

ENVIRONMENTAL SUSTAINABILITY SERVICES

Sustainability is central to everything we do at Charah Solutions. Our core business is centered on coal ash byproduct management, the beneficial recycling of ash products, and environmental remediation and compliance. We develop innovative sustainable solutions to complex environmental issues for the betterment of the planet and the communities in which we operate.

- REDUCES GREENHOUSE GAS EMISSIONS
- CONSERVES AND PROTECTS WATER
- DECREASES LANDFILL DISPOSAL
- CONSERVES VIRGIN RESOURCES
- REMIEDIATES LAND FOR USE

POWER PLANT

Coal ash is generated by burning coal in the boiler furnace, which creates bottom ash. The ash then goes into the electrostatic precipitator or fabric filter which creates fly ash; then into the flue-gas desulfurization creating gypsum - all byproducts which are managed by Charah Solutions and can be beneficially used creating a sustainable process.

BENEFICIAL USE of CCPs

Charah Solutions manages the coal combustion products (CCPs) including fly ash, bottom ash, conditioned ash, ponded ash, and gypsum, which are collected and beneficially used in products for multiple industries. By beneficially using more than 2.58 million tons of ash and supplementary cementitious materials (SCMs) each year, we dramatically reduce greenhouse gas emissions and the amount of waste sent to landfills.

Fly Ash Ready Mix Concrete	Fly Ash Structural Fill	Ponded Ash Kiln Feed	Bottom Ash Cinder Block
Conditioned Ash Kiln Feed	Gypsum Drywall	Oil Wells	Gypsum Fertilizer

WE BENEFICIALLY RECYCLED MORE THAN 2.58 MILLION TONS OF CCPs IN 2020

WE SAVED 2.24 MILLION TONS OF CO₂ FROM ENTERING THE ATMOSPHERE IN 2020

Charah Solutions fly ash improves concrete durability, strength, mixability, and finish. This concrete is used to build infrastructure to keep the economy moving.

- ROADS
- BRIDGES
- CONCRETE PIPE
- PRECAST PRODUCTS
- DAMS
- BUILDINGS
- CONCRETE BLOCK
- READY MIX CONCRETE

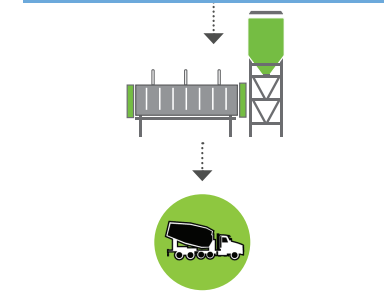
FOR EVERY TON OF FLY ASH USED TO REPLACE TRADITIONAL CEMENT, .87 TONS OF CO₂ IS SAVED FROM ENTERING THE ATMOSPHERE

- DRY FLY ASH FOR READY MIX CONCRETE**
Class C and Class F fly ash is transported via truck, barge, or rail to ready mix concrete producers where it is beneficially used by mixing with other ingredients to produce concrete.
- CONDITIONED FLY ASH FOR STRUCTURAL FILL**
Charah Solutions manages the design, construction, and operation of structural fill projects in which the land is reclaimed and used for community or business use.
- GYPSUM FOR DRY WALL**
Raw gypsum byproduct is sold to dry wall manufacturing plants where it is beneficially used in residential and commercial construction projects.
- GYPSUM FOR AG FERTILIZER**
Raw gypsum byproduct is sold to growers where it is beneficially used as agriculture fertilizer to enhance soil health and improve plant nutrition.

ASH POND MANAGEMENT

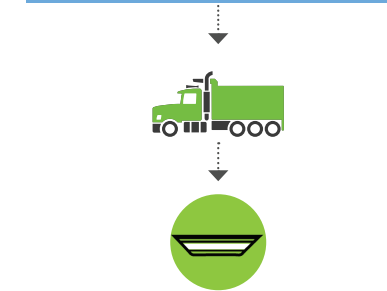
Charah Solutions manages the design, construction, operation, and remediation of onsite ash ponds to enable the safe and compliant beneficial use of these byproduct materials.

BENEFICIATED ASH ENVIROSOURCE™



Pond ash is beneficiated using Charah Solutions proprietary EnviroSource™ fly ash beneficiation technology which uses a thermal process to reduce the loss on ignition (LOI) of the ash making formerly unusable fly ash stored in ponds and landfills immediately marketable to be beneficially used in the production of concrete.

CONDITIONED FLY ASH FOR STRUCTURAL FILL



Charah Solutions manages the design, construction, and operation of structural fill projects in which the land is reclaimed and used for community or business use.

REMIEDIATED POND LAND REUSE

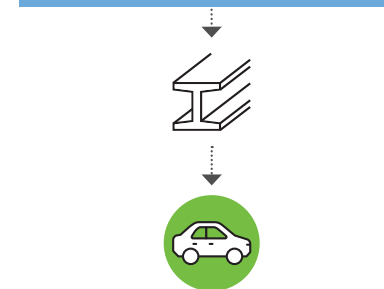


Upon ash pond closure by removal of the ash pond, the land is remediated and redeveloped for community use, renewable energy, agricultural, commercial, or other industrial redevelopment opportunities.

POWER PLANT DECOMMISSIONING AND DEMOLITION

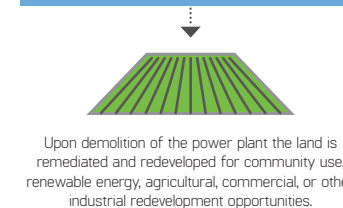
Through our Environmental Risk Transfer (ERT) services we take full ownership of decommissioned power plants and land from the utility. We demolish the power plant and recycle the steel and other metals. The land is also fully remediated and redeveloped for use which includes community use, renewable energy, agricultural, commercial, or other industrial redevelopment opportunities.

RECYCLED STEEL FOR INDUSTRIAL USE



Steel from the demolished plant and other facilities is collected and recycled where it is then beneficially used to produce products for the automotive, construction, furniture, and other industries.

LAND REMEDIATION/REDEVELOPMENT



Upon demolition of the power plant the land is remediated and redeveloped for community use, renewable energy, agricultural, commercial, or other industrial redevelopment opportunities.

BUILD PARKS, GREEN SPACES, NATURAL HABITATS, AND COMMERCIAL SPACES.

Since 2015, Charah Solutions has reclaimed approximately 300 acres of land for community use.

IN 2020, CHARAH SOLUTIONS DIVERTED 2.58 MILLION TONS OF MATERIAL FROM LANDFILLS.

