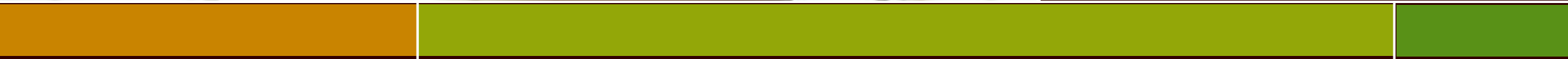


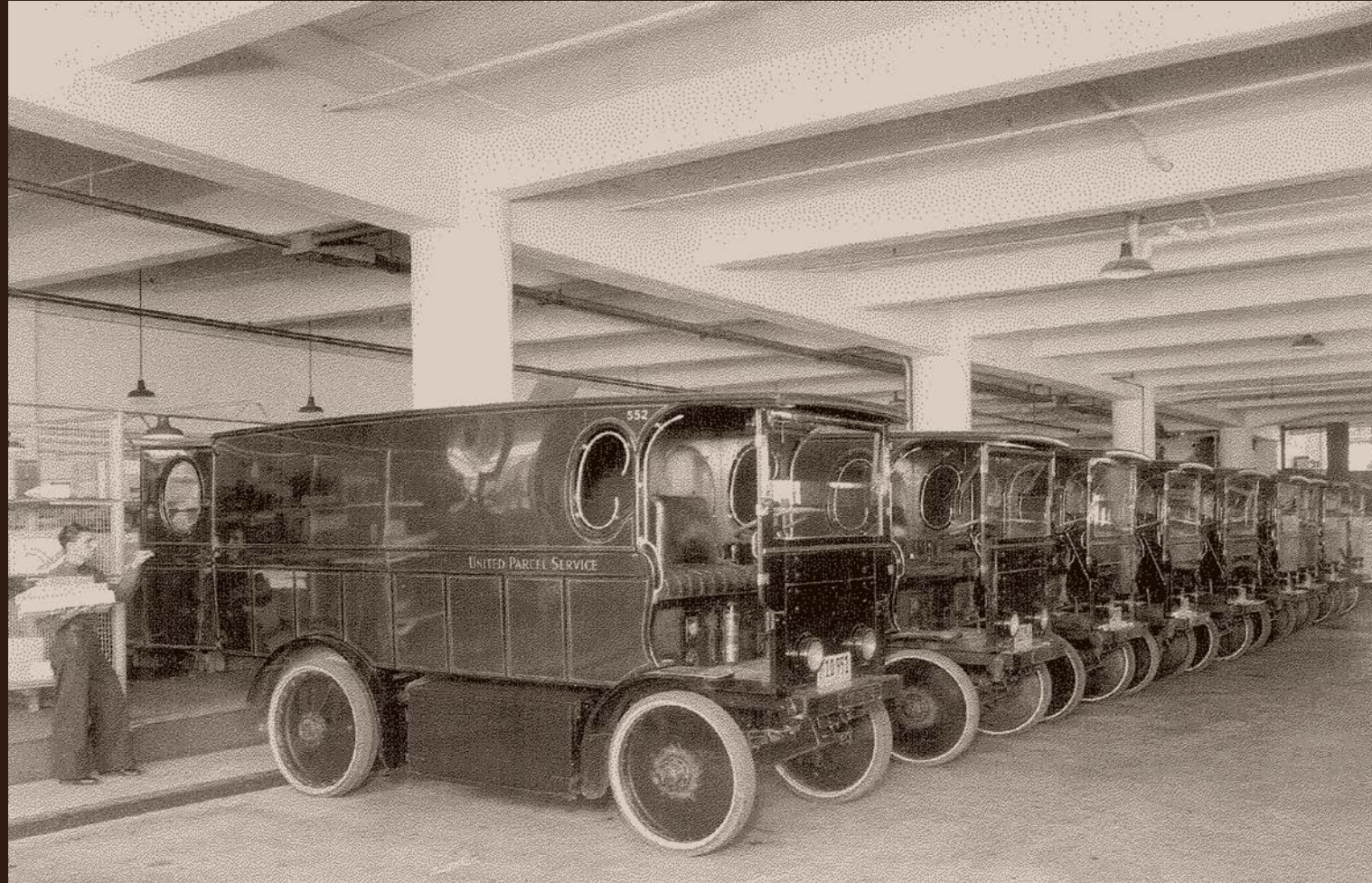
UPS Greening Freight Operations

Mike Britt

December, 2016



UPS Fleet of Plug-in Electric Package Cars, New York City, 1930's



Global Alternative Fuel & Advanced Technology Vehicles

Total Vehicles (U.S. & International):

United States Fleet: 6,483

(7 % of US Small Pkg Fleet)

- Compressed Natural Gas Vehicles: 3,026
- Liquid Natural Gas Vehicles: 1,306
- Hybrid Electric Vehicles: 415
- Electric Vehicles: 122
- Hydraulic Hybrid Vehicles: 41
- Propane Vehicles: 1,175
- Composite Body Diesel: 398



International Small Package Fleet: 1,267

(8.1% of International Small Pkg Fleet)

- Propane Vehicles: 970
- Compressed Natural Gas Vehicles: 76
- Electric Vehicles: 120
- E-Bikes 14
- Ethanol Vehicles: 62
- Biomethane Vehicles: 19
- Hybrid Electric Vehicles: 6

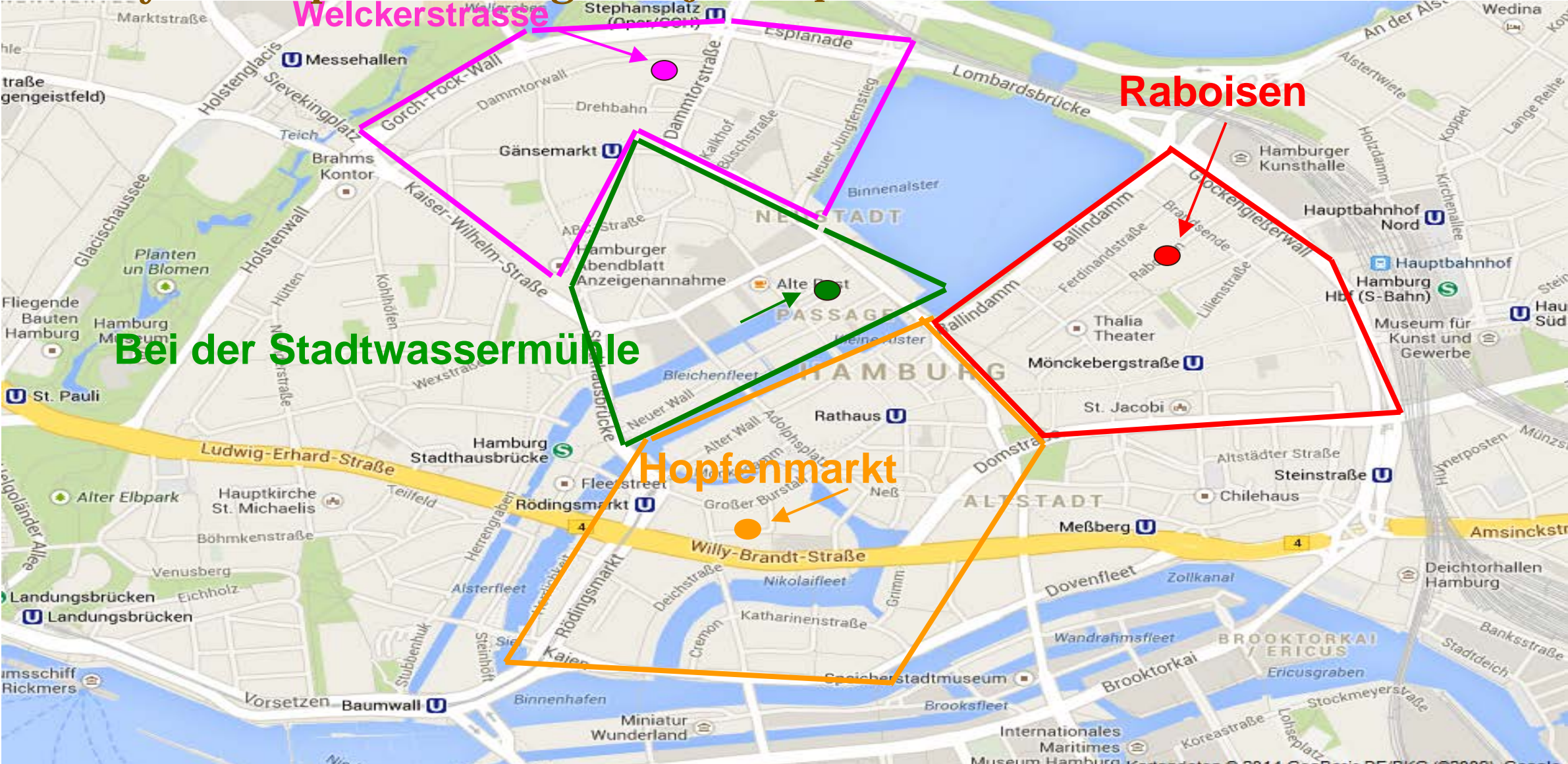


Delivery Concept Hamburg

Sustainable delivery concept in the city of Hamburg



Delivery Concept Hamburg – Project Expansion



Welckerstrasse

Raboisen

Bei der Stadtwassermühle

Hopfenmarkt

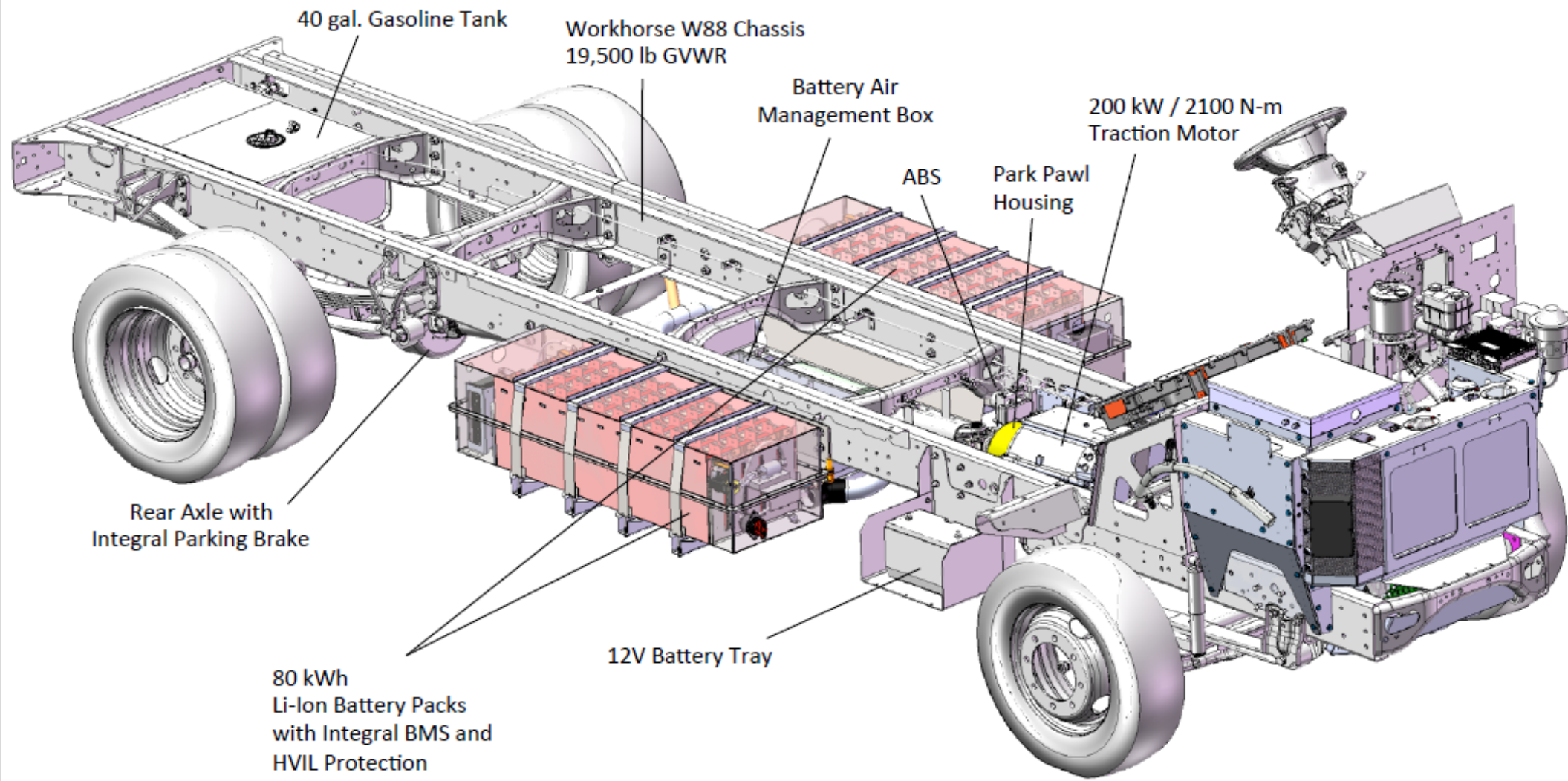


● container staging area



Cargo Cruiser





UPS Retrofit Project Overview

■ Scope of Project

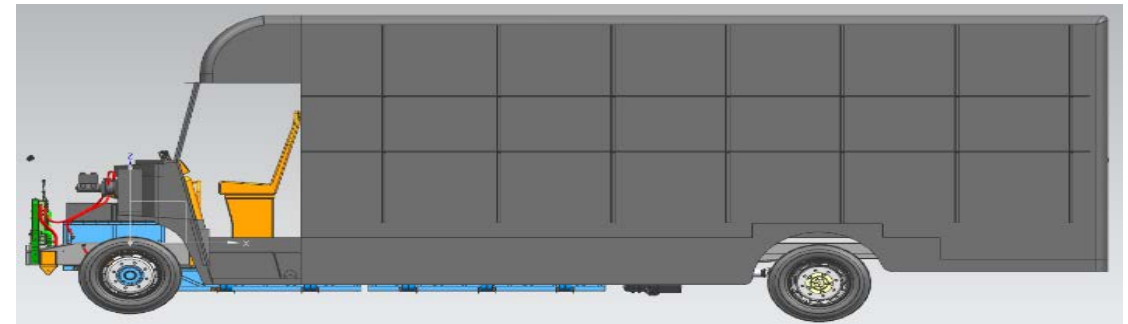
■ Convert Class 6 Diesel Trucks to Battery Electric

– Deducted Components:

- Diesel engine, transmission, driveshaft, fuel tank, exhaust, cooling & radiator

– Added Components:

- LiFePO (Lithium Iron Phosphate) Battery packs = 145 kWh – 100 mile range
- Motor – 1,106 ft-lbs torque, 180 kW max power, 5,000 rpm
- Associated electrical components: VTOG, inverters, high voltage distribution
- 100 kW AC chargers



Electric Vehicles







US EVI



WE ♡ LOGISTICS™



Worldwide Services



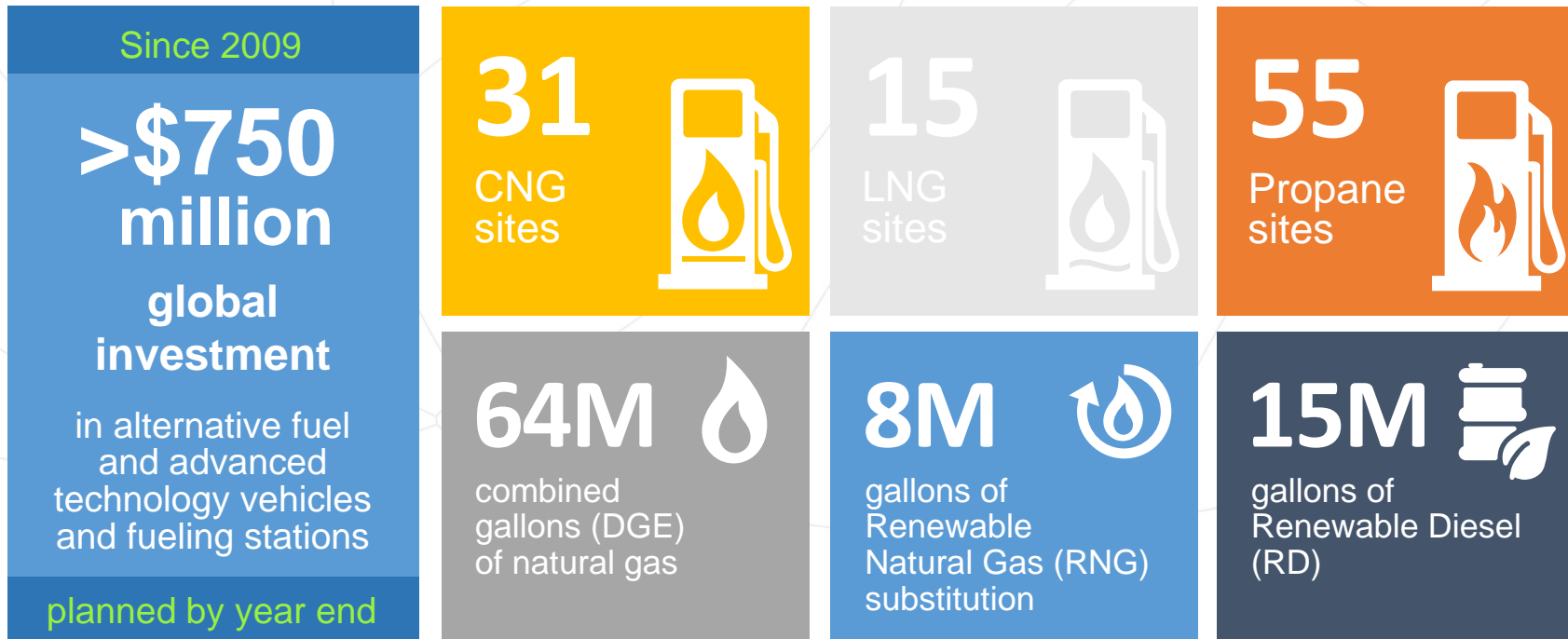
Electric Vehicle

0500T 021006

150472

UPS Investments Drive Alternative Fuel Market

Diverse Fuel Investments



Kenworth Long Range CNG (HTCTX)

Quantum 180 DGE



Kenworth Long Range CNG (HTCTX)

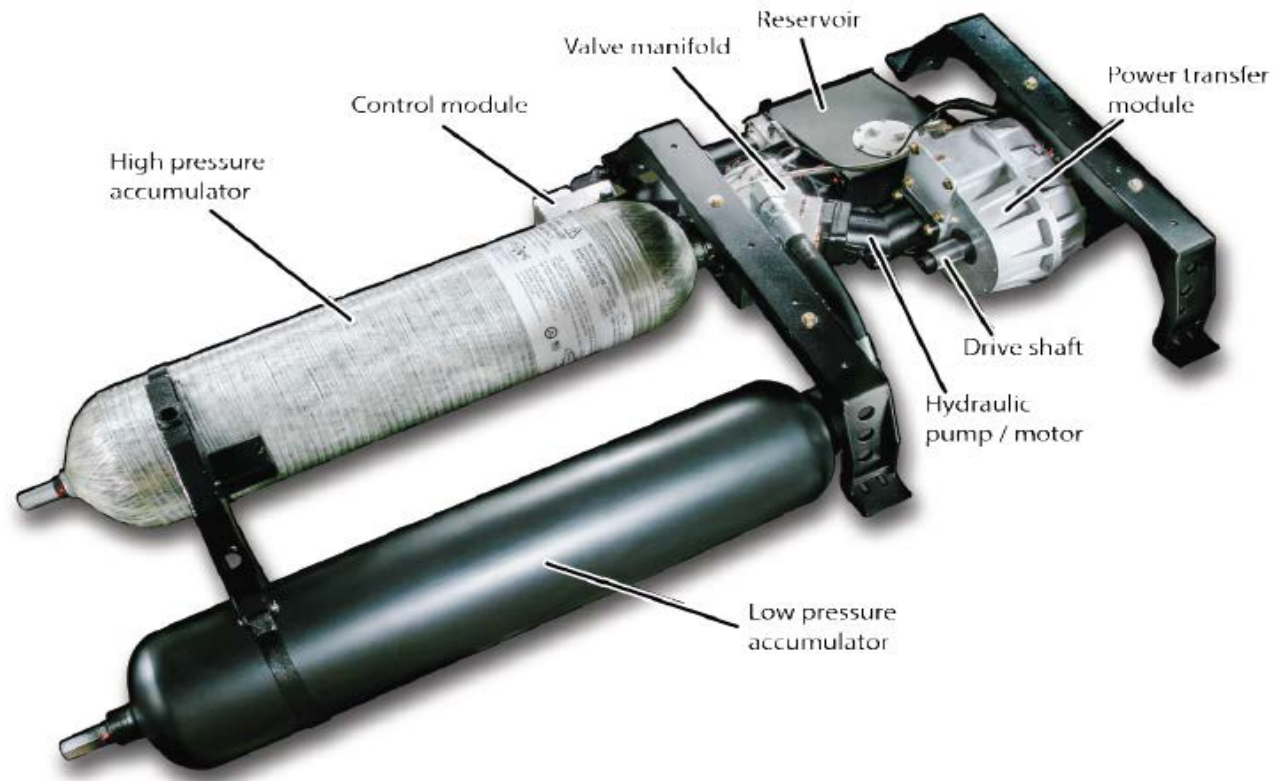
Agility 175 DGE



Lightning Hybrid / Drive Clean Chicago Project

50 conversions will be performed on gasoline package cars in the Metro Chicago area at the Jefferson St. and Bedford Park UPS locations. The retrofits are planned to begin deployment in September 2016.

The Lightning Hybrids Energy Recovery System (ERS)





Thank you

www.sustainability.ups.com

