



Vision Industries Corp.



Company Presentation

Building zero emission heavy-duty hydrogen/electric trucks for the 21st century



What We Do

Vision Industries Corp. provides **zero emission hydrogen/electric hybrid powered:**

- **Class 8 Trucks** and
- **Terminal Tractors**

...used in regional logistical hubs and ports of entry to move containerized cargo **within a facility** and **off-facility** (in a **drayage** application).



Class 8 Truck

Product: Class 8 Heavy-Duty Trucks
Usage: Drayage *
GCVWR:** 80,000 lbs.
Duty Cycle: On-Road (Off-Facility)

* **Drayage** is the transport of containerized cargo over a short distance (< 50 miles) between ocean ports or rail ramps and shipping docks.



Ports of LA | Long Beach



Terminal Tractor

Product: Terminal Tractor
Usage: Movement of containerized cargo within a facility
GCVWR:** 130,000 lbs.
Duty Cycle: Facility-Only



** Gross Combination Vehicle Weight Rating (GCVWR) – the maximum allowable combined weight of the tow vehicle and the attached cargo container.



Our Class 8 Hydrogen HEVs

hybrid electric vehicles (HEV)

Type: Heavy-Duty Truck (Drayage)
Model: Tyrano™



Weight	80,000 lbs. (GCVWR)
Propulsion	Electric Drive with Hydrogen Fuel Cell
Fuel / Storage	20 to 40 Kg of Gaseous Hydrogen (depending of configuration)
Range	Standard drayage range: 200 miles over 8 hour shift. Extended range: 400 miles over an 8 hour shift.
Horsepower	400-536 HP
Torque	3,200-3,300 lbs.-ft.

Type: Terminal Tractor
Model: ZETT™ *



Weight	130,000 lbs. (GCVWR)
Propulsion	Electric Drive with Hydrogen Fuel Cell
Fuel / Storage	15 to 20 Kg of Gaseous Hydrogen (depending on configuration)
Duty Cycle	Two 8-hour shifts before refueling with Hydrogen
Horsepower	225 HP

* ZETT is a joint development program between Capacity of Texas and Vision Industries Corp..



Target Market: Drayage Trucks

Class 8

Port of Los Angeles | Long Beach



Key Facts:	
Area of Operations:	Ports of LA Long Beach
Target:	Trucking Fleet Operators
Size:	\$304B in freight is moved through the Ports of LA Long Beach every year (@ a rate of 30,000 trucks/day)



Demand for Vision's H₂ | Electric Hybrid Solution

Port Mandate:	Ports of LA Long Beach have initiated the Clean Truck Program that reduces emission by 80% by retrofitting about 16,000 trucks by the end of 2012.
Pipeline for Product:	TTSI, Cal Cartage and Swift Transportation

- September 28, 2009**
Vision Industries Enters into Distribution Agreement with Los Angeles Freightliner
- November 16, 2009**
FedEx Freight to Test Vision Industries' Zero Emission Tyrano Truck
- April 29, 2010**
U.S. Department of Energy list Vision's Tyrano as an Alternative & Advanced Vehicle
- November 17, 2010**
Port of Long Beach and Vision signs an agreement to deliver a hydrogen fuel /plug-in Class 8 on-road truck
- July | August**
Delivery of demonstration vehicle for revenue service testing [Port of Long Beach]

Vision Class 8 Drayage Truck Adoption Timeline





Target Market: Terminal Tractors

Port of Los Angeles | Long Beach



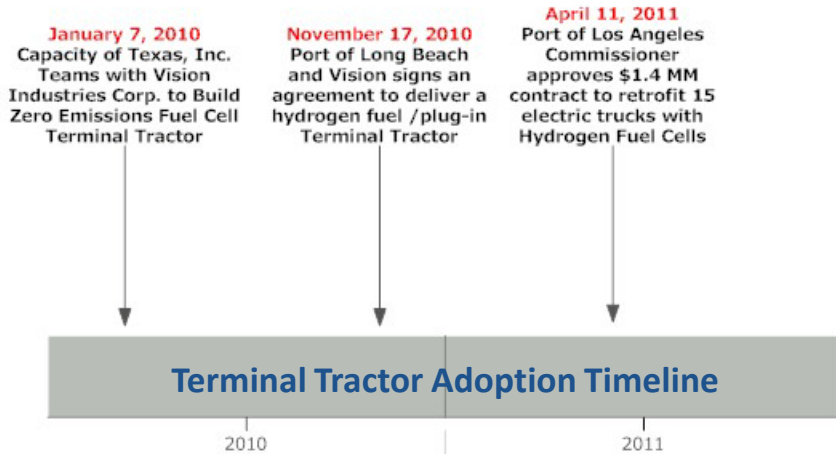
Key Facts:	
Area of Operations:	Ports Rail Yards Fleet Yards
Target:	Trucking Fleet Operators Warehouse Operators Shipping Operators Rail Yard Operators
Sales Pipeline:	Vision has entered into a Sales Agreement with Capacity of Texas to provide the company's hydrogen electric drive-train for world-wide sales.



Fleet Yards











Rail Yards





Hydrogen | Electric Hybrids vs. Competing Technologies

	<u>2010 Diesel</u>	<u>LNG</u>	<u>Vision's Class 8 Truck</u>
Horsepower	450 peak	320 peak	536 peak 
Torque (foot/lbs.)	1,350 peak	1,000 peak	3,300 peak 
Fuel	10,000 Gal.	16,700 Gal.	6,765 lbs. 
Particulates	12.37 lbs.	4.6 lbs.	Zero Emission 
NMHC/MHC	173 lbs.	66.5 lbs.	Zero Emission 
NOx	1,485 lbs.	570 lbs.	Zero Emission 
CO2	217,800 lbs.	142,145 lbs.	Zero Emission 
Noise Pollution	Yes	Yes	No 



Hydrogen | Electric Hybrid Value Proposition: Lower Ownership Cost

Criteria

	Diesel	Vision's Class 8 Truck	Savings
Initial Vehicle Cost	\$140,000	\$270,000	
Tax Credit for New Qualified Alt. Motor Vehicles	-	(\$40,000)	
Buy-down Funding (Clean Trucks Program) *	-	(\$100,000)	
Initial Net Vehicle Cost	\$140,000	\$130,000	
Service Life Fueling Costs	\$606,365	\$229,412	
Service Life Maintenance Costs	\$25,600	\$20,000	
Salvage Value	(\$20,000)	(\$20,000)	
Total Ownership Cost	<u>\$751,965</u>	<u>\$359,412</u>	<u>\$392,553</u>

Assumptions

Vehicle Service Life (years)	8	8
Miles/Year	78,000	78,000
Fuel cost/gallon or lbs./H2	\$4.47	\$2.50
MPG or MPP(H2) (50/50 duty cycle)	4.6	6.8
Maintenance Cost/year	\$3,200	\$2,500

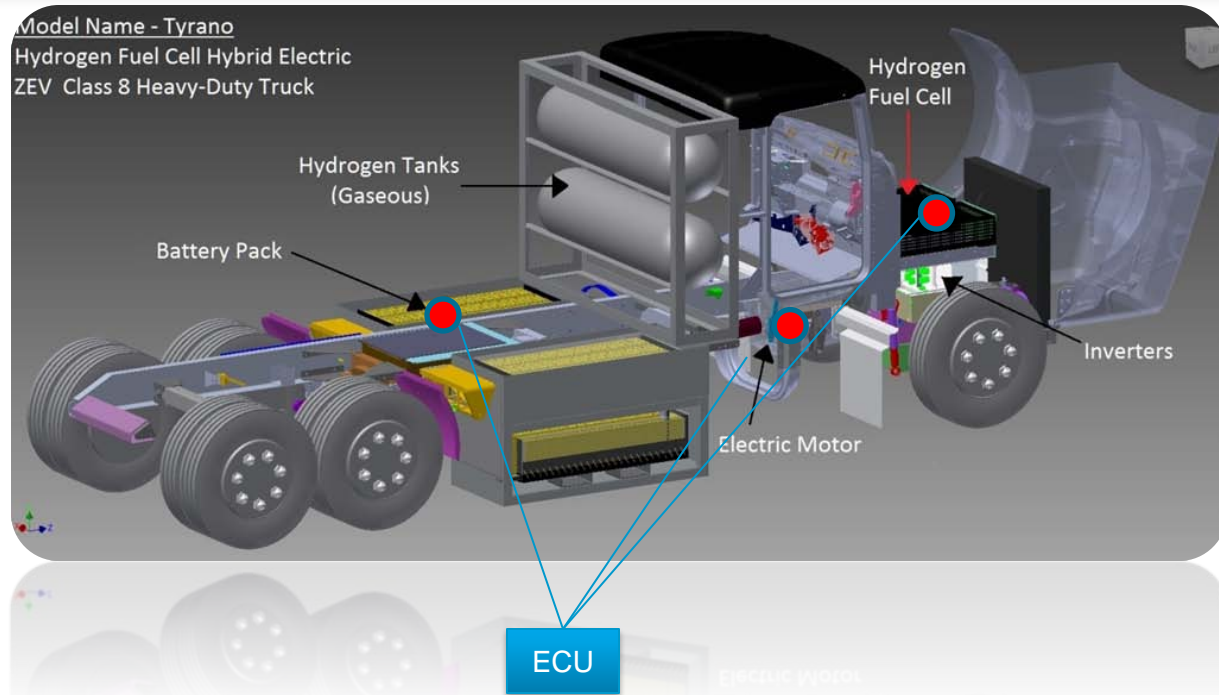
* Estimated

System Overview

Vision Industries Corp. is headquartered in El Segundo, California.

Vision's proprietary hydrogen/electric hybrid drive system combines:

1. **superior power** over its diesel counterparts with the;
2. **extended range** provided by a hydrogen fuel cell, at a;
3. **lower cost per mile**, and with a;
4. **zero emission footprint!**



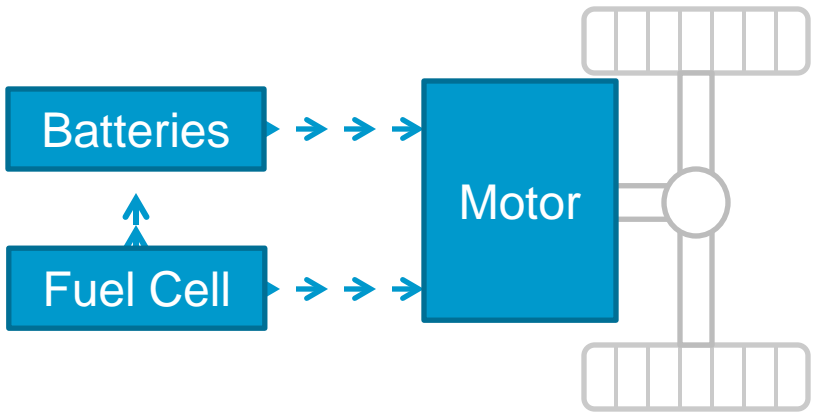
Vision's proprietary information is the software running the electronic control unit (ECU). The ECU controls all the sensors and control boxes running the:

1. **Electric Motor** (converts electrical energy to mechanical energy).
2. **Battery Pack** (giving power to the electric motor).
3. **Hydrogen Fuel Cell** (recharges the batteries).

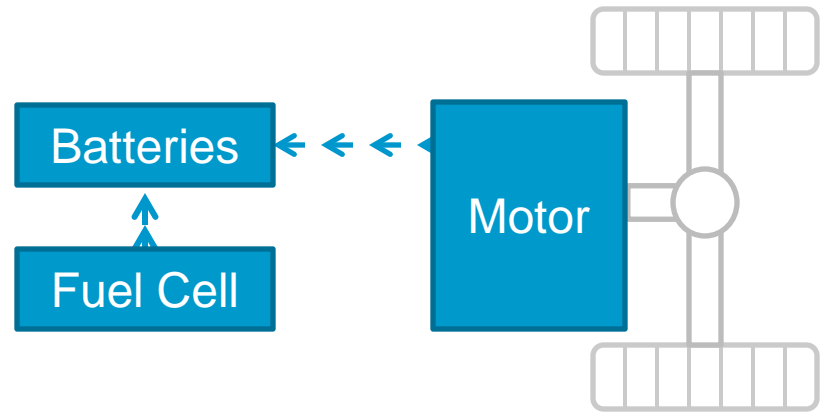


Energy Flow

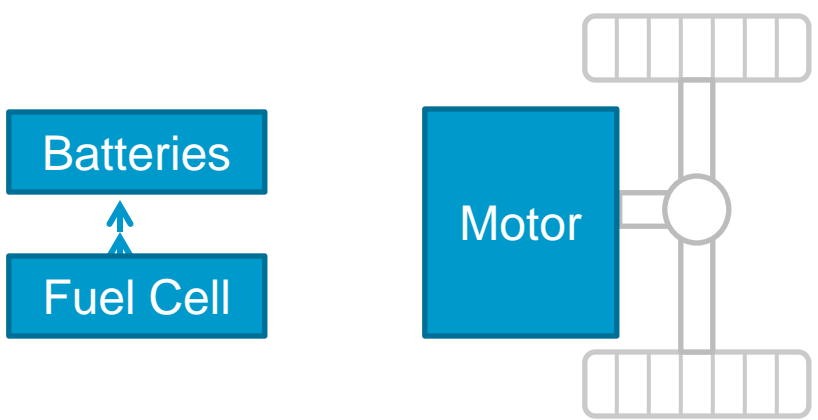
Driving



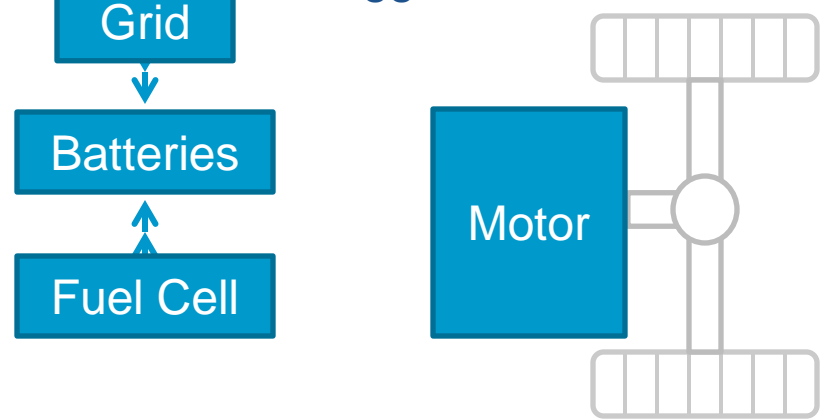
Braking



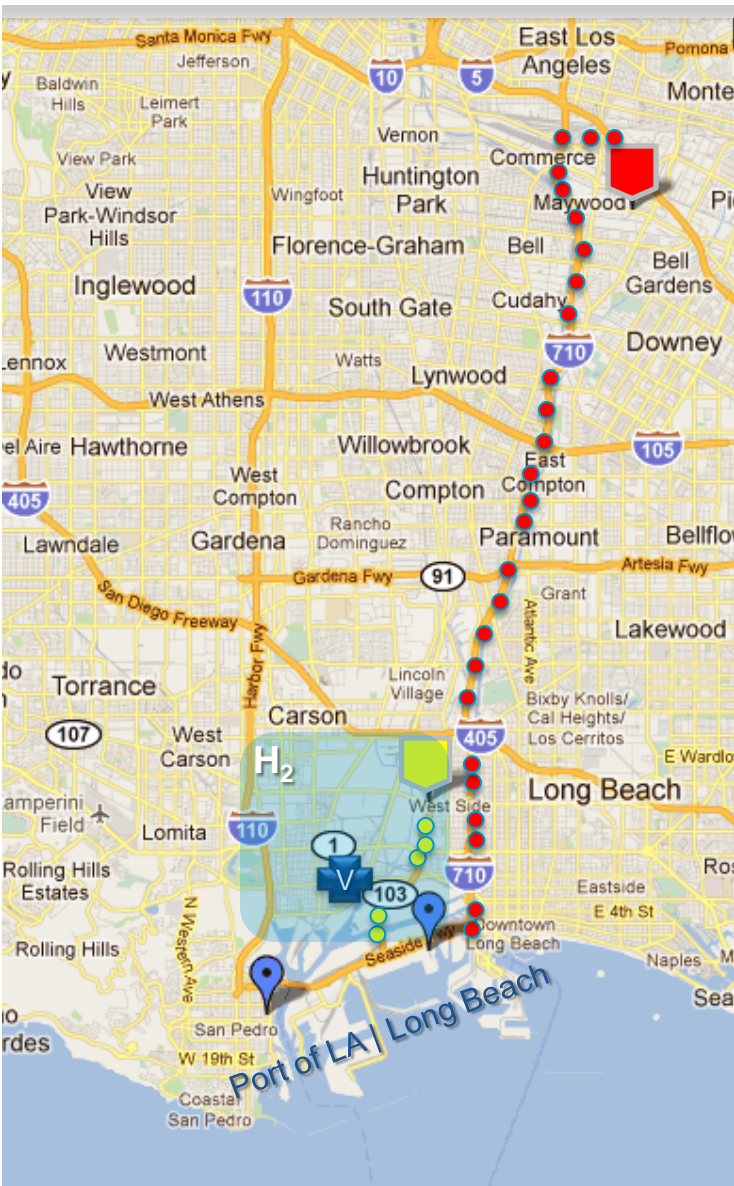
Park



Plugged-In








Vision's Operating Model



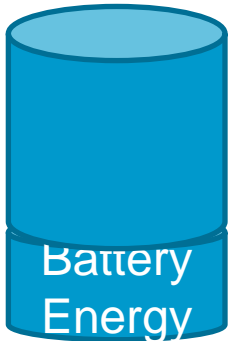
1. Vision Industries provides a **Zero Emission** transportation solution for the Ports of LA | Long Beach.
2. Vision Industries operates in a unique **Drayage** trucking category (movement of containerized cargo over a short distance – less than 50 miles – usually from the Ports to an Intermodal Facility, a rail yard).

Of the 16,000 trucks per day exiting the Ports of LA | Long Beach:

- i. **40%** of the trucks travel about 5 miles from the Port to the **Intermodal Container Transfer Facility** operated by Union Pacific Railroad. 
 - ii. **60%** of the trucks travel about 26 miles from the Ports, up the 710 Corridor, to an intermodal facility in the City of Commerce. 
3. Vision's Class 8 Trucks have a range of 200 miles.
 4. Since truckers engaged in drayage service always return to a home base at the end of a duty cycle, only a single fueling facility is required in a general location.
 5. Vision Industries initial fuel station at the Port area (on 3 acres) can service over 500 trucks per day. 
 6. Ports are surrounded by a pre-existing Hydrogen Pipeline serving local refineries, therefore Hydrogen is readily available in large quantities around the Ports of Los Angeles & Long Beach. 
 7. Vision Industries has a strategic partnership with the largest supplier of hydrogen gas in the world to supply Fuel-Grade Hydrogen at a “preferred vendor” rate. 

Energy Management

Battery only

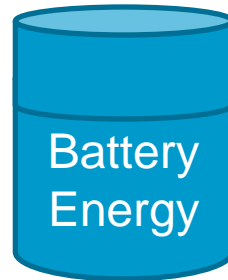


1st cycle

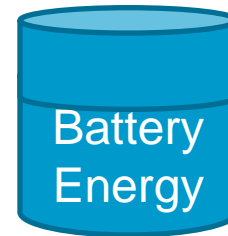
w/ Fuel Cells



1st cycle



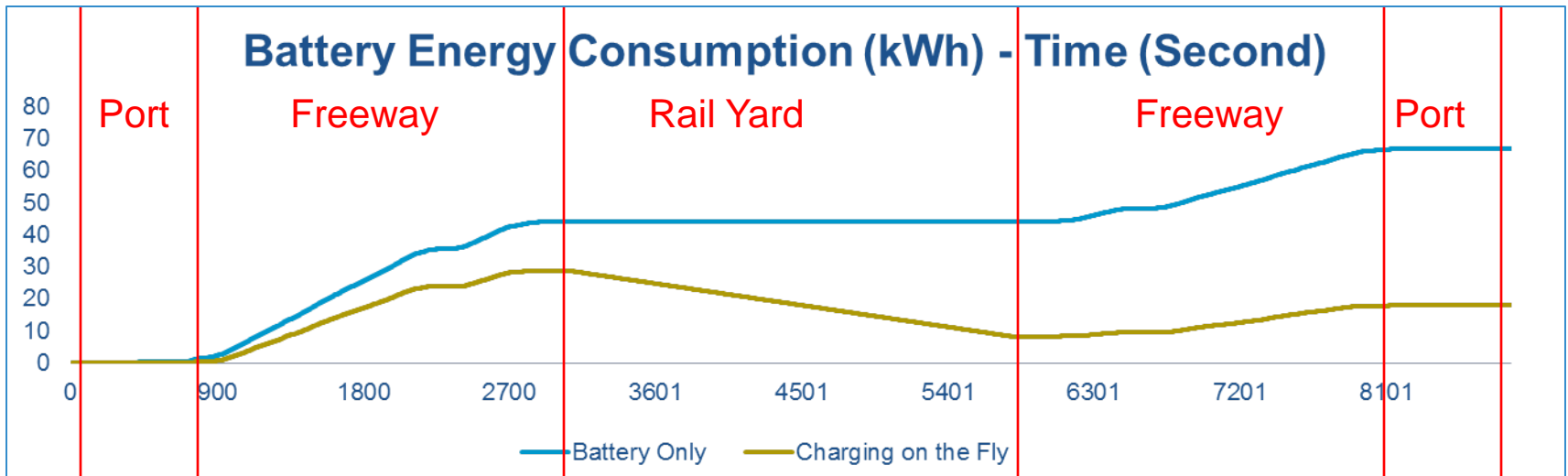
2nd cycle



3rd cycle



4th cycle





Energy Density

Hydrogen Fuel Tanks

1 Kg H₂ → 33 kWh

20 Kg H₂ → 660 kWh



Batteries (Li⁺)



One (1) Battery:

3.2 V x 200 Amps → 650 Watts

Weighs 7.5 kg or 16.54 lbs.

...therefore to get the equivalent output

1,000 batteries → 16,543 lbs. (or 8.2 tons)

→ 650 kW





Our Unique Position | Industry Acceptance

Our Unique Position:

Vision has also been awarded contracts from the **Ports of Los Angeles | Long Beach** (the largest port system in the United States) to deliver a set of Class 8 heavy-duty trucks and terminal tractors for demonstration and testing in revenue services with drayage companies.

Superior Performance
(over Diesel)

Superior Performance
(over LNG)

Extended Range Over Electric Vehicles

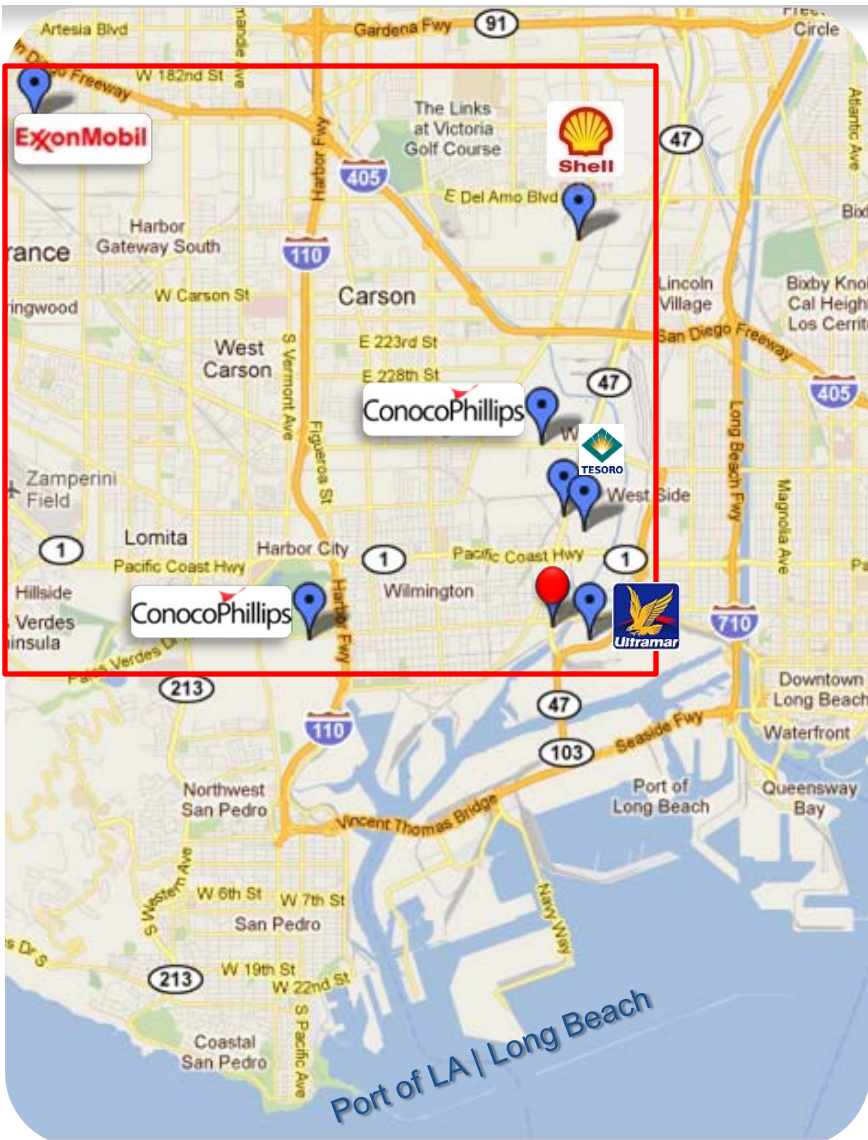
Lower Lifetime Cost of Ownership

No Noise Pollution

Zero Emissions



The Hydrogen Infrastructure: Ports of LA | Long Beach



Hydrogen is in Abundant Supply

Why?

- There are eight (8) oil refineries within close proximity of the Ports of LA | Long Beach that consume around 400,000 lbs. of Hydrogen per day.
- Hydrogen is used to remove sulfur from crude oil.

Who Is Providing the Hydrogen?



- Air Products & Chemicals' Wilmington plant has the capacity to produce over 800,000 lbs. of Hydrogen per day.
- 10,000 Hydrogen powered trucks only require 300,000 lbs. per day.

Value Chain | Channel Partnerships

Best in Breed Technology	Channel Partnerships	Value
<p>Class 8 Heavy-Duty Trucks</p> <p>SIEMENS</p> <p>HYDROGENICS Advanced Hydrogen Solutions</p> <p>Voltronix We help reduce global emissions</p> <p>VISION motor corp</p> <p>WORTHINGTON CYLINDERS A Worthington Industries Company</p>	<p>FREIGHTLINER</p> <p>Port of LONG BEACH The Green Port</p> <p>THE PORT OF LOS ANGELES</p>	<ul style="list-style-type: none"> With contracts in hand, State funding, and other situational incentives, Vision Motor's 1st priority is to service its largest client(s), heavy-duty trucking fleet operators in the Ports of Los Angeles and Long Beach. The Port of Los Angeles has introduced Vision Motor Corp. to the 22 largest fleet operators, representing 35% of the Class 8 trucks operating in and around the ports.
<p>Terminal Tractors</p> <p>SIEMENS</p> <p>HYDROGENICS Advanced Hydrogen Solutions</p> <p>Voltronix We help reduce global emissions</p> <p>VISION motor corp</p> <p>WORTHINGTON CYLINDERS A Worthington Industries Company</p>	<p>CAPACITY</p> <p>Port of LONG BEACH The Green Port</p> <p>THE PORT OF LOS ANGELES</p>	<ul style="list-style-type: none"> Vision has contracts in-hand to retrofit 15 terminal tractors for the Port of Los Angeles. Vision Motor Corp has a Letter of Intent to provide key Hydrogen Fuel Cell components with Capacity of Texas, the world's 2nd largest producer of terminal tractors globally and the largest in the U.S.
<p>Hydrogen Refueling Stations</p>	<p>AIR PRODUCTS</p> <p>Port of LONG BEACH The Green Port</p> <p>THE PORT OF LOS ANGELES</p>	<ul style="list-style-type: none"> Vision has already secured an agreement with Air Products & Chemicals, Inc. to provide "Wholesale Priced" hydrogen for our refueling station strategy.



Manufacturing Strategy

Manufacturing Description	1 -to- 100 Units	Over 100 Units
<p>Class 8 Heavy-Duty Trucks (complete)</p> <ul style="list-style-type: none"> • Glider (frame + basic components) • Electrical wiring • Hydrogen Fuel Cells • Hydrogen Fuel Tanks • Electric Drivetrain System • Batteries • Electric Vehicle Controllers (ECU) • Auxiliary System 	<p>Vision will assemble the first 100 units on-site to establish best-practices and technical expertise in hydrogen fuel cell / electric hybrid Class 8 trucks.</p>	<p>Vision intends to outsource the assembly to LA Freightliner after it reaches 100 units per year in orders.</p> 
<p>Terminal Tractors (kit)</p> <ul style="list-style-type: none"> • Hydrogen Fuel Cells • Hydrogen Fuel Tanks • Batteries • Electric Vehicle Controllers (ECU) 	<p>Vision will assemble the demonstration vehicles for the Ports of Los Angeles Long Beach.</p>	<p>Vision intends to outsource assembly to Capacity of Texas.</p> 
<p>Hydrogen Refueling Stations</p> <p>Single refueling station per Port.</p>	<p>A single refueling station on a three (3) acre lot, with a single dispensing hose can fill six (6) Class 8 trucks per hour. Over a 24-hour period, the station can service 144 trucks at a conservative 10-mins per fueling.</p>	<p>The limiting factor in refueling is the size of the lot and the number of the dispensing hoses that can be put into service.</p>



Growth Strategy



Demonstrate
Market
Feasibility

Take Market
Share

Scalable
Revenues &
Margins

Replicate
Model to Other
Port Facilities

Deliver the demonstration Hydrogen | Electric Hybrid Fuel Cell Vehicles to the Ports of LA | Long Beach:

- Class 8 Truck: POLA (1) | POLB (1) ✓
- Terminal Tractor: POLA (15) : POLB (1)

Class 8 Drayage Truck Market :

- Deliver the first-100 Class 8 Trucks to TTSI (\$27MM) – Part 1 of LOI
- Deliver an additional 300 Class 8 Trucks to TTSI (\$81MM) – Part 2 of LOI

Terminal Tractor Market:

Engage Capacity of Texas' huge sales force to push the joint-development terminal tractor, the ZETT, throughout the domestic market.

Through a Refueling Station Strategy

- Work with Port Authorities to gain favorable property leasing terms.
- Expand the number of fueling dispensers on property.

Port Systems where Vision will have a Strategic Hydrogen Fueling Advantage:

- Port of Houston Authority
- Port of Oakland
- Port Authority of New York | New Jersey



Contact Info

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www.visionindustriescorp.com

On behalf of Vision Industries' management team, board of directors and valued employees...

Thank you for your time and consideration!