



Alternative Fuel Vehicle Program



2007 Clean Air Action Plan



In August of 2007, TTSI along with NYK and Target Stores met with the Mayor's of Long Beach and Los Angeles to announce a comprehensive plan to convert its Southern CA Drayage fleet to green



Truck Emissions Comparison 1992, 1994 & 2009

<u>Model Year</u>	<u>Total Hydrocarbons</u>	<u>Carbon Monoxide</u>	<u>Nitrogen Oxides (NOx)</u>	<u>Particulate Matter</u>
1992	0.30*	2.00*	4.60*	0.25*
1994	0.30*	0.80*	4.50*	0.05*
2009	0.01*	0.40*	1.09*	0.00*

CARB STD Test Cap
2009 0.14* 15.5* 1.45* 0.01*

* *Grams per brake horsepower-hour*

Note: Green highlighted are values of current TTSI Kenworth 2009 Model diesel trucks.



Liquefied Natural Gas



May 22, 2008,
TTSI first
delivery of the
first 8 Clean LNG
Trucks



Liquefied Natural Gas – 15 Liters

Year: 2007
Make: Kenworth
Model: T800 Day Cab
Engine: Cummins ISX
400 HP / 1450#
Transmission: FRO16210B
Fuel Tanks: 65gal plus/120gal (LNG)
Front Axle: 12K
Rear Axle: 40K
Ratio: 3:55/3:70(Port)
Suspension: AG380 KW (8-air Bag)
AG400 (Port)
Wheels: Aluminum
Tire size: 22.5LP, (Super Singles
on Lightweight)
Wheelbase: 197
5th Wheel: 24.5" A/S
Frame: 10-5/8 Steel
Approximate Weight: 17,276 Lb. (Incl. Fuel)





Liquefied Natural Gas – 8.9 Liters

Year:	2010
Make:	Peterbilt
Model:	384 Day Cab ISL-G
Engine:	ISL-G 320HP @ 2,000 RPM
Transmission:	Allison 3000 HS
Fuel Tanks:	
Front Axle:	12K
Rear Axle:	38K
Wheels:	Aluminum
Tire size:	22.5LP
Wheelbase:	176
5th Wheel:	24" A/S
Frame:	10-5/8 Steel
Approximate Weight:	13,739 Lbs.





Long Beach City Hall Press Conference



Jan 11, 2012,
Mayor Bob Foster, along with Vic La Rosa with TTSI and Martin Schuermann with Vision Motorcorp introduces the world's first Class 8, Hydrogen Truck in service at the Port of Long Beach



Future: Electric Truck



**Zero Emission Hydrogen Fuel Cell
Electric Class 8 Heavy-Duty-Truck**

Type	PM Synch. Motor
Cooling Media	Water-Glycol
Rated Voltage DC	750 V
Rated Power	320 KW @ 1500 rpm
Rated Torque	2900 Nm @ 360 A
Max. Torque	4500 Nm @ 640A
Rated Current	360 A
Max. Speed	3.500 rpm
Weight	500 kg
Dim. (LxWxH)	660 x 510 x 500 mm
Ambient Temperature	- 30 °C to 70 °C
Degree of Protection	IP 65 / 9k



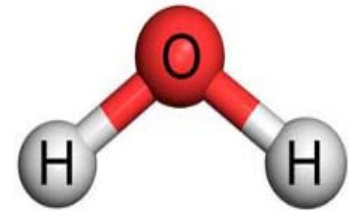
**Siemens: Pem-Motor
1DB2024-WS36**

- ❑ 3,300 lbs./torque
- ❑ Class 8 Tractor
- ❑ Power - Hydrogen Fuel Cell
- ❑ ION Lithium Batteries



Why Hydrogen?

- **Offers several benefits over diesel and natural gas**
 - Cheaper per mile
 - ZERO greenhouse gas emissions
 - No noise pollution
 - No idling
 - Substantial Increase of Torque
 - Domestic and secure energy source
 - Renewable and non-depleting
 - Can be made from a wide variety of resources
- **OEM adoption**
 - All major OEMs will offer H₂O powered vehicles 2010-2015
- **State and federal support available**



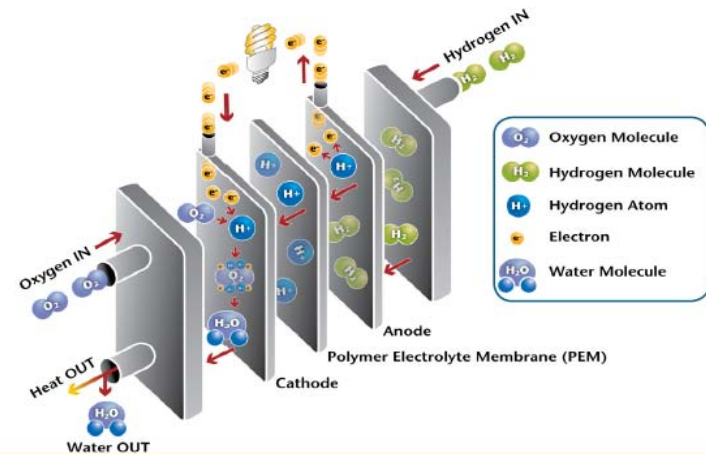
H₂O



Hydrogen power products

What is a Hydrogen Fuel Cell?

- An electrochemical engine that converts hydrogen fuel and oxygen into electrical energy
- Twice as efficient as gasoline internal combustion engine
- A battery that runs on hydrogen fuel
- No emissions (exhaust = H_2O)
- Endgame for transportation industry



Fuel cells directly convert the chemical energy in hydrogen to electricity, with pure water and potentially useful heat as the only byproducts. Hydrogen-powered fuel cells are not only pollution-free, but also can have more than two times the efficiency of traditional combustion technologies.

The logo for TTSI features the letters 'TTSI' in a bold, italicized, black font with a white outline. The letter 'T' is partially enclosed by a green circular graphic element. To the right of the logo, the words 'Hydrogen Solution' are written in a green, sans-serif font.

TTSI Hydrogen Solution

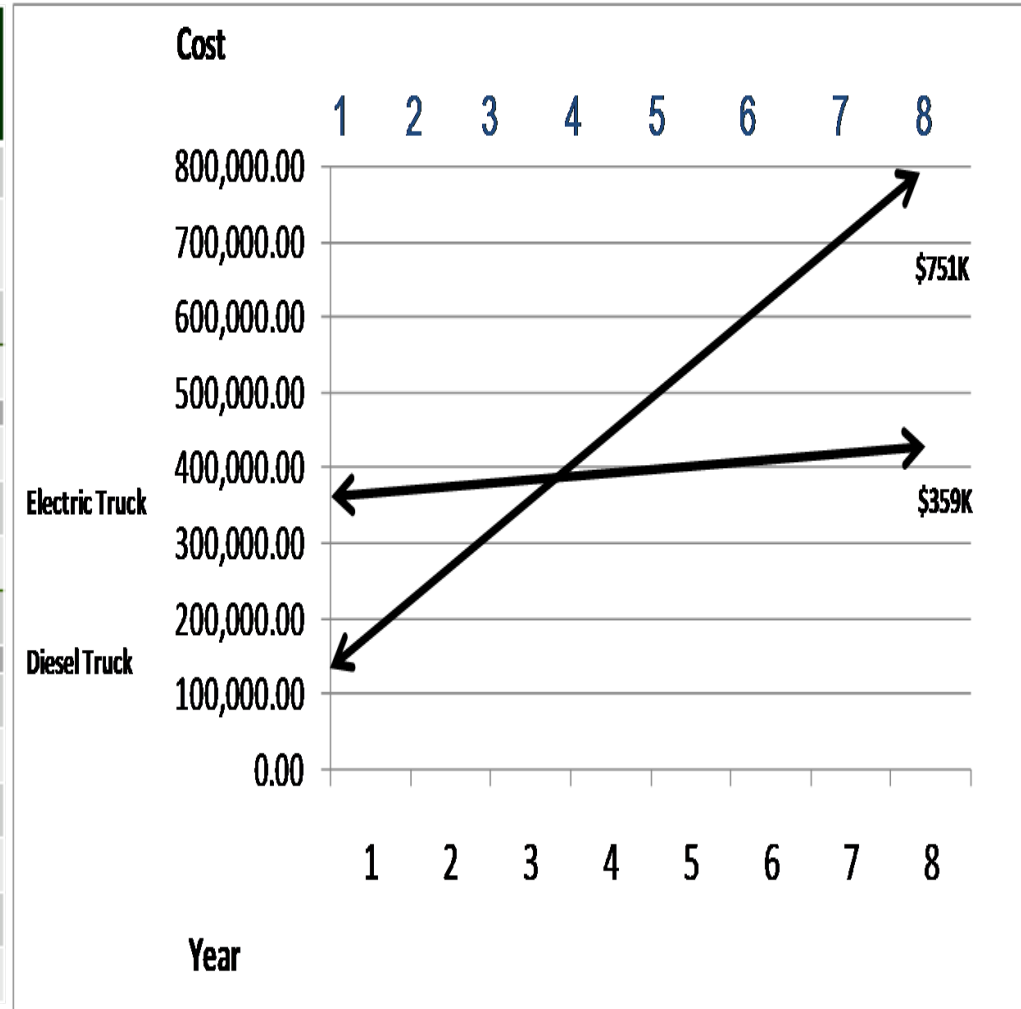
Turnkey Fleet Operations

- Plug-in electric, heavy duty class 8, zero emissions trucks with Hydrogen fuel cells for range extension
- Hydrogen supplied at 35% - 40% discount to diesel
- Hydrogen fueling at several locations at truck stops and fueling at fleet yards is also available
- Long term, fixed price hydrogen supply contract



Comparison Between Vision Truck and Diesel Truck

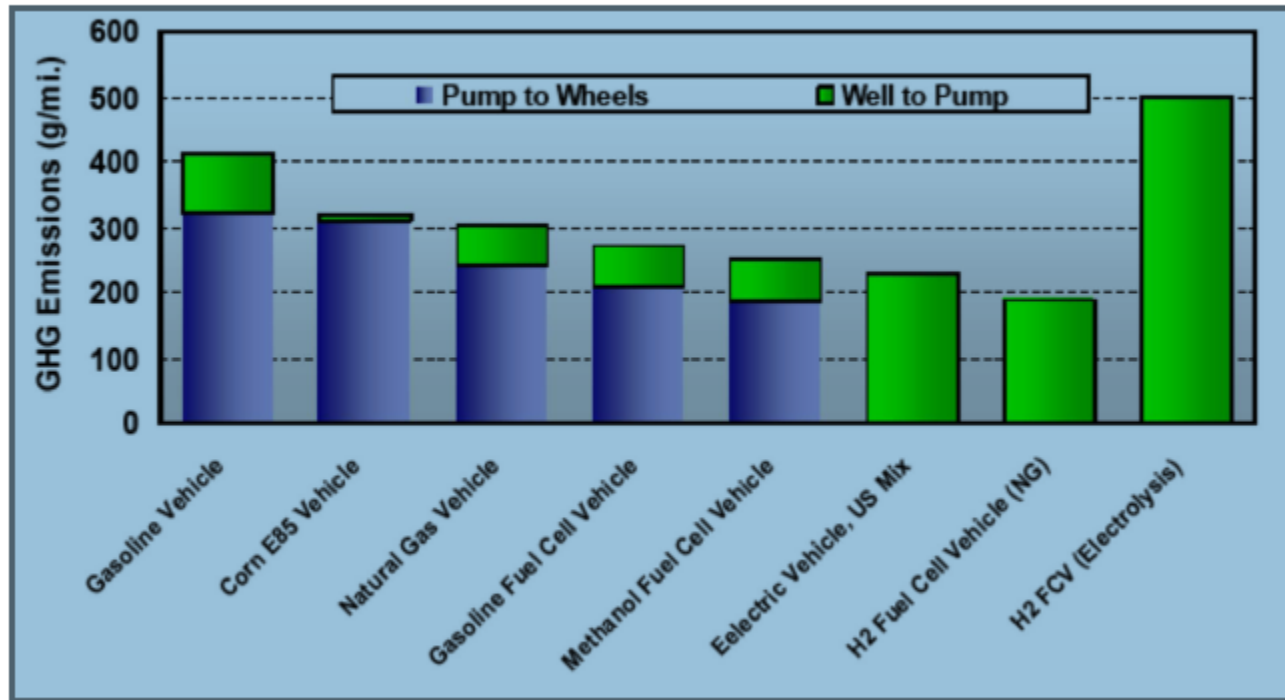
Criteria	Diesel	Vision's Class 8 Truck
Initial Vehicle Cost	\$140,000	\$270,000
Tax Credit for New Qualified Alt. Motor Vehicles	-	(\$40,000)
Buy-down Funding (Clean Trucks Program) *	-	(\$100,000)
Initial Net Vehicle Cost	\$140,000	\$130,000
Service Life Fueling Cost	\$606,365	\$229,412
Service Life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





Well to Wheels GHG Emissions

Comparison of Vehicle/Fuel Combinations



Argonne National Lab, Transportation Technology R&D Center



Environmental Steward



- 1st Company to place LNG Tractors into service
- 1st company to convert it's fleet to 100% clean (accomplished in less than 12 months)
- 2009 San Pedro Bay Ports Clean Air Action Plan Air Quality Award
- 2009 Alternative Fuel Vehicle Institute Industry Excellence Award
- Special Recognition Award from the Congress of the United States House of Representatives
- Certified SmartWay Partner (125 Score)
- First Company to take possession of Zero Emission Hydrogen Class 8 Tractor





Sustainability Awards

2009 Alternative Fuel Vehicle Institute Industry Excellence Award



Green Fleet Award:

April 21, 2009 – When the San Pedro Bay Ports crafted a clean air policy, Victor La Rosa, Present of Total Transportation Services, Inc. (TTSI), was the first in line with alternative fuel vehicles (AVF) to operate in fulltime drayage service at the Ports of Long Beach and Los Angeles. TTSI has invested \$15 million in LNG and clean diesel trucks and plans to replace half of its 300 truck fleet with AFVs. Mr. La Rosa appreciates the business case, but equally compelling is a reduction in greenhouse gas emissions of 20% and a 75% NOx reduction compared to the diesel vehicles being replaced. We all have a responsibility to protect the environment, “said Mr. La Rosa. <https://www.afvi.org/conference.html>

2011 Long Beach Area Chamber International Trade Partner Award



June 16, 2011 - TTSI was presented an International Trade Partner award at the Long Beach Area Chamber of Commerce 120th Inaugural Gala. Accepting for TTSI is Vic La Rosa (c), president and co-founder of TTSI. Presenters are Jim Eaton (l) Kingdom Partner Solutions and Richard Steinke, Executive Director, Port of Long Beach



2011 Air Quality Improvement Leadership Award



The Clean Truck Coalition, a group of 10 family-owned licensed motor carriers, received the 2011 Air Quality Improvement Leadership at the Corporate Level Award for taking the lead in improving air quality from the San Pedro Bay Ports Clean Air Action Committee



Centennial Partners Salute to the Trucking Industry



TTSI is honored in this presentation as a part of the Centennial Partners Series recognizing the important Port of Long Beach Partners in industry, government, and trade who have played a crucial role in the Port's first century of history.



2009 San Pedro Bay Ports Clean Air Action Plan Air Quality Awards

Significant Early Action to Reduce Air Pollution

Total Transportation Services Inc. (TTSI): A licensed motor carrier serving both ports, TTSI enthusiastically joined in the ports' commitment to clean air. A mere nine months after the ports adopted the San Pedro Bay Clean Air Action Plan, TTSI committed to converting its entire fleet of 106 drayage trucks to a completely green fleet of clean diesel and liquefied natural gas vehicles. TTSI was able to complete the conversion in a year's time. TTSI has again backed up its reputation as an innovator in the drayage community.





Awards – Congressional Recognition



*Congress of the United States
House of Representatives*

*Certificate of Special
Congressional Recognition
Presented To*

Total Transportation Services, Inc.

*In recognition of being the recipient of the
Significant Early Action to Reduce Air
Pollutant Emissions Award at the 2nd Annual
Air Quality Excellence Awards*



August 4, 2009
Date

Linda T. Sánchez
Linda T. Sánchez, Member of Congress

CALIFORNIA LEGISLATURE

Assembly

CERTIFICATE OF RECOGNITION

TTSI

2011 "International Trade Partner" Award Recipient
120th Annual Long Beach Area Chamber of Commerce Gala

*"Yes, our greatness as a nation has depended on individual initiative,
on a belief in the free market, but it has also depended on our sense
of mutual regard for each other, of mutual responsibility. The idea
that everybody has a stake in the country, that we're all in it together,
and everybody's got a shot at opportunity."*

~ Barack Obama



Congratulations!

Bonnie Swenthall
Assemblymember, 34th District

Waverly J. Fuentes
Assemblymember, 55th District
June 16, 2011

STATE OF CALIFORNIA

Senate

CERTIFICATE OF RECOGNITION



PRESENTED TO:

TTSI

*In honor of being recognized by the Long Beach Area Chamber of Commerce,
on the occasion of the 120th Inaugural Gala,
as an International Trade Partner
for your commitment to a vibrant local economy
through global trade.*

June 16, 2011
Long Beach, CA

Alan S. Lowenthal

ALAN S. LOWENTHAL
MEMBER OF THE SENATE, 27th DISTRICT
CALIFORNIA STATE LEGISLATURE



Federal Maritime Commission
Washington, D.C. 20573

Office of the Commissioner

August 3, 2011

Victor N. La Rosa
President
Total Transportation Services Inc.
18735 South Ferris Place
Rancho Dominguez, CA 90220

Dear Mr. La Rosa:

As you may know, I have followed developments in the industry in relation to the continued effort to reduce harmful emissions/pollution related to port operations.

I would like to congratulate Total Transportation Services Inc. in continuing to be a strong partner in addressing environmental concerns in the trucking industry; specifically, your commitment to the hydrogen fuel class 8 truck trial project as part of the ports' (POLB/POLA) Technology Advancement Program.

I recall a few years ago you discussed with me the developing technology of hydrogen fuel cell in relation to harbor drayage. The aforementioned, leading the way to application of a zero-emission container truck transportation system. TTSI certainly leads by example.

I am an optimist in regard to the zero-emission goal of the ports/transportation sectors, one which will benefit the quality of life of local communities and serve to further sustainable and efficient models in the good movement industry. Again, I would like to thank TTSI for its recent endeavors pursuing zero-emission technology.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Mario Cordero', written over a light blue horizontal line.

Mario Cordero
Commissioner



Thank You



For more information on TTSI, please visit our website at: www.tts-i.com