

VOLTA AIR

Executive Summary
15th October 2019

Introduction: *Volta Air Technology* (“Volta Air”) is a privately held, Canadian technology company headquartered in British Columbia, Canada. The Company has developed a fully electric, high efficiency refrigeration system that addresses the need for continuous refrigeration of goods (e.g. perishable foods, beverages, medicine, cannabis, ... etc.) while they are being transported via road, rail, air, or sea (continuous cold chain). Similar to a home refrigerator, the general idea is to cool an insulated cargo box that holds the perishable goods by using a compressor. In trucks and delivery vans, these compressors are powered by adding an alternator to a truck’s gasoline or diesel engine. The process of installing an alternator is both time-consuming and costly, and the resulting system is complex, unreliable, expensive to maintain and requires a meaningful amount of additional gasoline or diesel fuel to operate.

Volta Air is poised to revolutionize the refrigerated transportation industry by introducing a battery powered refrigeration system. The company’s highly reliable, patent pending refrigeration system, called “e-fer”, is powered by a bank of batteries that can be recharged directly from the electrical grid when the vehicle is not in use or can be continuously recharged from solar arrays when mounted on board the transportation vehicle (or both). e-fer comes in five distinct models - *Pluto, Pluto+, Titian, Titan+, and Cool-it*. Collectively, the e-fer product line addresses the needs of more than 90% of the market from mini cube vans doing local home deliveries of groceries in the narrow alleys in Asia, all the way up to full size trucks that provide logistical transportation services to regional distribution centers.

Designated as a green/clean technology by the *California Air Resources Board*, e-fer was initially introduced to the market in 2012 and demand for the technology has increased steadily over the past 7 years. The company now competes head-to-head with traditional, less reliable, less efficient and significantly more complex gasoline and diesel supported systems manufactured by the likes of Thermo King and Carrier. Because e-fer is battery powered, new and retrofit installations take far less time, are less expensive to install and to maintain than refrigeration systems requiring vehicle engine modifications. The e-fer has higher reliability because it has fewer moving parts and is independent of the vehicle engine. e-fer is fast becoming the desired choice by socially responsible and economically conscious organizations looking for the next generation cold-chain refrigeration solution. The Company booked over \$1.6M in revenue in 2018 and is expected to exceed \$2M in revenue in 2019

Leadership: Volta Air is managed by seasoned veterans with more than 100 years of combined business and management experience and more than 50 years of experience directly related to the automotive, industrial cooling, and HVAC industries. The management team has a proven track-record of technology development and successfully growing start-up companies into multimillion-dollar enterprises that have resulted in acquisitions, mergers, private exits and/or become listed on public markets through IPO/RTO transactions.

Company Profile

- URL: <https://www.voltaair.com/>
- Industry: Reefer Technology
- Transport Refrigeration Units (TRU)
- Employees /Consultants: 12
- Formed in 2012
- Officially Founded: 2015

Management

- **Steve S Zaari**
CEO, Co-Founder & Board
- **Peter Johnston P.Eng**
Head of Product, Co-Founder
- **Parminder Singh P. Eng**
Head of Corp Dev.
- **Masoud Labbani**
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Market: Today, the global refrigerated transport market is valued at USD 15.5 billion and is projected to reach USD 21.6 billion by 2025, recording a CAGR of 5.8% from 2019 to 2025. As second related and meaningful projection is that the Online Food Delivery Market is estimated to be valued at USD 65.91 billion in 2019 and is projected to grow at a CAGR of 17.3 % during the forecast period to a net market size of USD 90.95 billion in 2025. Other market trends that suggest there will be an increased demand for cold-chain transportation in the future include: (1) an estimated twofold increase by 2025 in developing countries for demand for packaged food; (2) government initiatives to control food wastage, enhanced efficiency of refrigerated trailers, and adopt technologies that reduce the carbon footprint in urban areas; and (3) an increase in the demand for a “Freezer to Table” category of foods where frozen food get prepared for consumption primarily by microwaving the food. Microwavable Food demand is estimated to increase at a CAGR of 3.8% during the forecast period of 2019-2025.

Differentiation: Volta Air’s No-Idle All Electric Refer (e-fer) operates entirely on readily available 12V batteries and does not rely on the vehicle engine for power. As a result, the vehicle engine does not need to run or idle to maintain cold temperature in its cargo bay when the vehicle stops to load or unload or make deliveries. This simple feature represents considerable cost-savings in fuel when operating the e-fer compared with engine driven refer units. It also solves an operational/logistical issue that requires the vehicle operator to leave the vehicle running while loading or unloading the vehicle or making deliveries. As an example, if a standard 15-foot delivery van operates 5 days per week and stops 8 times per day for 15 minutes each time to unload (or load), the anticipated saving could exceed \$2,000 per year in engine-idling fuel costs alone. Translated, this results in a reduction of over 4.2 tons of CO₂ from being emitted yearly from a single standard 15-foot delivery van. Further, vehicle owners would also benefit from reductions in insurance premiums, and increased employee efficiency. Existing Volta Air customers have experienced operational cost reductions of as much as 30-40%, an immediate ROI, and a capital payback in less than 36 months. The corresponding financial, logistics and operational benefits to an organization that had several hundred delivery vehicles in its fleet would be significant.

Tracking and AI Optimization: Each e-fer unit is equipped with a full suite of embedded sensors (e.g. temperature, GPS locations, door open indication) that can be remotely monitored through a secure web-based online platform. This gives the operator direct insight into daily logistics and operations activities, while highlighting areas of inefficiencies. e-fer is also furnished with a set of unit health sensors that can be analyzed, in real time, using Volta Air’s proprietary AI algorithms. This AI provides the operator early indications of impending failure. If anomalies are detected, the operator is immediately notified by a text/email, allowing the operator to take corrective actions before temperature sensitive cargo loses its value.

Socially Responsible/Green Technology: Volta Air helps environmentally conscious customers to do the right thing. The all-electric, e-fer unit operates while emitting Zero Emission. This is a considerable shift from existing technologies that pollutes. In the state of California, Volta Air is eligible for an 80% rebate from the Prop-1B program through the California Air Resources Board (CARB).

Scaling: Today, Volta Air manufactures and assembles the complete line of e-fer products in its own factory located in Richmond, British Columbia. The Company has a manufacturing capacity of approximately 100 units/mo. However, Volta Air’s e-fer has been purposely designed to meet “design for manufacturing” and “design for production” guidelines. As such, Volta Air’s entire supply chain of parts and assemblies can be sourced from multiple suppliers and the lead times for ordering custom parts is

Competition

- ThermoKing (Ingersoll-Rand)
- Carrier Transcold
- Daikin Industries
- United Technologies
- Denso Corporation
- Hyundai Motor Company
- Swift Transportation
- CMA-CGM Group

less than 3 months. Hence, the Company can scale e-fer production gradually as driven by demand, by as much as three/four times within one quarter.

Business Model: Volta Air brings advanced cooling technology solutions to the urban delivery market. The Company's primary market focus is on short-haul online grocery/food delivery routes where there is a multifold increase in demand. This "last mile" delivery requires a reliable solution that can survive increased traffic congestion and multiple daily stop-and-go deliveries within prescheduled delivery windows. Operational efficiency will be key to the success of businesses in this multibillion-dollar industry. As a result, delivery vehicles will need to be smaller, more efficient and incredibly reliable. There will also be a need to compartmentalize frozen foods from cooled foods. In all cases, cargo temperature will need to be continuously monitored and maintained while minimizing the carbon footprint of the service itself.

Volta Air takes a multi-prong strategy to advance its business and generate revenue. First, Volta Air targets Value-Add-Integrators (VAI) that specialize in manufacturing and customizing delivery trucks. The company uses the sales force of this partner channel to introduce and sell the e-fer product line. Each VAI is incentivized to include/upsell the e-fer solution to the end customer. This approach has worked well for Volta Air as the VAI makes money on every sale they make. The second approach is to work directly with the end customer and highlight the benefits of Volta Air technology. If there is interest, the end customer is directed to a partner truck outfitter. The third approach is to work with leasing companies such as Ryder and Penske, who have historically been involved with integrating solutions for larger fleet clients. The company uses the sales force of this partner channel to introduce and upsell e-fer solutions as part of an integrated solution. The larger leasing companies also have technical capabilities and national footprint to effectively and rapidly integrate, install and maintain e-fers. Once again, all parties of the ecosystem benefit so there is little channel friction. The fourth approach of generating revenue is offering the end customer value added services of added warranty, insurance, and additional sensor tracking and AI analysis services. The fifth approach is to license the baseline e-fer technology as a white labeled solution to much larger, better capitalized entity. In this scenario, Volta Air would manufacture the units and they would be sold in the market under private brand. Volta Air has already been approached to explore possible business arrangements.

Accomplishments: Volta Air has won the *New Venture BC 2018 Award*, graduated from Creative Destruction Labs and filed 4 patents by the United States Patent Office. To date, Volta Air's team has developed and continues to manufacture, train installers and monitor products that have been installed in the urban delivery market primarily in Canada and parts of the United States. Volta Air has been gaining major client accounts in North America with companies such as SPUD, Walmart, BYD, B.C. Ferries, FlowKana and others currently in the pipeline.

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