



# Zero & Near-Zero Emissions Heavy Duty Vehicles: A Shipper's Perspective

**New Jersey Clean Air Coalition Public Hearing  
Trenton, NJ  
April 12, 2018**

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# Content

- I. IKEA Sustainability Background
- II. Past Experience with Zero & Low Emissions Vehicles
- III. Market Conditions & Challenges
- IV. Opportunities

# PEOPLE & PLANET POSITIVE STRATEGY



**1** Inspire and enable millions of customers to live a more sustainable life at home.

**2** Strive for resource and energy independence.

**3** Take a lead in creating a better life for the people and communities impacted by our business.



# IKEA's Sustainability Strategy

- In 2012 IKEA launched our People & Planet Positive Strategy
- It is currently being revised with the hope of aligning with the UN Sustainable Development Goals
- New strategy focuses on climate change, inequality, and unsustainable consumption





# Background

Largest home furnishing retailer in the world

- 60 stores in the US & Canada
- Work with a network of 30+ carriers across North America to replenish stores and distribution centers
- IKEA Transport is not involved in final mile delivery

As a shipper, we have no direct control over equipment procurement decisions → rely on our business partners

- Try to work with carriers to use alternative equipment/fuels on our behalf
- Identify opportunities for partnership – pilot projects, funding application, etc.

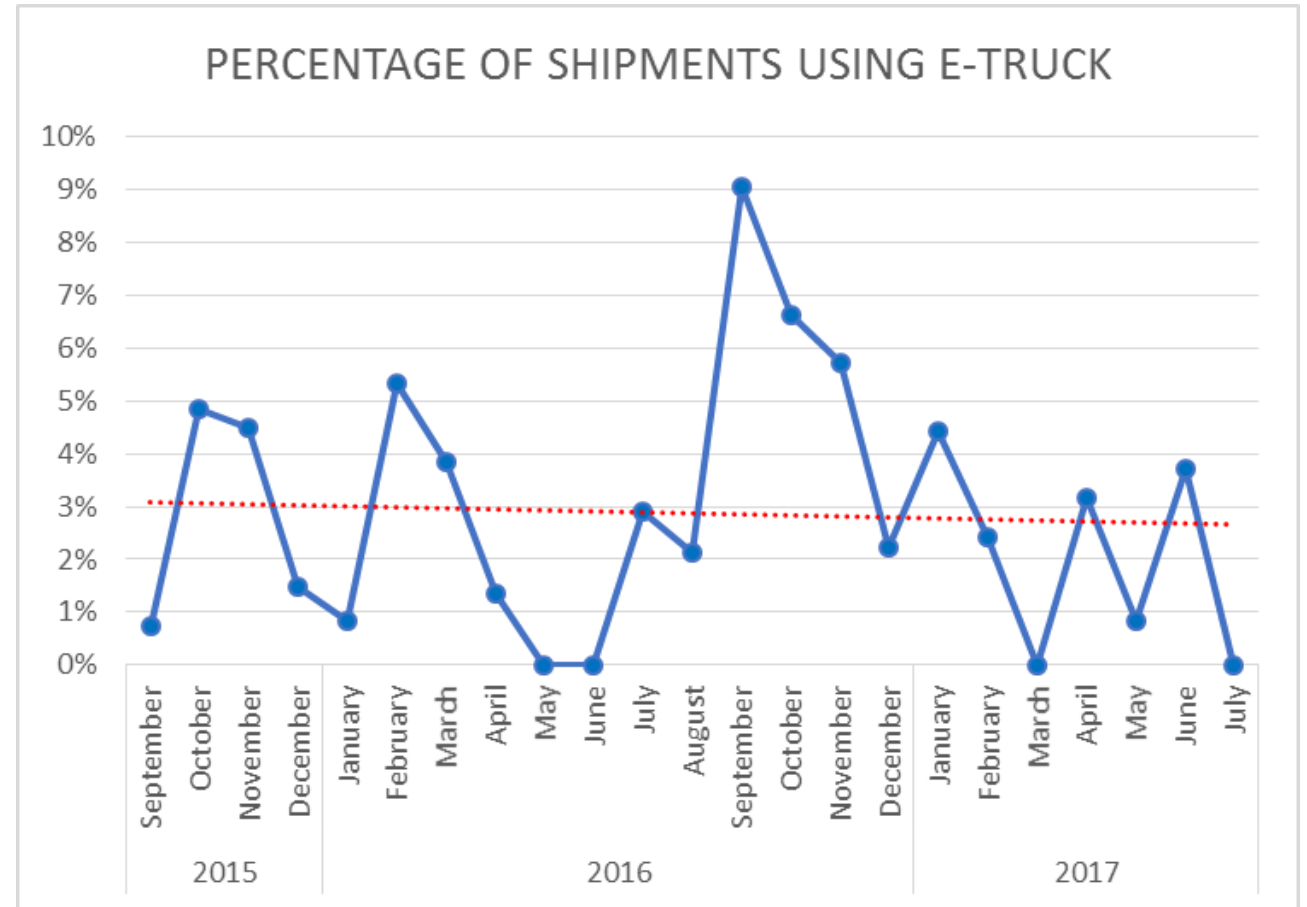
Past Experience with Alternative Fuel HDVs

- In FY2017 over 8,000 shipments were moved on alternative fuels
- Previously participated in a pilot project of an electric dray truck in Los Angeles



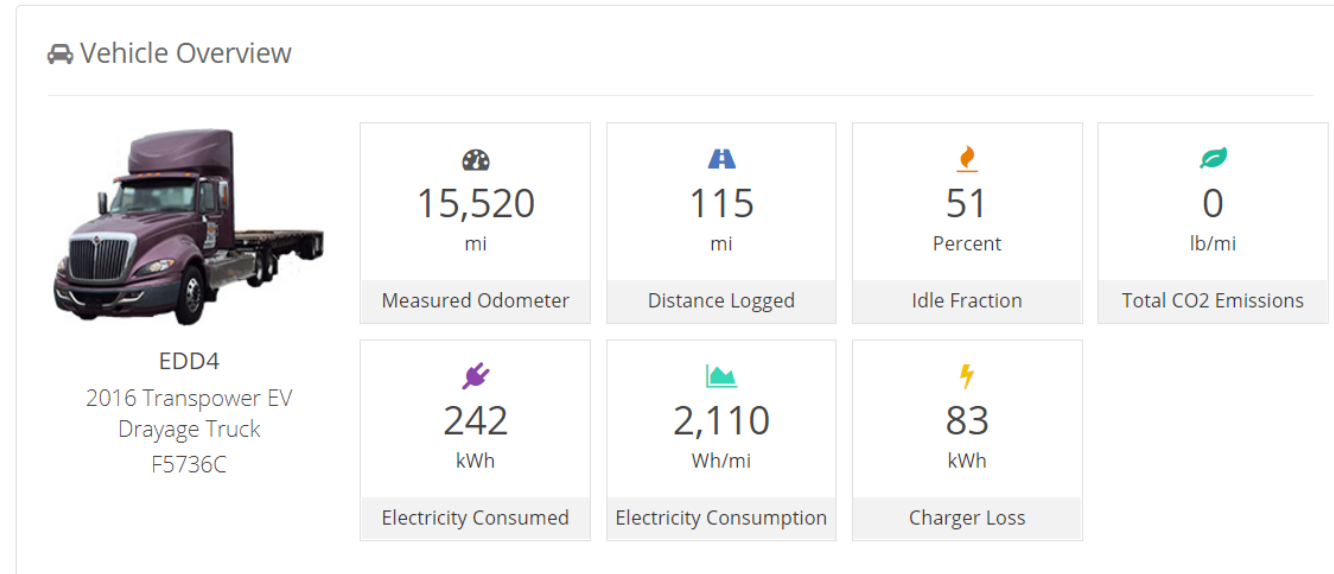
# Results of the Electric Drayage Pilot

- The truck was used for moves between the port and our carrier's equipment transfer site 14 miles away
- Over the course of the pilot test, the truck has been used for **275 IKEA shipments** out of 9,301 total
- Use of the truck peaked in **September 2016** covering 9% of IKEA shipments
- Total CO<sub>2</sub> reduction of **3,272.5 kg (3.3 metric tons)** over the course of the pilot



# Carrier Feedback on Pilot

- **Maintenance** → inconsistent
- **Driver interest** → performance cut into their ability to earn certain productivity bonuses
- **Idle time** → waiting at the port drained the battery



# Market Challenges – Heavy-Duty Alternative Fuels & Zero Emissions Vehicles

## Market Availability of Heavy Duty Alternative Fuel Vehicles

- Biofuels → Deployed, mainly as blends
- Natural Gas → Deployed
  - Conventional CNG/LNG → available
  - Biogas → developing
- Electric → Demonstration/Low Deployment
  - Charging → Expensive to install
- Hydrogen Fuel Cell → Research/Demonstration







# Market Challenges – Heavy-Duty Alternative Fuels & Zero Emissions Vehicles

## ***Performance Concerns Compared to Diesel***

- Range is the biggest hurdle for a number of alternative fuel and equipment types compared to diesel
- Handling and acceleration are also concerns
- Increased weight needed for fuel tanks or batteries

## ***Availability of Alternative Fueling Infrastructure***

- Expensive to install stations and distribute the fuel
- Diesel fueling infrastructure is already very well-established

## ***Price***

- Business cases are becoming more competitive, but still no zero or low emissions vehicles with a lower sticker price



# Public Sector Opportunities

## ***Incentives Fleets***

- Easy-to-apply-for grants or vouchers
- Tax incentives
- Partnership with utilities (in the case of EV charging)

## ***Incentivize Drivers***

- Priority processing at ports
- Fuel/Charging discounts

## ***Expand Fueling Infrastructure***

- Fast fueling and charging placed along major corridors
- Helps eliminate “range anxiety”







# Public Sector Opportunities

## ***Regulations***

- Several European cities – urban diesel restrictions
- San Pedro Ports – no diesel vehicle on register and eventual phase-out of all diesel vehicles
- Pennsylvania – Gross Vehicle Weight exemption for natural gas trucks

## ***Diesel Taxes***

- California example
  - Increased by \$0.20/gallon
- Waiving these taxes for lower-emission alternative fuels could accelerate their adoption

## ***Cap & Trade and Other Carbon Trading Schemes***

- California plans to use funding generated from this approach to fund truck replacement projects



# Approaches IKEA Has Tried with Carriers

Speak with carriers about their experience with alternative fuels and equipment to better understand operational benefits and drawbacks

- What is the driver experience like?
- Are there any special arrangements needed to fuel the truck?
- Are there opportunities to partner on fueling projects at strategic points?





# Approaches IKEA Has Tried with Carriers

Consider zero or low emissions vehicle requirements when awarding business

- % requirements
- Lane-specific
- Follow-up

Mapping alternative fueling infrastructure

- Simulate lanes around available fueling to measure impacts compared to diesel

Identify potential for grant funding in different areas of the country that can apply to private heavy duty vehicles



# Thank you!

