LG&E - KU Mill Creek Unit 4 Wet FGD & PJFF Arrangement "A" Rev. B B&V PROJECT #: 168908 PROJECT ESTIMATOR: Ron Fields PROJECT MANAGER: Tim Hillman

B&V PROJECT #: PROJECT ESTIMATOR: PROJECT MANAGER: PURPOSE OF ESTIMATE: ESTIMATE DATE:

Budgertary March-11

LOCATION: PLANT TYPE: CLIENT:

Jefferson County, KY PC Fired Boiler LG&E - KU N/A US Dollars

PARTNER: CURRENCY: BLACK AND VEATCH CONFIDENTIAL AND PROPRIETARY INFORMATION

Contract Number	of Plant (BOP) ment, Raceway uplings Lines Relocation lentation Monitoring - Neural Network	\$0 \$2,660,400 \$96,500 \$3,086,000 \$3,086,000 \$479,504 \$1,432,000 \$18,000,000 \$50,300,000 \$2,000,000	\$141,200 \$382,635 \$0 \$3,168,176 \$3,640,040 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	Manhours 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	\$1,737,190 \$900,000 \$0 \$0 \$0 \$0 \$0 \$0	\$1,878,390 \$3,943,035 \$96,500 \$3,518,176 \$3,640,040 \$3,086,000 \$3,084,000 \$479,504	% OF TOTAL C.V. 0.60% 1.26% 0.03% 1.13% 1.17% 0.99% 0.99% 0.15%	\$ PER KW 525 \$3.58 \$7.51 \$0.18 \$6.70 \$6.93 \$5.88 \$5.87 \$0.91
Purchase Contracts: 61.0000	of Plant (BOP) ment, Raceway uplings Lines Relocation lentation Monitoring - Neural Network	\$0 \$2,660,400 \$96,500 \$350,000 \$0 \$3,086,000 \$479,504 \$1,432,000 \$1,332,100 \$0 \$18,000,000 \$50,300,000	\$141,200 \$382,635 \$0 \$3,168,176 \$3,640,040 \$0 \$0 \$0 \$0 \$0 \$161,400 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0	\$1,737,190 \$900,000 \$0 \$0 \$0 \$0 \$0 \$0	\$1,878,390 \$3,943,035 \$96,500 \$3,518,176 \$3,640,040 \$3,086,000 \$3,084,000 \$479,504	0.60% 1.26% 0.03% 1.13% 1.17% 0.99% 0.99%	\$3.58 \$7.51 \$0.18 \$6.70 \$6.93 \$5.88 \$5.87
Purchase Contracts: 61.0000	of Plant (BOP) ment, Raceway uplings Lines Relocation lentation Monitoring - Neural Network	\$2,660,400 \$96,500 \$350,000 \$0 \$3,086,000 \$3,084,000 \$479,504 \$1,432,000 \$1,332,100 \$0 \$18,000,000 \$50,300,000	\$382,635 \$0 \$3,168,176 \$3,640,040 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0	\$900,000 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$3,943,035 \$96,500 \$3,518,176 \$3,640,040 \$3,086,000 \$3,084,000 \$479,504	1.26% 0.03% 1.13% 1.17% 0.99% 0.99%	\$7.51 \$0.18 \$6.70 \$6.93 \$5.88 \$5.87
Purchase Contracts: 61.0000	of Plant (BOP) ment, Raceway uplings Lines Relocation lentation Monitoring - Neural Network	\$2,660,400 \$96,500 \$350,000 \$0 \$3,086,000 \$3,084,000 \$479,504 \$1,432,000 \$1,332,100 \$0 \$18,000,000 \$50,300,000	\$382,635 \$0 \$3,168,176 \$3,640,040 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0	\$900,000 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$3,943,035 \$96,500 \$3,518,176 \$3,640,040 \$3,086,000 \$3,084,000 \$479,504	1.26% 0.03% 1.13% 1.17% 0.99% 0.99%	\$7.51 \$0.18 \$6.70 \$6.93 \$5.88 \$5.87
61.0000 Civil / Structural 61.3801 Ductwork and Breechi 62.0000 Mechanical - Balance 63.0000 Electrical - BOP, Equip 63.1202 Bus Duct 63.3603 Switchgear & MCCs 63.3802 SUS Transformers 63.3803 Aux Transformer 63.4400 345 kV Transmission I 64.0000 Control - DCS, Instrun 64.0407 On-line Performance I 65.3120 Fabric Filter 65.3210 Scrubber FGD 65.3230 Sorbent Injection Syst 65.3500 CEMs 66.1000 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	of Plant (BOP) ment, Raceway uplings Lines Relocation lentation Monitoring - Neural Network	\$2,660,400 \$96,500 \$350,000 \$0 \$3,086,000 \$3,084,000 \$479,504 \$1,432,000 \$1,332,100 \$0 \$18,000,000 \$50,300,000	\$382,635 \$0 \$3,168,176 \$3,640,040 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0	\$900,000 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$3,943,035 \$96,500 \$3,518,176 \$3,640,040 \$3,086,000 \$3,084,000 \$479,504	1.26% 0.03% 1.13% 1.17% 0.99% 0.99%	\$7.51 \$0.18 \$6.70 \$6.93 \$5.88 \$5.87
61.3801 Ductwork and Breechi 62.0000 Mechanical - Balance 63.0000 Electrical - BOP, Equip 63.1202 Bus Duct 63.3002 VFDs, Motors and Coi 63.3603 Switchgear & MCCs 63.3802 SUS Transformers 63.4400 345 kV Transmission I 64.0000 Control - DCS, Instrun 64.0407 On-line Performance I 65.3210 Scrubber FGD 65.3230 Sorbent Injection Syst 65.3500 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Piping & Tubing 66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	of Plant (BOP) ment, Raceway uplings Lines Relocation lentation Monitoring - Neural Network	\$2,660,400 \$96,500 \$350,000 \$0 \$3,086,000 \$3,084,000 \$479,504 \$1,432,000 \$1,332,100 \$0 \$18,000,000 \$50,300,000	\$382,635 \$0 \$3,168,176 \$3,640,040 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0	\$900,000 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$3,943,035 \$96,500 \$3,518,176 \$3,640,040 \$3,086,000 \$3,084,000 \$479,504	1.26% 0.03% 1.13% 1.17% 0.99% 0.99%	\$7.51 \$0.18 \$6.70 \$6.93 \$5.88 \$5.87
62.0000 Mechanical - Balance 63.0000 Electrical - BOP, Equip 63.1202 Bus Duct 63.3002 VFDs, Motors and Cot 63.3603 Switchgear & MCCs 63.3802 SUS Transformer 63.3803 Aux Transformer 64.0000 Control - DCS, Instrum 64.0407 On-line Performance N 65.3120 Fabric Filter 65.3210 Sorbent Injection Syst 65.3500 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Piping & Tubing 66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	of Plant (BOP) ment, Raceway uplings Lines Relocation lentation Monitoring - Neural Network	\$96,500 \$350,000 \$0 \$3,086,000 \$3,084,000 \$479,504 \$1,432,000 \$1,332,100 \$0 \$18,000,000 \$50,300,000	\$0 \$3,168,176 \$3,640,040 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0 0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	\$96,500 \$3,518,176 \$3,640,040 \$3,086,000 \$3,084,000 \$479,504	0.03% 1.13% 1.17% 0.99% 0.99%	\$0.18 \$6.70 \$6.93 \$5.88 \$5.87
63.0000 Electrical - BOP, Equip 63.1202 Bus Duct 63.3002 VFDs, Motors and Cot 63.3603 Switchgear & MCCs 63.3803 SuS Transformers 63.4400 345 kV Transmission I 64.0000 Control - DCS, Instrum 64.0407 On-line Performance I 65.3210 Scrubber FGD 65.3230 Sorbent Injection Syst 65.3500 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	ment, Raceway uplings Lines Relocation nentation Monitoring - Neural Network	\$350,000 \$0 \$3,086,000 \$3,084,000 \$479,504 \$1,432,000 \$1,332,100 \$0 \$18,000,000 \$50,300,000	\$3,168,176 \$3,640,040 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0 0	\$0 \$0 \$0 \$0 \$0 \$0	\$3,518,176 \$3,640,040 \$3,086,000 \$3,084,000 \$479,504	1.13% 1.17% 0.99% 0.99%	\$6.70 \$6.93 \$5.88 \$5.87
63.1202 Bus Duct 63.3002 VFDs, Motors and Cot 63.3603 Switchgear & MCCs 63.3802 SUS Transformers 63.4400 345 kV Transmission of 64.0000 Control - DCS, Instrun 64.0407 On-line Performance of 65.3120 Fabric Filter 65.3210 Scrubber FGD 65.3230 Sorbent Injection Syst 65.3500 H-PAC Mercury Control 65.3600 CEMs 66.1000 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	uplings Lines Relocation nentation Monitoring - Neural Network	\$0 \$3,086,000 \$3,084,000 \$479,504 \$1,432,000 \$1,332,100 \$0 \$18,000,000 \$50,300,000	\$3,640,040 \$0 \$0 \$0 \$0 \$0 \$0 \$161,400 \$0	\$0 \$0 \$0 \$0 \$0 \$0 \$0	0 0 0 0	\$0 \$0 \$0 \$0	\$3,640,040 \$3,086,000 \$3,084,000 \$479,504	1.17% 0.99% 0.99%	\$6.93 \$5.88 \$5.87
63.3002 VFDs, Motors and Cot 63.3603 Switchgear & MCCs 63.3802 SUS Transformers 63.3803 Aux Transformer 63.4400 345 kV Transmission I 64.0000 Control - DCS, Instrun 64.0407 On-line Performance I 65.3120 Fabric Filter 65.3210 Scrubber FGD 65.3230 Sorbent Injection Syst 65.3500 CEMs 66.1000 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	Lines Relocation nentation Monitoring - Neural Network	\$3,086,000 \$3,084,000 \$479,504 \$1,432,000 \$1,332,100 \$0 \$18,000,000 \$50,300,000	\$0 \$0 \$0 \$0 \$0 \$0 \$161,400 \$0	\$0 \$0 \$0 \$0 \$0	0 0 0 0	\$0 \$0 \$0	\$3,086,000 \$3,084,000 \$479,504	0.99% 0.99%	\$5.88 \$5.87
63.3603 Switchgear & MCCs 63.3802 SUS Transformer 63.4800 Aux Transformer 63.4400 345 kV Transmission I 64.0000 Control - DCS, Instrun 64.0407 On-line Performance I 65.3120 Fabric Filter 65.3210 Sorbent Injection Syst 65.3500 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	Lines Relocation nentation Monitoring - Neural Network	\$3,084,000 \$479,504 \$1,432,000 \$1,332,100 \$0 \$18,000,000 \$50,300,000	\$0 \$0 \$0 \$0 \$0 \$161,400 \$0	\$0 \$0 \$0 \$0	0	\$0 \$0	\$3,084,000 \$479,504	0.99%	\$5.87
63.3803 Aux Transformer 63.4400 345 kV Transmission I 64.0000 Control - DCS, Instrun 64.0407 On-line Performance I 65.3120 Fabric Filter 65.3210 Scrubber FGD 65.3230 Sorbent Injection Syst 65.3500 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Piping & Tubing 66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	nentation Monitoring - Neural Network em	\$1,432,000 \$1,332,100 \$0 \$18,000,000 \$50,300,000	\$0 \$0 \$161,400 \$0	\$0 \$0	0	·		0.15%	\$0.91
63.4400 345 kV Transmission I 64.0000 Control - DCS, Instrum 64.0407 On-line Performance I 65.3120 Fabric Filter 65.3210 Scrubber FGD 65.3230 Sorbent Injection Syst 65.3500 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	nentation Monitoring - Neural Network em	\$1,332,100 \$0 \$18,000,000 \$50,300,000	\$0 \$161,400 \$0	\$0		ባ2			
64.0000 Control - DCS, Instrun 64.0407 On-line Performance I 65.3120 Fabric Filter 65.3210 Scrubber FGD 65.3230 Sorbent Injection Syst 65.3500 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Piping & Tubing 66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	nentation Monitoring - Neural Network em	\$0 \$18,000,000 \$50,300,000	\$161,400 \$0			ΨΟ	\$1,432,000	0.46%	\$2.73
64.0407 On-line Performance N 65.3120 Fabric Filter 65.3210 Scrubber FGD 65.3230 Sorbent Injection Syst 65.3500 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Piping & Tubing 66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	Monitoring - Neural Network	\$0 \$18,000,000 \$50,300,000	\$0	\$0	0	\$3,000,000	\$3,000,000	0.96%	\$5.71
65.3120 Fabric Filter 65.3210 Scrubber FGD 65.3230 Sorbent Injection Syst 65.3600 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Piping & Tubing 66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	em	\$18,000,000 \$50,300,000	·		0	\$0	\$1,493,500	0.48%	\$2.84
65.3210 Scrubber FGD 65.3230 Sorbent Injection Syst 65.3500 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Piping & Tubing 66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye		\$50,300,000	40	\$0	0	\$570,000	\$570,000	0.18%	\$1.09
65.3230 Sorbent Injection Syst 65.3500 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Piping & Tubing 66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye			·	\$0	0	\$0	\$18,000,000	5.77%	\$34.29
65.3500 H-PAC Mercury Contr 65.3600 CEMs 66.1000 Piping & Tubing 66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye		\$2,000,000	\$0 \$0	\$0 \$0	0	\$0 \$0	\$50,300,000	16.12% 0.64%	\$95.81
65.3600 CEMs 66.1000 Piping & Tubing 66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye	or System	\$1,000,000	\$0 \$0	\$0 \$0	0	\$0 \$0	\$2,000,000 \$1,000,000	0.64%	\$3.81 \$1.90
66.1000 Piping & Tubing 66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye		\$1,000,000	\$0 \$0	\$0 \$0	0	\$0 \$0	\$850,000	0.32%	\$1.90 \$1.62
66.2070 Pipe Supports 66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye		\$1,199,197	\$10,000	\$0 \$0	0	\$0 \$0	\$1,209,197	0.27 %	\$2.30
66.3000 Valves and Accessorie 67.0414 Fly Ash Transfer Syste 67.9300 Air Compressors, Drye		\$0	\$540,000	\$0	0	\$0	\$540,000	0.17%	\$1.03
67.9300 Air Compressors, Drye	es	\$2,104,000	\$0	\$0	0	\$0	\$2,104,000	0.67%	\$4.01
	em	\$0	\$0	\$0	0	\$6,800,000	\$6,800,000	2.18%	\$12.95
67.9532 ID Booster Fans	ers, & Air Receivers	\$250,000	\$0	\$0	0	\$0	\$250,000	0.08%	\$0.48
		\$2,100,000	\$0	\$0	0	\$0	\$2,100,000	0.67%	\$4.00
Subtotal Purchase C	ontracts:	\$90,323,701	\$8,043,451	\$0	0	\$13,007,190	\$111,374,342	35.69%	\$212.14
Construction Contracts:									
71.0100 Demolition Works	O. F I	\$0	\$35,000	\$122,118	2,380	\$587,000	\$744,118	0.24%	\$1.42
71.0203 Civil / Structural Const		\$0	\$0	\$82,096	1,600	\$82,096	\$82,096	0.03%	\$0.16
71.0402 Civil / Structural Const 71.0403 Civil / Structural Const	ruction - Super Structures	\$1,272,600 \$0	\$1,401,200 \$110,480	\$2,140,245 \$4,087,675	30,924 72,086	\$2,418,750 \$3,822,733	\$7,232,795 \$8,020,887	2.32% 2.57%	\$13.78 \$15.28
71.0403 Civil / Structural Const		\$0 \$0	\$110,480	\$4,087,075 \$0	30,924	\$19,000,000	\$19,000,000	6.09%	\$36.19
72.0000 Mechanical / Chemica		\$0	\$0 \$0	\$24,656,043	399,886	\$5,745,700	\$30,401,743	9.74%	\$57.91
73.0000 Electrical / Control Co		\$0	\$264,200	\$9,888,005	158,259	\$383,400	\$10,535,605	3.38%	\$20.07
78.0000 Service Contracts & C		\$0	\$5,567,877	\$6,267,772	134,998	\$19,850,759	\$31,686,408	10.15%	\$60.36
Subtotal Construction	n Contracts:	\$1,272,600	\$7,378,757	\$47,243,953	831,057	\$51,890,438	\$107,703,652	34.51%	\$205.15
Total Direct Costs		\$91,596,301	\$15,422,208	\$47,243,953	831,057	\$64,897,628	\$219,077,994	70.20%	\$417.29
Indirect Costs:									
99.1100 Engineering Costs (W	th G&A)	\$0	\$0	\$8,036,000	196,000	\$11,941,496	\$19,977,496	6.40%	\$38.05
99.1200 EPC Construction Mai		\$0	\$3,966,134	\$8,434,489	188,460	\$7,964,709	\$20,365,331	6.53%	\$38.79
99.1500 Project Insurance	•	\$0	\$0	\$0	0	\$3,937,323	\$3,937,323	1.26%	\$7.50
99.1600 Performance Bond		\$0	\$0	\$0	0	\$1,687,424	\$1,687,424	0.54%	\$3.21
	ect materials and Services	\$0	\$90,252	\$0	0	\$0	\$90,252	0.03%	\$0.17
99.2500 Project Contingency 1	5%	\$0	\$0	\$0	0	\$26,513,582	\$26,513,582	8.50%	\$50.50
99.2600 EPC Profit		\$0	\$0	\$0	0	\$20,416,000	\$20,416,000	6.54%	\$38.89
Total Indirect Costs		\$0	\$4,056,386	\$16,470,489	384,460	\$72,460,534	\$92,987,409	29.80%	\$177.12
Total Overnight (Mar	2011) EPC Capital Costs:	\$91,596,301	\$19,478,593	\$63,714,442	1,215,517	\$137,358,162	\$312,065,402	100.00%	\$594.41
		\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00

Separate Line Item Cost Break Out (Item listed below is included in the above EPC estimate)

1 Demolition \$915,265 \$0 \$0 Scrubber Refurbishment Scrubber Steel Refurbishment \$0

LG&E - KU- Mill Creek Unit 4 Wet FGD & PJFF- Arrangement "A" rev. B

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

LOCATION: PLANT TYPE:

CLIENT: LG&E - KU PARTNER: N/A CURRENCY:
BLACK AND VEATCH CONFIDENTIAL AND PROPRIETARY INFORMATION US Dollars

Jefferson County, KY

PC Fired Boiler

		PROJECT - TOTAL COSTS							
Contract Number	Description	Engr Equip	Commodities					% OF TOTAL C.V.	\$ PER KW
		Material \$	Material \$	Labor \$	Manhours	Other	TOTAL \$		525
ESTIMATE	SUMMARY								
Purchase C	ontracts:								
61.0000	Civil / Structural	\$2,660,400	\$523,835	\$0	0	\$2,637,190	\$5,821,425	1.87%	\$11.09
62.0000	Mechanical	\$5,749,697	\$550,000	\$0	0	\$6,800,000	\$13,099,697	4.20%	\$24.95
63.0000	Electrical	\$8,431,504	\$6,808,216	\$0	0	\$3,000,000	\$18,239,720	5.84%	\$34.74
64.0000	Control	\$1,332,100	\$161,400	\$0	0	\$570,000	\$2,063,500	0.66%	\$3.93
65.0000	Chemical	\$72,150,000	\$0	\$0	0	\$0	\$72,150,000	23.12%	\$137.43
	Subtotal Purchase Contracts:	\$90,323,701	\$8,043,451	\$0	0	\$13,007,190	\$111,374,342	35.69%	\$212.14
Constructio	n Contracts:								
71.0402	Civil / Structural Construction - Substructures	\$1,272,600	\$1,546,680	\$6,432,134	106,990	\$25,828,483	\$35,079,896	11.24%	\$66.82
71.0403	Civil / Structural Construction - Superstructures	\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00
72.0000	Mechanical / Chemical Construction	\$0	\$0	\$24,656,043	399,886	\$5,745,700	\$30,401,743	9.74%	\$57.91
73.0000	Electrical / Control Construction	\$0	\$264,200	\$9,888,005	158,259	\$383,400	\$10,535,605	3.38%	\$20.07
78.0000	Service Contracts & Construction Indirects	\$0	\$5,567,877	\$6,267,772	134,998	\$19,850,759	\$31,686,408	10.15%	\$60.36
	Subtotal Construction Contracts:	\$1,272,600	\$7,378,757	\$47,243,953	800,133	\$51,808,342	\$107,703,652	34.51%	\$205.15
	Total Direct Costs	\$91,596,301	\$15,422,208	\$47,243,953	800,133	\$64,815,532	\$219,077,994	70.20%	\$417.29
Indirect Cos	ste:								
99.1100	Engineering Costs (With G&A)	\$0	\$0	\$8,036,000	196,000	\$11,941,496	\$19,977,496	6.40%	\$38.05
99.1200	Construction Management (With G&A)	\$0	\$3,966,134	\$8,434,489	188,460	\$7,964,709	\$20,365,331	6.53%	\$38.79
99.1500	Project Insurance	\$0	\$0	\$0	0	\$3,937,323	\$3,937,323	1.26%	\$7.50
99.1600	Performance Bond	\$0	\$0	\$0	0	\$1,687,424	\$1,687,424	0.54%	\$3.21
99.1900	Sales Tax 6% of Indirect materials and Services	\$0	\$90,252	\$0	0	\$0	\$90,252	0.03%	\$0.17
99.2500	Project Contingency	\$0	\$0	\$0	0	\$26,513,582	\$26,513,582	8.50%	\$50.50
99.2600	EBIT	\$0	\$0	\$0	0	\$20,416,000	\$20,416,000	6.54%	\$38.89
	Total Indirect Costs	\$0	\$4,056,386	\$16,470,489	384,460	\$72,460,534	\$92,987,409	29.80%	\$177.12
	Total Overnight (Mar 2011) EPC Capital Costs:	\$91,596,301	\$19,478,593	\$63,714,442	1,184,593	\$137,276,066	\$312,065,402	100.00%	\$594.41

LG&E - KU- Mill Creek Unit 4 Wet FGD & PJFF- Arrangement "A" rev. B

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

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

CURRENCY: BLACK AND VEATCH CONFIDENTIAL AND PROPRIETARY INFORMATION

		1		PROJECT - T	PROJECT - TOTAL COSTS					
Contract		Engr Equip Commodities						% OF	\$ PER	
Number	Description							TOTAL C.V.	KW	
		Material \$	Material \$	Labor \$	Manhours	Other	TOTAL \$		525	
Civil / Struc	tural Purchase Contracts:									
61.0200	Buildings - Insulated panels	\$0	\$40,000	\$0	0	\$1,687,190	\$1,727,190	0.55%	\$3.29	
61.1808	Manholes	\$0	\$86,200	\$0	0	\$0	\$86,200	0.03%	\$0.16	
61.3601 61.3801	Chain Link Fence Ductwork and Breeching	\$0 \$2,660,400	\$15,000 \$382,635	\$0 \$0	0	\$50,000 \$900,000	\$65,000 \$3,943,035	0.02% 1.26%	\$0.12 \$7.51	
01.3001	Č			·						
	Subtotal - Civil / Structural Purchase Contracts:	\$2,660,400	\$523,835	\$0	0	\$2,637,190	\$5,821,425	1.87%	\$11.09	
	Purchase Contracts:	\$0	\$0	\$0	0	\$0				
62.2418	Primary Flow elements	\$56,500	\$0	\$0	0	\$0	\$56,500	0.02%	\$0.11	
62.2613	Pumps -FGD	\$40,000	\$0	\$0	0	\$0	\$40,000	0.01%	\$0.08	
66.1000	Piping & Tubing	\$1,199,197	\$10,000	\$0 \$0	0	\$0 \$0	\$1,209,197	0.39%	\$2.30	
66.2070	Pipe Supports Valves and Accessories	\$0 \$2.104.000	\$540,000	\$0 \$0	0	\$0 \$0	\$540,000	0.17%	\$1.03	
66.3000 67.0414	Fly Ash Transfer system	\$2,104,000 \$0	\$0 \$0	\$0 \$0	0	\$6,800,000	\$2,104,000 \$6,800,000	0.67% 2.18%	\$4.01 \$12.95	
67.9300	Air Compressors, Dryers, & Air Receivers	\$250,000	\$0 \$0	\$0 \$0	0	\$0,800,000	\$250,000	0.08%	\$0.48	
67.9532	ID Booster Fans	\$2,100,000	\$0 \$0	\$0 \$0	0	\$0 \$0	\$2,100,000	0.67%	\$4.00	
	Subtotal - Mechanical Purchase Contracts:	\$5,749,697	\$550,000	\$0	\$0	\$6,800,000	\$13,099,697	4.20%	\$24.95	
Electrical P	urchase Contracts:	\$0	\$0	\$0	0	\$0				
63.0000	Electrical Equipment & Materials	\$0	\$3,000	\$0	0	\$0	\$3,000	0.00%	\$0.01	
63.0601	Plant Communication System	\$0	\$50,000	\$0	0	\$0	\$50,000	0.02%	\$0.10	
63.0801	Cable - 8-15KV Power	\$0	\$1,627,800	\$0	0	\$0	\$1,627,800	0.52%	\$3.10	
63.0804	Cable - 300-600V Instrument & T/C	\$0	\$17,923	\$0	0	\$0	\$17,923	0.01%	\$0.03	
63.0802	Cable - 600V Power	\$0	\$106,408	\$0	0	\$0	\$106,408	0.03%	\$0.20	
63.1001	Welding System	\$0	\$28,600	\$0	0	\$0	\$28,600	0.01%	\$0.05	
63.1201	Iso-Phase Bus Duct	\$230,000	\$0	\$0	0	\$0	\$230,000	0.07%	\$0.44	
63.1202	Non-Seg or SegregatedPhase Bus Duct	\$0	\$3,640,040	\$0	0	\$0	\$3,640,040	1.17%	\$6.93	
63.2000	Metering & Relaying	\$120,000	\$0	\$0	0	\$0	\$120,000	0.04%	\$0.23	
63.2802	Batteries - DC Equipment	\$0	\$442,750	\$0	0	\$0	\$442,750	0.14%	\$0.84	
63.2805	PanelBoards	\$0	\$60,000	\$0	0	\$0	\$60,000	0.02%	\$0.11	
63.3002	VFDs, Motors and Couplings	\$3,086,000	\$0	\$0	0	\$0	\$3,086,000	0.99%	\$5.88	
63.3603	Switchgear & MCCs	\$3,084,000	\$0	\$0	0	\$0	\$3,084,000	0.99%	\$5.87	
63.3802	SUS Transformers	\$479,504	\$0	\$0	0	\$0	\$479,504	0.15%	\$0.91	
63.3803	Aux Transformer	\$1,432,000	\$0	\$0	0	\$0	\$1,432,000	0.46%	\$2.73	
63.4400	345 kV Transmission Lines Relocation	\$0 \$0	\$0 \$13.100	\$0 \$0	0	\$3,000,000	\$3,000,000	0.96%	\$5.71	
63.5000 63.5010	Junction Boxes Grounding Materials and Equipment	\$0 \$0	\$13,100 \$127,825	\$0 \$0	0	\$0 \$0	\$13,100 \$127,825	0.00% 0.04%	\$0.02 \$0.24	
63.5020	Raceway - Duct Bank Materials	\$0 \$0	\$158,600	\$0 \$0	0	\$0 \$0	\$158,600	0.05%	\$0.24	
63.5021	Raceway - Cable Tray	\$0 \$0	\$132,170	\$0 \$0	0	\$0 \$0	\$132,170	0.04%	\$0.30	
63.5022	Raceway - Gable Tray Raceway - General	<u>\$0</u>	\$400,000	\$0 \$0	0	\$0 \$0	\$400,000	0.13%	\$0.76	
	Subtotal - Electrical Purchase Contracts:	\$8,431,504	\$6,808,216	\$0	0	\$3,000,000	\$18,239,720	5.84%	\$34.74	
Control Pur	chase Contracts:	\$0	\$0	\$0	0	\$0				
64.0202	Distribution Control System	\$1,100,000	\$0	\$0	0	\$0	\$1,100,000	0.35%	\$2.10	
64.0206	Instrument Valves	\$0	\$56,400	\$0	0	\$0	\$56,400	0.02%	\$0.11	
64.0407	On-line Performance Monitoring - Neural Network	\$0	\$0	\$0	0	\$570,000	\$570,000	0.18%	\$1.09	
64.1001	Transmitters - Pressure	\$61,500	\$0	\$0	0	\$0	\$61,500	0.02%	\$0.12	
64.1003	Switches - Pressure	\$150,600	\$0	\$0	0	\$0	\$150,600	0.05%	\$0.29	
64.1203	Thermocouple Assemblies & TWS	\$20,000	\$0	\$0	0	\$0	\$20,000	0.01%	\$0.04	
64.1602	Instr. Racks and Enclosures	\$0	\$15,000	\$0	0	\$0	\$15,000	0.00%	\$0.03	
64.5010	Tubing	\$0	\$90,000	\$0	0	\$0	\$90,000	0.03%	\$0.17	
	Subtotal - Control Purchase Contracts:	\$1,332,100	\$161,400	\$0	0	\$570,000	\$2,063,500	0.66%	\$3.93	
Chemical P	urchase Contracts:	\$0	\$0	\$0	0	\$0				
65.3120	Fabric Filter	\$18,000,000	\$0	\$0	0	\$0	\$18,000,000	5.77%	\$34.29	
65.3210	Scrubber FGD	\$50,300,000	\$0	\$0	0	\$0	\$50,300,000	16.12%	\$95.81	
65.3230	Sorbent Injection System	\$2,000,000	\$0	\$0	0	\$0	\$2,000,000	0.64%	\$3.81	
65.3500	H -PAC Mecury Control	\$1,000,000	\$0	\$0	0	\$0	\$1,000,000	0.32%	\$1.90	
65.3600	CEMs	\$850,000	\$0	\$0	0	\$0	\$850,000	0.27%	\$1.62	
	Subtotal - Chemical Purchase Contracts:	\$72,150,000	\$0	\$0	0	\$0	\$72,150,000	23.12%	\$137.43	
	Subtotal Purchase Contracts:	\$90,323,701	\$8,043,451	\$0	0	\$13,007,190	\$111,374,342	35.69%	\$212.14	

LG&E - KU- Mill Creek Unit 4 Wet FGD & PJFF- Arrangement "A" rev. B

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

LOCATION: Jef
PLANT TYPE: PC
CLIENT: LG
PARTNER: N/A
CURRENCY: US

Jefferson County, KY PC Fired Boiler LG&E - KU N/A US Dollars

CURRENCY: BLACK AND VEATCH CONFIDENTIAL AND PROPRIETARY INFORMATION

		PROJECT - TOTAL COSTS							
Contract Number	Description	Engr Equip	Commodities					% OF TOTAL C.V.	\$ PER KW
	·	Material \$	Material \$	Labor \$	Manhours	Other	TOTAL \$		525
ivil / Struc	ctural Construction Contracts:	\$0	\$0	\$0	0	\$0			
71.0100	Demolition Works	\$0	\$35,000	\$122,118	2,380	\$587,000	\$744,118	0.24%	\$1.42
71.0203	Site Finishing	\$0	\$0	\$82,096	1,600	\$0	\$82,096	0.03%	\$0.16
71.0402	General Construction - Substructures	\$0	\$1,401,200	\$4,087,675	72,086	\$3,822,733	\$9,311,607	2.98%	\$17.74
71.0403	General Construction - Superstructures	\$1,272,600	\$110,480	\$2,140,245	30,924	\$2,418,750	\$5,942,075	1.90%	\$11.32
71.0411	Concrete Chimney	\$0	\$0	\$0	0	\$19,000,000	\$19,000,000	6.09%	\$36.19
	Subtotal - Civil / Structural Construction Contracts:	\$1,272,600	\$1,546,680	\$6,432,134	106,990	\$25,828,483	\$35,079,896	11.24%	\$66.82
chanica	I Construction Contracts:	\$0	\$0	\$0	0	\$0			
2.0201	Mechanical Equipment Erection	\$0	\$0	\$814,454	13,312	\$0	\$814,454	0.26%	\$1.55
2.0401	Plant Piping Installation	\$0	\$0	\$6,792,532	107,767	\$0	\$6,792,532	2.18%	\$12.94
2.0403	Piping & Equipment Insulation	\$0	\$0	\$0	0	\$2,526,000	\$2,526,000	0.81%	\$4.81
2.0800	Fire Protection & Detection Systems	\$0	\$0	\$0	0	\$1,569,700	\$1,569,700	0.50%	\$2.99
7.0000	Mechanical Construction	\$0	\$0	\$17,049,056	278,807	\$0	\$17,049,056	5.46%	\$32.47
7.5450	Field Erected Tanks	\$0	\$0	\$0	0	\$1,650,000	\$1,650,000	0.53%	\$3.14
	Subtotal - Mechanical Construction Contracts:	\$0	\$0	\$24,656,043	\$399,886	\$5,745,700	\$30,401,743	9.74%	\$57.91
	Outlied Outlier Outlier Outlier	Φ0	*	# 0	0	Φ0			
	Control Construction Contracts:	\$0	\$0	\$0	0	\$0	00 747 504	0.400/	040.57
3.0201	Electrical Equipment Erection	\$0	\$264,200	\$9,099,981	145,646	\$383,400	\$9,747,581	3.12%	\$18.57
4.0201	Control & Instrumentation Installation	\$0	\$0	\$788,024	12,612	\$0	\$788,024	0.25%	\$1.50
	Subtotal - Electrical / Control Construction Contracts:	\$0	\$264,200	\$9,888,005	158,259	\$383,400	\$10,535,605	3.38%	\$20.07
nstructi	on Indirects & Service Contracts:	\$0	\$0	\$0	0	\$0			
8.0000	Service Contracts & Construction Indirects	\$0	\$5,567,877	\$6,267,772	134,998	\$19,575,459	\$31,411,108	10.07%	\$59.83
8.4000	Warranty _	\$0	\$0	\$0	0	\$275,300	\$275,300	0.09%	\$0.52
	Subtotal - Construction Indirects & Service Contracts:	\$0	\$5,567,877	\$6,267,772	134,998	\$19,850,759	\$31,686,408	10.15%	\$60.36
	Subtotal - Construction Costs:	\$1,272,600	\$7,378,757	\$47,243,953	800,133	\$51,808,342	\$107,703,652	34.51%	\$205.15
	Subtotal - Direct Costs:	\$91,596,301	\$15,422,208	\$47,243,953	800,133	\$64,815,532	\$219,077,994	70.20%	\$417.29
direct Co	sts:	\$0	\$0	\$0	0	\$0			
99.1100	Engineering Costs (With G&A)	\$0	\$0	\$8,036,000	196,000	\$11,941,496	\$19,977,496	6.40%	\$38.05
9.1200	EPC Construction Management (With G&A)	\$0	\$3,966,134	\$8,434,489	188,460	\$7,964,709	\$20,365,331	6.53%	\$38.79
9.1500	Project Insurance	\$0	\$0	\$0	0	\$3,937,323	\$3,937,323	1.26%	\$7.50
9.1600	Performance Bond	\$0	\$0	\$0	0	\$1,687,424	\$1,687,424	0.54%	\$3.21
9.1900	Sales Tax 6% of Indirect materials and Services	\$0	\$90,252	\$0	0	\$0	\$90,252	0.03%	\$0.17
9.2500	Project Contingency	\$0	\$0	\$0	0	\$26,513,582	\$26,513,582	8.50%	\$50.50
9.2600	EPC Profit	\$0	\$0	\$0 \$0	0	\$20,416,000	\$20,416,000	6.54%	\$38.89
	Subtotal - Indirect Costs:	\$0	\$4,056,386	\$16,470,489	384,460	\$72,460,534	\$92,987,409	29.80%	\$177.12
		A04 F00 551	A40.450.500	A00 =14 :::	4.404.500	A400 000 000	4040.005.100	400.000	AFA () (
	Total Overnight (Mar 2011) EPC Capital Costs:	\$91,596,301	\$19,478,593	\$63,714,442	1,184,593	\$137,276,066	\$312,065,402	100.00%	\$594.41