

Preliminary Pollutant Reductions and Costs for Bottom Ash Retrofit to ZLD

UWAG Bottom Ash Data

Model Plant Capacity	BAS Flow (Mgal/year)	*TWPE/Year Removed	Total Capital Cost 2012 \$	**\$/TWPE Removed 2012 \$	**\$/TWPE Removed 1981 \$
<50 MW	9.8	18	\$6,430,000	\$39,596	\$15,918
50-100 MW	18.6	34	\$7,030,000	\$22,726	\$9,136
100-150 MW	88.8	162	\$8,220,000	\$5,573	\$2,240
150-200 MW	256	467	\$9,420,000	\$2,214	\$890
200-300 MW	131	239	\$11,200,000	\$5,147	\$2,069
300-400 MW	153	278	\$13,600,000	\$5,363	\$2,156
400-500 MW	142	258	\$16,000,000	\$6,801	\$2,734
500-700 MW	276	504	\$19,600,000	\$4,268	\$1,716
700-900 MW	273	498	\$24,400,000	\$5,378	\$2,162
>900 MW	249	454	\$29,100,000	\$7,038	\$2,829

*Of the TWPE/year removed, approximately 41% is attributed to the source water (river) used for sluicing.

**O&M costs are not included and would be substantial. O&M costs would include maintenance costs associated with the dry bottom ash handling equipment, costs of transporting the dry bottom ash generated to a landfill, and costs of constructing, operating and maintaining new landfill space.

EPA Homer City Data

Model Plant Capacity	BAS Flow (Mgal/year)	TWPE/Year Removed	Total Capital Cost 2012 \$	\$/TWPE Removed 2012 \$	\$/TWPE Removed 1981 \$	*Revised \$/TWPE Removed 1981 \$
<50 MW	9.8	20	\$6,430,000	\$35,429	\$14,242	\$24,014
50-100 MW	18.6	38	\$7,030,000	\$20,327	\$8,171	\$13,778
100-150 MW	88.8	181	\$8,220,000	\$4,988	\$2,005	\$3,381
150-200 MW	256	522	\$9,420,000	\$1,980	\$796	\$1,342
200-300 MW	131	267	\$11,200,000	\$4,610	\$1,853	\$3,124
300-400 MW	153	311	\$13,600,000	\$4,799	\$1,929	\$3,253
400-500 MW	142	289	\$16,000,000	\$6,082	\$2,445	\$4,122
500-700 MW	276	564	\$19,600,000	\$3,814	\$1,533	\$2,585
700-900 MW	273	557	\$24,400,000	\$4,803	\$1,931	\$3,256
>900 MW	249	507	\$29,100,000	\$6,304	\$2,534	\$4,273

*EPA's nitrate/nitrite result is 37 ppm. UWAG's split of the same sample (5.92 ppm) is more consistent with the UWAG median value of 1 ppm and the PISCES median value of 0.23 ppm. The UWAG median is based on 8 samples and the PISCES median is based on 37 samples. The revised EPA Homer City \$/TWPE (1981\$) is based all EPA data except the UWAG nitrate/nitrite value is substituted for EPA's value.