Accelerating the transition towards zero-emission urban freight vehicles

Urban Freight Forum
3 March 2020
CALSTART is a consortium of over 220 members to advance and accelerate clean transportation solutions.

**STRATEGIC PILLARS**

**CONNECT.** We help our industry members connect with each other and our government and NGO partners, and actively form partnerships that advance the industry.

**INFORM.** We share information with policymakers and stakeholders to help them understand how new laws and regulations can help grow the industry. We inform our industry members of new trends and opportunities.

**INFLUENCE.** We work with our partners to become leading global examples that create more competition and encourage others to do better and move faster.

**GOALS**

- Mitigate climate change
- Reduce air pollution
- Reduce oil dependence
- Create high-quality jobs
Commercial vehicles represent a relatively small share of the global on-road fleet but contribute to a disproportionate share of on-road fuel consumption and emissions.

11% of global on-road fleet are HDVs

46% of on-road fuel consumption by HDVs

71% of on-road particulates by HDVs

ICCT (2015): Policies to reduce fuel consumption, air pollution, and carbon emissions from vehicles in G20 nations
Drive to Zero is an international multi-stakeholder initiative to accelerate the growth of zero-emission commercial vehicles.

**2025**
Near- and zero-emission MHDVs are commercially viable and cost-competitive in beachhead applications and first-mover regions by 2025.

**2040**
Zero-emission MHDVs achieve 80% of new vehicle sales in first-mover regions by 2040.
TARGET ACTION

Target first-success beachhead markets where electrification works now, typically urban applications where vehicles travel along known routes and return to base for charging.
Zero-emission vehicles will come in waves, and our “beachhead” strategy targets applications where zero-emission technology is likely to succeed first.

**Wave 1 Transit**
- ZE transit buses
  - Available now
- ZE industrial lifts
  - Available now

**Wave 2 Delivery**
- Chanje Class 5 Delivery Van
  - Available now
- Fuso ECANter
  - Available now
- Orange EV yard tractor
  - Available now

**Wave 3 Medium Freight**
- E-Fuso Vision One
  - Announced 2021
- Freightliner eM2
  - Demo now; Announced 2021

**Wave 4 Heavy Regional Freight**
- Freightliner e-Cascadia
  - Demo Now; Announced 2021
- Volvo VNR
  - Demo now; 2019 Europe; 2021 NA?
- Mack e-Refuse
  - Demo 2020; Coming 2022?
- Nikola FC tractor
  - Coming 2022?

**Corridor Long haul**
- Tesla demo
  - Coming 2021?

- Expanded supply chain capabilities and price reductions enable additional applications
- Steadily increasing volumes and infrastructure strengthen business case and performance confidence

- Similar drivetrain and component sizing can scale to early near applications

- Steadily increasing volumes and infrastructure strengthen business case and performance confidence

- 2019 2020 2021 2022 2023
BUILD ECOSYSTEMS

Build supporting “ecosystems” of success in key first-mover regions made up of aligned policies, incentives, infrastructure, and pilot projects.
Ecosystems of change can enable and accelerate the transition towards zero-emission commercial vehicles

**POLICIES**
- Exclusion zones
- Access restrictions
- Procurement requirements
- Sales requirements
- Fuel efficiency/ GHG regulations
- Low-carbon fuel standards

**FINANCIAL INCENTIVES**
- Voucher purchase incentives
- Tax purchase incentives
- Congestion pricing
- Favorable electricity rates
- Battery production/purchase

**INFRASTRUCTURE INVESTMENTS**
- Depot charging
- Public infrastructure
- Corridor charging

**PILOT PROJECTS**
- Vehicle
- Infrastructure
- Business models
3 COLLABORATE
Work concurrently and collaboratively between regions and industry worldwide to encourage global supply chain of critical components and manufacturers.
70+ organizations worldwide have signed the Pledge

Catherine McKenna, Minister of Environment and Climate Change Canada, announces endorsement at Drive to Zero Vancouver Workshop

The Pledge

Cities, governments, manufacturers, fleets and fuel suppliers agree to:

- Work together to accelerate early markets for zero- and near-zero emission trucks, buses and equipment.
- Share information with peer regions.
- Access best tools, research, assistance, data.
EXPAND

Expand to succeeding success markets as supply chain grows, costs decrease, and business case expands.
There are already 300+ existing and announced zero-emission commercial vehicle models
Join our team and sign the Pledge!

### REGIONAL AND NATIONAL GOVERNMENTAL AGENCIES
- Bay Area Air Quality Management District (BAAQMD)
- British Columbia Province, Canada
- California Air Resources Board (CARB)
- California Energy Commission (CEC)
- Canada
- Chile Sustainable Energy Agency
- Foothill Transit
- K’uL Group, Canada
- Los Angeles Department of Transportation (LADOT)
- New York State Energy Research & Development Authority
- Quebec Province, Canada
- South Coast Air Quality Management District (SCAQMD)
- Västra Götaland Region, Sweden

### CITIES
- City of Helmond, Netherlands
- City of Madison, WI, USA
- City of Vancouver, Canada
- New York City, NY, USA
- Raymond Johansen, Mayor of Oslo
- The Honorable Darrell Steinberg, Mayor of Sacramento
- The Honorable Eric Garcetti, Mayor of Los Angeles
- The Honorable Michael D. Tubbs, Mayor of Stockton

### MANUFACTURERS
- AxleTech
- BAE Systems
- Ballard Power Systems
- BYD
- BYD Canada
- Canadian Electric Vehicles
- Chanje Energy
- Coaster Cycles
- Effenco
- Lightning Systems
- Mitsubishi Fuso Truck
- Motiv Power Systems
- New Flyer Industries
- Nikola Corporation
- Nuvera Fuel Cells
- Orange EV
- Prestolite eDrive Systems
- Proterra
- Roush CleanTech
- Siemens
- StrapWing
- Tevva
- The Lion Electric Co.
- TransPower
- Unique Electric Solutions LLC
- US Hybrid
- West Valley Construction Company
- Workhorse
- XOS
- Zenith Motors

### FLEETS AND USERS
- Blue Mountain Resorts
- Ingka Group (IKEA)
- Mayor USA
- Ryder
- XL

### UTILITIES AND INFRASTRUCTURE PROVIDERS
- Black & Veatch
- East Bay Community Energy
- Southern California Edison
- USGRDCO

### KNOWLEDGE AND SERVICE ORGANIZATIONS
- Auto Research Institute
- Charge across town
- Clean Energy Canada
- Coast to Coast Smart e-Mobility
- Dunksy Energy Consulting
- East Bay Clean Cities Coalition
- Electric Vehicle Association of Atlantic Canada
- Empire Clean Cities
- Geotab
- Greener by Design, LLC
- International Commuter Challenge
- Prospect Silicon Valley
- Sim
- Viatec
- Windfall Ecology Centre
Thank you!
Merci!

Cristiano Façanha
Global Director
cfacanha@calstart.org

For more information:
www.globaldrivetozero.org