Coal waste seen as valuable resource
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ANAHEIM, Calif., March 29 (UPI) -- Fly ash, a byproduct of coal-burning electric power plants, could save billions of dollars if used in the repairing of U.S. bridges and roads, researchers say.

Using fly ash to coat the concrete used to rebuild America's crumbling infrastructure could extend the life of those roads and bridges by decades, saving billions of dollars of taxpayer money, scientists told a meeting of the American Chemical Society in Anaheim, Calif., Tuesday.

A new coating material for concrete made from fly ash is hundreds of times more durable than existing coatings and costs only half as much, they said.

More than 450 coal-burning electric power plants in the United States produce about 130 million tons of fly ash -- fine particles of soot and dust -- each year, and before air pollution laws those flew up smokestacks and into the air, an ACS release said.

Power plants now collect the ash.

"Fly ash poses enormous waste disposal problems," study leader Charles Carrier of Florida Atlantic University said. "Some of it does get recycled and reused. But almost 70 percent winds up in landfills every year, where space is increasingly scarce and expensive.

"Our research indicates that this waste could become a valuable resource as a shield-like coating to keep concrete from deteriorating and crumbling as it ages," he said.

In tests the fly ash-based coating protected concrete from deterioration when it was exposed to the acids present in air pollution that were 100,000 times more concentrated than typical outdoor levels in the environment.

The coated concrete remained strong and intact for more than a year of observation while ordinary concrete often began to crumble within days, Carrier said.