1989 Coal Combustion By-product—Production and Consumption*

(SHORT TONS**)

	FLY ASH	BOTTOM ASH	BOILER SLAG	FGD SLUDGE
A. By-product Comparison	**53,383,591**	**14,205,221**	**4,267,563**	**15,603,436**
Subtotal			**71,856,375**	
Total				**87,459,812**
B. By-product Consumption	10,153,399	4,848,288	2,518,306	112,635
Subtotal			**17,519,993**	
Total				**17,632,627**
1. External Market				
a. Cement and concrete products	6,334,466	534,094	7,597	8,132
b. Structural fills	134,378	258,767	0	0
c. Road base/ Subbase	692,387	295,172	0	20,330
d. Mineral filler in asphalt	140,566	18,795	48,850	0
e. Snow and ice control	0	541,511	176,030	0
f. Blasting grit/Roofing granules	0	0	1,807,418	0
g. Grouting	201,550	0	40,791	0
h. Coal mining applications	22,190	0	0	0
i. Wallboard	0	0	72,277	0
j. Miscellaneous/Other	810,152	602,327	60,739	10,159
Subtotal	**8,335,689**	**2,250,666**	**2,213,702**	**38,620**
2. Internal Utility Use				
a. Cement and concrete products	0	0	0	0
b. Structural fills	1,425,755	715,296	52,565	64,611
c. Road base/Subbase	136,210	233,428	9,570	4,707
d. Snow and ice control	0	1,914	314	0
e. Miscellaneous/Other	255,744	1,646,983	242,155	4,697
Subtotal	**1,817,710**	**2,597,622**	**304,604**	**74,015**
C. By-product Consumption as a Percentage of Production by Individual By-product	19.0%	34.1%	59.0%	0.7%
D. By-product Consumption as a Percentage of Combined Production of Fly Ash, Bottom Ash, & Boiler Slag Only			24.4%	

Comparative Results by Year***

E. By-product Production (million short tons) by Individual By-product and for Combined Production of Fly Ash, Bottom Ash & Boiler Slag Only

	1986	1987	1988	1989
Fly Ash	49.26	50.11	50.91	53.38
Bottom Ash	13.41	14.72	14.27	14.21
Boiler Slag	4.13	4.12	5.03	4.27
Combined	**66.80**	**68.95**	**70.20**	**71.86**

F. By-product Consumption (million short tons) by Individual By-product and for Combined Production of Fly Ash, Bottom Ash & Boiler Slag Only

Fly Ash	8.78	11.05	11.36	10.15
Bottom Ash	3.59	4.77	5.43	4.85
Boiler Slag	2.15	2.44	2.83	2.52
Combined	**14.52**	**18.26**	**19.83**	**17.52**

G. By-product Consumption (percent) as Percentage of Production by Individual By-product and as Percentage of Combined Production of Fly Ash, Bottom Ash, & Boiler Slag Only

Fly Ash	17.8%	22.0%	22.3%	19.0%
Bottom Ash	26.7%	32.4%	38.1%	34.1%
Boiler Slag	51.9%	59.2%	56.4%	59.0%
Combined	**21.7%**	**26.5%**	**28.0%**	**24.4%**

*Based on total coal burn of 765,820,000 short tons by domestic electric utilities, as reported by the National Coal Association.
**1 short ton = 2,000 pounds.
metric tons = short tons X 0.9078.
***Data is also available for 1966 - 1985.

Compiled by the AMERICAN COAL ASH ASSOCIATION, INC., 1913 I Street, N.W., 6th Floor, Washington, DC 20006
Phone: 202-659-2303 FAX: 202-223-4984