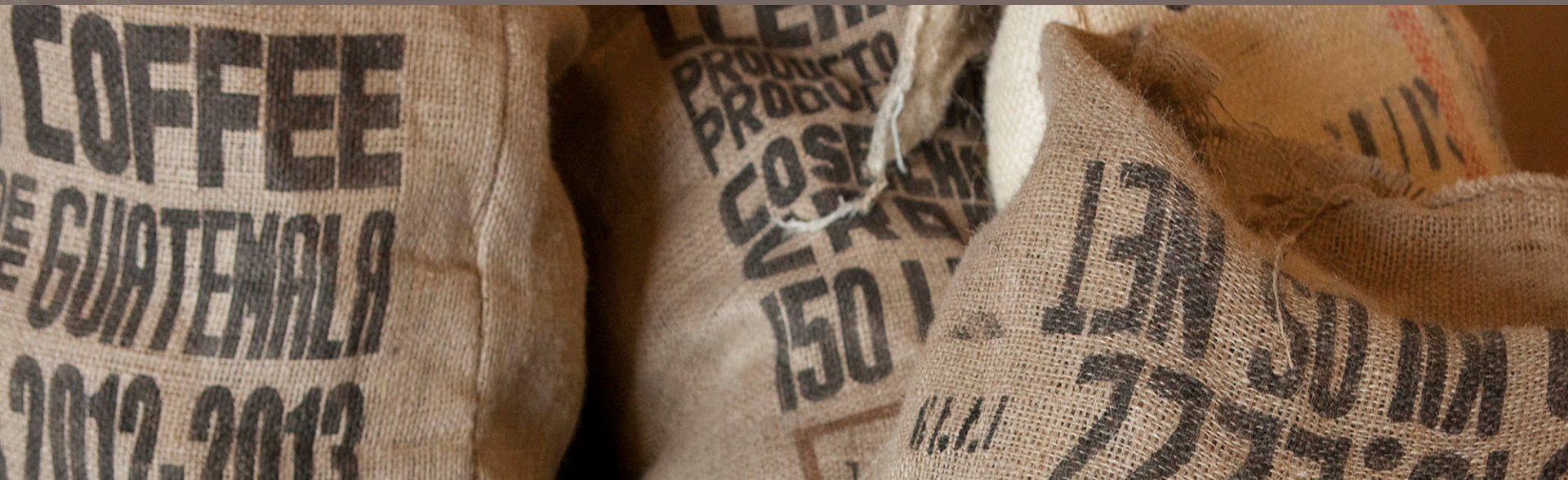
Testing and Implemenation of Natural Refrigerants into Starbucks Retail Stores

Paul Camera – Director, Equipment & Packaging Development
Global Research & Development



As a company that relies on agricultural products, we have long been aware that the planet is our most important business partner. There are four areas to our comprehensive approach to the environment

- Build new and bring existing stores to LEED building standards.
- Implement recycling in our stores and reduce waste through packaging and supply programs.
- Address water and energy conservation.
- Address climate change through strategies at origin.

Tackling water and energy use is a win-win proposition: it helps reduce our environmental impact and makes good business sense. Energy conservation is always in focus.

- Over 4,000 stores are now on an energy management system to control heat/cooling.
- Aggressive plans around lighting have led to significant energy savings.
- Investing in renewable energy purchases (top 10 in US) and Renewable Energy Credits.
- **Address energy use in stores in equipment design and implementation. Understand impact of new programs.**

Starbucks R&D took a strategy to implement natural refrigerants into our front and back of house refrigeration units.

- Testing multiple suppliers
- Rapid growth in the 2000s are leading to end of life of a significant number of units.
- The 2014 EPA ruling on natural refrigerants enabled suppliers to tool up for supply and support of natural refrigerants.
- Estimated to save energy beyond Energy Star 3.0 and address EPA 2017 program guidelines.

Comprehensive testing and validation in process to verify energy savings claims and to ensure we choose the right equipment for our stores.

- Equipment models in stores currently designed to test new equipment and products.
- Monitoring energy use versus replaced equipment. Baseline and control stores.
- Gathering Barista and other partner feedback on ease of use.
- Decisions will be based on total life cycle cost, including capital, service, operational efficiency.

Estimated program savings and advantage to our operations is on track for supporting project goals.

- Energy savings so far meeting or exceeded manufacturers claim (service and useful life).
- Financial benefit to the organization meets or exceed required hurdle rates.
- Testing also identified other areas of opportunity around (ab)use and equipment service opportunities. This type of identification can also help the business justification.

Next steps

- Finalize business model, implementation, and support plans.
- Provide planning for license partners, extend to Mexico and other markets as suppliers can be support.
- Develop a strategy for open or high refrigerant systems (display cases, ice machines, HVAC,etc)
- Continue to support efforts that represent innovative solutions to market.