Cool Flow Dynamics, Inc.

Energy Efficiency for Open-case Refrigeration

Cool Flow Dynamics, Inc. is developing a retrofit solution that will lower energy costs for open-case refrigerators. Open-case refrigerators can be found in virtually every grocery store, supermarket and convenience store. These units keep eggs, meats, cheeses and other food and beverages cold while displaying them in a manner that is attractive and inviting to customers. The major downside of open-case refrigerators is that their open fronts are extremely inefficient, resulting in sky-high energy bills. The problem is considered so significant that the Department of Energy is currently attempting to create energy efficiency standards for the refrigeration industry and food retailers. Cool Flow Dynamics' energy efficiency solution creates a "virtual door" that separates the cold air inside from the warmer ambient air outside, dramatically lowering energy costs.

Technology

Cool Flow Dynamics' energy-efficient system creates a "virtual door" that separates the interior of an open-case refrigerator from the surrounding air. Technology licensed from the University of Florida is being used to release a steady flow of rapidly moving air to create a "waterfall effect," which reduces the penetration of warm air into the interior while reducing the loss of cold air from inside the unit. The system can be retrofitted onto existing open-case refrigerators at low cost, significantly reducing retailers' energy expenses.

Market Potential

Open refrigeration systems account for 55 percent of convenience stores' total energy costs and 35 percent of grocery stores' energy costs in the United States. It is estimated that 75 percent of the energy used to cool open refrigeration units is wasted, the largest known source of wasted energy in the commercial sector. A trend among food and beverage retailers is to retrofit open-case refrigerators with doors to save money. The problem with closed cases is that they create a barrier between the customer and the product, which studies have shown leads to losses in retail sales. In fact, the loss in sales exceeded the costs of installing the doors and the gains from energy efficiency. The global market for retrofitting open refrigeration units is estimated at $20 billion. In one case study of a convenience store chain in Japan, Cool Flow Dynamics' solutions could save the company more than $500 million over the ten-year life of its open refrigeration units.

Strategy

Cool Flow Dynamics has signed a research agreement with the University of Florida and secured a global manufacturing partnership. Because the supermarket retail industry around the world is dominated by a small number of large corporations, the company will be able to reach its targets through an enterprise sales approach. Cool Flow Dynamics' market strategy first targets the Japanese market (where the price of electricity is highest) while laying the foundation for expansion into the European and North American markets.

Management Team

Kalu Watanabe, Founder & CEO

Kalu Watanabe, Cool Flow Dynamics' Founder and CEO, is a life-long entrepreneur and inventor with unique brand, style and vision. Before starting Cool Flow Dynamics, he founded Wing Power Energy – a company that uses his unique patented blade design that was validated as a "game changer" by Rensselaer Polytechnic Institute (RPI). He repositioned Wing Power Energy as a global player in providing off grid power solutions for the lucrative and fast growing wireless infrastructure sector. His first company, established in 1998, substantially changed the manner in which social services were provided in the state of Massachusetts. In Florida, his approach to development approvals was hailed as innovative because of his public friendly "inclusive & transparent" process to gain support. He was the runner-up in the 2010 Global Entrepreneurship Weeks business plan competition and made it to final ten in the 2010 British Airways elevator pitch competition.

Subrata Roy, Chief Technology Officer

Subrata Roy, Ph.D., is the company's Chief Technology Officer. He is also an Associate Professor in the University of Florida's Department of Mechanical and Aerospace Engineering, where he researches electric propulsion, magnetogasdynamics, plasma science and micro/nanoscale flows. Dr. Roy has published more than 100 scholarly articles and he has received numerous distinguished honors, including a fellowship with the American Society for Mechanical Engineers in 2004 and a fellowship with the World Innovation Foundation in 2001. Dr. Roy is Founder and Director of the Computational Plasma Dynamics Laboratory and Test Facility at the University of Florida. He earned his Ph.D. in Engineering Science at the University of Tennessee in 1994.

Muneyoshi Shibagaki, Manufacturing Partner

Muneyoshi Shibagaki, the company's Manufacturing Partner, is an entrepreneur, industry innovator and inventor. He is also one of Cool Flow Dynamics' board members and investors. As president of Taisei Techno Co., Mr. Shibagaki introduced several cutting-edge technologies and commercialized more than a dozen products for the highly competitive railway industry. He will bring his expertise to Cool Flow Dynamics, where he will develop a manufacturing plan for commercializing and distributing the company's solutions around the world.

Contact Information

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