



Fleet Sustainability Program



Sustainability

At TTSI, we are committed to leaving as small a footprint as possible on our precious environment. That's why we are committed to several ecological goals designed to drastically reduce our operational emissions and subsequent environmental pollution.

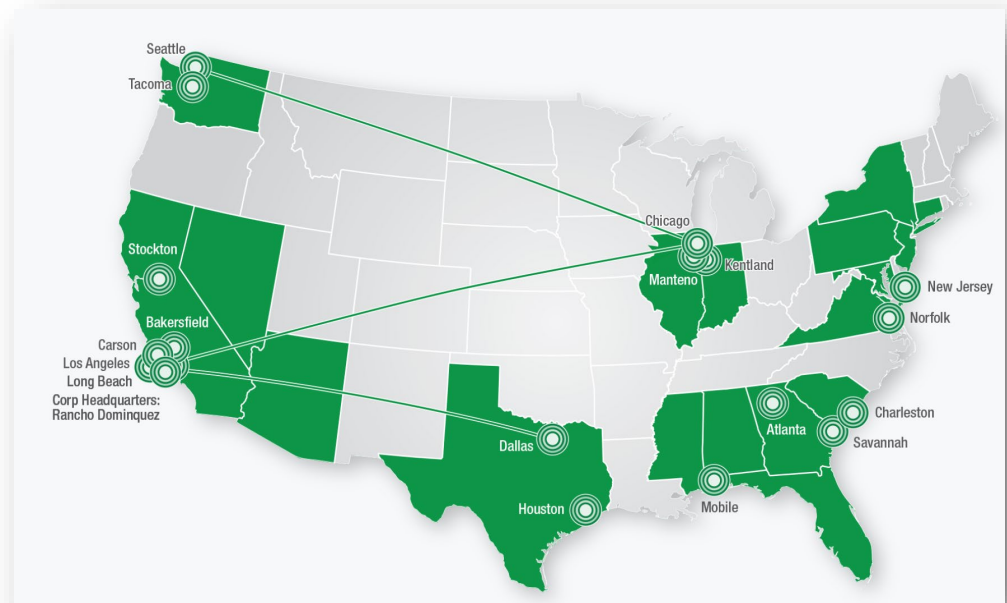
Our goal is to operate a zero emission fleet that services our customers while being a steward to the environment.





We are:

- Headquartered in Rancho Dominguez, CA
- 3rd Party Logistics Company, managing import and export of ocean containers
- Started in 1989 as air freight company, incorporated in 1997
- Consist of 12 Operating Companies
- Operates directly in all major ports in the United States
- Services consists of Drayage, Warehousing, Over-The-Road Transportation, Dedicated, Specialized Logistics, and Brokerage
- Power: Assets owned and LMC Contracted



**STAYING
A STEP
AHEAD**
& Leaving
Small Footprints





Sustainability Program

- **Since 2008, TTSI has demonstrated the following types of Class 8, Alternative Fuel Vehicles:**
 - 16 Battery Electric Trucks
 - 14 Hydrogen Fuel Cell Trucks
 - 6 12L, Cummins, CNG Low NOx Prototype Engine
 - 10 9L, Cummins, LNG/CNG Hybrid Trucks



Current AFV Fleet

- BEV

- 10 – Nikola Tre Battery Trucks in LA Operation
- 4 – Orange EVs in NY Operations



The Beginning Pre-Clean Air Action Plan (CAAP)



Prior to the implementation of the CAAP, trucks that transported containers in and out of the port complex were much older trucks with little to no emission standards





2007 CAAP Announcement

LB News | 08.03.07 | publishers@lbpost.com

Coalition Funds Green Trucks

Long Beach Mayor Bob Foster and LA Mayor Antonio Villaraigosa were on hand to support the Clean Trucks Program to address the impact of diesel-related emissions on the surrounding communities by 2012.

The program places truck drivers into environmentally friendly vehicles by providing them with financial support which allows them to remain as independent owner operators.

The program will fund 100 "clean" trucks into service over the next 12 months.

The retail store, Target, has partnered with Total Transportation Services, Inc (TTSI) and NYK Logistics and identified an innovative solution which meets both industry and independent owner/operator needs.

This group, along with other beneficial cargo owners and trucking companies, has also formed a coalition for the sole purpose of developing and implementing solutions to address the issues of truck emissions. The Coalition for Responsible Transportation will use the framework from TTSI, NYK and Target as a starting point for encouraging discussions and partnership as companies identify possible solutions.



TTSI announced during the press conference that it would convert its entire fleet to comply with the provisions of the CAAP



TTSI Sustainability Timetable

- By January 2008, TTSI leased and purchased 106 clean diesel trucks

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



TTSI TAKES DELIVERY OF FIRST 8 CLEAN LNG TRUCKS
May 22, 2008



From Right: Greg Roche, Shaunt Hartounian & Peter Grace of Clean Energy, Scott Newton - NYK Logistics, Kayle Schreiber - TARGET, Vic La Rosa - TTSI, Rick Crawford - NYK Logistics, Russ Schmitz, Inland Kenworth and Kelly Mills - Westport Fuel Systems.



TTSI Sustainability Timetable

- By July 2011, TTSI had purchased 57 LNG Trucks





Alternative Fuel Trucks



TTSI Sustainability Timetable

July 11, 2011, TTSI takes possession of the 1st Class 8 Hydrogen Fuel Cell Truck





TTSI Sustainability Timetable

In 2015, TTSI begins to demonstrate the capabilities of total electric trucks in the drayage operation





Battery Electricity





Battery Electricity

1st Generation Truck



2nd Generation Truck





Battery Electricity



Daimler Battery Electric Truck



Battery Electricity



Nikola Battery Electric Truck



Battery Electric Operations Experience

■ Positives

- ✓ Zero Greenhouse Gas Emissions
- ✓ No idling
- ✓ Low noise pollution
- ✓ Substantial increase of torque
- ✓ Driver Acceptance

■ Concerns

- X Purchase Cost
- X Tractor Tare Weight
- X Battery Charge Time
- X Infrastructure Cost
- X Available Infrastructure
- X Battery Life
- X Duty Cycle
- X Cost to Insure
- X Cost to Service/Repair



Hydrogen Fuel Cell

 **TransPower** 2nd Generation Fuel Cell





Hydrogen Fuel Cell





Hydrogen Fuel Cell





Hydrogen Fuel Cell Operations Experience

■ Positives

- ✓ Zero Greenhouse Gas Emissions
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■ Concerns

- X Purchase Cost
- X Tractor Tare Weight
- X Fuel Infrastructure
- X Battery Life
- X Cost to Insure
- X Cost to Service/Repair



Hydrogen Fueling Station

Hydrogen Fueling Equipment

- Footprint – 45' X 82'
- 2 HF-150 Hydrogen Fueler, self contained
- Each at 150 kg (63,450 SCF) of compressed, gaseous hydrogen [not liquid, cryogenic hydrogen]
- 5,076 psig (350 bar)
- Fill time ~ 20 to 25 minutes
- Permitted on-site capacity – 500kgs
- Air Products Facility <5 miles from site
- Requires no utilities



Partners

- Center for Transportation and Environment (CTE)
- S CA Air Quality Management District (SCAQMD)
- Air Products
- Port of Los Angeles & Port of Long Beach\
- Nikola
- Linde



Intern Truck Charging Infrastructure



- 2 – 175kW Truck Chargers
- 1 – 560 KW Natural Gas Generator
- 1 – CNG Trailer @ 878,000 SCF
- We use Renewable Natural Gas onsite to power the generator



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

Thank You

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