The Importance of Logistics in Ash Marketing

By Rob Reynolds

According to the American Coal Ash Association (ACAA), 58% of all coal combustion products (CCPs) produced during 2018 were recycled, marking the fourth consecutive year that more than half of the coal ash produced in the U.S. was beneficially used rather than disposed. Fully 59.4 million tons of the total 102.3 million tons of CCPs produced were beneficially used in 2018. With expectations for greater infrastructure spend and other market demands, this percentage is projected to increase. This means a higher demand for CCPs, especially for utilization of fly ash in the production of concrete.

The beneficial use of fly ash in cement and concrete production not only lowers costs and improves performance, but it also conserves natural resources by decreasing the need for ash landfill disposal, saving energy, and reducing producers' carbon footprint. Fly ash is currently marketed across the country for a variety of beneficial uses, including:

- Partial replacement of cement in ready-mix concrete and concrete products
- Cement production
- Structural fill projects for land reclamation
- Flowable fill projects such as filling old sewer pipes and underground tanks instead of excavating for replacement
- Bagged concrete products for use in the "do-it-yourself" market, including concrete repair, patching, and new surface applications
- Soil stabilization
- Solidification and drying of non-toxic wastes for delivery to approved landfills

While concrete producers aim to use as much quality fly ash as possible to enhance their products and manage costs, a lack of locally available ash, often caused by shifting supply dynamics associated with reduced coal-fueled power generation, can make that difficult. In some cases, the regions where utilities produce marketable fly ash are not located near where there is demand for high-quality fly ash. In other instances, the seasonal fly ash demands of the construction industry might not align with fly ash production, which tends to be year-round. The resulting challenges are all about logistics—ensuring the right product arrives when and where it is needed, while maintaining a competitive price, consistent quality, and continuous supply. This requires a very well planned and efficient logistics network to make it work.

To maximize utilization, utilities should consider alternative applications and expanded markets for their fly ash, then work to transport it efficiently. Through beneficial use, utilities can dramatically reduce the need and related expense to landfill high-quality fly ash and other sustainable materials while meeting the market demand for this material. Balancing the supply chain and ensuring that logistics remain economical are very important when developing a go-to market strategy to maximize fly ash utilization, something that benefits both the utility and the end user. It is a win-win scenario when the logistics challenge of transporting fly ash from areas of high supply to those of great demand is economical for both the suppler and the concrete producer.

Effective CCP marketing demands a strong, efficient, proven distribution network with strategically located terminals connecting high-demand regions with a variety of efficient transportation options. Gone are the days of a single source supplying a local concrete producer with a single product. Today's concrete producers are looking for reliable supply options that offer a complete CCP product lineup to give them a variety of product options and consistent sourcing, all at a competitive price.

The MultiSource® Network

Developed with concrete producers' needs in mind, Charah Solutions' MultiSource® materials network is a unique distribution system of nearly 40 nationwide locations serving the U.S., Mexico, and Canada with sourcing, transportation modes, and distribution options that ensure a steady and reliable supply of CCPs. The MultiSource® materials network provides CCPs to markets where they are needed, as well as sufficient storage to level out seasonal supply and demand fluctuations.

To ensure on-time delivery, logistics support must include an established network of transportation options, including truck, rail, and barge as well as sufficient storage and supply capabilities. As an example, to meet the growing demand for fly ash in the northeastern U.S., Charah Solutions broadened the MultiSource® materials network by investing in a transload terminal in Worcester, Mass. As a demonstration of its commitment to the Northeast region, in 2019 Charah Solutions anticipated the needs of regional concrete product manufacturers and expanded its supply and distribution capacity through the addition of the Hopedale, Mass., rail terminal. Hopedale was selected due to its centrally accessible location near the I-495 transportation corridor, allowing concrete

product manufacturers in the greater New England area to access almost 30,000 tons of quality fly ash through the rail terminal. An additional 15,000 tons were railed directly to customers from the Dynegy Miami Fort Power Plant in Ohio. The installation of two supply silos provided fly ash storage and distribution flexibility to help serve customers in Massachusetts, Rhode Island, Connecticut, and New Hampshire.

With similar terminals and distribution hubs in place nationwide, concrete producers are now able to reliably purchase CCPs,

Charah Solutions' Hopedale, Mass., MultiSource® terminal provides concrete product manufacturers in greater New England with access to almost 30,000 tons of quality fly ash.

Charah Solutions' proprietary MP618® Multi-Process ash beneficiation technology converts fly ash that is otherwise unusable into a consistent high-quality fly ash that meets industry specifications.

including quality fly ash, through the MultiSource® network in the Midwest, Northeast, and Southern regions. In addition, Charah Solutions continues to strategically expand the network to meet growing customer demand.

While logistics expertise relies heavily on transportation and storage options, manpower and communication systems are also required to succeed. It is vital to maintain close, timely communications with utility partners in order to optimize distribution. Long-standing relationships with utilities around the country are necessary to provide the product availability to keep customers continuously supplied. Furthermore, the team must have the know-how and experience to comply with a diverse set of environmental regulations. Finally, it is important to recognize the growing role of international raw materials sales, with higher global demand expected in the use of these materials as well as CCPs in cement manufacturing.

Concurrently, beneficial use stakeholders are actively deploying technologies and strategies for harvesting previously disposed fly ash. For example, Charah Solutions' innovative new proprietary MP618® Multi-Process ash beneficiation technology converts fly ash that is otherwise unusable into a consistent high-quality fly ash that meets industry specifications—increasing both the percentage of utility fly ash that is marketable and the supply of ash in high-demand regions, while reducing the volume slated for disposal. By combining the strengths of MP618® technology, the proven MultiSource® network, and strategic investment in logistics infrastructure, Charah Solutions has the capabilities of meeting demand in regions not previously attainable while maintaining a competitive price and consistent quality and supply for concrete producers.

With expected increases in spending on infrastructure, as well as other markets, demand for CCPs, including fly ash, is likely to continue expanding. Logistics expertise is more important now than ever to ensure end users have a continuous and reliable supply of the CCPs they need, where and when they need them, while offering utilities cost-effective opportunities for beneficial use.

Rob Reynolds serves as Vice President of Byproduct and Material Sales at Charah Solutions Inc. He has been with Charah Solutions since 2012 and is responsible for beneficiation technology development and national byproduct and material sales efforts for existing and emerging markets. This includes Charah Solutions' MP618® technology deployment, terminal development, partnerships, and distribution channel management to concrete producer customers as well as all logistical elements associated with Charah Solutions' MultiSource® materials network.