

LG&E - KU- Ghent Unit 2 PJFF & SCR rev. B

B&V PROJECT #: 168908
PROJECT ESTIMATOR: Ron Fields
PROJECT MANAGER: Tim Hillman
PURPOSE OF ESTIMATE: Budgetary
ESTIMATE DATE: April-11

LOCATION: Carroll County, KY
PLANT TYPE: PC Fired Boiler
CLIENT: LG&E - KU
PARTNER: N/A
CURRENCY: US Dollars

BLACK AND VEATCH CONFIDENTIAL AND PROPRIETARY INFORMATION

Contract Number	Description	PROJECT - TOTAL COSTS					% OF TOTAL C.V.	\$ PER KW 517	
		Engr Equip	Commodities						
		Material \$	Material \$	Labor \$	Manhours	Other			TOTAL \$
ESTIMATE SUMMARY									
Purchase Contracts:									
61.0000	Civil / Structural	\$3,557,040	\$103,605	\$0	0	\$0	\$3,660,645	1.57%	\$7.08
61.3801	Ductwork and breeching	\$5,442,200	\$0	\$0	0	\$0	\$5,442,200	2.33%	\$10.53
62.0000	Mechanical - Balance of Plant (BOP)	\$400,000	\$0	\$0	0	\$150,000	\$550,000	0.24%	\$1.06
63.0000	Electrical - BOP. Equipment, Raceway	\$315,000	\$4,714,344	\$0	0	\$0	\$5,029,344	2.15%	\$9.73
63.3002	VFDs, Motors and Couplings	\$2,222,400	\$0	\$0	0	\$0	\$2,222,400	0.95%	\$4.30
63.3603	Switchgear and MCCs	\$2,284,000	\$0	\$0	0	\$0	\$2,284,000	0.98%	\$4.42
63.3802	SUS Transformers	\$452,482	\$0	\$0	0	\$0	\$452,482	0.19%	\$0.88
63.3803	Aux Transformer	\$562,000	\$0	\$0	0	\$0	\$562,000	0.24%	\$1.09
64.0000	Control - DCS, Instrumentation	\$996,000	\$205,525	\$0	0	\$0	\$1,201,525	0.51%	\$2.32
64.0407	On-line Performance Monitoring - Neural Network	\$0	\$0	\$0	0	\$570,000	\$570,000	0.24%	\$1.10
65.3120	Fabric Filter	\$14,000,000	\$0	\$0	0	\$0	\$14,000,000	5.99%	\$27.08
65.3210	Sorbent Injection	\$2,000,000	\$0	\$0	0	\$0	\$2,000,000	0.86%	\$3.87
65.3310	Selective Catalytic Reduction System	\$28,700,000	\$0	\$0	0	\$0	\$28,700,000	12.28%	\$55.51
65.3500	H-PAC Mercury Control	\$1,000,000	\$0	\$0	0	\$0	\$1,000,000	0.43%	\$1.93
66.1000	Piping and Tubing	\$0	\$610,031	\$0	0	\$495,000	\$1,105,031	0.47%	\$2.14
66.2070	Pipe Supports	\$0	\$579,250	\$0	0	\$0	\$579,250	0.25%	\$1.12
66.3000	Valves and Accessories	\$0	\$523,200	\$0	0	\$0	\$523,200	0.22%	\$1.01
67.9300	Compressors	\$250,000	\$0	\$0	0	\$0	\$250,000	0.11%	\$0.48
67.9532	ID Fans	\$1,990,000	\$0	\$0	0	\$0	\$1,990,000	0.85%	\$3.85
Subtotal Purchase Contracts:		\$64,171,122	\$6,735,955	\$0	0	\$1,215,000	\$72,122,077	30.87%	\$139.50
Construction Contracts:									
71.0100	Demolition Works	\$0	\$0	\$0	0	\$500,000	\$500,000	0.21%	\$0.97
71.0401	Civil / Structural Construction - Cast in-place Piling	\$0	\$0	\$0	0	\$1,582,000	\$1,582,000	0.68%	\$3.06
71.0402	Civil / Structural Construction - Super Structures	\$0	\$25,000	\$5,925,513	85,616	\$1,813,000	\$7,763,513	3.32%	\$15.02
71.0403	Civil / Structural Construction - Sub-Structures	\$0	\$611,385	\$2,055,945	35,858	\$140,598	\$2,807,927	1.20%	\$5.43
72.0000	Mechanical / Chemical Construction	\$0	\$0	\$22,760,193	370,122	\$4,793,250	\$27,553,443	11.79%	\$53.29
73.0000	Electrical / Control Construction	\$0	\$638,818	\$12,923,651	206,845	\$26,100	\$13,588,568	5.82%	\$26.28
78.0000	Service Contracts & Construction Indirects	\$0	\$5,159,621	\$5,550,272	119,384	\$19,096,697	\$29,806,591	12.76%	\$57.65
Subtotal Construction Contracts:		\$0	\$6,434,823	\$49,215,574	817,826	\$27,951,645	\$83,602,042	35.78%	\$161.71
Total Direct Costs		\$64,171,122	\$13,170,778	\$49,215,574	817,826	\$29,166,645	\$155,724,119	66.65%	\$301.21
Indirect Costs:									
99.1100	Engineering Costs (Includes G&A)	\$0	\$0	\$7,757,200	189,200	\$11,527,199	\$19,284,399	8.25%	\$37.30
99.1200	EPC Construction Management (Includes G&A)	\$0	\$98,916	\$8,086,299	177,844	\$11,442,431	\$19,627,646	8.40%	\$37.96
99.1500	Project Insurance	\$0	\$0	\$0	0	\$2,646,368	\$2,646,368	1.13%	\$5.12
99.1600	Performance Bond	\$0	\$0	\$0	0	\$1,134,158	\$1,134,158	0.49%	\$2.19
99.1900	Sales Tax 6% of Indirect materials and Services	\$0	\$101,745	\$0	0	\$0	\$101,745	0.04%	\$0.20
99.2500	Project Contingency 10%	\$0	\$0	\$0	0	\$19,851,843	\$19,851,843	8.50%	\$38.40
99.2600	EPC Profit	\$0	\$0	\$0	0	\$15,286,000	\$15,286,000	6.54%	\$29.57
Total Indirect Costs		\$0	\$200,660	\$15,843,499	367,044	\$61,887,999	\$77,932,159	33.35%	\$150.74
Total Overnight (April 2011) EPC Capital Costs:		\$64,171,122	\$13,371,438	\$65,059,073	1,184,869	\$91,054,645	\$233,656,278	100.00%	\$451.95
		\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00

LG&E - KU- Ghent Unit 2 PJFF & SCR rev. B

B&V PROJECT #: 168908
 PROJECT ESTIMATOR: Ron Fields
 PROJECT MANAGER: Tim Hillman
 PURPOSE OF ESTIMATE: Budgetary
 ESTIMATE DATE: April-11

LOCATION: Carroll County, KY
 PLANT TYPE: PC Fired Boiler
 CLIENT: LG&E - KU
 PARTNER: N/A
 CURRENCY: US Dollars

BLACK AND VEATCH CONFIDENTIAL AND PROPRIETARY INFORMATION

Contract Number	Description	PROJECT - TOTAL COSTS					% OF TOTAL C.V.	\$ PER KW 517
		Engr Equip Material \$	Commodities Material \$	Labor \$	Manhours	Other		

ESTIMATE SUMMARY

Purchase Contracts:

61.0000	Civil / Structural	\$8,999,240	\$103,605	\$0	0	\$0	\$9,102,845	3.90%	\$17.61
62.0000	Mechanical	\$2,640,000	\$1,712,481	\$0	0	\$645,000	\$4,997,481	2.14%	\$9.67
63.0000	Electrical	\$5,835,882	\$4,714,344	\$0	0	\$0	\$10,550,226	4.52%	\$20.41
64.0000	Control	\$996,000	\$205,525	\$0	0	\$570,000	\$1,771,525	0.76%	\$3.43
65.0000	Chemical	\$45,700,000	\$0	\$0	0	\$0	\$45,700,000	19.56%	\$88.39
Subtotal Purchase Contracts:		\$64,171,122	\$6,735,955	\$0	0	\$1,215,000	\$72,122,077	30.87%	\$139.50

Construction Contracts:

71.0402	Civil / Structural Construction -Substructures	\$0	\$636,385	\$7,981,458	121,474	\$4,035,598	\$12,653,440	5.42%	\$24.47
71.0403	Civil / Structural Construction -Superstructures	\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00
72.0000	Mechanical / Chemical Construction	\$0	\$0	\$22,760,193	370,122	\$4,793,250	\$27,553,443	11.79%	\$53.29
73.0000	Electrical / Control Construction	\$0	\$638,818	\$12,923,651	206,845	\$26,100	\$13,588,568	5.82%	\$26.28
78.0000	Service Contracts & Construction Indirects	\$0	\$5,159,621	\$5,550,272	119,384	\$19,096,697	\$29,806,591	12.76%	\$57.65
Subtotal Construction Contracts:		\$0	\$6,434,823	\$49,215,574	817,826	\$27,951,645	\$83,602,042	35.78%	\$161.71

Total Direct Costs

\$64,171,122	\$13,170,778	\$49,215,574	817,826	\$29,166,645	\$155,724,119	66.65%	\$301.21
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Indirect Costs:

99.1100	Engineering Costs (With G&A)	\$0	\$0	\$7,757,200	189,200	\$11,527,199	\$19,284,399	8.25%	\$37.30
99.1200	Construction Management (With G&A)	\$0	\$98,916	\$8,086,299	177,844	\$11,442,431	\$19,627,646	8.40%	\$37.96
99.1500	Project Insurance	\$0	\$0	\$0	0	\$2,646,368	\$2,646,368	1.13%	\$5.12
99.1600	Performance Bond	\$0	\$0	\$0	0	\$1,134,158	\$1,134,158	0.49%	\$2.19
99.1900	Sales Tax 6% of Indirect materials and Services	\$0	\$101,745	\$0	0	\$0	\$101,745	0.04%	\$0.20
99.2500	Project Contingency @ 10%	\$0	\$0	\$0	0	\$19,851,843	\$19,851,843	8.50%	\$38.40
99.2600	EPC profit @ 7%	\$0	\$0	\$0	0	\$15,286,000	\$15,286,000	6.54%	\$29.57
Total Indirect Costs		\$0	\$200,660	\$15,843,499	367,044	\$61,887,999	\$77,932,159	33.35%	\$150.74

Total Overnight (April 2011) EPC Capital Costs:

\$64,171,122	\$13,371,438	\$65,059,073	1,184,869	\$91,054,645	\$233,656,278	100.00%	\$451.95
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LG&E - KU- Ghent Unit 2 PJFF & SCR rev. B

B&V PROJECT #: 168908
 PROJECT ESTIMATOR: Ron Fields
 PROJECT MANAGER: Tim Hillman
 PURPOSE OF ESTIMATE: Budgetary
 ESTIMATE DATE: April-11

LOCATION: Carroll County, KY
 PLANT TYPE: PC Fired Boiler
 CLIENT: LG&E - KU
 PARTNER: N/A
 CURRENCY: US Dollars

BLACK AND VEATCH CONFIDENTIAL AND PROPRIETARY INFORMATION

Contract Number	Description	PROJECT - TOTAL COSTS					% OF TOTAL C.V.	\$ PER KW 517	
		Engr Equip	Commodities	Labor \$	Manhours	Other			TOTAL \$
		Material \$	Material \$						
Civil / Structural Purchase Contracts:									
61.0200	Buildings - Insulated panels	\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00
61.0300	Grating	\$0	\$41,370	\$0	0	\$0	\$41,370	0.02%	\$0.08
61.3801	Ductwork and Breeching	\$5,442,200	\$0	\$0	0	\$0	\$5,442,200	2.33%	\$10.53
61.4001	Structural Steel	\$3,557,040	\$0	\$0	0	\$0	\$3,557,040	1.52%	\$6.88
61.4015	Handrail and stairs	\$0	\$62,235	\$0	0	\$0	\$62,235	0.03%	\$0.12
61.4052	Sheet Piling and Cofferdam	\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00
Subtotal - Civil / Structural Purchase Contracts:		\$8,999,240	\$103,605	\$0	0	\$0	\$9,102,845	3.90%	\$17.61
Mechanical Purchase Contracts:									
62.0205	Continuous Emissions Monitoring (CEM)	\$0	\$0	\$0	0	\$50,000	\$50,000	0.02%	\$0.10
62.2418	Primary Flow elements	\$400,000	\$0	\$0	0	\$0	\$400,000	0.17%	\$0.77
66.1000	Piping and Tubing	\$0	\$610,031	\$0	0	\$495,000	\$1,105,031	0.47%	\$2.14
66.2070	Pipe Supports	\$0	\$579,250	\$0	0	\$0	\$579,250	0.25%	\$1.12
66.3000	Valves and Accessories	\$0	\$523,200	\$0	0	\$0	\$523,200	0.22%	\$1.01
67.0414	Fly Ash Handling System	\$0	\$0	\$0	0	\$100,000	\$100,000	0.04%	\$0.19
67.9300	Air Compressors, Dryers, & Air receivers	\$250,000	\$0	\$0	0	\$0	\$250,000	0.11%	\$0.48
67.9532	ID Fans	\$1,990,000	\$0	\$0	0	\$0	\$1,990,000	0.85%	\$3.85
Subtotal - Mechanical Purchase Contracts:		\$2,640,000	\$1,712,481	\$0	0	\$645,000	\$4,997,481	2.14%	\$9.67
Electrical Purchase Contracts:									
63.0000	Electrical Equipment & Materials	\$0	\$2,800	\$0	0	\$0	\$2,800	0.00%	\$0.01
63.0500	Lightning Protection Equipment and Materials	\$0	\$7,220	\$0	0	\$0	\$7,220	0.00%	\$0.01
63.0601	Plant Communication System	\$0	\$180,993	\$0	0	\$0	\$180,993	0.08%	\$0.35
63.0801	Cable - 8-15KV Power	\$0	\$677,700	\$0	0	\$0	\$677,700	0.29%	\$1.31
63.0804	Cable - 300-600V Instrument & T/C	\$0	\$37,125	\$0	0	\$0	\$37,125	0.02%	\$0.07
63.0802	Cable and Raceway	\$0	\$2,018,877	\$0	0	\$0	\$2,018,877	0.86%	\$3.90
63.1201	Iso-Phase Bus Duct	\$255,000	\$0	\$0	0	\$0	\$255,000	0.11%	\$0.49
63.1202	Cable Bus	\$0	\$496,686	\$0	0	\$0	\$496,686	0.21%	\$0.96
63.2000	Metering & Relaying	\$60,000	\$0	\$0	0	\$0	\$60,000	0.03%	\$0.12
63.2802	Batteries - DC Equipment	\$0	\$442,750	\$0	0	\$0	\$442,750	0.19%	\$0.86
63.2805	PanelBoards	\$0	\$60,000	\$0	0	\$0	\$60,000	0.03%	\$0.12
63.3002	Variable Frequency Drives	\$2,222,400	\$0	\$0	0	\$0	\$2,222,400	0.95%	\$4.30
63.3603	Switchgear & MCCs	\$2,284,000	\$0	\$0	0	\$0	\$2,284,000	0.98%	\$4.42
63.3802	SUS Transformers	\$452,482	\$0	\$0	0	\$0	\$452,482	0.19%	\$0.88
63.3803	Aux Transformer	\$562,000	\$0	\$0	0	\$0	\$562,000	0.24%	\$1.09
63.5000	Junction Boxes	\$0	\$20,000	\$0	0	\$0	\$20,000	0.01%	\$0.04
63.5010	Grounding Materials and Equipment	\$0	\$117,993	\$0	0	\$0	\$117,993	0.05%	\$0.23
63.5021	Raceway - Cable Tray	\$0	\$375,000	\$0	0	\$0	\$375,000	0.16%	\$0.73
63.5022	Raceway - General	\$0	\$277,200	\$0	0	\$0	\$277,200	0.12%	\$0.54
Subtotal - Electrical Purchase Contracts:		\$5,835,882	\$4,714,344	\$0	0	\$0	\$10,550,226	4.52%	\$20.41
Control Purchase Contracts:									
64.0202	DCS / PLC mods	\$696,000	\$0	\$0	0	\$0	\$696,000	0.30%	\$1.35
64.0407	On-line Performance Monitoring - Neural Network	\$0	\$0	\$0	0	\$570,000	\$570,000	0.24%	\$1.10
64.1003	Instrumentation	\$300,000	\$100,000	\$0	0	\$0	\$400,000	0.17%	\$0.77
64.1602	Instr. Racks and Enclosures	\$0	\$9,000	\$0	0	\$0	\$9,000	0.00%	\$0.02
64.5010	Tubing	\$0	\$96,525	\$0	0	\$0	\$96,525	0.04%	\$0.19
Subtotal - Control Purchase Contracts:		\$996,000	\$205,525	\$0	0	\$570,000	\$1,771,525	0.76%	\$3.43
Chemical Purchase Contracts:									
65.3120	Fabric Filter	\$14,000,000	\$0	\$0	0	\$0	\$14,000,000	5.99%	\$27.08
65.3210	Sorbent Injection	\$2,000,000	\$0	\$0	0	\$0	\$2,000,000	0.86%	\$3.87
65.3310	Selective Catalytic Redcution system	\$28,700,000	\$0	\$0	0	\$0	\$28,700,000	12.28%	\$55.51
65.3500	H -PAC Mecury Control	\$1,000,000	\$0	\$0	0	\$0	\$1,000,000	0.43%	\$1.93
Subtotal - Chemical Purchase Contracts:		\$45,700,000	\$0	\$0	0	\$0	\$45,700,000	19.56%	\$88.39
Subtotal Purchase Contracts:		\$64,171,122	\$6,735,955	\$0	0	\$1,215,000	\$72,122,077	30.87%	\$139.50

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Contract Number	Description	PROJECT - TOTAL COSTS					% OF TOTAL C.V.	\$ PER KW 517	
		Engr Equip Material \$	Commodities Material \$	Labor \$	Manhours	Other			TOTAL \$
Civil / Structural Construction Contracts:									
71.0100	Demolition Works	\$0	\$0	\$0	0	\$0	\$500,000	0.21%	\$0.97
71.0401	Cast In place Piling	\$0	\$0	\$0	0	\$1,582,000	\$1,582,000	0.68%	\$3.06
71.0402	General Construction - Substructures	\$0	\$611,385	\$2,055,945	35,858	\$140,598	\$2,807,927	1.20%	\$5.43
71.0403	General Construction - Superstructures	\$0	\$25,000	\$5,925,513	85,616	\$1,813,000	\$7,763,513	3.32%	\$15.02
Subtotal - Civil / Structural Construction Contracts:		\$0	\$636,385	\$7,981,458	121,474	\$4,035,598	\$12,653,440	5.42%	\$24.47
Mechanical Construction Contracts:									
72.0401	Plant Piping Installation	\$0	\$0	\$0	0	\$0	\$4,264,764	1.83%	\$8.25
72.0403	Duct and Reactor Insulation	\$0	\$0	\$0	0	\$4,000,000	\$4,000,000	1.71%	\$7.74
72.0800	Fire Protection & Detection Systems	\$0	\$0	\$0	0	\$793,250	\$793,250	0.34%	\$1.53
77.0000	Mechanical Construction	\$0	\$0	\$18,495,429	302,460	\$0	\$18,495,429	7.92%	\$35.77
Subtotal - Mechanical Construction Contracts:		\$0	\$0	\$22,760,193	370,122	\$4,793,250	\$27,553,443	11.79%	\$53.29
Electrical / Control Construction Contracts:									
73.0201	Electrical Equipment Erection	\$0	\$0	\$0	0	\$0	\$12,459,102	5.33%	\$24.10
74.0201	Control & Instrumentation Installation	\$0	\$638,818	\$11,794,184	188,767	\$26,100	\$12,459,102	5.33%	\$24.10
Subtotal - Electrical / Control Construction Contracts:		\$0	\$638,818	\$12,923,651	206,845	\$26,100	\$13,588,568	5.82%	\$26.28
Construction Indirects & Service Contracts:									
78.0000	Service Contracts & Construction Indirects	\$0	\$0	\$0	0	\$0	\$29,458,791	12.61%	\$56.98
78.4000	Warranty	\$0	\$5,159,621	\$5,550,272	119,384	\$18,748,897	\$29,458,791	12.61%	\$56.98
Subtotal - Construction Indirects & Service Contracts:		\$0	\$5,159,621	\$5,550,272	119,384	\$19,096,697	\$29,806,591	12.76%	\$57.65
Subtotal - Construction Costs:		\$0	\$6,434,823	\$49,215,574	817,826	\$27,951,645	\$83,602,042	35.78%	\$161.71
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99.1500	Project Insurance	\$0	\$0	\$0	0	\$2,646,368	\$2,646,368	1.13%	\$5.12
99.1600	Performance Bond	\$0	\$0	\$0	0	\$1,134,158	\$1,134,158	0.49%	\$2.19
99.1900	Sales Tax 6% of Indirect materials and Services	\$0	\$101,745	\$0	0	\$0	\$101,745	0.04%	\$0.20
99.2500	Project Contingency	\$0	\$0	\$0	0	\$19,851,843	\$19,851,843	8.50%	\$38.40
99.2600	EPC Profit	\$0	\$0	\$0	0	\$15,286,000	\$15,286,000	6.54%	\$29.57
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