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Testimony in Opposition to HB 2020

February 11, 2019

Presented by: Curtis Lesslie, VP Environmental Affairs, Ash Grove Cement Co.

Co-Chairs Power and Dembrow and members of the Oregon Joint Committee on Carbon Reduction, the Ash Grove Cement Company respectfully submits comments in opposition to developing an Oregon state cap and trade statute, which would have the unintended consequence of increasing carbon emissions. The effect of this policy in relation to our plant alone could be to increase CO₂ emissions by roughly 417,000 tons per year.

In recent years as carbon policies have been discussed, Ash Grove has laid out a clear description of how Oregon's sole cement manufacturing plant is energy intensive and trade exposed under the carbon reduction policy in this legislation. Additionally, we are concerned regarding the lack of planning for or investment in infrastructure to transport and sequester carbon emissions, should add-on carbon control technology become available for industrial sources. For production facilities with irreducible process related emissions, only a small fraction of total stack emissions can be reduced through efficiency innovations or fuel switching. The vast majority of the Durkee plant's total stack emissions are process emissions. While add-on control technologies are being evaluated globally by the cement industry, there currently exists no known controls. That said, should a technology become available, Oregon is unprepared to take the next steps – transportation to a sequestration site for the carbon dioxide removed from the stack. What purpose does it serve a source to pursue innovative control technologies when there is no transportation or ultimate sequestration source available for the carbon that is removed from the stack? How can a bill that forces the reduction of process emissions not also provide funding for innovations in sequestration and a carbon dioxide pipeline system? From our perspective, this bill is woefully incomplete from a real-world application perspective. The message being sent is that production of our product is no longer welcome in the state – apparently only Chinese cement is welcome in the state of Oregon! Make no mistake, Oregon will continue to demand cement, for what other building material is so ubiquitous in our constructed environment as concrete? What building material other than cement and concrete will be used to construct resilient structures or earthquake mitigation in the future? You can wish for the stars, but reality must factor in to transformational policy such as an economy wide carbon reduction policy.

Ash Grove Cement is a 137-year old company, and its 116 employees operate Oregon's only cement manufacturing plant. The plant complies with all applicable state and federal regulations governing safety, environment and labor. Our plant is among the most energy efficient cement plants in America. Approximately 80 of the employees are members of the following unions: International Association of Machinists and Aerospace Workers, District Lodge No. 24, Willamette Lodge No. 63, AFL-CIO; International Brotherhood of Electrical Workers Local 112, AFL-CIO; Teamsters Food Processors, Chauffeurs, Warehousemen and Helpers Local No. 670; Laborers Local No. 12; and International Union of Operating Engineers Local No. 701. Our employees, as well as the community, share our concern with the carbon policy under consideration.

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Cement manufacturing requires that crushed limestone and other raw materials be heated to temperatures up to 2000°F to cause the chemical reaction necessary to create the desired cement compounds. Making cement essentially consists of taking a molecule of CaCO_3 (limestone) and heating it until it converts to CaO (lime). In other words, making cement requires the liberation of CO_2 from limestone. There is currently no process alteration or other technical solution available to prevent the release of CO_2 in heating limestone to make cement. This is true regardless of where the cement is produced or the fuel efficiency of the process used to produce it.

Ash Grove's Durkee plant is a trade exposed industry. It costs roughly the same amount to ship a ton of cement from China to Portland as it does to ship that same ton from Durkee to Portland. China is awash in excess cement manufacturing capacity, having more than 15 times the production capacity of the U.S. Cement is considered a true commodity in that foreign cement meeting ASTM standards is largely indistinguishable from Oregon-made cement meeting ASTM standards. As a result, we compete daily with cement made in foreign countries that is imported to the Port of Portland. The foreign manufacturers do not have the same costs for labor, fuel and raw materials, nor do they have the environmental, safety and labor regulations required of U.S. manufacturers, thus imported cement is less expensive to produce. Adding costs to the cement manufactured in Oregon by levying a carbon tax, or by imposing a cap & trade system, will cause cement made in Oregon to be even less competitive with imported cement.

Carbon policies mirroring California or British Columbia cannot be replicated in Oregon without driving out the only local cement production facility. Those 116 jobs in Durkee will be lost permanently if the carbon policies under discussion are applied to Oregon cement operations.

In addition to job loss in Oregon, the unintended consequences of this policy will be a net *increase* rather than a decrease in global carbon dioxide emissions. Manufacturing cement requires a lot of electricity. The vast majority of Chinese electricity is generated from coal. Not so in Oregon. Shipping cement from China may be cheap, but not for the environment. Shipping one single ton of cement from China to Oregon results in almost 700 lbs. of CO_2 . Every time a ton of Chinese cement is used in Oregon instead of Oregon-made cement, the environment sees roughly 760 lbs. of CO_2 that would not occur if that ton of cement were made in Oregon. If the manufacturing capacity at Durkee is lost to Chinese competition because of a carbon tax or cap and trade program, then, in addition to the loss of approximately 80 union jobs, global emissions of CO_2 will increase by more than 417,000 tons per year.

This policy initiative lacks an investment in infrastructure or research and development to promote capture, transport and sequestration of carbon emissions. While the United States' most significant demonstration project for carbon sequestration has been halted (Mississippi power plant \$3 billion), a similar project would cost almost 15 times the cost of the Durkee plant when new. And Oregon statutes do not permit injection. The state has no provisions in this bill to create, fund or maintain such infrastructure even if the technology to capture carbon were proven at commercial use scale.

Our concerns about using natural gas exclusively have been validated in other testimony you have received from the Alliance of Western Energy Consumers in its analysis of the effect of carbon pricing on natural gas pricing. We are concerned that the stability of natural gas prices will vanish, and with that significantly higher prices will result in unsustainable cement production costs.

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We urge you to consider very carefully what you are trying to achieve and the net effect that proceeding with carbon regulation will have on energy intensive trade exposed industries in the state. A cap and trade program will serve to increase emissions in countries where emissions are not highly regulated, and it will destroy domestic jobs that sustain Oregon families and export those jobs to countries where worker safety is not protected and where workers lack the economic advantages that we offer in the United States.

Over the years, our employees have expressed frustration over the use of non-domestic cement being used in highways and bridges in the state. Imagine the concern they have for their futures and their families if this policy is adopted. There should be no rush to end the tradition of Oregon made cement by enacting ill-conceived policy, nor should there be a rush to boost global carbon emissions by increasing the quantity of imported cement. We urge you to seriously consider our comments and reject this policy or modify it to exempt Ash Grove's Durkee plant and other energy intensive trade exposed industries in Oregon from this policy.

Thank you for your consideration. I would be pleased to answer any questions the committee may have.

Curtis D. Lesslie, PE
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Carbon Footprint of Imported Cement

Chinese Electricity Generation

Fuel Source	%	CO ₂ (kg/MMBtu)
Coal	63	95.52
Oil	2	75.1
Natural Gas	4	53.06
Hydro	22	0
Nuclear	1	0
Renewables	8	0
Weighted EF:		63.4

Idaho Power

Fuel Source	%	CO ₂ (kg/MMBtu)
Coal	35.1	95.52
Oil	0.5	75.1
Natural Gas	7.7	53.06
Hydro	43.2	0
Nuclear	0	0
Renewables	13.4	0
Weighted EF:		38.0

China Electricity Generation Fuel Mix from US Energy Information Administration



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Carbon Footprint of Imported Cement

	Chinese Cement (lb/ton cement)	Durkee Cement (lb/ton cement)	Additional CO ₂ Due to Import (lb/ton cement)
Electricity	159.5	95.1	64.4
Fuel Emissions	560.2	556.3	3.9
Train Transport to Port	11.9	17.7	-5.8
Shipping Shanghai to Portland	689.8	0	689.8
Loading & Unloading	7	7	0
Additional CO ₂ per ton cement:			759.7

If Durkee plant's capacity is replaced by imported cement, then global CO₂ emissions will increase by 417,815 tons/yr



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