

# CHE 670 Sustainability Seminar

## The True Costs of Compliance...

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ASH GROVE CEMENT COMPANY

# ABOUT ASH GROVE CEMENT COMPANY



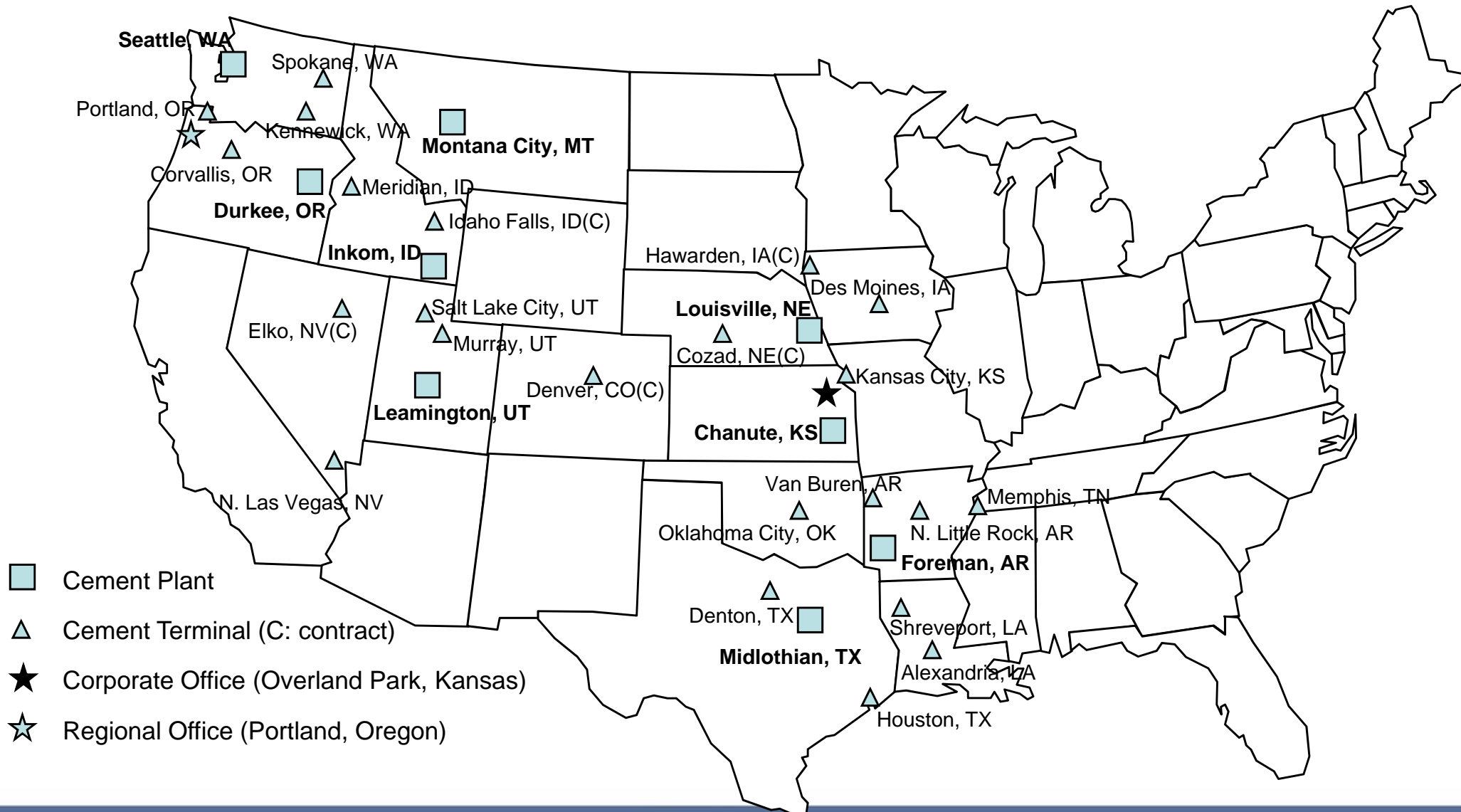
- Founded in 1882
- Led by the Sunderland family since 1913
- Sixth largest cement company in the US
- Producer of portland and masonry cement
  - 9 cement plants
  - 2 import terminals
  - 22 terminals
- Annual clinker production capacity of over 7.5 MM tonnes
- Ready-mix concrete, aggregates and packaged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



# Where we operate...



STRONG FOUNDATIONS.  
STRONG FUTURE.

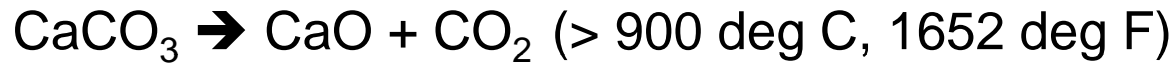


# Process Emissions

- Portland cement is the second most used construction material in the world, after water
- No known substitute or production process
- ~60% of gross CO<sub>2</sub> from calcination
  - Irreducible & inherent to the chemical conversion of CaCO<sub>3</sub> to CaO
- ~40% of the emissions are from fuel combustion

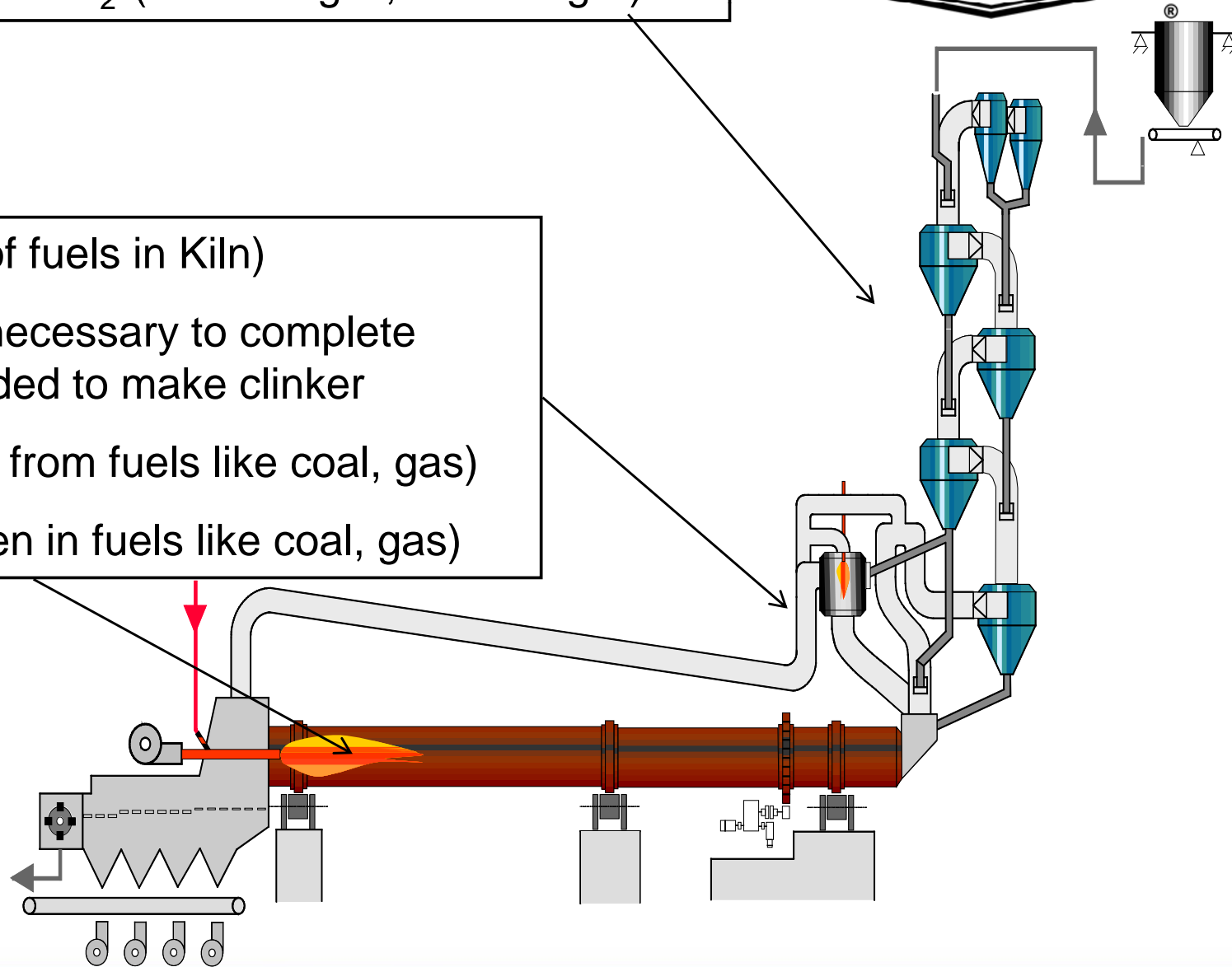


**Calcination** (heating limestone to release CO<sub>2</sub>)



**Combustion** (burning of fuels in Kiln)

Heat from combustion necessary to complete chemical reactions needed to make clinker



# 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 CO<sub>2</sub> – very high in relation to product sale price
- Transport emissions from Asia to West Coast adds ~50% CO<sub>2</sub> to domestic emissions

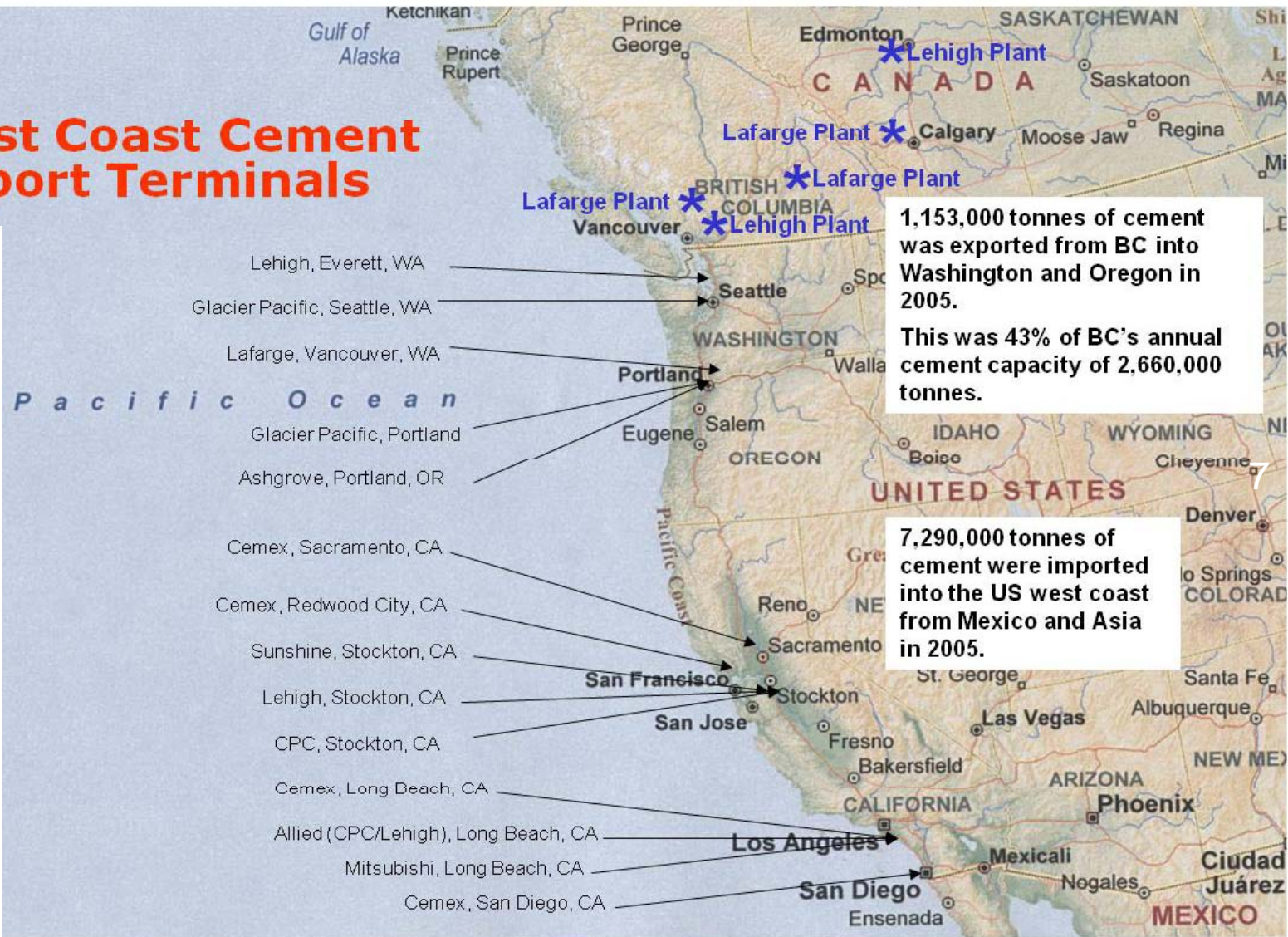




# Existing Pacific Import Infrastructure

## West Coast Cement Import Terminals

- 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



# 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

