

For Immediate Release



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Coal Ash Recycling Rate Increases Slightly in 2021; Use of Harvested Ash Grows Significantly

December 6, 2022 – Sixty percent of the coal ash produced during 2021 was recycled – increasing from 59 percent in 2020 and marking the seventh consecutive year that more than half of the coal ash produced in the United States was beneficially used rather than disposed.

American Coal Ash Association (“ACAA”) today released its annual “Production and Use Survey” which also showed that use of harvested ash is continuing to grow. Nearly 4.5 million tons of previously disposed ash was utilized in a variety of applications in 2021, including coal ash pond closure activities, concrete products, cement kiln raw feed, and gypsum panel manufacturing. The volume of harvested ash that was utilized increased 12 percent, or more than 500,000 tons, over the previous year.

“Harvested ash utilization volumes now equal nearly 10 percent of the volume of ash recycled from current power plant operations,” said Thomas H. Adams, ACAA Executive Director. “The rapidly increasing utilization of harvested coal combustion products (“CCP”) shows that beneficial use markets are adapting to the decline in coal-fueled electricity generation in the United States. New logistics and technology strategies are being deployed to ensure these valuable resources remain available for safe and productive use. We must continue to support these practices that safely conserve natural resources while dramatically reducing the need for landfills.”

According to ACAA’s 2021 survey, 46.5 million tons of coal combustion products were beneficially used in 2021, an increase of nearly 6 million tons over the previous year. Production of new CCP also increased from 69.1 million tons in 2020 to 77.3 million tons in 2021 as utilities consumed more coal for generating electricity.

“Coal ash” is a generic term that encompasses several coal combustion products that can be beneficially used in a wide variety of applications. Highlights of CCP production and use in 2021 include:

- Use of coal fly ash in **concrete** increased slightly from 11.1 million tons to 11.9 million tons. Concrete producers and consumers indicated a desire to use more fly ash, but several regional markets continued to be affected by shifting supply dynamics associated with closures of coal-fueled power plants. Fly ash improves concrete durability and significantly reduces greenhouse gas emissions associated with concrete production.
- Use of all coal combustion products in **cement production** increased 14 percent to 5.6 million tons.
- Utilization of a key “non-ash” coal combustion product also posted a significant increase. Synthetic gypsum is a byproduct of flue gas desulphurization units, also known as “scrubbers,” located at coal-fueled power plants. Use of synthetic gypsum in **panel products** (i.e. wallboard) increased 15 percent to 11.7 million tons.
- Synthetic gypsum use in **agricultural applications** – in which the gypsum improves soil conditions and prevents harmful runoff of fertilizers – remained about level at 822,902 tons.
- Use of CCP in **pond closure activities** declined from 3.4 million tons to just under 3 million tons. This activity is driven by utility compliance with coal ash regulations enacted in 2015 that effectively require an end to the practice of wet disposal. Fly ash, bottom ash, and synthetic gypsum were all used in construction of new permanent disposal facilities.
- Use of CCP in **structural fills** rebounded in 2021 following several years of declines, increasing from 816,543 tons in 2020 to just over 2 million tons in 2021.
- Production of boiler slag also rebounded from 834,000 tons in 2020 to 1.2 million tons in 2021, with utilization in the production of **blasting grit and roofing granules** increasing from 273,548 tons to 481,245 tons.
- Following a year in which no **cenospheres** were reported as being marketed, 2021 saw 107,835 pounds of the material sold.

“As America’s electricity grid changes, the coal ash beneficial use industry is evolving as well,” said Adams. “As we work diligently to utilize the nearly half of coal combustion products that are still disposed annually, our industry is also taking significant strides in developing strategies for improving the quality and availability of these materials.”

Adams explained that increasing beneficial use requires ash marketers to ensure that products are consistent and available when customers need them – requiring large investments in technology and logistics. Additionally, the coal ash beneficial use industry is actively deploying technologies and strategies for harvesting coal ash materials that were previously disposed.

About Coal Ash Recycling

Coal is the fuel source for approximately one-quarter of electricity generation in America and produces large volumes of solid coal combustion products — primarily ash and synthetic gypsum from emissions control devices.

There are many good reasons to view coal combustion products as a resource, rather than a waste. Recycling them conserves natural resources and saves energy. In many cases, products made with CCP perform better than products made without it. For instance, coal fly ash makes concrete stronger and more durable. It also reduces the need to manufacture cement, resulting in significant reductions in greenhouse gas emissions – about 12 million tons in 2021 alone.

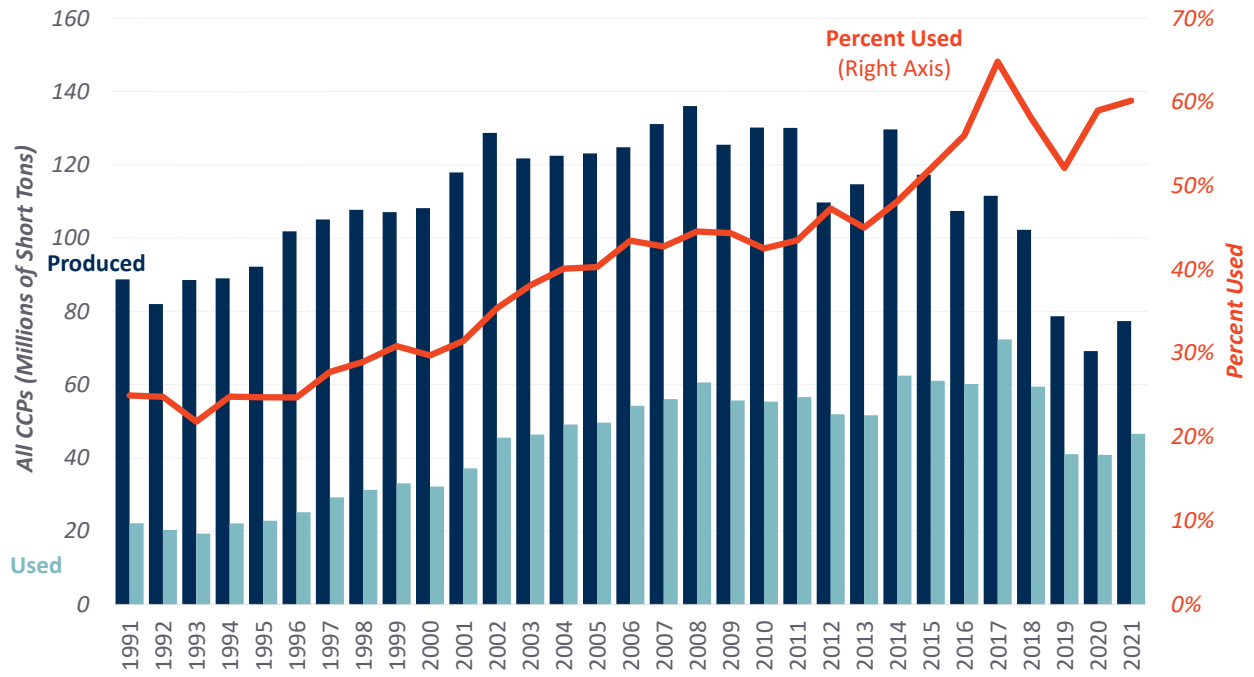
Major uses of coal combustion products include concrete, gypsum wallboard, blasting grit, roofing granules, and a variety of geotechnical and agricultural applications.

About ACAA’s Production and Use Survey

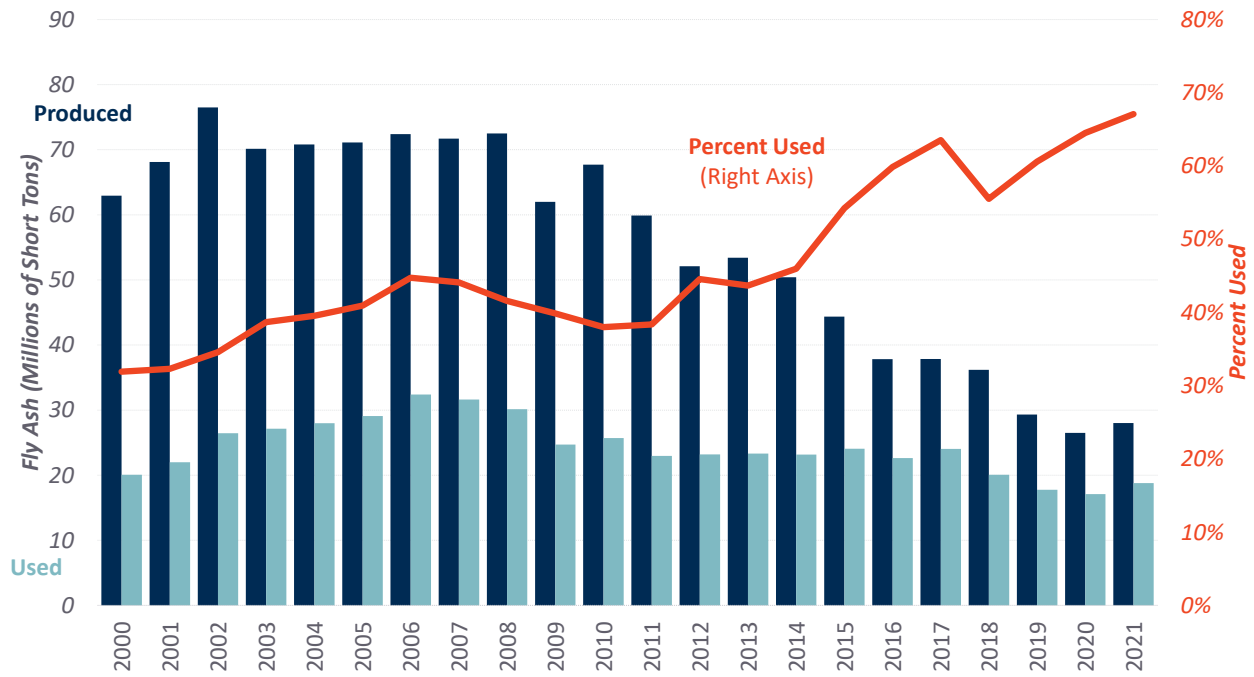
American Coal Ash Association – an organization that advances the environmentally responsible and technically sound use of coal ash as an alternative to disposal – has conducted a survey quantifying the production and use of coal combustion products in the United States each year since 1966. Data is compiled by directly surveying electric utilities and utilizing additional data produced by the U.S. Energy Information Administration. The survey’s results have been widely utilized by federal agencies including the U.S. Environmental Protection Agency and U.S. Geological Survey.

Charts summarizing overall production and use data since 1991 and fly ash production and use since 2000 are included below. A complete copy of the 2021 survey results is on the final page.

All CCPs Production and Use with Percent Used



Fly Ash – Production and Use



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2021 Coal Combustion Product (CCP) Production & Use Survey Report

Beneficial Utilization versus Production Totals (Short Tons)

2021 CCP Categories	Fly Ash	Bottom Ash	Boiler Slag	FGD Gypsum	FGD Material Wet Scrubbers	FGD Material Dry Scrubbers	FGD Other	FBC Ash	CCP Production / Utilization Totals
Total CCPs Produced by Category	28,004,916	8,783,796	1,195,311	19,688,381	7,032,003	4,284,941	63,578	8,310,124	77,363,050
Total CCPs Used by Category	18,787,042	3,591,948	734,652	14,890,701	0	226,109	0	8,310,124	46,540,576
1. Concrete/Concrete Products /Grout	11,936,154	617,000	0	32,395	0	38,183	0	0	12,623,732
2. Blended Cement/ Feed for Clinker	3,291,107	773,999	103,884	1,430,135	0	0	0	0	5,599,124
3. Flowable Fill	48,687	0	0	0	0	0	0	0	48,687
4. Structural Fills/Embankments	198,746	1,698,855	145,869	0	0	0	0	0	2,043,469
5. Road Base/Sub-base	74,702	95,608	0	0	0	0	0	0	170,309
6. Soil Modification/Stabilization	103,207	0	0	0	0	0	0	0	103,207
7. Mineral Filler in Asphalt	7,544	0	0	0	0	0	0	0	7,544
8. Snow and Ice Control	0	56,311	3,655	0	0	0	0	0	59,965
9. Blasting Grit/Roofing Granules	0	52,452	481,245	0	0	0	0	0	533,697
10. Mining Applications	87,636	0	0	0	0	31,465	0	8,310,124	8,429,225
11. Gypsum Panel Products (formerly Wallboard)	0	0	0	11,740,314	0	0	0	0	11,740,314
12. Waste Stabilization/Solidification	433,456	53,243	0	977	0	13,587	0	0	501,263
13. Agriculture	0	3,516	0	742,546	0	76,839	0	0	822,902
14. Aggregate	1,843	43	0	453,114	0	0	0	0	455,000
15. Oil/Gas Field Services	55,677	0	0	0	0	15,696	0	0	71,373
16. CCR Pond Closure Activities	2,351,905	150,696	0	449,700	0	0	0	0	2,952,301
17. Miscellaneous/Other	196,378	90,226	0	41,520	0	50,339	0	0	378,462

Summary Utilization to Production Rate

CCP Categories	Fly Ash	Bottom Ash	Boiler Slag	FGD Gypsum	FGD Material Wet Scrubbers	FGD Material Dry Scrubbers	FGD Other	FBC Ash	CCP Utilization Total
Totals by CCP Type/Application	18,787,042	3,591,948	734,652	14,890,701	0	226,109	0	8,310,124	46,540,576
Category Use to Production Rate (%)	67.08%	40.89%	61.46%	75.63%	0.00%	5.28%	0.00%	100.00%	60.16%

2021 Cenospheres Sold (Pounds) 107,835 Data in this survey represents 115.36786 GWs of Name Plate rating of the total industry wide approximate 210.141 GW capacity based on EIA's July 2021 Electric Power Monthly.