326
Laclede Gas Company	GR-99-315
Missouri Gas Energy	GO-99-258
Missouri-American Water Company	WM-2000-222
Atmos Energy Corporation	WM-2000-312
UtiliCorp/St. Joseph Merger	EM-2000-292
UtiliCorp/Empire Merger	EM-2000-369
Union Electric Company	GR-2000-512
St. Louis County Water Company	WR-2000-844
Missouri Gas Energy	GR-2001-292
UtiliCorp United, Inc.	ER-2001-672
Union Electric Company	EC-2002-1
Empire District Electric Company	ER-2002-424

Schedule TJR-1.1

**CASE PARTICIPATION
OF
TED ROBERTSON**

<u>Company Name</u>	<u>Case No.</u>
Missouri Gas Energy	GM-2003-0238
Aquila Inc.	EF-2003-0465
Aquila Inc.	ER-2004-0034
Empire District Electric Company	ER-2004-0570
Aquila Inc.	EO-2005-0156

Aquila CT Appraisal - Pricing Summary

Client No. 010144
W/O No. 02-01362-01000
Date 11/19/2004

	Original Cost	Replacement Cost	Aquila offer to sell to KCPL	Rolls Royce offer to sell to Aquila	SWPC offer to sell grey unit to Aquila	Penn Energy internet offer 1	Penn Energy internet offer 2	Utility Warehouse internet offer
CT								
qty	3	1	3	2	1	1	1	1
Cost	\$76,137,869	\$24,500,000	\$69,000,000	\$43,000,000	\$19,000,000	\$26,000,000	\$33,000,000	\$15,000,000
Adjustments								
Option Payment	(\$3,712,500)							
CO No. 1 (Exhaust Stacks)		(\$1,849,200)		(\$1,849,200)	(\$1,849,200)	(\$1,849,200)	(\$1,849,200)	
CO No. 1 (Other)								
Warranty	(\$2,240,000)	(\$2,240,000)	(\$2,240,000)		(\$2,240,000)			
Guarantees								
Prod Mods	(\$300,000)							
Rehabilitation	(\$600,000)							
TFA								
Mult Unit Purchase		(\$1,000,000)		\$2,350,000	\$2,350,000			\$2,350,000
Change to DLN				\$5,000,000	\$5,000,000			\$5,000,000
Transportation				\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000
Internal Labor	(\$39,399)							
Total Adjustments	(\$6,891,899)	(\$5,089,200)	(\$2,240,000)	\$6,700,800	\$4,460,800	(\$649,200)	(\$649,200)	\$8,550,000
CT Subtotal*	\$69,245,970	\$68,410,800	\$66,760,000	\$71,200,800	\$61,460,800	\$77,350,800	\$98,350,800	\$53,550,000
* adjusted for three units								
Transformers & Breakers								
Transformers								
qty	6	6		6	6	6	6	6
Cost	\$1,686,150	\$1,686,150		\$1,686,150	\$1,686,150	\$1,686,150	\$1,686,150	\$1,686,150
Adjustments								
Storage	(\$15,500)	(\$15,500)		(\$15,500)	(\$15,500)	(\$15,500)	(\$15,500)	(\$15,500)
Retesting	(\$28,305)	(\$28,305)		(\$28,305)	(\$28,305)	(\$28,305)	(\$28,305)	(\$28,305)
Additional Retainage	(\$1,045)	(\$1,045)		(\$1,045)	(\$1,045)	(\$1,045)	(\$1,045)	(\$1,045)
Transformer Subtotal	\$1,641,300	\$1,641,300		\$1,641,300	\$1,641,300	\$1,641,300	\$1,641,300	\$1,641,300
Breakers								
qty	3	3		3	3	3	3	3
Cost	\$765,570	\$765,570		\$765,570	\$765,570	\$765,570	\$765,570	\$765,570
Adjustments								
Bond	(\$7,500)	(\$7,500)		(\$7,500)	(\$7,500)	(\$7,500)	(\$7,500)	(\$7,500)
Storage	(\$13,320)	(\$13,320)		(\$13,320)	(\$13,320)	(\$13,320)	(\$13,320)	(\$13,320)
Breakers Subtotal	\$744,750	\$744,750		\$744,750	\$744,750	\$744,750	\$744,750	\$744,750
Procurement								
Cost	\$126,644	\$126,644		\$126,644	\$126,644	\$126,644	\$126,644	\$126,644
Adjustment								
B&M Services	(\$126,644)	(\$126,644)		(\$126,644)	(\$126,644)	(\$126,644)	(\$126,644)	(\$126,644)
Procurement Subtotal	\$0	\$0		\$0	\$0	\$0	\$0	\$0
Transformers & Breakers Subtotal	\$2,386,050	\$2,386,050		\$2,386,050	\$2,386,050	\$2,386,050	\$2,386,050	\$2,386,050
Total	\$71,632,020	\$70,796,850	\$66,760,000	\$73,586,850	\$63,846,850	\$79,736,850	\$100,736,850	\$55,936,050
<div> <div>3 units</div> <div>3 units</div> <div>3 units</div> <div>3 units</div> <div>3 units</div> <div>3 units</div> <div>3 units</div> <div>3 units</div> </div> <div> <div>w/o warranty</div> <div>w/o warranty</div> <div>w/o warranty</div> <div>w/o warranty</div> <div>w/o warranty</div> <div>w/o warranty</div> <div>w/o warranty</div> <div>w/o warranty</div> </div> <div> <div>w/o prod mods</div> <div>w/ prod mods</div> <div>w/o prod mods</div> <div>w/o prod mods</div> <div>w/o prod mods</div> <div>w/o prod mods</div> <div>w/o prod mods</div> <div>w/o prod mods</div> </div> <div> <div>w/o rehab</div> <div>w/rehab</div> <div>w/o rehab</div> <div>w/o rehab</div> <div>w/o rehab</div> <div>w/o rehab</div> <div>w/o rehab</div> <div>w/o rehab</div> </div> <div> <div>w/o stacks</div> <div>w/o stacks</div> <div>w/o stacks</div> <div>w/o stacks</div> <div>w/o stacks</div> <div>w/o stacks</div> <div>w/o stacks</div> <div>w/o stacks</div> </div> <div> <div>w/ TFA</div> <div>w/ TFA</div> <div>w/ TFA</div> <div>w/ TFA</div> <div>w/ TFA</div> <div>w/ TFA</div> <div>w/ TFA</div> <div>w/ TFA</div> </div> <div> <div>w/ DLN</div> <div>w/ DLN</div> <div>w/ DLN</div> <div>w/ DLN</div> <div>w/ DLN</div> <div>w/ DLN</div> <div>w/ DLN</div> <div>w/ DLN</div> </div> <div> <div>in KC</div> <div>in KC</div> <div>in KC</div> <div>in KC</div> <div>in KC</div> <div>in KC</div> <div>in KC</div> <div>in KC</div> </div>								
TFA	160	50						
	40	40						
	6400	2000						
\$	365	365						
\$	2,336,000	\$ 730,000						

Schedule TJR-2
Partial response to OPC DR
No. 14 and MPSC Staff
DR No. 5

Robertson, Ted

From: equipment@ogjexchange.com [glp@ogjexchange.com]
Sent: Monday, February 07, 2005 10:19 AM
To: ted.robertson@ded.mo.gov
Subject: RE: Global Equipment Exchange Product Request

\$15 million each.

-----Original Message-----

From: ted.robertson@ded.mo.gov [mailto:ted.robertson@ded.mo.gov]
Sent: Friday, February 04, 2005 4:30 PM
To: equipment@ogjexchange.com
Subject: Global Equipment Exchange Product Request

Auction Item Name: 130MW Siemens Westinghouse (Mitsubishi) 501 D5A GTG
Auction Item Number: 12551
ISO Rating: 130
Request Info: What's current ballpark price?

First Name: Ted
Last Name: Robertson
Phone:
Fax:
Address: ted.robertson@ded.mo.gov
City:

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Schedule TJR-3.1
Includes partial response to
OPC DR No. 14 and MPSC
Staff DR No. 5

2/7/2005

For sale - gas turbines, line pipe, diesel generators, pumping units

Power Engineering

OGJ Exchange

OGJ Online

PennEnergy

PennEnergy

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OIL & GAS JOURNAL EXCHANGE

Thursday, February 03, 2005

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Feb-03-2005

Oil & Gas

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Feb-03-2005

MARKET WATCH: Prices fall in price taking
Feb-02-2005

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SEARCH:

Power Generation : Gas Turbine Gen Sets (10MW & Larger) : 130MW Siemens Westinghouse (Mitsubishi) 501 D5A GTG

Item # 12551:	130MW Siemens Westinghouse (Mitsubishi) 501 D5A GTG	Manufacturer: Siemens Westinghouse (Mitsubishi)	More Info...
Quantity:	1	ISO Rating:	130
List Date:	12/18/2003		
Comments:			
Description:	NEW 130MW Siemens Westinghouse (Mitsubishi) 501 D5A GTG, 60Hz, 13.8kV, gas fired, built in 2001 and never installed/stored in warehouse. Asking price is USD26 million, as is where is, subject to prior sale.		
"For more information, photos, or to set up an inspection, please inquire using the "More Info" button.			

Other Information:

PennEnergy

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Schedule TJR-3.2
Includes partial response to
OPC DR No. 14 and MPSC
Staff DR No. 5

#5

Robertson, Ted

From: equipment@ogjexchange.com [glp@ogjexchange.com]
Sent: Thursday, February 03, 2005 3:01 PM
To: ted.robertson@ded.mo.gov
Cc: Paul Westervelt; rwilliamson@thomassenamcot.com
Subject: RE: Global Equipment Exchange Product Request

Ted,

Thanks for your inquiry. There are two units available. Estimated pricing is \$15 million each, as is where is, subject to prior sale. Let us know if interested and we can discuss this further.

Regards, Randy Hall
PennEnergy
713-499-6330

-----Original Message-----

From: ted.robertson@ded.mo.gov [mailto:ted.robertson@ded.mo.gov]
Sent: Thursday, February 03, 2005 2:26 PM
To: equipment@ogjexchange.com
Subject: Global Equipment Exchange Product Request

Auction Item Name: 120MW Siemens Westinghouse 501 D5A GTG
Auction Item Number: 12540
ISO Rating: 120
Request Info: Ballpark pricing info.

First Name: Ted
Last Name: Robertson
Phone:
Fax:
Address: ted.robertson@ded.mo.gov
City:

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Schedule TJR-3.3
Includes partial response to
OPC DR No. 14 and MPSC
Staff DR No. 5

2/3/2005

For sale - gas turbines, line pipe, diesel generators, pumping units

Power Engineering

OGJ Exchange

OGJ Online

PennEnt

PennEnergy

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SEARCH:

[Power Generation : Gas Turbine Gen Sets \(10MW & Larger\) : 120MW Siemens Westinghouse 501 D5A GTG](#)

Item # 12540:	120MW Siemens Westinghouse 501 D5A GTG	Manufacturer: Siemens Westinghouse	More Info...
Quantity:	1	ISO Rating:	120
List Date:	12/18/2003		
Comments:			
Description:	New, 120MW Siemens Westinghouse 501 D5A GTG, 60Hz, gas fuel, with NOx control (25ppm), includes enclosure for thermal and sound for outdoor installation. Price USD33 million, as is where is, subject to prior sale. Generator rated at MVA 139MW at 33C, 13.8kV. Additional information upon request.		
"For more information, photos, or to set up an inspection, please inquire using the "More Info" button.			

Other Information:

Oil & Gas

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Feb-03-2005

[MARKET WATCH: Prices fall in gas taking](#)
Feb-02-2005

[Barrett pursues agenda in Rocky Mountains](#)
Feb-02-2005

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Schedule TJR-3.4
Includes partial response to
OPC DR No. 14 and MPSC
Staff DR No. 5

#6

Robertson, Ted

From: Milt Fyre [milt@rmaglobal.com]
Sent: Friday, February 04, 2005 11:47 AM
To: 'Robertson, Ted'
Subject: RE: Ballpark Number

Ted, the price is \$22 m. We are working with another party looking for the same equipment. They are project participants.

BR

-----Original Message-----

From: Robertson, Ted [mailto:ted.robertson@ded.mo.gov]
Sent: Thursday, February 03, 2005 2:25 PM
To: 'milt@easystreet.com'
Subject: RE: Ballpark Number

For the W501D5A

Ted Robertson

-----Original Message-----

From: Milt Fyre [mailto:milt@easystreet.com]
Sent: Thursday, February 03, 2005 3:33 PM
To: 'Robertson, Ted'
Subject: RE: Ballpark Number

What site?

Milt Fyre
Resource Management Associates, Inc.
utilitywarehouse (<http://www.utilitywarehouse.com>)
powerplantsonline.com (<http://www.powerplantsonline.com>)
Ph 503-239-5157 Fax 503-239-5136 Cell 503-351-9898
mailto:milt@rmaglobal.com

-----Original Message-----

From: Robertson, Ted [mailto:ted.robertson@ded.mo.gov]
Sent: Thursday, February 03, 2005 11:50 AM
To: 'sales@rmaglobal.com'
Subject: Ballpark Number

Site says extremely low price. What's the ballpark number?

Thanks,

Ted Robertson

Schedule TJR-3.5
Includes partial response to
OPC DR No. 14 and MPSC
Staff DR No. 5

120 MW Siemens Westinghouse 501D5A Gas Turbine Generator For Sale

Extremely Low Price!!!!!!

Contact Milt Fyre for more details.

Phone: 503-239-5157

Fax: 503-239-5136

Email: milt@rmaglobal.com

Siemens Westinghouse 120 MW 501D5A Gas Turbine Generator. 60 Hz., dual fuel, 10,500 BTU heat rate, water injection NOx control (25 ppm NOx), available immediately. No additional switchgear. Enclosure: thermal & sound for outdoor installation.

2050 HP Electric Motor Starter Motor

Natural Gas Water injection NOx Control

FUEL - NATURAL GAS.

Limit for oil and particulate carry over in gaseous fuels is 99.95% removal of dust or droplets at 10 microns or larger.

Fuel supply temperature range: Natural Gas 50 F. to 80 F.

LUBE OIL & CONTROL SYSTEM

Power source	AC Motor Driven Main Pump 100%
CapacityCoolers	Fin Fan
Filters	Duplex

Loading Rate:

Type of start	Cold	Warm	Hot
Time required to reach synchronous speed	12	12	12
Time Required to Synchronize (min)	0.5	0.5	0.5
Time Required to attain rated load (min)	7.5	7.5	7.5

LUBE OIL RESERVOIR, COOLERS AND VAPOR EXTRACTORS

Capacity of Reservoir	5545
Total Number of Oil Coolers/Total Required at Rated Load	1
Tube Material and Type	C.S./Finned
Total Amount of Lubricating Oil in System Gal	4220

Oil Vapor Extraction

Number	2
Total Power, kW	7.5

Lube Oil Pumps

Oil Pump:	2 x 100% AC Motor/1 x 100% DC Motor
Horsepower each:	2 @ 100 HP/1 @ 10 HP

Turning Gear

Motor Horsepower	10
Speed, rpm	3

GENERATOR DATA

Rated MVA 139 MW at 33C
Rated Terminal Voltage 13.8 kV
Rated Power Factor at the Generator Terminals 0.90 lagging – 0.95
Rated Active Power at generator terminals must be continuously available over a GTG speed range of 100–103%
Rated Active Power at generator terminals will de-crease in proportion with speed over a GTG speed range of 100–95%
Rated Active Power at generator terminals shall not be affected by voltage changes over the operating range +/- 5%
Reactive Power output under steady state conditions should be fully available at all relevant voltage levels within +/- 5%

Type of unit	synchronous
Speed, rmp	3,600
Field Current (rated MVA, kV and PF) amp	1453
Field Voltage (rated MVA, kV and PF) volts	198.5

Required Discharge Resistor to give a maximum DC component of negative field voltage 4.0 times the value at rated load (if the field cannot tolerate this voltage, so state)

Short Circuit Ratio (minimum): 0.60 at rated output
Three-Phase Capacitance to Ground (mfd) Micro Fd/phase: 0.197

EXCITER DATA

Rated 350 kW(output of rectifiers)
3 phase diode rectifiers
250 VDC
AC field circuit breakers
Ceiling voltage (DC) 1.43 P.U.
Exciter response ratio (minimum) 0.5
Permanent magnet generator (PMG) 3.5 kVA
PMG rated voltage 120 V
PMG rated frequency 480 Hz.
Type of generator voltage regulator MGR (analog), both manual and automatic control
Maximum allowable temperature/temperature rise
Armature winding 130 C
Field winding 130 C
Exciter Coolers

STARTING CAPACITY

Electric motor, self-synchronous, duo-concentric clutch, 2050HP, 4,000V, Power Factor 85.

PROTECTION SYSTEM INSTRUMENTS AND TRIP FUNCTIONS

Alarms:

When any of the following conditions exists an alarm is generated:

- Manual emergency trip
- Manual stop
- turbine and generator high bearing metal temperatures
- Turbine and generator high vibration
- Flame out
- Inlet air filter high differential pressure
- Fuel supply pressure low
- Lube oil level low
- Lube oil high temperature
- Lube oil low temperature
- DC lube oil pump running
- DC lube oil pump overload
- High lube oil filter differential pressure
- Turbine over speed
- Loss of turning gear
- Loss of governor control power
- Fire extinguishing system actuated
- Fire extinguishing system disarmed
- Governor control system failure
- Igniter trip (Failure to fire)
- Generator stator high temperature
- Generator air filter differential
- Generator rotor ground
- Exciter field over current
- Voltage regulator power supply failure
- Regulator on minimum excitation limit
- Regulator over excitation
- Regulator loss of control power
- Regulator operating on backup AVR
- Minimum excitation trip

AUTO UNLOAD

When any of the following conditions exists an alarm is generated and GTG load is decreased until the condition resets itself.

- Three or more blade thermocouples have failed
- The GTG frequency is high with the generator breaker closed
- Generator stator temperature high
- Compressor inlet pressure low
- Blade path differential greater than 60 F
- Blade path spread greater than 110 F
- Blade path variance high
- Blade path spread high or failure for more than 12 hours
- Disc cavity temperature high
- Rotor air cooling air temperature high
- Compressor inlet pressure high
- Rotor cooling air thermocouple trouble

TRIP

When a trip condition occurs, an alarm is generated with the trip condition being retained and all other conditions are prevented from alarming. Therefore, the trip condition which causes the trip is identified to the operator (first out). Any trip condition is cleared by the operator initiating a trip reset. The following conditions constitute a trip condition:

- Gas over fuel at ignition
- High GTG vibration
- Trip initiated by the operator in the control room
- Trip initiated by the operator in the GT electrical skid
- Trip initiated by the operator in the PS&G cabinet
- Bleed valves are not in the requested position
- GTG is accelerating too slowly.
- A fire is detected
- An auto unload condition exists prior to reaching synch speed
- Critical monitoring of inputs indicate not good quality
- The master trip relay de-energizes
- GTG fails to reach 225 rpm with the starting device engaged within a minute
- GTG fails to reach ignition within 2 minutes after reaching 225 rpm and spent hold not selected
- GTG fails to ignite.
- GTG fails to reach 1600 rpm within 150 seconds
- GTG over-speed
- GTG under-speed
- GTG load exceeds maximum MW set point
- The operator initiates a trip from the CRT graphics
- Lube oil pressure low
- Lube oil reservoir level low
- Blade path spread high
- A load dump fault does not self-reset with 10 seconds of a load rejection
- Generator differential
- Generator ground
- Negative phase sequence
- Loss of field
- V/Hz trip
- Excite field over-current
- Voltage regulator power supply failure
- Regulator over-excitation
- Minimum excitation trip
- BOP trip

ELECTRICAL OUTPUT GUARANTEE:

Seller guarantees that the Adjusted Electrical output of the CT Unit (the "Adjusted Electrical Output-CT") shall be greater than 119,845kW (Net of CT-Unit Auxiliary loads) when operated on the specified natural gas fuel and at the Basis Conditions.

HEAT RATE GUARANTEE:

The heat rate shall not be more than 10,504 BUT/kWh (LHV) when operated on the specified natural gas fuel at Basis Condition.

BASE CONDITIONS

Fuel	natural gas
Load	base
Ambient Temperature	90 F
Barometric Pressure	14.696 PSIA
Ambient Relative Humidity	60%
Fuel LHV@77F	21,086 BTU/LB
Fuel Temperature	50 F
Water Fuel Ratio	less than or equal to 1.5/1.0
Generator Power Factor	9/95
Frequency	60Hz.

Contact Milt Fyre for more details.

Phone: 503-239-5157

Fax: 503-239-5136

Email: milt@rmaglobal.com

Main Entrance

Email: sales@rmaglobal.com Phone: (503) 239-5157 Fax: (503) 239-5136 Copyright 1995-2003: RMA Inc.

Robertson, Ted

From: equipment@ogjexchange.com [glp@ogjexchange.com]
Sent: Monday, February 07, 2005 10:18 AM
To: ted.robertson@ded.mo.gov
Cc: Paul Westervelt
Subject: RE: Global Equipment Exchange Product Request

Ted,

Estimated pricing is \$15 million each.

Regards, Randy Hall
PennEnergy
713-499-6330

-----Original Message-----

From: ted.robertson@ded.mo.gov [mailto:ted.robertson@ded.mo.gov]
Sent: Friday, February 04, 2005 4:11 PM
To: equipment@ogjexchange.com
Subject: Global Equipment Exchange Product Request

Auction Item Name: 92.6MW Westinghouse (Fiat) 501 D5 GTG
Auction Item Number: 12547
ISO Rating: 92.6
Request Info: Current ballpark pricing per unit.

First Name: Ted
Last Name: Robertson
Phone:
Fax:
Address: ted.robertson@ded.mo.gov
City:

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SEARCH:

Power Generation : Gas Turbine Gen Sets (10MW & Larger) : 92.6MW Westinghouse (Fiat) 501 D5 GTG

Item # 12547:	92.6MW Westinghouse (Fiat) 501 D5 GTG	Manufacturer: Westinghouse (Fiat)	More Info...
---------------	---------------------------------------	-----------------------------------	------------------------------

Quantity:	6	ISO Rating:	92.6
List Date:	12/18/2003		

Comments:

Description:

92.6MW Westinghouse 501 D5 GTG, 50Hz, 15kV, dual fuel, built by Fiat under Westinghouse license in 1980 and upgraded in 1993. Approx 9,000 hours since new and 3,700 hours since upgrade. Includes enclosure, Power Logic 11 Control system, 15kV switch gear, transformers, tools and maintenance equipment, 5/60 ton bridge crane, etc. (6) units available at price of USD14.5 million each, as is where is, subject to prior sale. Cost to convert to 60Hz is \$4 million each.

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Robertson, Ted

From: equipment@ogjexchange.com [glp@ogjexchange.com]
Sent: Thursday, February 03, 2005 2:30 PM
To: ted.robertson@ded.mo.gov
Cc: Paul Westervelt
Subject: RE: Global Equipment Exchange Product Request

Ted,

Thank you for your inquiry. Current pricing is around \$13 million USD each, as is where is, subject to prior sale.

Regards, Randy Hall
PennEnergy
713-499-6330

-----Original Message-----

From: ted.robertson@ded.mo.gov [mailto:ted.robertson@ded.mo.gov]
Sent: Thursday, February 03, 2005 2:28 PM
To: equipment@ogjexchange.com
Subject: Global Equipment Exchange Product Request

Auction Item Name: MHI M501F Gas Turbine Generator (GTG)
Auction Item Number: 35102
ISO Rating: 156
Request Info: Ballpark pricing info.

First Name: Ted
Last Name: Robertson
Phone:
Fax:
Address: ted.robertson@ded.mo.gov
City:

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SEARCH:

Power Generation : Gas Turbine Gen Sets (10MW & Larger) : MHI M501F Gas Turbine Generator (GTG)

Item # 35102:	MHI M501F Gas Turbine Generator (GTG)	Manufacturer: MHI	More Info...
Quantity:	3	ISO Rating:	156
List Date:	03/16/2004		
Comments:			
Description:	Three (3) GTG Manufacturer: MHI Gas Turbine Model: M501F Generator: 218.733 MVA Air Cooled (TEWAC) 0.9 PF, 18 kV, 60 Hz Generator Manufacturer: MELCO Auxiliary Systems: Inlet Air System with Evaporative Cooler Exhaust System Lube Oil System Control Oil System Rotor Turning Equipment Starting Motor Heat Exchangers (Lube Oil Cooler, Turbine Rotor Air/Fuel Gas Heater) Fire Protection System (CO2) Fuel Gas Control System Compressor Water Wash System Gas Turbine Control and Electrical Systems GTG and Auxiliaries Enclosures with Ventilation		

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Gas Turbine World

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For Project Planning, Design, Construction, Operation

E.3
G2
20

2003 GTW Handbook

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Cover Photo Baglan Bay power station in South Wales powered by General Electric's steam cooled H-technology turbine

Genset Plant Prices

Equipment-only for a skid-mounted single fuel gas turbine, electric gen Schedule TJR-5.1

Genset Plant Pricing

Genset	Base Load Rating	Heat Rate Btu/kWh	Efficiency	Plant Price	Per kW
PG6111FA	75,900 kW	9760 Btu	35.0%	\$ 18,600,000	
PG7121EA	85,400 kW	10,420 Btu	32.8%	\$ 16,600,000	
GT11N2	116,500 kW	10,050 Btu	33.9%	\$ 19,700,000	\$ 169
W501D5A	120,500 kW	9840 Btu	34.7%	\$ 19,900,000	
PG9171E	123,400 kW	10,100 Btu	33.8%	\$ 20,400,000	
M701DA	144,100 kW	9810 Btu	34.8%	\$ 22,400,000	\$ 155
V94.2	159,400 kW	9950 Btu	34.4%	\$ 24,700,000	\$ 155
GT13E2	165,100 kW	9560 Btu	35.7%	\$ 27,400,000	
PG9231EC	169,200 kW	9770 Btu	34.9%	\$ 27,100,000	\$ 160
PG7241FA	171,700 kW	9420 Btu	36.2%	\$ 31,250,000	\$ 182
GT24	179,000 kW	9098 Btu	37.5%	\$ 27,700,000	
V84.3A	180,000 kW	8980 Btu	36.0%	\$ 30,700,000	\$ 170
PG7251FB	184,400 kW	9215 Btu	37.0%	\$ 33,900,000	\$ 184
M501F	185,400 kW	9230 Btu	37.0%	\$ 29,250,000	
W501F	186,500 kW	9190 Btu	37.1%	\$ 31,150,000	\$ 167
W501FD	189,500 kW	9190 Btu	37.1%	\$ 31,650,000	\$ 167
V94.2A	190,700 kW	9660 Btu	35.3%	\$ 30,200,000	\$ 158
PG9311FA	243,000 kW	9360 Btu	36.4%	\$ 36,880,000	\$ 160
W501G	253,000 kW	8760 Btu	38.5%	\$ 40,300,000	\$ 159
PG9351FA	255,600 kW	9250 Btu	36.9%	\$ 40,900,000	\$ 160
GT26	262,000 kW	8930 Btu	38.2%	\$ 38,800,000	
M501G	264,000 kW	8730 Btu	38.5%	\$ 41,450,000	\$ 157
V94.3A	265,900 kW	8840 Btu	38.6%	\$ 42,300,000	\$ 159
PG9371FB	268,800 kW	9040 Btu	37.7%	\$ 45,700,000	
M701F	270,300 kW	8930 Btu	38.2%	\$ 43,200,000	\$ 160
M701G	271,000 kW	8820 Btu	38.7%	\$ 44,720,000	\$ 165
M701G2	334,000 kW	8630 Btu	39.5%	\$ 55,700,000	\$ 167