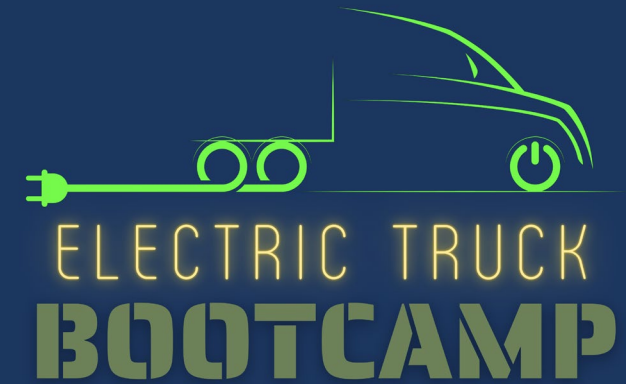


Drivers & Electric Trucks

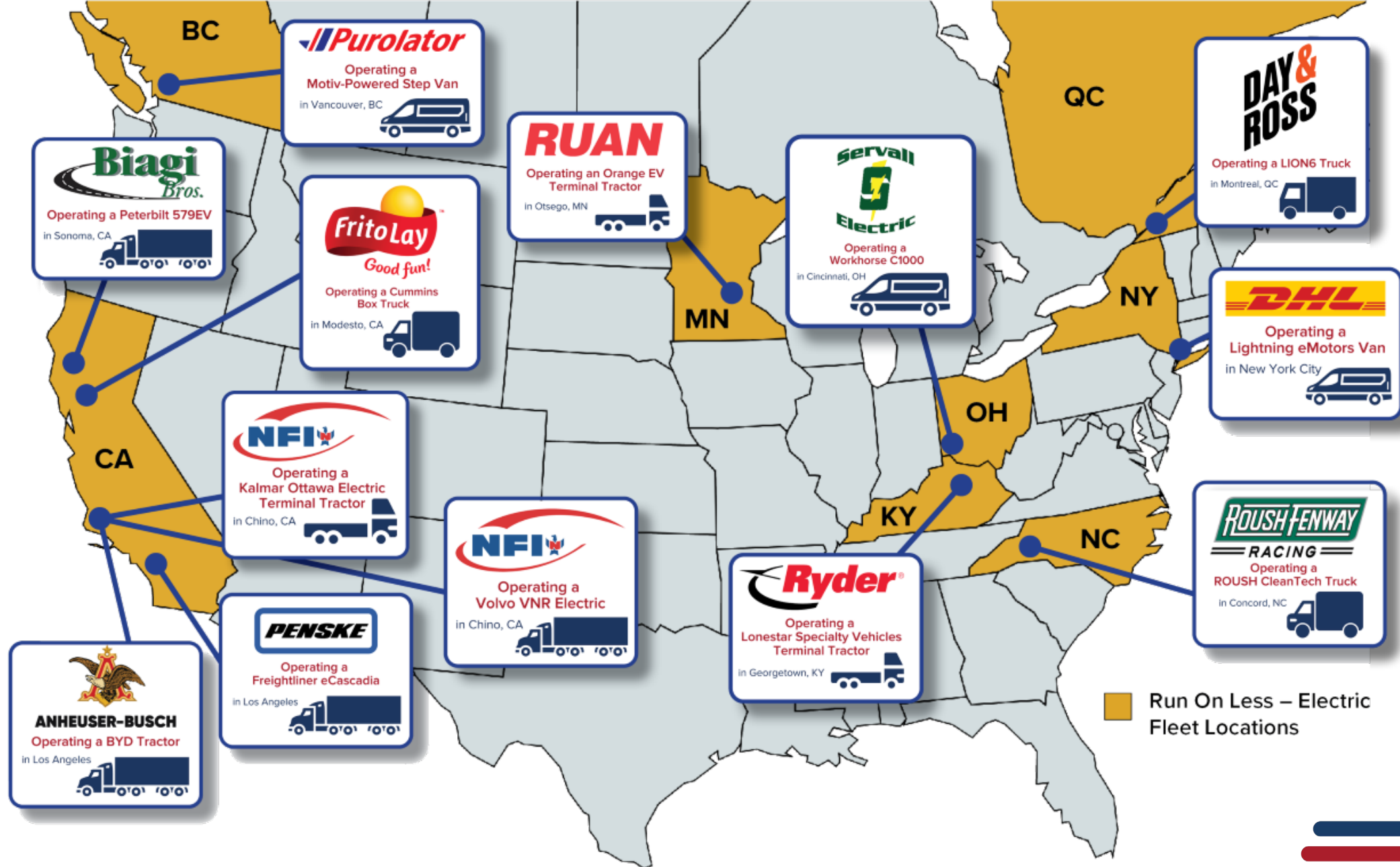
August 24, 2021



Thank you to today's sponsor!



LIGHTNING
e M O T O R S



More info at www.runonless.com

**RUN
ON LESS**
ELECTRIC



Join us for the 10th anniversary of the leading clean transportation event!

August 30 to September 2, 2021

Bootcamp Attendees Discount Code: **BOOTCAMP50**

Register at www.actexpo.com/register

Electric Truck Bootcamp

- 4/20 – What's Driving e-Trucks
- 5/5 – Charging Planning & Buildout
- 5/18 – Charging Power Management
- 6/1 – Working with Your Utility
- 6/15 – Incentives for Electrification
- 6/29 – Maintenance, Training, Safety
- 7/13 – Financing the Transition
- 7/27 – Sustainable Value Chains
- 8/10 – Global Perspectives
- **8/24 – Driver Behavior & Experience**



Test Your Knowledge

**Show Off Your
ELECTRIC TRUCK EXPERTISE!**



Earn your Electric Truck Expert badge by successfully completing all 10 Electric Truck Bootcamp quizzes, and NACFE will send you a FREE Run on Less – Electric hat!

- Visit <https://runonless.com/bootcamp/>
- Look for “How do I claim my free hat?” under FAQ
- Fill out the [form](#) by Sept. 24
- Hats will be mailed this fall

Before we get started:

Q&A

Submit your questions to the host using the Q&A box in the upper right-hand corner.

Survey

There will be a 30-second survey shown at the end. We appreciate your feedback!

Presentations

A recording of today's webinar will be available on the ACT News website, and you will be emailed a link by early next week.

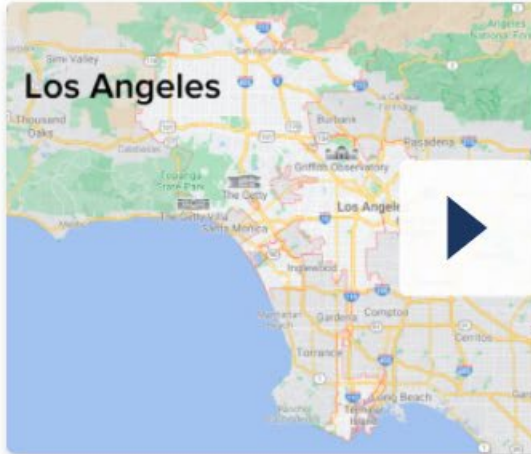
Technical Issues

Contact Benjamin Chan at:
benjamin.chan@gladstein.org
or call 310-573-8545 for assistance.

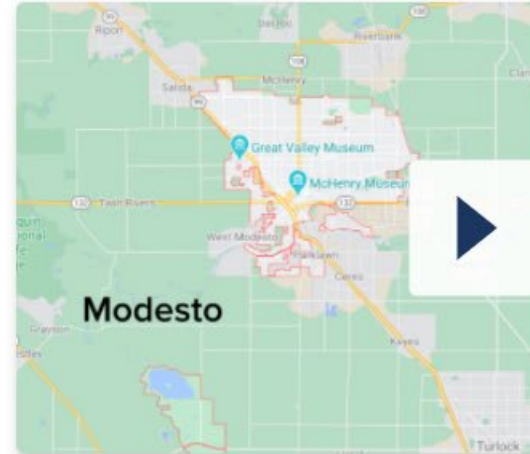


Participant Video Profiles Now Live

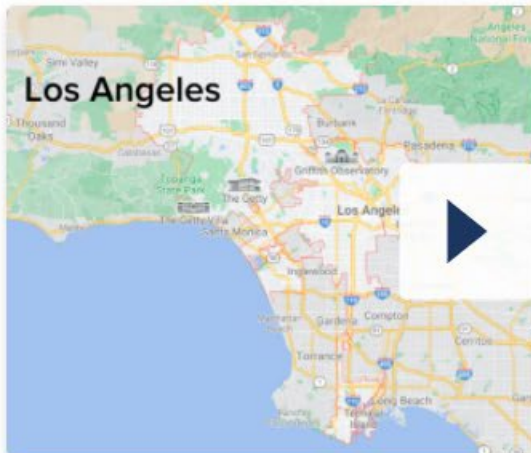
MEET THE FLEETS



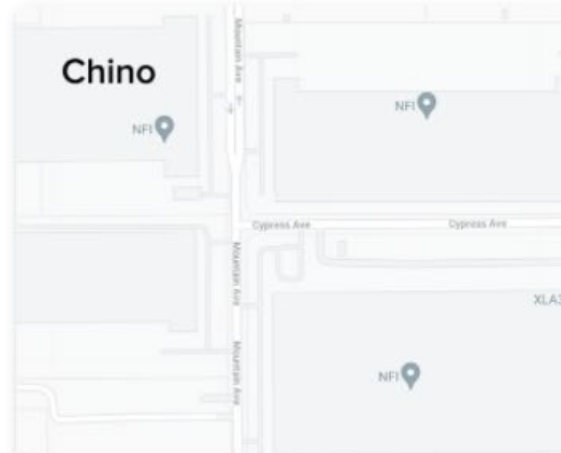
Operating a
BYD Tractor
in Los Angeles, CA



Operating a
Cummins Box Truck
in Modesto, CA

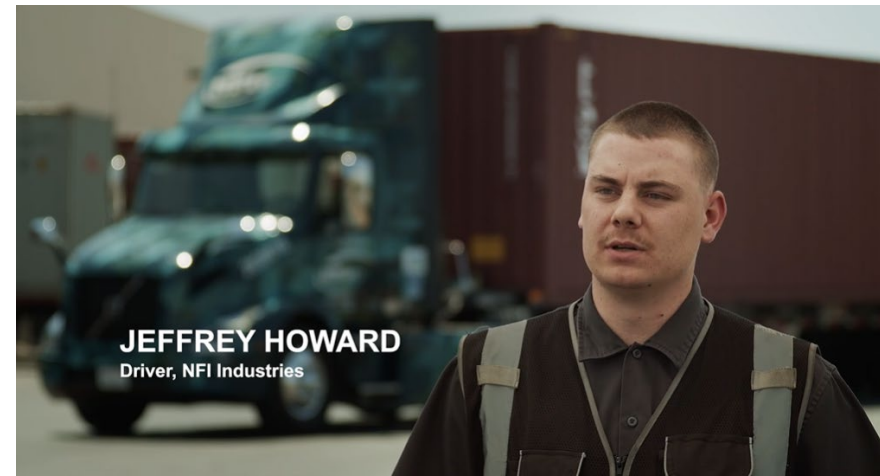


Operating a
Freightliner eCascadia
in Los Angeles, CA



Operating a
Kalmar Ottawa Electric
Terminal Tractor
in Chino, CA

RoL-E Drivers will be announced at ACT Expo



Benefits Cited by RoL-E Drivers:

- **Reduced noise** - can hear the radio, emergency vehicles, etc.
- **Zero emissions** - no diesel headaches, don't smell at end of shift
- **Great torque** – lots of pickup & power
- **Easy to charge** - don't have to wait in line at gas station
- **Cool factor** – latest technology
- **Pride** – family, friends, community



Today's Speakers:



Jim Castelaz
CTO & Founder
Motiv Power Systems



Ken Marko
*Senior National Fleet
Sustainability Manager*
PepsiCo/Frito-Lay



Julie Johnson
*Enterprise Business
Development*
Lightning eMotors



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*Enterprise Business
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Lightning eMotors





ELECTRIC TRUCK BOOTCAMP SERIES: DRIVERS & ELECTRIC TRUCKS



www.RunOnLess.com

JIM CASTELAZ

CTO & FOUNDER, MOTIV POWER SYSTEMS

August 24, 2021

MOTIV POWER SYSTEMS

YOUR PATHWAY TO ELECTRIFICATION



COMPLETE ENERGY SOLUTION

Electrification beyond vehicles, helping you build the depot of the future



#1 PARTNERS

Final Stage vehicle manufacturing by US based industry-leading truck & bus builders

USA OPERATIONS

Corporate HQ plus 2 locations in California, with chassis electrification in Indiana and Michigan



5TH GEN TECH

Mature and proven technology featured in >120 vehicles with >1.4 million miles in the USA



HOW IS AN EV DIFFERENT?

- When switching to **ALL-ELECTRIC**, you not only save the environment, but you also save on recurring fuel, maintenance, and operation costs.



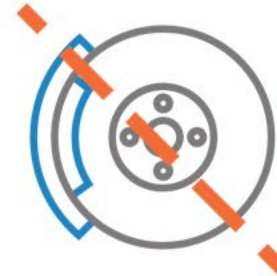
ELIMINATE
GASOLINE



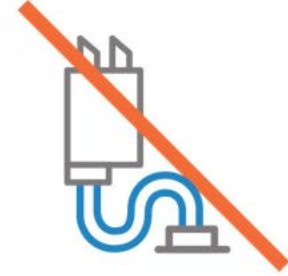
ELIMINATE
TRANSMISSION SERVICING



ELIMINATE
OIL CHANGES



REDUCE
BRAKE WEAR



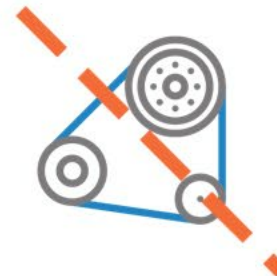
ELIMINATE
EXHAUST COMPONENTS



ELIMINATE
EMISSIONS TESTING



ELIMINATE
AIR FILTERS



REDUCE
BELTS



ELIMINATE
VACUUM LINES

ICE TO EV PARADIGM SHIFT

- › Motor vs engine
- › Charging vs fueling
- › Relies on computers and electronic controls
- › Adjustments and upgrades are done via software
- › Very quiet operation & no tail-pipe emissions
- › Engine braking charges the batteries (*regenerative braking* or “regen”)



HOW IS A MOTIV EV DIFFERENT?

- Proven reliable 5th gen technology
 - 1.4M miles real-world miles
 - 98% uptime
- We deliver the electric trucks and infrastructure that move the working world
- Key segments:
 - #2 US linen (AlSCO)
 - #3 US linen (Aramark)
 - #1 US bakery (Bimbo)
 - #1 Canadian carrier (Purolator)



8 KEY CONSIDERATIONS FOR GOING ELECTRIC



DRIVER TRAINING & VEHICLE SUPPORT



Driver Training at Community Resource Project, Sacramento, California

TRAINING TOPICS

- › EPIC from 50,000 feet (*Electric Powered Intelligent Chassis*)
- › How are electric vehicles different
- › General operations: starting, driving, and charging
- › Safety procedures: everyday and emergency



THANK YOU



JIM CASTELAZ

CTO & FOUNDER

Motiv Power Systems

jim.castelaz@motivps.com



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Sustainability Manager*
PepsiCo/Frito-Lay



Julie Johnson
*Enterprise Business
Development*
Lightning eMotors



Fleet Sustainability NACFE Boot Camp

August 24, 2021



PEPSICO

One of North America's Largest Private Fleets



3,700
Straight Trucks



10,700
Tractors



4,900
Service/Support Vehicles



18,700
Trailers



70,000+ Assets



12,000
Delivery Vans



400
Yard Tractors



3,000
Company Cars



17,500
Material Handling



Deployed Technologies



Now
Renewable



Asset	CNG Tractors	Propane Vans	Electric Vehicles	High MPG Van	Full Aero Trailers
Detail	OTR and Delivery	Class 3 & 4 Delivery Vans	All Electric Straight Trucks	Route Delivery Vans	Aero Devices, LLR Tires, Tire Inflation



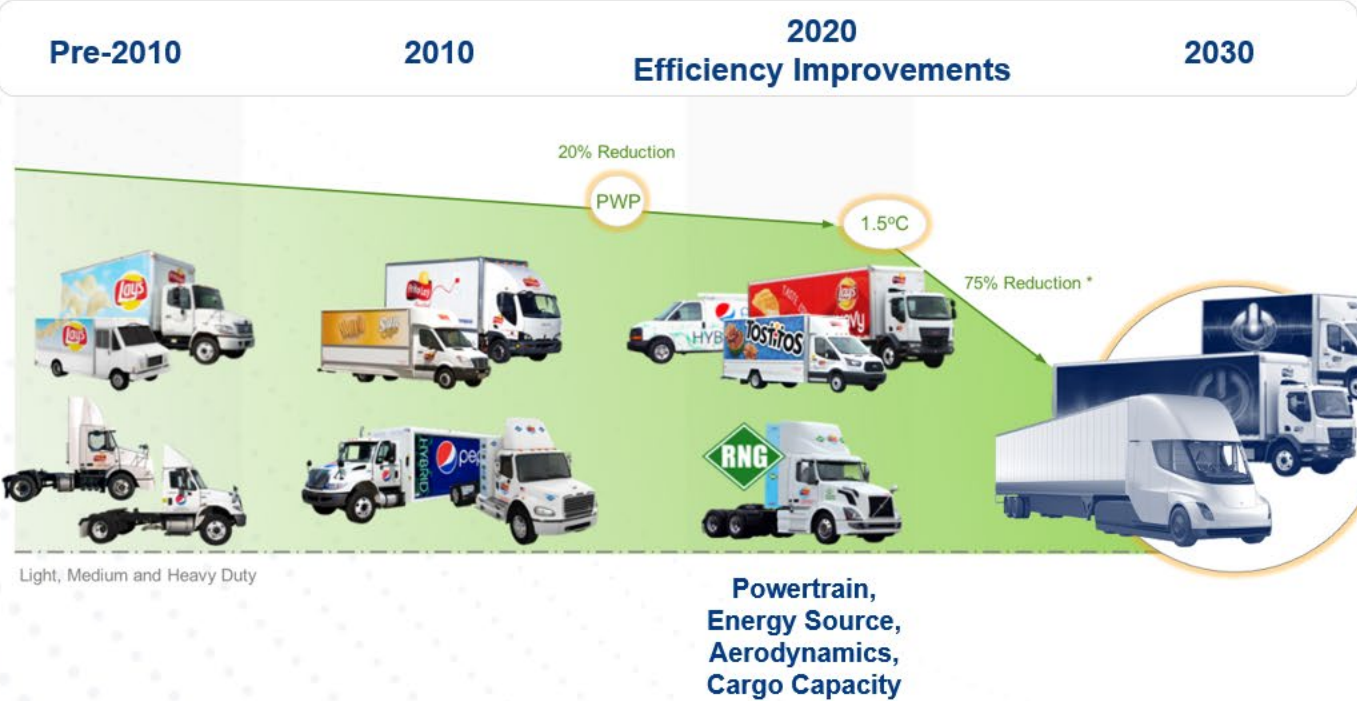
Asset	Parallel Hybrid Tractor	Parallel Hybrid Vans	CNG Tractor	Electric Van	Hybrid and Electric FSV
Detail	Delivery Tractors and Bay Trucks	Pepsi Services Equipment Vans	Transport Tractors	All Electric Service Vans	Vending Service Trucks



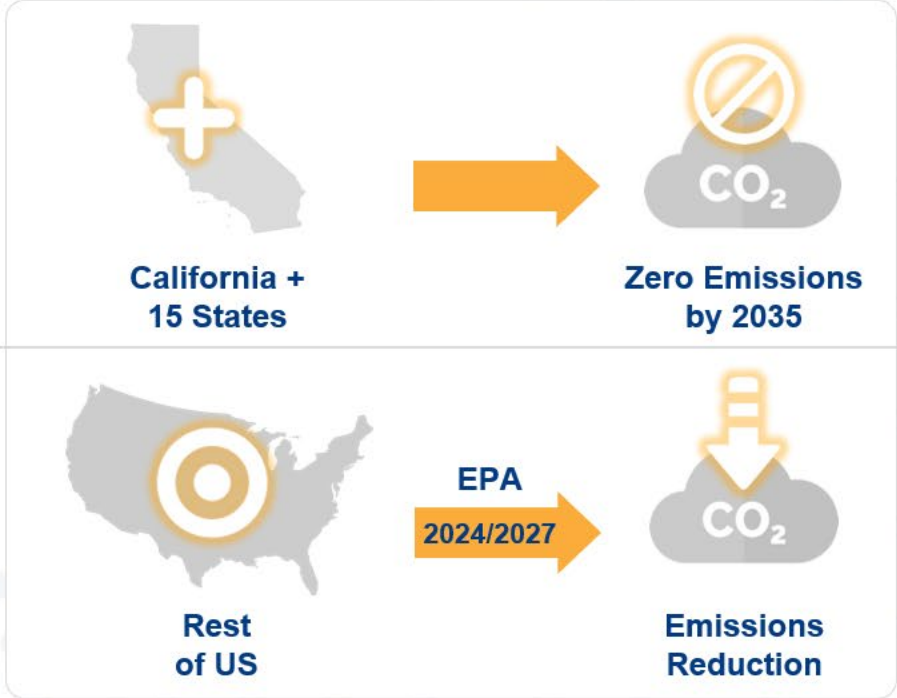
PEPSICO

Staying Ahead of Regulations

PepsiCo Sustainability Glidepath



United States



Transforming Modesto Frito-Lay Project

Frito-Lay is Transforming the Modesto Plant into a Near-Zero Emission Fleet Facility

Highlights:

- ✓ CNG Station
- ✓ RNG Tractors (38)
- ✓ Li-Ion Forklifts and Chargers (12)
- ✓ Box Truck/Yard Tractor EVSE (12)
- ✓ Electric Yard Tractors (3)
- ✓ Electric Box Trucks (6)
- ✓ Employee Chargers (14)
- ✓ Solar and Battery Storage

On the Horizon:

- ❑ Visitor Center
- ❑ Tesla Semi (15) and Charging Stations



CORPORATE ENVIRONMENTAL STEWARDSHIP AWARD



Transforming Modesto Video: <https://youtu.be/liR-MBt08Bg>



PEPSICO

Driver Impact with Electric Vehicles

New & Exciting Technology

Range Anxiety



Strategically Planned Routes

Route Area Charging Station Awareness

Reliability



Reliability is Key to Successful Commercial Use

As EV Market Matures, Reliability Expected to Rise

In-Operation Driver Feedback



Range or Miles to Empty

Efficiency

Recruitment & Advancement Opportunities



Individuals who May Not have Considered Driving Career in the Past



PEPSICO

Driver Transition to Electrification

Training



Presentation



Walk Around



Vehicle
Operation



Creative
Methods

Pre- & Post-Trip Inspection



EV Components



No Oil Check

Driver Feedback



Quiet



Great Acceleration



Vehicle
Efficiency



Regenerative
Braking



Cab Comfort,
Less Fatigue



Fueling,
Plug In & Depart



PEPSICO

Ken Marko
Ken.Marko@PepsiCo.com
940-597-7508

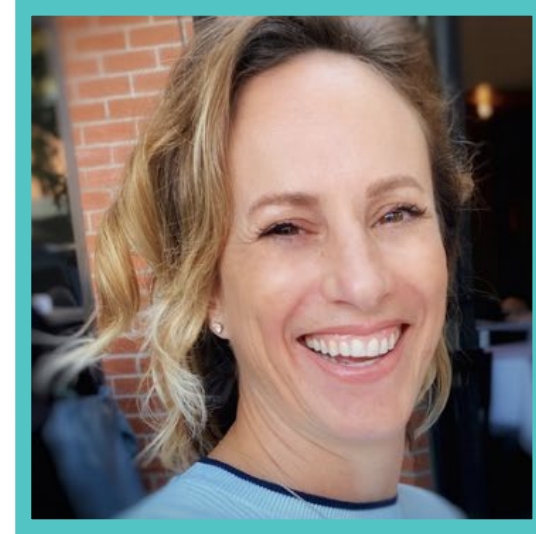
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*Senior National Fleet
Sustainability Manager*
PepsiCo/Frito-Lay



Julie Johnson
*Enterprise Business
Development*
Lightning eMotors



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eMOTORS

August 24, 2021

Julie Johnson



What We Do

We provide complete electrification solutions for urban commercial fleets



COMMERCIAL ZEVs

- Manufacture complete Specialty vehicles: Class 3-7 trucks, buses, and motor coaches
- We also sell powertrains to strategic partners for new and re-power applications
- Offering both Battery (BEV) and Fuel Cell (FCEV)



ANALYTICS

- Actionable fleet intelligence
- Unique AI Big Data on commercial drive cycles
- ✓ HVAC energy use
- ✓ Acceleration and route
- ✓ Regenerative braking
- ✓ Driver training (monetization opportunity)



**250,000 Sq Ft of Manufacturing Space
Loveland, CO**

NYSE: ZEV

Tips for Maximizing range

- **DO NOT** accelerate too rapidly. Accelerating quickly will use more current, therefore reducing kWh (battery storage) and range.
- Utilize **Regenerative Braking** when possible – allow the vehicle to slow itself rather than pushing the brake pedal to slow. (**Warning**: do not compromise safety, use the brakes if needed)
- **Turn off** the A/C or heat when possible: A/C and heat are the largest consumers of battery storage (aside from acceleration) and can significantly reduce range.
- **AVOID** having the air conditioning and heat on simultaneously.
- **Do not** leave the ignition in RUN or ACCESSORY mode when vehicle is not in use. This condition will drain the 12V battery, which will reduce vehicle battery storage.

Impacts on Vehicle Energy Efficiency

1.16 mi/kWh

Daily Efficiency

0.86

kWh/mi

120.2 mi

Expected Range

5.7 hrs

Vehicle On Time

3.6 hrs

Driving Time

53.3 mi

Distance Driven

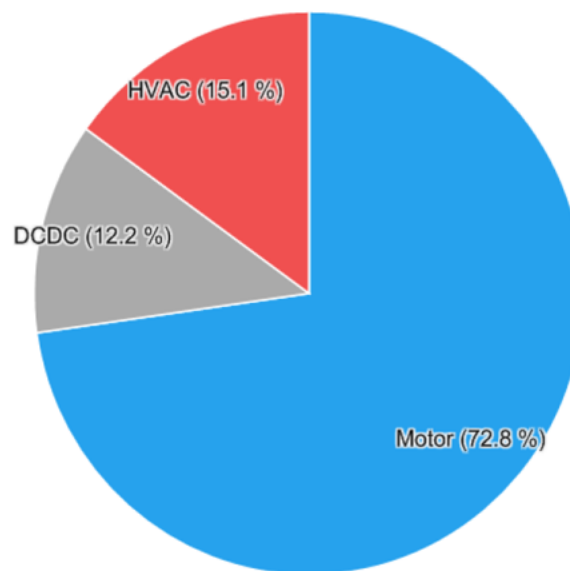
45.8 kWh

Energy Used

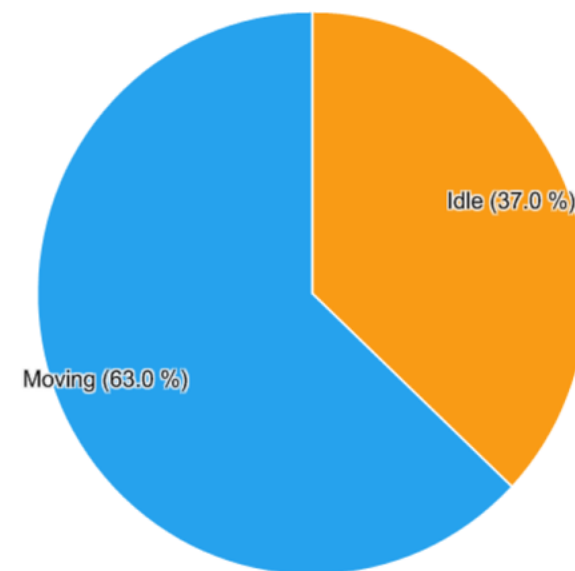
40

Average Temperature (F)

Power Used by System



Route Time Distribution



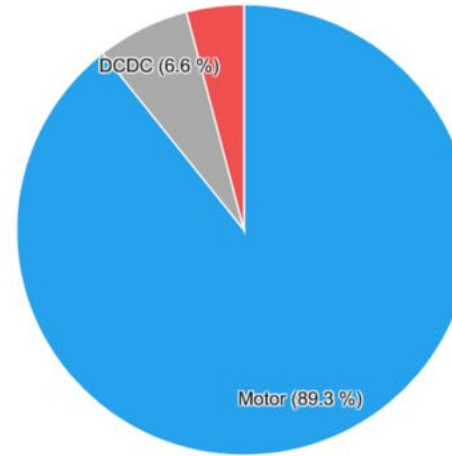
The Value of Real-World Learnings and Outcomes

Electric Vehicle Energy Usage & Efficiency

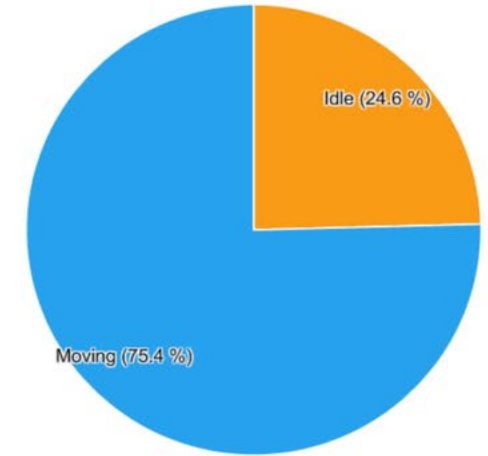
Driver & Truck 1



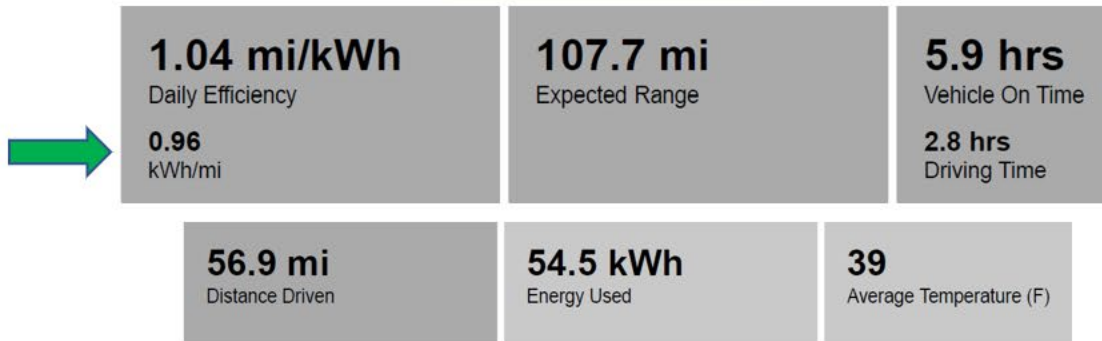
Power Used by System



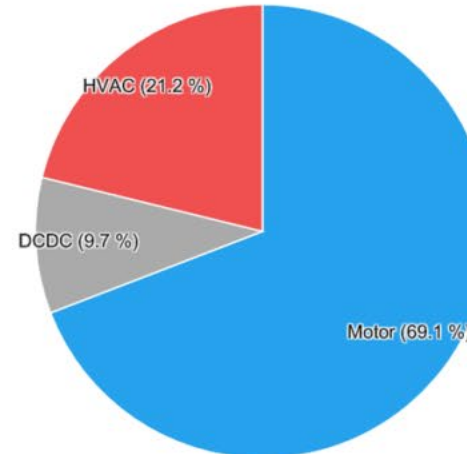
Route Time Distribution



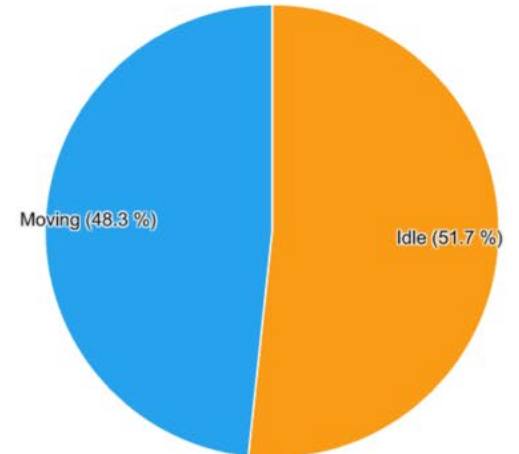
Driver & Truck 2



Power Used by System



Route Time Distribution



$$KE = \frac{1}{2}mv^2$$

Health and Wellness of Professional Drivers

- Regenerative braking can reduce repetitive impact on the knee often causing pain and surgery
- EVs are a quieter ride than combustion trucks making them less of an impact on a driver's hearing
- Zero tailpipe emissions

“Exposure to diesel exhaust is known to cause heart and respiratory health problems, leading to hospitalizations and premature deaths. Worryingly, the Driver Diesel Exposure Mitigation Study (DEMiSt) found that professional drivers are disproportionately affected by exposure to diesel exhaust fumes...”

MRC
Centre for Environment & Health



Imperial College
London



Driver Diesel Exposure Mitigation Study (DEMiSt)

The largest real-world in-vehicle personal exposure study to date


www.iosh.com/diesel-exhaust-exposure

The sum of the greenhouse gas emissions you entered above is of Carbon Dioxide Equivalent. This is equivalent to:

181,466 Pounds

Greenhouse gas emissions from

17.9

 Passenger vehicles driven for one year

-or-

206,865

 Miles driven by an average passenger vehicle


CO₂ emissions from

9,262

 gallons of gasoline consumed


-or-

8,086

 gallons of diesel consumed

-or-

90,977

 Pounds of coal burned


-or-

1.1

 tanker trucks' worth of gasoline


-or-

9.9

 homes' energy use for one year


-or-

15

 homes' electricity use for one year


-or-

0.454


 railcars' worth of coal burned

-or-

191


 barrels of oil consumed

3,365

 propane cylinders used for home barbeques


-or-

0

 coal-fired power plants in one year


-or-

10,012,576

 number of smartphones charged

Greenhouse gas emissions avoided by

28

 Tons of waste recycled instead of landfilled


-or-

4

 Garbage trucks of waste recycled instead of landfilled

-or-

3,502

 trash bags of waste recycled instead of landfilled


-or-

0.017

 Wind turbines running for a year

-or-

3,120

 Incandescent lamps switched to LEDs

Carbon sequestered by

1,361

 tree seedlings grown for 10 years


-or-

101

 acres of U.S. forests in one year

-or-

0.563

 acres of U.S. forests preserved from conversion to cropland in one year

Eco Savings Estimate


42,238 miles driven

Lightning eMotors

100% Battery Electric

16' Box Truck

7

 LIGHTNING eMOTORS

A Quick Trip Back in Time...

1912: 10,000 trucks in the entire country, with many used for deliveries in and around larger metropolitan areas.

1914: Less than 15,000 miles of paved roads throughout the country.

Over the next decade the federal government spent \$75 million on new road construction with improvement of existing roadways.

\$75,000,000 in 1914 is equivalent in purchasing power to about \$2,047,522,500 today

1916: The Seattle Chamber of Commerce sponsored a truck and driver to travel from Seattle to New York City. This trip showed the manufacturers and merchants of the country that highways and truck transport were going to become major influences in their lives. The trip from Seattle to New York City took a grand total of 31 days.

Thank you!

Julie Johnson, (415) 577-2983



#ThankATrucker

Q&A:



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CTO & Founder
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Sustainability Manager*
PepsiCo/Frito-Lay



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Thank you!

Please complete the survey at
<https://subscribe.act-news.com/NACFE-RoL-E-Survey>

For more information & to earn your
Electric Truck Expert badge, please
visit: www.RunOnLess.com



See you at ACT Expo!

