



Alternative Fuel Vehicles



Fleet Benefits

➤ Environmentally Responsible

- 100% Clean Fleet, totally exempt from Port Fees (CA)
- 1st company to place in service 8 LNG Tractors in the Ports of LA/Long Beach
- Numerous awards for technology utilization
- Additional units purchase will run on alternative fuel (LNG, CNG, Electricity, Hydrogen)
- Certified SmartWay Partner (125 Score)





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: 12K
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.





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



Alternative Vehicle Solutions

Comparisons of Short Haul Trucks (Annual)

(City and Highway combined 50,000 miles per year)

	2007 Diesel	LNG	Hydrogen
Horsepower	450 peak	450 peak	536 peak
Torque (foot/lbs)	1,350 peak	1,350 peak	3,300 available
Fuel	10,000 Gal.	16,700 Gal.	10,000 lbs
Particulates	12.37 lbs	4.6 lbs	0
NMHC	173 lbs	0	0
MHC	0	66.5 lbs	0
NOx	1,485 lbs	570 lbs	0
CO2	217,800 lbs	142,145 lbs	0



TTSI Sustainability Projects

Alternative Fuel Vehicle - Zero Emission (Battery Electric)

Please see the TransPower Presentation for details of their truck.



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TTSI is currently testing two (2) road tractors and 1 yard tractor. Their plan is for us to test an additional 5 to 6 road tractor.



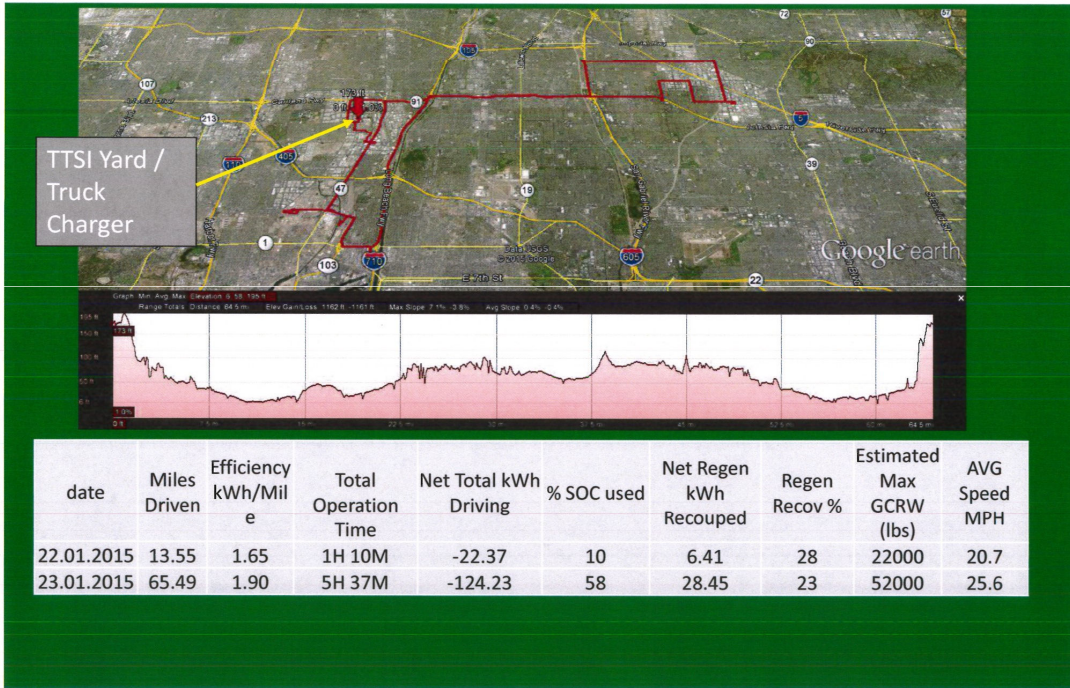
TransPower Battery Electric

Vehicle Curb Weight:	24,000 lbs
Towing Capacity:	56,000 lbs
Motor Power Rating:	300 kW
Energy Stored (Usable):	175 kWh
Recharge Time Using Onboard Charger:	3 Hours
Energy Consumption Towing 20,000 lbs:	2.3 kWh/Mile
Loaded Range (Miles):	65+ miles



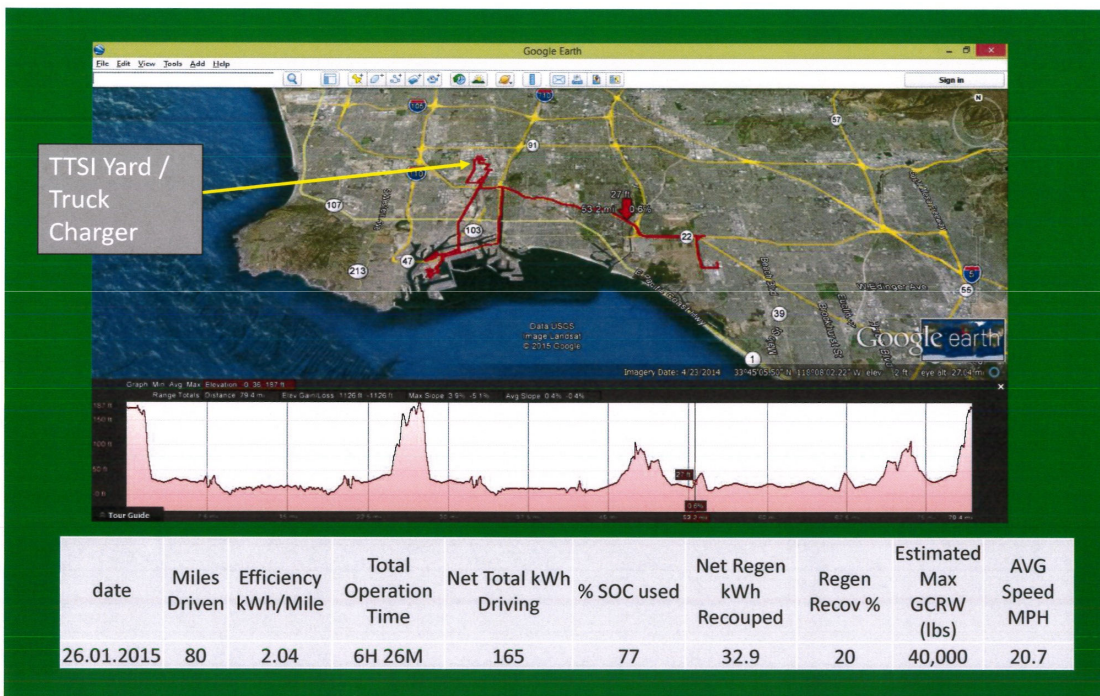
TTSI's first load using EDD2

TransPower



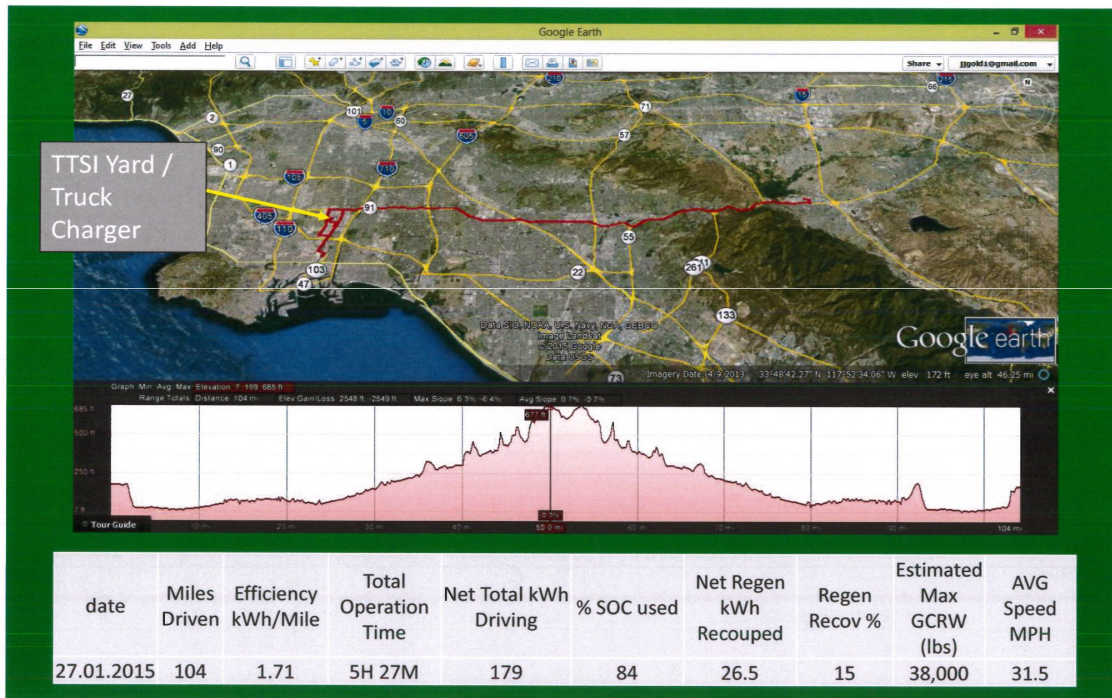
TTSI more local service

TransPower



TTSI HWY RUN to Riverside and back

TransPower



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TTSI Sustainability Projects

- Trans Power
- Hydrogenics
- U.S. Hybrid
- BYD
- CTE



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

Thank You