ABOUT ASH GROVE CEMENT COMPANY

• Founded in 1882
• Led by the Sunderland family since 1913
• Sixth largest cement company in the US
• Producer of portland and masonry cement
  ▪ 9 cement plants
  ▪ 2 import terminals
  ▪ 22 terminals
• Annual clinker production capacity of over 7.5 MM tonnes
• Ready-mix concrete, aggregates and packaged concrete products, and fly ash and CKD
• Total direct employees ~2800
Where we operate...

Cement Plant

Cement Terminal (C: contract)

Corporate Office (Overland Park, Kansas)

Regional Office (Portland, Oregon)
Process Emissions

- Portland cement is the second most used construction material in the world, after water
- No known substitute or production process
- ~60% of gross CO2 from calcination
  - Irreducible & inherent to the chemical conversion of CaCO3 to CaO
- ~40% of the emissions are from fuel combustion
Calcination (heating limestone to release $CO_2$)

$$CaCO_3 \rightarrow CaO + CO_2$$ (> 900 deg C, 1652 deg F)

Combustion (burning of fuels in Kiln)
Heat from combustion necessary to complete chemical reactions needed to make clinker

$$C + O_2 \rightarrow CO_2$$ (carbon from fuels like coal, gas)

$$H + O_2 \rightarrow H_2O$$ (hydrogen in fuels like coal, gas)
Threat to Domestic Cement Industry

• Carbon auction market is unpredictable and threatens domestic cement production
• EU ETC market provided free allocations in excess of production needs until 2008, now has implemented leakage provisions for cement
• Waxman-Markey GAO analysis assumed carbon trading cost of $20/tonne CO2 – very high in relation to product sale price
• Transport emissions from Asia to West Coast adds ~50% CO2 to domestic emissions
Existing Pacific Import Infrastructure

- Pacific Coast has strong population and economic growth and cement supply imbalance.
- Yet, none of the planned plant modernizations is for Pacific coastal region, due to role and threat of imports.

West Coast Cement Import Terminals

1,153,000 tonnes of cement was exported from BC into Washington and Oregon in 2005. This was 43% of BC’s annual cement capacity of 2,660,000 tonnes.

7,290,000 tonnes of cement were imported into the US west coast from Mexico and Asia in 2005.
Conclusions

• Cement is a critically necessary component of infrastructure and future growth, therefore the US will continue to rely on cement, regardless of its source

• Cement is highly efficient when used in structures

• Cement manufacturing is also:
  – Energy-intensive
  – Carbon intensive with substantial process emissions unaffected by efficiency gains
  – Trade exposed, with low barriers to market entry and import infrastructure
  – Market price is set in coastal regions by imports, so no pass throughs to downstream consumers

• Cement industry is uniquely exposed to the competitiveness impacts of carbon price signals