Transforming Heavy-Duty Trucking: A Holistic Approach to Fleet Electrification

UIC Energy Initiative
EV Pilots, Programs and Partnerships
August 3, 2020
About Greenlots

Greenlots, a wholly owned subsidiary of Shell New Energies, is powering the future of electric transportation with industry-leading software and services that equip drivers, site hosts and network operators to efficiently deploy, manage, and leverage EV charging infrastructure at scale. Our technology brings together cutting-edge network management software, integrated charging optimization, grid balancing services and a driver-friendly mobile app – all in a single platform.

Founded in 2008 with over a decade of experience
Headquartered in Los Angeles, California
Acquired by Shell New Energies in January 2019
Global footprint with offices throughout the US and in Canada, India, Singapore, and Southeast Asia
Over 250 Employees and contractors worldwide
Working with utilities, cities, automakers and C&I customers across the US and the world
Main Themes

• Electrifying heavy-duty fleets is doable and it’s already happening today.
• To be successful, collaborate early and often with partners and leverage their expertise.
• Software is essential to optimize charging and manage load.
Market Signals for Medium / Heavy-Duty Electrification

- 2017: Long Beach and LA mayors commit Ports to 100% zero emissions drayage trucks by 2035
- 2019: LA’s Sustainability Plan targets converting all City fleet vehicles to zero emission where technically feasible by 2028
- 2019: LACI Transportation Electrification Partnership ‘Roadmap 2.0’ targets up to 95,000 chargers installed, 40% of short haul and drayage trucks are zero emissions, and 60% of medium duty delivery trucks are electric by 2028
- June 2020: CARB Advanced Clean Truck Rule requires truck makers to increase ZEV truck sales starting in 2024 to between 30-50 percent by 2030, and 40-75 percent by 2035.
- July 2020: Multi-State Medium- and Heavy-Duty ZEV MOU calls for 30% of new MHDV sales to be ZEV by 2030, and 100% of new MHDV sales to be ZEV by 2050
- In progress: CARB is developing a rule for larger fleets to transition to 100% ZEV by 2045, starting in 2024.
Volvo LIGHTS
(Low-Impact Green Heavy Transport Solutions)
Volvo LIGHTS Funding Context: ZANZEFF

• In 2018, the Air Resources Board announced $200M+ in ZANZEFF (Zero and Near Zero Emission Freight Facility) funding for clean freight transportation projects

• **Location**: All 11 funded projects are located within disadvantaged communities that are heavily impacted by air pollution from freight facilities

• **Goal**: to support transformative, cost-effective clean technologies that can be adopted by other freight facilities and accelerate the commercialization of these technologies statewide

• **Air quality benefits**: the projects will reduce pollution that contributes to regional air quality problems, particularly diesel particulate emissions that impact communities located near ports, rail yards and warehouses
Volvo LIGHTS: Select Key Stakeholders

• Technology providers
• Fleets
• Local Utility
• Ports
• Facility Managers
• AHJ (Authority Having Jurisdiction)
• Community organizations
• Colleges (for analysis and worker training)
Volvo LIGHTS: By The Numbers

16 Public & private organizations collaborating
23 Battery Electric Heavy-Duty Trucks
29 Battery Electric Equipment
58 Public & Private Chargers

2 Electric Truck After Market Service Centers
2 Colleges Designing Electric Truck Maintenance Programs
2 Ports Providing Infrastructure Planning

1.8 million kWh - Solar Energy Generation
Volvo LIGHTS: Greenlots Scope of Work

150 kW DC Fast Chargers across three trucking facilities
50 kW DC Fast Chargers across three trucking facilities
Level 2 stations for light-duty vehicles
Electric forklift chargers for in-warehouse operations
Integration with distributed energy resources (solar)
Load management and smart charging
Engineering, construction & installation
Volvo LIGHTS: Fast Chargers

Terra 54 HV
- 50kW DC fast charger
- Charging rate: > 25 miles of range per hour

HVC-150
- 150kW DC fast charger with three depot charge boxes
- Charging rate: > 75 miles of range per hour
- Sequential charging allows smaller grid connection

• All chargers are 920V DC and use CCS2 connectors
• All chargers communicate with Greenlots’ cloud-based SKY Network via OCPP 1.6
Some Considerations for Heavy Duty Electrification

- Budget plenty of time
- Seek available public funding
- Contact experienced turnkey installer
- Start site and equipment planning early
- Engage AHJ and utility company early
- Future-proof design
- Leverage software to manage charging
- Expect challenges and delays
- Appoint a project manager and follow up
Thank you!

Josh Cohen  
Director, Policy  
jcohen@greenlots.com  
410-989-8121