

LG&E - KU- E.W. Brown Unit 1 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: Mercer 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 110
		Engr Equip	Commodities					
		Material \$	Material \$	Labor \$	Manhours	Other		

ESTIMATE SUMMARY

Purchase Contracts:

61.0000	Civil / Structural	\$1,342,800	\$20,385	\$0	0	\$271,800	\$1,634,985	1.08%	\$14.86
61.3801	Ductwork and breeching	\$4,002,990	\$0	\$0	0	\$0	\$4,002,990	2.64%	\$36.39
62.0000	Mechanical - Balance of Plant (BOP)	\$837,150	\$0	\$0	0	\$50,000	\$887,150	0.59%	\$8.07
63.0000	Electrical - BOP, Equipment, Raceway	\$317,500	\$4,077,839	\$0	0	\$0	\$4,395,339	2.90%	\$39.96
63.3603	Switchgear and MCCs	\$1,070,300	\$0	\$0	0	\$0	\$1,070,300	0.71%	\$9.73
63.3802	SUS Transformers	\$294,376	\$0	\$0	0	\$0	\$294,376	0.19%	\$2.68
63.3803	Aux Transformer	\$278,500	\$0	\$0	0	\$0	\$278,500	0.18%	\$2.53
64.0000	Control - DCS, Instrumentation	\$996,000	\$205,525	\$0	0	\$0	\$1,201,525	0.79%	\$10.92
64.0407	On-line Performance Monitoring - Neural Network	\$0	\$0	\$0	0	\$570,000	\$570,000	0.38%	\$5.18
65.3120	Fabric filter	\$4,400,000	\$0	\$0	0	\$0	\$4,400,000	2.90%	\$40.00
65.3210	Sorbent Injection	\$750,000	\$0	\$0	0	\$0	\$750,000	0.50%	\$6.82
65.3310	Selective Catalytic Reduction System	\$11,010,860	\$0	\$0	0	\$0	\$11,010,860	7.27%	\$100.10
65.3500	H-PAC Mercury Control	\$500,000	\$0	\$0	0	\$0	\$500,000	0.33%	\$4.55
66.1000	Piping & Tubing	\$291,381	\$0	\$0	0	\$0	\$291,381	0.19%	\$2.65
66.2070	Pipe Supports	\$0	\$579,250	\$0	0	\$0	\$579,250	0.38%	\$5.27
66.3000	Valves and Accessories	\$0	\$523,200	\$0	0	\$0	\$523,200	0.35%	\$4.76
67.0414	Fly Ash Handling System	\$0	\$0	\$0	0	\$4,700,000	\$4,700,000	3.10%	\$42.73
67.9300	Air Compressors, Dryers, & Air Receivers	\$250,000	\$0	\$0	0	\$0	\$250,000	0.17%	\$2.27
67.9531	FD Fan	\$515,000	\$0	\$0	0	\$0	\$515,000	0.34%	\$4.68
Subtotal Purchase Contracts:		\$26,856,857	\$5,406,199	\$0	0	\$5,591,800	\$37,854,855	24.99%	\$344.14

Construction Contracts:

71.0100	Demolition works	\$0	\$25,000	\$110,472	2,400	\$370,000	\$505,472	0.33%	\$4.60
71.0401	Civil / Structural Construction - Cast in -place Piling	\$0	\$0	\$0	0	\$1,540,000	\$1,540,000	1.02%	\$14.00
71.0402	Civil / Structural Construction - Super Structures	\$0	\$90,000	\$1,887,066	30,604	\$1,216,250	\$3,193,316	2.11%	\$29.03
71.0403	Civil / Structural Construction - Sub-Structures	\$0	\$375,573	\$1,126,138	22,729	\$128,422	\$1,630,133	1.08%	\$14.82
72.0000	Mechanical / Chemical Construction	\$0	\$0	\$13,651,890	273,592	\$4,641,250	\$18,293,140	12.07%	\$166.30
73.0000	Electrical / Control Construction	\$0	\$1,271,588	\$9,696,279	183,052	\$10,800	\$10,978,667	7.25%	\$99.81
78.0000	Service Contracts & Construction Indirects	\$0	\$3,865,623	\$5,640,018	123,576	\$12,510,837	\$22,016,478	14.53%	\$200.15
Subtotal Construction Contracts:		\$0	\$5,627,784	\$32,111,863	635,954	\$20,417,559	\$58,157,206	38.39%	\$528.70

Total Direct Costs

\$26,856,857 \$11,033,982 \$32,111,863 635,954 \$26,009,359 \$96,012,061 63.37% \$872.84

Indirect Costs:

99.1100	Engineering Costs (Includes G&A)	\$0	\$0	\$6,346,800	154,800	\$9,431,345	\$15,778,145	10.41%	\$143.44
99.1200	EPC Construction Management (Includes G&A)	\$0	\$74,610	\$6,212,458	135,877	\$8,366,618	\$14,653,687	9.67%	\$133.22
99.1500	Project Insurance	\$0	\$0	\$0	0	\$1,556,007	\$1,556,007	1.03%	\$14.15
99.1600	Performance Bond	\$0	\$0	\$0	0	\$666,860	\$666,860	0.44%	\$6.06
99.1900	Sales Tax 6% on indirect materials and services	\$0	\$56,273	\$0	0	\$0	\$56,273	0.04%	\$0.51
99.2500	Project Contingency 10%	\$0	\$0	\$0	0	\$12,872,303	\$12,872,303	8.50%	\$117.02
99.2600	EPC Profit	\$0	\$0	\$0	0	\$9,912,000	\$9,912,000	6.54%	\$90.11
Total Indirect Costs		\$0	\$130,884	\$12,559,258	290,677	\$42,805,134	\$55,495,276	36.63%	\$504.50

Total Overnight (April 2011) EPC Capital Costs:

\$26,856,857 \$11,164,866 \$44,671,122 926,630 \$68,814,493 \$151,507,337 100.00% \$1,377.34

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

LG&E - KU- E.W. Brown Unit 1 PJFF & SCR Rev. B

B&V PROJECT #: 168908
 PROJECT ESTIMATOR: Ron Fields
 PROJECT MANAGER: Tim Hillman
 PURPOSE OF ESTIMATE: Budgetary
 ESTIMATE DATE: April 21, 2011

LOCATION: Mercer 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 110	
		Engr Equip Material \$	Commodities Material \$	Labor \$	Manhours	Other			TOTAL \$
ESTIMATE SUMMARY									
Purchase Contracts:									
61.0000	Civil / Structural	\$5,345,790	\$20,385	\$0	0	\$271,800	\$5,637,975	3.72%	\$51.25
62.0000	Mechanical	\$1,893,531	\$1,102,450	\$0	0	\$4,750,000	\$7,745,981	5.11%	\$70.42
63.0000	Electrical	\$1,960,676	\$4,077,839	\$0	0	\$0	\$6,038,515	3.99%	\$54.90
64.0000	Control	\$996,000	\$205,525	\$0	0	\$570,000	\$1,771,525	1.17%	\$16.10
65.0000	Chemical	\$16,660,860	\$0	\$0	0	\$0	\$16,660,860	11.00%	\$151.46
Subtotal Purchase Contracts:		\$26,856,857	\$5,406,199	\$0	0	\$5,591,800	\$37,854,855	24.99%	\$344.14
Construction Contracts:									
71.0000	Civil / Structural Construction	\$0	\$490,573	\$3,123,676	55,734	\$3,254,672	\$6,868,921	4.53%	\$62.44
72.0000	Mechanical / Chemical Construction	\$0	\$0	\$13,651,890	273,592	\$4,641,250	\$18,293,140	12.07%	\$166.30
73.0000	Electrical / Control Construction	\$0	\$1,271,588	\$9,696,279	183,052	\$10,800	\$10,978,667	7.25%	\$99.81
78.0000	Service Contracts & Construction Indirects	\$0	\$3,865,623	\$5,640,018	123,576	\$12,510,837	\$22,016,478	14.53%	\$200.15
Subtotal Construction Contracts:		\$0	\$5,627,784	\$32,111,863	635,954	\$20,417,559	\$58,157,206	38.39%	\$528.70
Total Direct Costs		\$26,856,857	\$11,033,982	\$32,111,863	635,954	\$26,009,359	\$96,012,061	63.37%	\$872.84
Indirect Costs:									
99.1100	Engineering Costs (With G&A)	\$0	\$0	\$6,346,800	154,800	\$9,431,345	\$15,778,145	10.41%	\$143.44
99.1200	Construction Management (With G&A)	\$0	\$74,610	\$6,212,458	135,877	\$8,366,618	\$14,653,687	9.67%	\$133.22
99.1500	Project Insurance	\$0	\$0	\$0	0	\$1,556,007	\$1,556,007	1.03%	\$14.15
99.1600	Performance Bond	\$0	\$0	\$0	0	\$666,860	\$666,860	0.44%	\$6.06
99.1900	Sales Tax 6% on indirect materials and services	\$0	\$56,273	\$0	0	\$0	\$56,273	0.04%	\$0.51
99.2500	Project Contingency	\$0	\$0	\$0	0	\$12,872,303	\$12,872,303	8.50%	\$117.02
99.2600	EPC Profit	\$0	\$0	\$0	0	\$9,912,000	\$9,912,000	6.54%	\$90.11
Total Indirect Costs		\$0	\$130,884	\$12,559,258	290,677	\$42,805,134	\$55,495,276	36.63%	\$504.50
Total Overnight (April 2011) EPC Capital Costs:		\$26,856,857	\$11,164,866	\$44,671,122	926,630	\$68,814,493	\$151,507,337	100.00%	\$1,377.34

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B&V PROJECT #: 168908
 PROJECT ESTIMATOR: Ron Fields
 PROJECT MANAGER: Tim Hillman
 PURPOSE OF ESTIMATE: Budgetary
 ESTIMATE DATE: April 21, 2011

LOCATION: Mercer 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					TOTAL \$	% OF TOTAL C.V.	\$ PER KW 110
		Engr Equip Material \$	Commodities Material \$	Labor \$	Manhours	Other			
Civil / Structural Purchase Contracts:									
61.0200	Buildings - Insulated panels	\$0	\$0	\$0	0	\$271,800	\$271,800	0.18%	\$2.47
61.0300	Grating	\$0	\$10,440	\$0	0	\$0	\$10,440	0.01%	\$0.09
61.3801	Ductwork and Breeching	\$4,002,990	\$0	\$0	0	\$0	\$4,002,990	2.64%	\$36.39
61.4001	Structural Steel	\$1,342,800	\$0	\$0	0	\$0	\$1,342,800	0.89%	\$12.21
61.4015	Handrail and stairs	\$0	\$9,945	\$0	0	\$0	\$9,945	0.01%	\$0.09
61.4052	Sheet Piling and Cofferdam	\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.00
Subtotal - Civil / Structural Purchase Contracts:		\$5,345,790	\$20,385	\$0	0	\$271,800	\$5,637,975	3.72%	\$51.25
Mechanical Purchase Contracts:									
62.0205	Continuous Emissions Monitoring (CEM)	\$0	\$0	\$0	0	\$0	\$0	0.03%	\$0.45
62.2201	Large Bore Pipe	\$437,150	\$0	\$0	0	\$0	\$437,150	0.29%	\$3.97
62.2418	Primary Flow elements	\$400,000	\$0	\$0	0	\$0	\$400,000	0.26%	\$3.64
66.1000	Piping & Tubing	\$291,381	\$0	\$0	0	\$0	\$291,381	0.19%	\$2.65
66.2070	Pipe Supports	\$0	\$579,250	\$0	0	\$0	\$579,250	0.38%	\$5.27
66.3000	Valves and Accessories	\$0	\$523,200	\$0	0	\$0	\$523,200	0.35%	\$4.76
67.0414	Fly Ash Handling system	\$0	\$0	\$0	0	\$4,700,000	\$4,700,000	3.10%	\$42.73
67.9300	Air Compressors, Dryers, & Air Receivers	\$250,000	\$0	\$0	0	\$0	\$250,000	0.17%	\$2.27
67.9531	FD Fan	\$515,000	\$0	\$0	0	\$0	\$515,000	0.34%	\$4.68
Subtotal - Mechanical Purchase Contracts:		\$1,893,531	\$1,102,450	\$0	\$0	\$4,750,000	\$7,745,981	5.11%	\$70.42
Electrical Purchase Contracts:									
63.0000	Electrical Equipment & Materials	\$0	\$0	\$0	0	\$0	\$0	0.00%	\$0.03
63.0500	Lightning Protection Equipment and Materials	\$0	\$2,800	\$0	0	\$0	\$2,800	0.00%	\$0.07
63.0601	Plant Communication System	\$0	\$90,496	\$0	0	\$0	\$90,496	0.06%	\$0.82
63.0801	Cable - 8-15KV Power	\$0	\$214,605	\$0	0	\$0	\$214,605	0.14%	\$1.95
63.0804	Cable - 300-600V Instrument & T/C	\$0	\$37,125	\$0	0	\$0	\$37,125	0.02%	\$0.34
63.0802	Cable and Raceway	\$0	\$2,019,665	\$0	0	\$0	\$2,019,665	1.33%	\$18.36
63.1201	Iso-Phase Bus Duct	\$257,500	\$0	\$0	0	\$0	\$257,500	0.17%	\$2.34
63.1202	Cable Bus	\$0	\$634,360	\$0	0	\$0	\$634,360	0.42%	\$5.77
63.2000	Metering & Relaying	\$60,000	\$0	\$0	0	\$0	\$60,000	0.04%	\$0.55
63.2802	Batteries - DC Equipment	\$0	\$221,375	\$0	0	\$0	\$221,375	0.15%	\$2.01
63.2805	PanelBoards	\$0	\$60,000	\$0	0	\$0	\$60,000	0.04%	\$0.55
63.3603	Switchgear & MCCs	\$1,070,300	\$0	\$0	0	\$0	\$1,070,300	0.71%	\$9.73
63.3802	SUS Transformers	\$294,376	\$0	\$0	0	\$0	\$294,376	0.19%	\$2.68
63.3803	Aux Transformer	\$278,500	\$0	\$0	0	\$0	\$278,500	0.18%	\$2.53
63.5000	Junction Boxes	\$0	\$20,000	\$0	0	\$0	\$20,000	0.01%	\$0.18
63.5010	Grounding Materials and Equipment	\$0	\$117,993	\$0	0	\$0	\$117,993	0.08%	\$1.07
63.5021	Raceway - Cable Tray	\$0	\$375,000	\$0	0	\$0	\$375,000	0.25%	\$3.41
63.5022	Raceway - General	\$0	\$277,200	\$0	0	\$0	\$277,200	0.18%	\$2.52
Subtotal - Electrical Purchase Contracts:		\$1,960,676	\$4,077,839	\$0	0	\$0	\$6,038,515	3.99%	\$54.90
Control Purchase Contracts:									
64.0202	DCS / PLC mods	\$696,000	\$0	\$0	0	\$0	\$696,000	0.46%	\$6.33
64.0407	On-line Performance Monitoring - Neural Network	\$0	\$0	\$0	0	\$570,000	\$570,000	0.38%	\$5.18
64.1003	Instrumentation	\$300,000	\$100,000	\$0	0	\$0	\$400,000	0.26%	\$3.64
64.1602	Instr. Racks and Enclosures	\$0	\$9,000	\$0	0	\$0	\$9,000	0.01%	\$0.08
64.5010	Tubing	\$0	\$96,525	\$0	0	\$0	\$96,525	0.06%	\$0.88
Subtotal - Control Purchase Contracts:		\$996,000	\$205,525	\$0	0	\$570,000	\$1,771,525	1.17%	\$16.10
Chemical Purchase Contracts:									
65.3120	Fabric Filter	\$4,400,000	\$0	\$0	0	\$0	\$4,400,000	2.90%	\$40.00
65.3210	Sorbent Injection	\$750,000	\$0	\$0	0	\$0	\$750,000	0.50%	\$6.82
65.3310	Selective Catalytic Reduction system	\$11,010,860	\$0	\$0	0	\$0	\$11,010,860	7.27%	\$100.10
65.3500	H -PAC Mercury Control	\$500,000	\$0	\$0	0	\$0	\$500,000	0.33%	\$4.55
Subtotal - Chemical Purchase Contracts:		\$16,660,860	\$0	\$0	0	\$0	\$16,660,860	11.00%	\$151.46
Subtotal Purchase Contracts:		\$26,856,857	\$5,406,199	\$0	0	\$5,591,800	\$37,854,855	24.99%	\$344.14

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Contract Number	Description	PROJECT - TOTAL COSTS					% OF TOTAL C.V.	\$ PER KW 110	
		Engr Equip Material \$	Commodities Material \$	Labor \$	Manhours	Other			TOTAL \$
Civil / Structural Construction Contracts:		\$0	\$0	\$0	0	\$0			
71.0100	Demolition Works	\$0	\$25,000	\$110,472	2,400	\$370,000	\$505,472	0.33%	\$4.60
71.0401	Cast In place Piling	\$0	\$0	\$0	0	\$1,540,000	\$1,540,000	1.02%	\$14.00
71.0402	General Construction - Substructures	\$0	\$375,573	\$1,126,138	22,729	\$128,422	\$1,630,133	1.08%	\$14.82
71.0403	General Construction - Superstructures	\$0	\$90,000	\$1,887,066	30,604	\$1,216,250	\$3,193,316	2.11%	\$29.03
Subtotal - Civil / Structural Construction Contracts:		\$0	\$490,573	\$3,123,676	55,734	\$3,254,672	\$6,868,921	4.53%	\$62.44
Mechanical Construction Contracts:		\$0	\$0	\$0	0	\$0			
72.0401	Plant Piping Installation	\$0	\$0	\$4,468,527	83,618	\$0	\$4,468,527	2.95%	\$40.62
72.0403	Duct and Reactor Insulation	\$0	\$0	\$0	0	\$4,006,000	\$4,006,000	2.64%	\$36.42
72.0800	Fire Protection & Detection Systems	\$0	\$0	\$0	0	\$635,250	\$635,250	0.42%	\$5.78
77.0000	Mechanical Construction	\$0	\$0	\$9,183,363	189,974	\$0	\$9,183,363	6.06%	\$83.49
Subtotal - Mechanical Construction Contracts:		\$0	\$0	\$13,651,890	273,592	\$4,641,250	\$18,293,140	12.07%	\$166.30
Electrical / Control Construction Contracts:		\$0	\$0	\$0	0	\$0			
73.0201	Electrical Equipment Erection	\$0	\$1,271,588	\$8,738,728	164,975	\$10,800	\$10,021,115	6.61%	\$91.10
74.0201	Control & Instrumentation Installation	\$0	\$0	\$957,552	18,077	\$0	\$957,552	0.63%	\$8.71
Subtotal - Electrical / Control Construction Contracts:		\$0	\$1,271,588	\$9,696,279	183,052	\$10,800	\$10,978,667	7.25%	\$99.81
Construction Indirects & Service Contracts:		\$0	\$0	\$0	0	\$0			
78.0000	Service Contracts & Construction Indirects	\$0	\$3,865,623	\$5,640,018	123,576	\$12,139,837	\$21,645,478	14.29%	\$196.78
78.4000	Warranty	\$0	\$0	\$0	0	\$371,000	\$371,000	0.24%	\$3.37
Subtotal - Construction Indirects & Service Contracts:		\$0	\$3,865,623	\$5,640,018	123,576	\$12,510,837	\$22,016,478	14.53%	\$200.15
Subtotal - Construction Costs:		\$0	\$5,627,784	\$32,111,863	635,954	\$20,417,559	\$58,157,206	38.39%	\$528.70
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Indirect Costs:		\$0	\$0	\$0	0	\$0			
99.1100	Engineering Costs (Includes G&A)	\$0	\$0	\$6,346,800	154,800	\$9,431,345	\$15,778,145	10.41%	\$143.44
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99.1500	Project Insurance	\$0	\$0	\$0	0	\$1,556,007	\$1,556,007	1.03%	\$14.15
99.1600	Performance Bond	\$0	\$0	\$0	0	\$666,860	\$666,860	0.44%	\$6.06
99.1900	Sales Tax 6% on indirect materials and services	\$0	\$56,273	\$0	0	\$0	\$56,273	0.04%	\$0.51
99.2500	Project Contingency	\$0	\$0	\$0	0	\$12,872,303	\$12,872,303	8.50%	\$117.02
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