1988 Coal Combustion By-product—Production and Consumption*

(SHORT TONS**)

	FLY ASH	BOTTOM ASH	BOILER SLAG	FGD BY-PRODUCT
A. By-product Comparison	**50,905,161**	**14,272,459**	**5,025,540**	**13,526,701**
Subtotal			**70,203,161**	
Total				**83,729,861**
B. By-product Consumption	11,364,244	5,433,161	2,833,348	930,210
Subtotal			**19,630,754**	
Total				**20,560,963**
1. External Market				
a. Cement and concrete products	6,173,552	844,120	66,255	948
b. Structural fills	607,289	247,434	67,381	664
c. Road base/Subbase	298,513	139,346	47,713	12,480
d. Mineral filler in asphalt	175,399	4,530	207,468	0
e. Snow and ice control	0	831,583	307,697	0
f. Blasting grit/Roofing granules	0	325,022	1,609,001	0
g. Grouting	175,813	0	0	0
h. Coal mining applications	90,446	522,579	0	0
i. Wallboard	8,938	8,013	0	0
j. Miscellaneous/Other	527,930	477,999	221,838	20,992
Subtotal	**8,057,879**	**3,400,628**	**2,527,344**	**35,084**
2. Internal Utility Use				
a. Cement and concrete products	13,836	3,048	0	0
b. Structural fills	1,638,252	628,880	168	17
c. Road base/Subbase	72,811	83,123	2,095	7,187
d. Snow and ice control	0	11,973	85	0
e. Miscellaneous/Other	1,581,467	1,305,510	303,666	887,921
Subtotal	**3,306,366**	**2,032,534**	**306,006**	**895,126**
C. By-product Consumption as a Percentage of Production by Individual By-product	22.3%	38.1%	56.4%	6.9%
D. By-product Consumption as a Percentage of Combined Production of Fly Ash, Bottom Ash & Boiler Slag Only			*28.0%*	

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

	1985	1986	1987	1988
Fly Ash	48.31	49.26	50.11	50.91
Bottom Ash	13.15	13.41	14.72	14.27
Boiler Slag	3.65	4.13	4.12	5.03
Combined	**65.11**	**66.80**	**68.95**	**70.20**

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	11.39	8.78	11.05	11.36
Bottom Ash	4.10	3.59	4.77	5.43
Boiler Slag	2.38	2.15	2.44	2.83
Combined	**17.87**	**14.52**	**18.26**	**19.83**

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	23.5%	17.8%	22.0%	22.3%
Bottom Ash	31.1%	26.7%	32.4%	38.1%
Boiler Slag	65.2%	51.9%	59.2%	56.4%
Combined	**27.4%**	**21.7%**	**26.5%**	**28.0%**

*Based on total coal burn of 755,229,000 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 1966–1984.

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