TECHNICAL SUPPORT FOR BENEFICIAL USE TIME EXTENSION TO COMPLETE CLOSURE

There are many environmental and economic benefits of maximizing the beneficial use of CCR materials. These benefits include reduced greenhouse gas emissions (due to less use of Portland cement and other energy intensive additives to concrete), reduced cost of coal ash disposal, improved strength and durability of concrete materials, less new green space used for landfills to contain ash that could otherwise be utilized, and less imports of ash to meet growing U.S. demand for ash as a cement replacement (with associated reductions in greenhouse gas emission due to avoided shipping).

Coal ash includes bottom ash (slag-like material from the bottom of boilers), fly ash (fine powdery material captured near the end of the process), and synthetic gypsum (byproduct of operating flue gas scrubbers). Fly ash represents the largest share of coal ash. The U.S. currently utilizes approximately 50 percent of the produced coal ash – about 46 million tons[1]. More than 50 percent of that amount, 24.4 million tons, is beneficially used for two applications: concrete/concrete products/grout and gypsum panel products.[2]

This is a nationwide issue of concern as the market demand for coal ash as a cement replacement (supplementary cementitious material – SCM) continues to increase. In many states, the departments of transportation now use specifications for concrete that call for the use of SCMs to mitigate a chemical reaction that occurs in concrete and lower the greenhouse gas intensity of concrete mixes. The American Road and Transportation Builders Association (ARTBA) forecasts beneficial use of fly ash utilization to grow from 23.3 million tons in 2013 to 35.7 million tons by 2033; this represents a 53 percent increase in demand.[3] Many sources predict coal utilization (and therefore fly ash production) to remain flat at best and more likely decline over the same time period. This means that market demand will out pace production of coal ash, thereby increase the market demand of CCR materials stored in existing CCR surface impoundments and landfills.

The ability to more fully use the CCR materials that are currently stored in surface impoundments that have triggered closure is an important source to meet this increased demand. Also, the operation of new pollution control technologies can result in coal

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[1] Coal Ash Reuse, EPA.gov

[2] Coal Ash Reuse, Encapsulated Beneficial Use, EPA.gov

[3] Fly Ash – Current and Future Supply, Caltrans, pg. 9

ash currently produced from coal-fired power plants with less desirable characteristics than the ash that can be reclaimed from those impoundments in many cases. It does not make sense to waste the productive use of a local resource (coal ash currently in surface impoundments) and instead use more energy intensive virgin materials or imported coal ash.

The four surface impoundments at one electric utility subject to a 5-year closure requirement will contain about over 8 million tons at the beginning of 2020 (ponds are already having material removed for beneficial use). If these impoundments are forced to complete closure after five years of material removal for beneficial use, approximately 5 million tons will remain in three impoundments. An additional five years before a closure requirement would leave about 3 million tons in two impoundments. Another five-year extension would result in only about 800,000 tons remaining in one impoundment.

Due to limits on trucking and regional demand and the availability of imported coal ash, the electric utility is not able to increase the removal rates for beneficial use to meet a five-year closure schedule. The timeline and tonnages removed listed above are based upon the beneficial use levels for which electric utility has been able to contract with available vendors within the region. The failure to allow the beneficial use of these CCR materials from the electric utility's surface impoundments due to the inflexible closure requirements does not make good policy sense – particularly given the forecast increased market demand of coal ash over the next 10 to 15 years. This is evidenced by increasing imports of coal ash.[4] Ash from India, China, Poland, and Spain has been imported to ports along the east coast. There is increased demand for fly ash as a replacement for Portland cement because it has required durability characteristics at a much lower cost.

The electric utility currently has contracts with four different vendors to utilize reclaimed materials from the ponds. The uses are as a cement replacement, as synthetic gypsum, and a small amount as a soil amendment.

Finally, the requirement to close impoundments in a five-year period when the ash could otherwise be beneficially reused means that new landfill space will be required to contain that ash. This additional use of land for landfills could have been avoided.

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[4] Charlotte Observer article July 11, 2017 at https://www.charlotteobserver.com/news/local/article160757064.html; See also, U.S. & World News, posted on March 23, 2017 at https://www.mlive.com/news/us-world/index.ssf/2017/03/imports_of_coal_ash_on_rise_as.html.