



# Low Carbon Cool Chain (LCCC)

## Challenge

"One of the main constraints to the entry and expansion of local foods is the lack of distribution systems for moving local foods into main stream markets", [source: USDA 2013 Report](#)

## Solution

Low Carbon Cool Chain (LCCC) Transport System.



## COLD CARGO TRACKING, MONITORING AND SHIPPING CONTAINER PRODUCTS & SERVICES



### THE SOLUTION & PRODUCT

For Food or Medical Safe & Green Transport and Storage

*'Cool Temperature Delivered in a Box - Without the use of External Power'*

- ◆ Insulated cold boxes with telematics, sensors, biodegradable cold element
- ◆ Proprietary, patented, and patent-pending ◆ NO AC power required – energy efficient and cool temperature maintained for over 200 hours ◆ Various measurements \*temp, humidity, organic elements, etc ◆ Commercially available in Europe, ready for food hubs/aggregators/operators worldwide
- ◆ Aligned with leading EV makers, for energy-efficiency, and USDA for Food Hubs across the U.S.

### THE CHALLENGE

1. Today, up to 40% of perishable products are wasted or spoiled between production and reaching the consumer
2. NO Energy-efficient cool chain solutions other than this unique and the First-Mover in the market.
3. Food safety monitoring (breaking cool chain) is increasingly important with outbreaks of salmonella and E-Coli on the rise, causing more deaths each year
4. Something simple, cost-effective, lower maintenance, green, with more stable and even temperature control is needed.
5. Profitable business in Europe already, USA rapidly growing. Cool chain industry is growing fast - (19%) in USA and in EU, (50%) in Asia, and (33%) rest of the world
6. Waste problem of disposables increasing; globally transport companies and auto manufacturers looking for adequate solutions, green delivery in major international urban hubs is strong market for restaurant 'fresh' delivery, local food hubs and co-ops
7. Telematics enables route optimization for max fuel savings; clients have yielded 30% fuel savings.
8. Inefficient refrigerated trucks vs. non-refrigerated EVs; 30% fuel and 40% maintenance savings.

### BUSINESS MODELS AVAILABLE

Commercial fleet sales, leasing, independent operators, food hubs, partnerships for key uses and value chain/supply ◆ Investment required, but rapid payback and financing assistance available ◆ Overall ROI is less than 2 years based on traditional solutions (ice, boxes, disposal, waste, energy use).



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The LCCC training is ready for launch in January 2014. We believe that the LCCC can significantly impact the food industry. The LCCC award winning technology is truly a game changer. It meets the emerging needs of the market, and improves food safety, reduces energy usage and waste, and puts the breaks on inefficient refrigerated trucks, dry ice, and non-reusables. The LCCC enables more effective cool chain delivery to restaurants, offices, schools, homes, event facilities, hospitals, etc.

The LCCC delivery system can be leased for low entry, and existing establishments such as food hubs or CSAs, can be used for cool chain infrastructure. The system is easy to operate, and requires minimal labor to maintain. Below, the workforce training program and technology summary.

## Background

In July 2009, Chamber of Eco Commerce (CEC) partnered with an international team of cool chain experts to research the concept of a Low Carbon Cool Chain (LCCC), and to explore its potential in the U.S.

High unemployment levels and low educational attainment levels, make traditional economic development efforts difficult. A LCCC training does not require high academic skills, offering an exciting chance for economic growth that draws from and builds on the community's assets and roots.

The LCCC workforce training supports entrepreneurial expansion and economic development by allowing individuals in a region access to new technology, tools and know-how they will need to deliver fresh foods and other perishables to customers.

## What Can You Learn from the Experts About Low Carbon Cool Chain?

The LCCC training program is now at a point where it must concentrate and intensify its effort to expand across the U.S. The groundwork for this has been laid in terms of program development, market research, and strategic alliances. The program is now at a stage where it is of the highest priority to penetrate the market quickly and efficiently. We seek to improve existing cool chain infrastructure, help build stronger regional food systems, and enable transformative supply chain change across the regions.

## Community Development

We support entrepreneurial expansion and micro-enterprise development by providing training to individuals and organizations; how to handle, deliver, and market fresh foods effectively for public consumption and sale.

This summary is an overview of the concept of LCCC workforce training program and its potential as an economic development tool. The recommendations contained herein should be used to advise stakeholders and partners, as the project moves forward.

## Workforce Training

We provide training to small to large size organizations through virtual training portal, to convey information and deliver on-going training and support to your employees. We help co-brand LCCC delivery vehicles, containers, and cooling elements with PSAs, giving our sponsors opportunities to communicate direct with communities where we operate. Local communication campaigns are designed to create value to our sponsors, while educating communities about 'Healthy Living and Lifestyle'.

## Opportunity - Growth

The demand for temperature controlled food and non-food delivery services is increasing in many markets across the U.S. and globe. One important factor is the movement of manufacturers and retailers to urban markets, as well as the changing tastes and lifestyles of consumers in more mature markets. This has resulted in high levels of investments by logistics companies and their associate suppliers, as they have acquired or partnered local players in order to access these markets and to open temperature controlled operations in these regions to serve the growth in prosperity of local populations. In addition, temperature monitoring and control are essential mechanisms in cold chain management, because they are necessary for maintaining food safety and quality.

## Origin of the Project

The LCCC workforce training program is a result of a partnership between the Chamber of Eco Commerce (CEC) and Organization Supporting Business Owners (OSBO), and an international team of cool chain experts. The

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program efforts are centered on four key program areas including hands-on training, entrepreneurial and enterprise development, and marketing and branding.

In 2011, CEC commissioned a study that defined the needs and opportunities for Eco Commerce projects in the US. The LCCC was among the recommendations that emerged from that study. The LCCC education program became an economic development program, and a two year work plan was drawn from the document.

Stakeholders saw the potential of a LCCC education program to help promote local entrepreneurial and micro-enterprise development playing on the local assets. The stakeholders also realized this project's potential to address their own goals of community support, and savings in energy and resources. CEC partners met in March 2012 to discuss and further explore the LCCC education program model and launch of a global Low Carbon Cool Chain initiative. While the first LCCC education program will be launched in Atlanta, all partners recognize its ability to serve all key partners as an economic development tool.

## WHY LCCC?

The income and poverty level data suggests that there is a significant need for new and innovative economic development opportunities in rural communities across the U.S.

Educational attainment data demonstrates that economic development initiatives need to consider and suit the comparatively low education levels of current residents. A LCCC education program can provide hands-on training and advisory for this population and provide a bridge to new jobs as communities look at longterm economic development strategies and plans.

Of note, many micro-enterprises (defined as 5 or fewer employees) are currently helping to bolster the struggling economy of communities across the US.

Drawing from their roots and the unique cultural heritage of regions, many small businesses are producing locally inspired products and services, but lack effective training and support. With these limitations, however, these entrepreneurs struggle to grow their businesses to scale and to have a true impact on their local economies.

LCCC education program can serve as an economic engine, both local and regional in scope, which draws from and builds on the community's assets. It can be a comprehensive approach to economic development by combining resources, technical support, access to capital, marketing strategies, and even value-added tourism opportunities to support local entrepreneurship and a community's economic growth and revitalization. This collective endeavor is not only a more efficient use of capital, it also adds to the support, visibility, and capacity of individual businesses, leading to the long-term sustainability and success of the project as a whole.

A LCCC training has numerous benefits for a community and its local entrepreneurs. With local roots, communities are primed to benefit from the LCCC model. As a general rule, LCCC does not require high levels of academic skill; therefore the LCCC education program can benefit target populations with comparatively low levels of educational attainment, while growing and fostering an entrepreneurial spirit in communities which can translate beyond the food industry sector.

## Benefits

Small businesses are the backbone of the American economy and remain a strong fiscal constant, especially in times of economic downturns and recessions.

Micro-enterprises contribute significantly to job creation and help our nation's struggling economy, in addition to fostering the entrepreneurial spirit and encouraging community investment in communities across the county.

- More than 87% of all businesses in the US are micro-enterprises (5 or fewer employees)
- Micro-enterprise employment represents 18.2% of all private employment in the U.S.
- On average, micro-enterprises are responsible for an annual almost one million new jobs created in the U.S.
- Micro-enterprise development is a strong public investment with an estimated \$2.0 to \$2.72 for every \$1 invested, and returns sales, income and property taxes to local and state coffers
- More than 80% of small businesses fail within their first five years – through lack of money, skills or both.
- Nearly 87% of business graduates remain in business.

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## REFERENCE

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