

**United States House of Representatives
Select Committee on the Climate Crisis**

**Hearing on September 26, 2019
“Solving the Climate Crisis: Reducing Industrial Emissions
Through U.S. Innovation”**

Questions for the Record

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The Honorable Kathy Castor

- 1. How can existing Federal procurement policies be updated to prioritize decarbonization in the industrial sector?**

I recommend simply asking suppliers of construction materials for government projects to report on the environmental impacts and performance of their products across the full product lifecycle, along with steps being taken by the supplier to improve the product’s environmental impact profile over time. If the projects involve buildings that are seeking LEED certification, this can be used to achieve points in the materials and resources portion of the rating system. Many suppliers do not think to lower the environmental impacts of their products because they do not measure the impacts and are not asked to report them. Changing these practices will likely cause them to lower their environmental impacts as a means of differentiating themselves in the marketplace.

- 2. Are there environmental, health, safety, or other risks and tradeoffs to pursuing solutions for low-carbon cement and concrete? How can they be mitigated?**

In some cases, there are immediate opportunities to reduce the carbon footprint of cement and concrete – simply by switching to more of a performance-based system for materials selection. Portland limestone cement, for example, is a proven material that provides the same performance benefits of traditional cement formulations while reducing the emissions profile by approximately 10%. In other cases, it is too early to tell what the long-term impacts of alternative formulations will be over the lifecycle of specific projects. There will almost certainly be performance trade-offs with different solutions (e.g., changes in strength, durability, constructability, etc.) and these need to be considered by engineers and concrete producers when changing concrete mixtures. However, there are unlikely to be significant health and safety issues directly resulting from the use of low-carbon cements and concrete because the industry knows the importance of developing solutions that do not affect workers or the users of structures containing concrete.

- 3. You mentioned that biomass could be used as an alternative fuel in cement plants. Could you expand upon what issues need to be considered when determining whether sources of biomass are appropriate for use in cement plants to reduce greenhouse gas emissions? Taking into account land-use considerations and the multiple uses of biomass, what is a reasonable scale for using biomass in cement plants?**

Biomass and other nontraditional nonhazardous secondary materials provide excellent sources of fuel for cement kilns due to the unique operating characteristics of cement kilns. Indeed, many facilities have also incorporated biomass sources into their fuel mix, from switchgrass and nut shells to used railroad ties.

With respect to technical considerations when selecting biomass or other alternative fuels for use in kilns, key considerations include the heat value of the fuel (paper, plastic, fibers and fabrics, for example, have very positive profiles) as well as the contaminant characteristics. Because of the extremely high temperatures and long-residence time for kiln fuels, these fuels offer favorable, and often better heat and emissions characteristics than traditional fossil fuels. The high heat and energy efficiency of modern cement plants allows for a high-level of conversion of fuel to energy.

From a resource use perspective, increased use of biomass and other alternative fuels is a net positive for both the environment, the economy, and society. Cement kilns can convert waste biomass streams into a valuable fuel commodity, without complicated chemical processing to create fuels. For some of our members that have chosen to grow switchgrass or other high-heat value biomass sources, the land used to cultivate the fuel provides a valuable ecological habitat and a natural buffer between the plant operations and the community.

With respect to potential scale of use, we see a considerable opportunity to increase the use of biomass and other alternative fuels within the cement industry. Today, for example, US cement kilns use derive roughly 15 percent of their kiln fuel from biomass and other alternative fuel sources (used tires, solid waste, etc.) while the average fuel mix in Europe ranges from 35 to 60 percent.

To get there, however, we are going to need to take a hard look at the federal and state permitting processes for alternative fuel use in specific kilns. Current EPA rules, and sometimes state regulations, can make it difficult to incorporate nontraditional fuels into the fuel mix. While EPA has provided limited exemptions for some biomass streams, regulatory burden and fear of inconsistent enforcement can create concerns.