

LG&E - KU- Mill Creek Unit 1 PJFF Rev. B (Without SCR)

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

LOCATION: Jefferson 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 330
		Engr Equip	Commodities					
		Material \$	Material \$	Labor \$	Manhours	Other		

ESTIMATE SUMMARY

Purchase Contracts:

61.0000	Civil / Structural	\$2,519,400	\$110,160	\$0	0	\$7,033,779	\$9,663,339	5.40%	\$29.28
61.3801	Ductwork and breeching	\$1,087,200	\$0	\$0	0	\$0	\$1,087,200	0.61%	\$3.29
62.0000	Mechanical - Balance of Plant (BOP)	\$0	\$0	\$0	0	\$50,000	\$50,000	0.03%	\$0.15
63.0000	Electrical - BOP, Equipment, Raceway	\$290,000	\$5,812,691	\$0	0	\$5,000,000	\$11,102,691	6.21%	\$33.64
63.3002	VFDs, Motors and Couplings	\$3,179,200	\$0	\$0	0	\$0	\$3,179,200	1.78%	\$9.63
63.3603	Switchgear and MCCs	\$2,164,000	\$0	\$0	0	\$0	\$2,164,000	1.21%	\$6.56
63.3802	SUS Transformers	\$452,482	\$0	\$0	0	\$0	\$452,482	0.25%	\$1.37
63.3803	Aux Transformer	\$562,000	\$0	\$0	0	\$0	\$562,000	0.31%	\$1.70
64.0000	Control - DCS, Instrumentation	\$876,000	\$64,350	\$0	0	\$0	\$940,350	0.53%	\$2.85
64.0407	On-line Performance Monitoring - Neural Network	\$0	\$0	\$0	0	\$570,000	\$570,000	0.32%	\$1.73
65.3120	Fabric Filter	\$13,000,000	\$0	\$0	0	\$0	\$13,000,000	7.27%	\$39.39
65.3210	Sorbent Injection	\$2,000,000	\$0	\$0	0	\$0	\$2,000,000	1.12%	\$6.06
65.3500	H-PAC Mercury Control	\$1,000,000	\$0	\$0	0	\$0	\$1,000,000	0.56%	\$3.03
66.1000	Piping and Tubing	\$0	\$346,268	\$0	0	\$0	\$346,268	0.19%	\$1.05
66.2070	Pipe Supports	\$0	\$434,438	\$0	0	\$0	\$434,438	0.24%	\$1.32
66.3000	Valves and Accessories	\$0	\$23,200	\$0	0	\$0	\$23,200	0.01%	\$0.07
67.0414	Fly Ash Handling System	\$0	\$0	\$0	0	\$800,000	\$800,000	0.45%	\$2.42
67.9300	Compressors	\$250,000	\$0	\$0	0	\$0	\$250,000	0.14%	\$0.76
67.9532	ID Fans	\$1,800,000	\$0	\$0	0	\$0	\$1,800,000	1.01%	\$5.45
Subtotal Purchase Contracts:		\$29,180,282	\$6,791,107	\$0	0	\$13,453,779	\$49,425,168	27.64%	\$149.77

Construction Contracts:

71.0100	Demolition Works	\$0	\$0	\$124,170	2,420	\$320,000	\$444,170	0.25%	\$1.35
71.0401	Civil / Structural Construction - Cast in-place Piling	\$0	\$0	\$0	0	\$1,225,000	\$1,225,000	0.68%	\$3.71
71.0402	Civil / Structural Construction - Super Structures	\$0	\$0	\$4,279,138	61,828	\$2,960,000	\$7,239,138	4.05%	\$21.94
71.0403	Civil / Structural Construction - Sub-Structures	\$0	\$456,480	\$1,500,627	26,578	\$152,864	\$2,109,970	1.18%	\$6.39
72.0000	Mechanical / Chemical Construction	\$0	\$0	\$13,162,052	213,957	\$2,683,250	\$15,845,302	8.86%	\$48.02
73.0000	Electrical / Control Construction	\$0	\$534,212	\$9,301,301	148,868	\$26,100	\$9,861,612	5.51%	\$29.88
75.3200	Mechanical - Scrubber Refurbishment	\$0	\$0	\$0	0	\$23,032,467	\$23,032,467	12.88%	\$69.80
78.0000	Service Contracts & Construction Indirects	\$0	\$3,080,913	\$3,818,771	81,348	\$12,175,367	\$19,075,050	10.67%	\$57.80
Subtotal Construction Contracts:		\$0	\$4,071,604	\$32,186,058	535,000	\$42,575,048	\$78,832,710	44.08%	\$238.89

Total Direct Costs

\$29,180,282 \$10,862,711 \$32,186,058 535,000 \$56,028,827 \$128,257,878 71.72% \$388.66

Indirect Costs:

99.1100	Engineering Costs (Includes G&A)	\$0	\$0	\$2,460,000	60,000	\$3,655,560	\$6,115,560	3.42%	\$18.53
99.1200	EPC Construction Management (Includes G&A)	\$0	\$75,945	\$5,858,311	128,981	\$8,301,757	\$14,236,013	7.96%	\$43.14
99.1500	Project Insurance	\$0	\$0	\$0	0	\$2,292,839	\$2,292,839	1.28%	\$6.95
99.1600	Performance Bond	\$0	\$0	\$0	0	\$982,645	\$982,645	0.55%	\$2.98
99.1900	Sales Tax 6% of Indirect materials and Services	\$0	\$57,265	\$0	0	\$0	\$57,265	0.03%	\$0.17
99.2500	Project Contingency 10%	\$0	\$0	\$0	0	\$15,194,220	\$15,194,220	8.50%	\$46.04
99.2600	EPC Profit	\$0	\$0	\$0	0	\$11,700,000	\$11,700,000	6.54%	\$35.45
Total Indirect Costs		\$0	\$133,211	\$8,318,311	188,981	\$42,127,022	\$50,578,543	28.28%	\$153.27

Total Overnight (April 2011) EPC Capital Costs:

\$29,180,282 \$10,995,921 \$40,504,369 723,981 \$98,155,849 \$178,836,421 100.00% \$541.93

\$0 \$0 \$0 0 \$0 \$0 0.00% \$0.00

LG&E - KU- Mill Creek Unit 1 PJFF Rev. B (Without SCR)

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

LOCATION: Jefferson 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 330
		Engr Equip Material \$	Commodities Material \$	Labor \$	Manhours	Other		

ESTIMATE SUMMARY

Purchase Contracts:

61.0000	Civil / Structural	\$3,606,600	\$110,160	\$0	0	\$7,033,779	\$10,750,539	6.01%	\$32.58
62.0000	Mechanical	\$2,050,000	\$803,906	\$0	0	\$850,000	\$3,703,906	2.07%	\$11.22
63.0000	Electrical	\$6,647,682	\$5,812,691	\$0	0	\$5,000,000	\$17,460,373	9.76%	\$52.91
64.0000	Control	\$876,000	\$64,350	\$0	0	\$570,000	\$1,510,350	0.84%	\$4.58
65.0000	Chemical	\$16,000,000	\$0	\$0	0	\$0	\$16,000,000	8.95%	\$48.48
Subtotal Purchase Contracts:		\$29,180,282	\$6,791,107	\$0	0	\$13,453,779	\$49,425,168	27.64%	\$149.77

Construction Contracts:

71.0402	Civil / Structural Construction -Substructures	\$0	\$456,480	\$5,903,935	90,826	\$4,657,864	\$11,018,279	6.16%	\$33.39
71.0403	Civil / Structural Construction -Superstructures	\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00
72.0000	Mechanical / Chemical Construction	\$0	\$0	\$13,162,052	213,957	\$25,715,717	\$38,877,769	21.74%	\$117.81
73.0000	Electrical / Control Construction	\$0	\$534,212	\$9,301,301	148,868	\$26,100	\$9,861,612	5.51%	\$29.88
78.0000	Service Contracts & Construction Indirects	\$0	\$3,080,913	\$3,818,771	81,348	\$12,175,367	\$19,075,050	10.67%	\$57.80
Subtotal Construction Contracts:		\$0	\$4,071,604	\$32,186,058	535,000	\$42,575,048	\$78,832,710	44.08%	\$238.89

Total Direct Costs

\$29,180,282	\$10,862,711	\$32,186,058	535,000	\$56,028,827	\$128,257,878	71.72%	\$388.66
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Indirect Costs:

99.1100	Engineering Costs (With G&A)	\$0	\$0	\$2,460,000	60,000	\$3,655,560	\$6,115,560	3.42%	\$18.53
99.1200	Construction Management (With G&A)	\$0	\$75,945	\$5,858,311	128,981	\$8,301,757	\$14,236,013	7.96%	\$43.14
99.1500	Project Insurance	\$0	\$0	\$0	0	\$2,292,839	\$2,292,839	1.28%	\$6.95
99.1600	Performance Bond	\$0	\$0	\$0	0	\$982,645	\$982,645	0.55%	\$2.98
99.1900	Sales Tax 6% of Indirect materials and Services	\$0	\$57,265	\$0	0	\$0	\$57,265	0.03%	\$0.17
99.2500	Project Contingency @ 10%	\$0	\$0	\$0	0	\$15,194,220	\$15,194,220	8.50%	\$46.04
99.2600	EPC profit @ 7%	\$0	\$0	\$0	0	\$11,700,000	\$11,700,000	6.54%	\$35.45
Total Indirect Costs		\$0	\$133,211	\$8,318,311	188,981	\$42,127,022	\$50,578,543	28.28%	\$153.27

Total Overnight (April 2011) EPC Capital Costs:

\$29,180,282	\$10,995,921	\$40,504,369	723,981	\$98,155,849	\$178,836,421	100.00%	\$541.93
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B&V PROJECT #: 168908
 PROJECT ESTIMATOR: Ron Fields
 PROJECT MANAGER: Tim Hillman
 PURPOSE OF ESTIMATE: Budgetary
 ESTIMATE DATE: April-11

LOCATION: Jefferson 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 330	
		Engr Equip Material \$	Commodities Material \$	Labor \$	Manhours	Other			TOTAL \$
Civil / Structural Purchase Contracts:									
61.0200	Buildings - Insulated panels	\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00
61.0300	Grating	\$0	\$29,700	\$0	0	\$0	\$29,700	0.02%	\$0.09
61.3801	Ductwork and Breeching	\$1,087,200	\$0	\$0	0	\$0	\$1,087,200	0.61%	\$3.29
61.4001	Structural Steel	\$2,519,400	\$0	\$0	0	\$6,761,395	\$9,280,795	5.19%	\$28.12
61.4015	Handrail and stairs	\$0	\$80,460	\$0	0	\$0	\$80,460	0.04%	\$0.24
61.4052	Sheet Piling and Cofferdam	\$0	\$0	\$0	0	\$272,384	\$272,384	0.15%	\$0.83
Subtotal - Civil / Structural Purchase Contracts:		\$3,606,600	\$110,160	\$0	0	\$7,033,779	\$10,750,539	6.01%	\$32.58
Mechanical Purchase Contracts:									
62.0205	Continuous Emissions Monitoring (CEM)	\$0	\$0	\$0	0	\$50,000	\$50,000	0.03%	\$0.15
62.2418	Primary Flow elements	\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00
66.1000	Piping and Tubing	\$0	\$346,268	\$0	0	\$0	\$346,268	0.19%	\$1.05
66.2070	Pipe Supports	\$0	\$434,438	\$0	0	\$0	\$434,438	0.24%	\$1.32
66.3000	Valves and Accessories	\$0	\$23,200	\$0	0	\$0	\$23,200	0.01%	\$0.07
67.0414	Fly Ash Handling System	\$0	\$0	\$0	0	\$800,000	\$800,000	0.45%	\$2.42
67.9300	Air Compressors, Dryers, & Air receivers	\$250,000	\$0	\$0	0	\$0	\$250,000	0.14%	\$0.76
67.9532	ID Fans	\$1,800,000	\$0	\$0	0	\$0	\$1,800,000	1.01%	\$5.45
Subtotal - Mechanical Purchase Contracts:		\$2,050,000	\$803,906	\$0	0	\$850,000	\$3,703,906	2.07%	\$11.22
Electrical Purchase Contracts:									
63.0000	Electrical Equipment & Materials	\$0	\$0	\$0	0	\$0	\$2,000	0.00%	\$0.01
63.0500	Lightning Protection Equipment and Materials	\$0	\$2,220	\$0	0	\$0	\$2,220	0.00%	\$0.01
63.0601	Plant Communication System	\$0	\$25,000	\$0	0	\$0	\$25,000	0.01%	\$0.08
63.0801	Cable - 8-15KV Power	\$0	\$677,700	\$0	0	\$0	\$677,700	0.38%	\$2.05
63.0804	Cable - 300-600V Instrument & T/C	\$0	\$24,750	\$0	0	\$0	\$24,750	0.01%	\$0.08
63.0802	Cable and Raceway	\$0	\$1,345,918	\$0	0	\$0	\$1,345,918	0.75%	\$4.08
63.1201	Iso-Phase Bus Duct	\$230,000	\$0	\$0	0	\$0	\$230,000	0.13%	\$0.70
63.1202	Cable Bus	\$0	\$2,921,560	\$0	0	\$0	\$2,921,560	1.63%	\$8.85
63.2000	Metering & Relaying	\$60,000	\$0	\$0	0	\$0	\$60,000	0.03%	\$0.18
63.2802	Batteries - DC Equipment	\$0	\$442,750	\$0	0	\$0	\$442,750	0.25%	\$1.34
63.2805	PanelBoards	\$0	\$60,000	\$0	0	\$0	\$60,000	0.03%	\$0.18
63.3002	Variable Frequency Drives	\$3,179,200	\$0	\$0	0	\$0	\$3,179,200	1.78%	\$9.63
63.3603	Switchgear & MCCs	\$2,164,000	\$0	\$0	0	\$0	\$2,164,000	1.21%	\$6.56
63.3802	SUS Transformers	\$452,482	\$0	\$0	0	\$0	\$452,482	0.25%	\$1.37
63.3803	Aux Transformer	\$562,000	\$0	\$0	0	\$0	\$562,000	0.31%	\$1.70
63.5000	Junction Boxes	\$0	\$20,000	\$0	0	\$0	\$20,000	0.01%	\$0.06
63.5010	Grounding Materials and Equipment	\$0	\$105,993	\$0	0	\$0	\$105,993	0.06%	\$0.32
63.5021	Raceway - Cable Tray	\$0	\$0	\$0	0	\$5,000,000	\$5,000,000	2.80%	\$15.15
63.5022	Raceway - General	\$0	\$184,800	\$0	0	\$0	\$184,800	0.10%	\$0.56
Subtotal - Electrical Purchase Contracts:		\$6,647,682	\$5,812,691	\$0	0	\$5,000,000	\$17,460,373	9.76%	\$52.91
Control Purchase Contracts:									
64.0202	DCS / PLC mods	\$576,000	\$0	\$0	0	\$0	\$576,000	0.32%	\$1.75
64.0407	On-line Performance Monitoring - Neural Network	\$0	\$0	\$0	0	\$570,000	\$570,000	0.32%	\$1.73
64.1003	Instrumentation	\$300,000	\$0	\$0	0	\$0	\$300,000	0.17%	\$0.91
64.1602	Instr. Racks and Enclosures	\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00
64.5010	Tubing	\$0	\$64,350	\$0	0	\$0	\$64,350	0.04%	\$0.20
Subtotal - Control Purchase Contracts:		\$876,000	\$64,350	\$0	0	\$570,000	\$1,510,350	0.84%	\$4.58
Chemical Purchase Contracts:									
65.3120	Fabric Filter	\$13,000,000	\$0	\$0	0	\$0	\$13,000,000	7.27%	\$39.39
65.3210	Sorbent Injection	\$2,000,000	\$0	\$0	0	\$0	\$2,000,000	1.12%	\$6.06
65.3310	Selective Catalytic Redcuton system	\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00
65.3500	H -PAC Mecury Control	\$1,000,000	\$0	\$0	0	\$0	\$1,000,000	0.56%	\$3.03
Subtotal - Chemical Purchase Contracts:		\$16,000,000	\$0	\$0	0	\$0	\$16,000,000	8.95%	\$48.48
Subtotal Purchase Contracts:		\$29,180,282	\$6,791,107	\$0	0	\$13,453,779	\$49,425,168	27.64%	\$149.77

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 PLANT TYPE: PC Fired Boiler
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Contract Number	Description	PROJECT - TOTAL COSTS					% OF TOTAL C.V.	\$ PER KW 330	
		Engr Equip Material \$	Commodities Material \$	Labor \$	Manhours	Other			TOTAL \$
Civil / Structural Construction Contracts:									
71.0100	Demolition Works	\$0	\$0	\$0	0	\$0	\$444,170	0.25%	\$1.35
71.0401	Cast In place Piling	\$0	\$0	\$124,170	2,420	\$320,000	\$1,225,000	0.68%	\$3.71
71.0402	General Construction - Substructures	\$0	\$456,480	\$1,500,627	26,578	\$152,864	\$2,109,970	1.18%	\$6.39
71.0403	General Construction - Superstructures	\$0	\$0	\$4,279,138	61,828	\$2,960,000	\$7,239,138	4.05%	\$21.94
Subtotal - Civil / Structural Construction Contracts:		\$0	\$456,480	\$5,903,935	90,826	\$4,657,864	\$11,018,279	6.16%	\$33.39
Mechanical Construction Contracts:									
72.0401	Plant Piping Installation	\$0	\$0	\$0	0	\$0	\$2,634,468	1.47%	\$7.98
72.0403	Duct and Reactor Insulation	\$0	\$0	\$2,634,468	41,797	\$0	\$2,000,000	1.12%	\$6.06
72.0800	Fire Protection & Detection Systems	\$0	\$0	\$0	0	\$683,250	\$683,250	0.38%	\$2.07
75.3200	Mechanical - Scrubber Refurbishment	\$0	\$0	\$0	0	\$23,032,467	\$23,032,467	12.88%	\$69.80
77.0000	Mechanical Construction	\$0	\$0	\$10,527,584	172,160	\$0	\$10,527,584	5.89%	\$31.90
Subtotal - Mechanical Construction Contracts:		\$0	\$0	\$13,162,052	213,957	\$25,715,717	\$38,877,769	21.74%	\$117.81
Electrical / Control Construction Contracts:									
73.0201	Electrical Equipment Erection	\$0	\$0	\$0	0	\$0	\$9,189,828	5.14%	\$27.85
74.0201	Control & Instrumentation Installation	\$0	\$534,212	\$8,629,516	138,116	\$26,100	\$671,785	0.38%	\$2.04
Subtotal - Electrical / Control Construction Contracts:		\$0	\$534,212	\$9,301,301	148,868	\$26,100	\$9,861,612	5.51%	\$29.88
Construction Indirects & Service Contracts:									
78.0000	Service Contracts & Construction Indirects	\$0	\$0	\$0	0	\$0	\$18,859,450	10.55%	\$57.15
78.4000	Warranty	\$0	\$3,080,913	\$3,818,771	81,348	\$11,959,767	\$215,600	0.12%	\$0.65
Subtotal - Construction Indirects & Service Contracts:		\$0	\$3,080,913	\$3,818,771	81,348	\$12,175,367	\$19,075,050	10.67%	\$57.80
Subtotal - Construction Costs:		\$0	\$4,071,604	\$32,186,058	535,000	\$42,575,048	\$78,832,710	44.08%	\$238.89
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99.1200	EPC Construction Management (Includes G&A)	\$0	\$0	\$2,460,000	60,000	\$3,655,560	\$14,236,013	7.96%	\$43.14
99.1500	Project Insurance	\$0	\$75,945	\$5,858,311	128,981	\$8,301,757	\$2,292,839	1.28%	\$6.95
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99.2500	Project Contingency	\$0	\$57,265	\$0	0	\$0	\$15,194,220	8.50%	\$46.04
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