

# CITY OF LONG BEACH GREEN FLEET PROGRAM

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# Agenda



- Fleet Overview
- Current Metrics, Goals, and Initiatives
- Alternative Fuels
- Technology
- Where We're Going

# Fleet Overview



- Total fleet size: approximately 2,000 units (1,650 motorized)
- Typical purchase: about 200 vehicles per year
- Fuel use: about 2 million gallons per year
- Named one of Heavy Duty Trucking Magazine's Top 25 Green Fleets for 2018
- #6 Best Public Fleet in North America – 2018 Leading Fleets
- Received 2018 Advanced Clean Transportation Expo Fleet Award
  - "In It for the Long Haul" – other finalists included NYC, LA Metro, Verizon

# Current Metrics and Goals



- Currently, 42% of motorized fleet is alternative fuel
  - FY18 end of year goal: 43%
- Consistently purchasing 50% or more alternative fuel vehicles

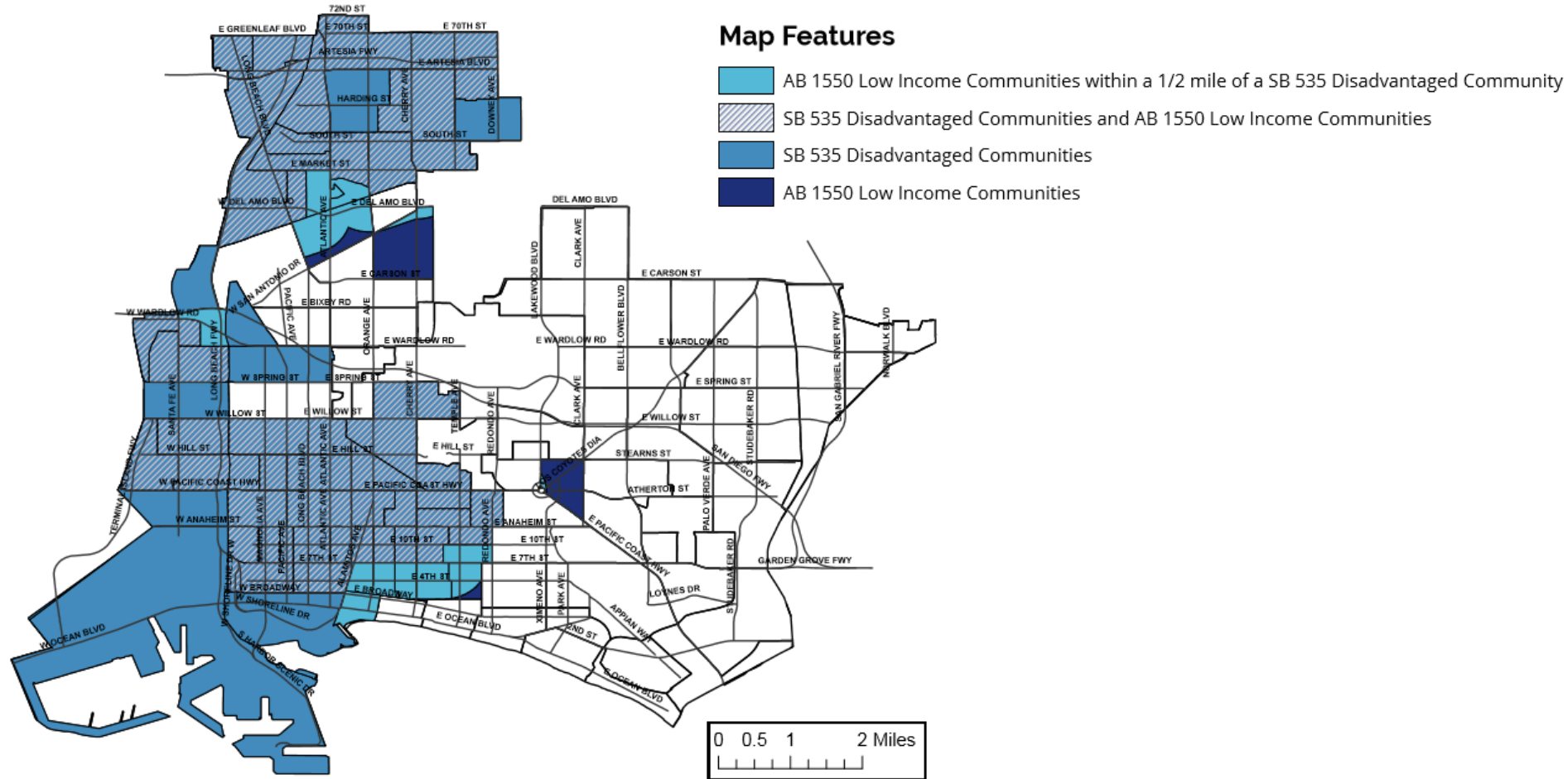


# Current Sustainability Initiatives



- Continued aggressive approach to fleet sustainability
  - One of few fleets with a dedicated green fleet analyst
  - Focus on reducing the City's fleet environmental footprint
- NAFA Sustainable Fleet Accreditation completed
  - Long Beach fleet earned the highest level, Tier IV
- Developed and implementing new Battery Electric Vehicle Policy (AR 37-1)
  - Focus on vehicles and infrastructure

# City Fleet Impact on Disadvantaged Communities



# Alternative Fuels: Renewables



- Renewable Natural Gas
  - Liquefied Natural Gas (LNG), 67 vehicles
    - Reduced emissions, issues with equipment availability on the market
  - Compressed Natural Gas (CNG), 130 vehicles
    - Reduced emissions, cost savings, equipment readily available
- Renewable Diesel (RND), 193 vehicles
  - A “drop-in” fuel, reduces organic petroleum use, cleaner burn
    - 50-90% GHG emission benefits over traditional diesel, plus 9% less NOx



# Alternative Fuels: Natural Gas



- \$3.9M time-fill CNG station opened May 1, 2017
  - Supports up to 100 refuse trucks and street sweepers





# Alternative Fuels: Hybrid Electric



- 228 conventional hybrids and 7 plug-in hybrids (PHEV)
- Benefits: reduced maintenance, fuel use, and emissions
- Challenges: infrastructure costs and planning for plug-ins



# Alternative Fuels: Hybrid Electric



- Truck and van pilot test
- 8 XL Hybrids PHEV F-150s and 11 Hybrid Vans



# Alternative Fuels: Hybrid Electric



- Police pursuit vehicles
  - Upcoming Ford Responder pilot test – 5 units
    - Rated at 38 mpg, idling fuel use less than half of non-hybrid
  - 2020 availability of hybrid Police Interceptor (SUV) – Up to 385 units



# Alternative Fuels: Battery Electric



- Nissan Leaf (150 mile range)
- Chevy Bolt (238 mile range)
- Expect to see these soon!





# Alternative Fuels: Charging



- EV ARC Portable Solar Chargers
- Can charge up to 3 vehicles and provide emergency power



# Alternative Fuels: EV Showcase





# Alternative Fuels: Future Options



- Hydrogen Fuel Cell
- Medium and Heavy Duty Battery Electric



# Technology Initiatives



- Active telematics, currently on about 600 City vehicles
  - Expanding to idling, driver behavior, utilization, MPG
- Fuel Focus – passive telematics as well as fuel tracking
  - Will cover the remaining 1,000 vehicles
- Derive – engine reprogramming for fuel savings
- These initiatives support a data-driven fleet
  - Expect reporting to departments starting in 2019

# Where We're Going...



- Stay current with alternative fuel technology
  - Acquire greenest possible vehicles
  - Move to zero emissions with an aggressive timeline
- Make full use of telematics and vehicle data
  - City-wide policies regarding idling and driver behavior
  - Monthly reports sent to departments
- Look at the potential of ride- and car-sharing
- Autonomous vehicles and integration into City fleet



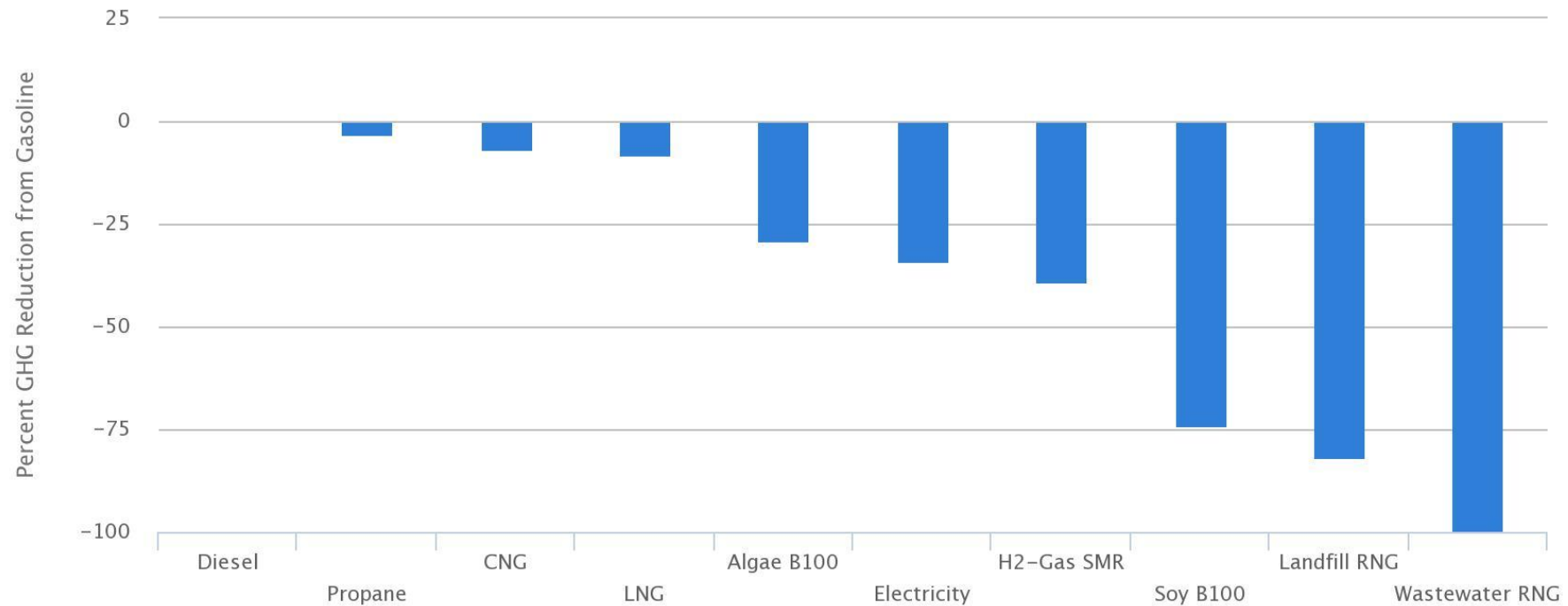
Thank you!

Questions?

# Appendix A: Emission Benefits of Alternative Fuels

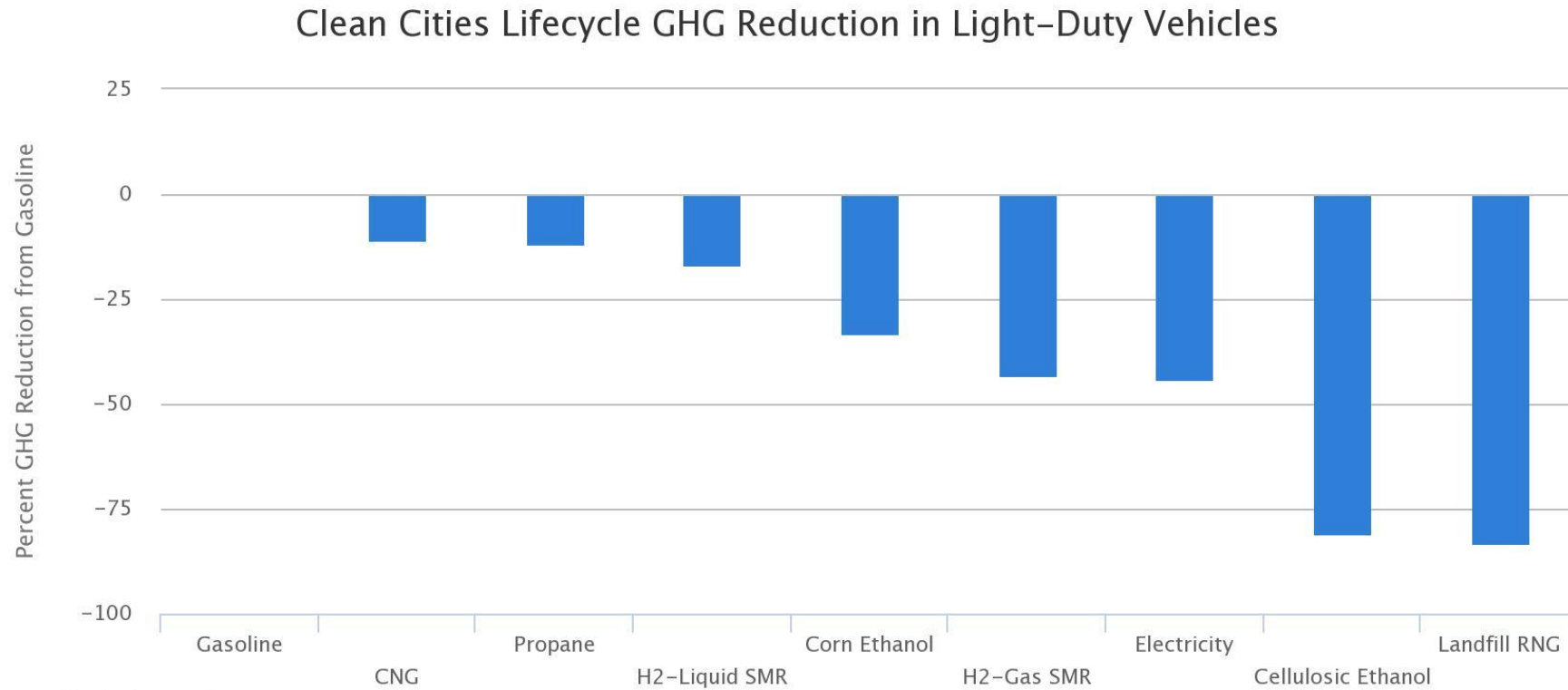


Clean Cities Lifecycle GHG Reduction in Heavy-Duty Vehicles



*Last updated: February 2017  
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# Appendix A: Emission Benefits of Alternative Fuels



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# Appendix C: Biodiesel vs. Renewable Diesel

- Biodiesel
  - Transesterification
  - Contains oxygen
  - Usually blended
  - Freezing, algae concerns
- Renewable Diesel
  - Hydrogenation
  - Does not contain oxygen
  - Drop-in fuel; no blending
  - Cleaner than biodiesel

# Appendix D: Neste Renewable Diesel



- Nearly 80% of raw material is waste or residue
- Sustainably produced raw materials only
- 50-90% GHG emission benefits over traditional diesel

# Appendix D: Neste Renewable Diesel



Waste and residues in Neste's raw material portfolio:

- animal fat from food industry waste
- fish fat from fish processing waste
- vegetable oil processing waste and residues (e.g., palm fatty acid distillate, spent bleaching earth oil)
- used cooking oil
- technical corn oil (a residue from ethanol production)

Vegetable oils in Neste's raw material portfolio:

- crude palm oil
- rapeseed oil
- soybean oil
- jatropha oil
- camelina oil

Neste.com – Renewable Raw Fuels

# Appendix D: Neste Renewable Diesel



## Sustainably produced palm oil

Crude palm oil's role in our **raw material portfolio** has become less significant in recent years. In 2016, it accounted for less than 20% of our raw material usage. All the CPO we have used has been fully traceable to the plantation level since 2007, and 100% certified since 2013.

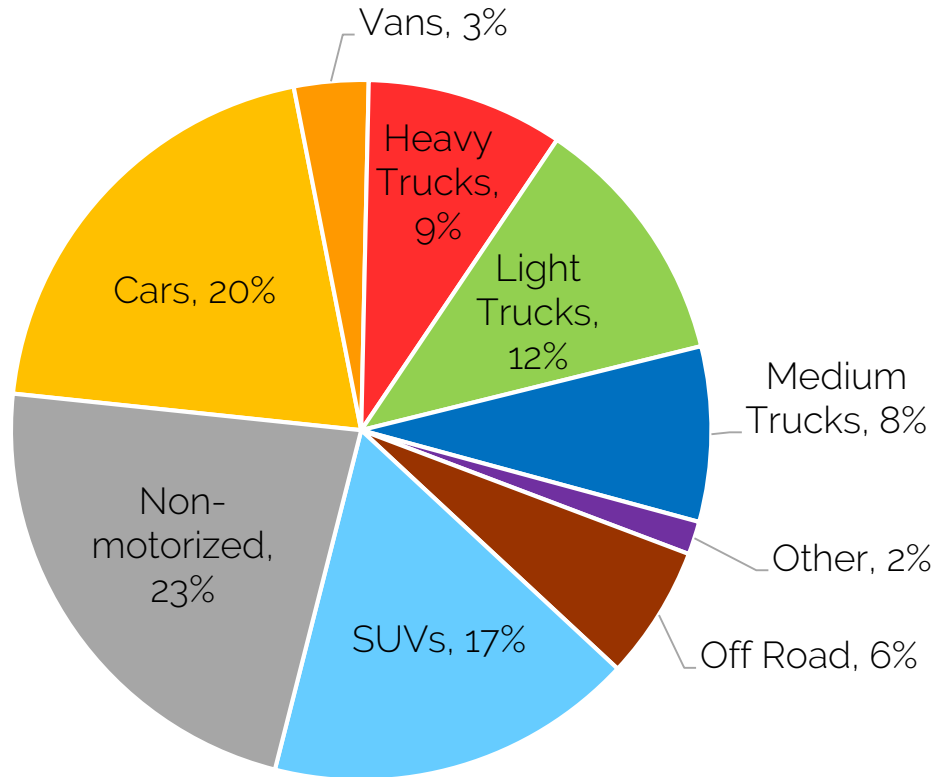
We do not own any oil palm plantations, nor operate any palm oil refineries. Instead, we source CPO from **carefully screened, responsible producers** in Malaysia and Indonesia that are committed to certification and principles of sustainability. We source certified palm oil directly from the producer companies instead of purchasing separate certificates from the world market as, for example, many food industry companies do. Buying directly from producer companies provides us with better transparency and influence in our supply chain – the more direct the supply chain, the better.

We aim at building long-term relationships with our suppliers, work together in development projects, and monitor their performance with the help of independent expert parties, such as auditors. We continue being committed to do even more than what is legally required to ensure the crude palm oil we source is and remains fully sustainable.

Neste.com – Sustainably Produced Palm Oil

# Appendix E, Current Metrics and Goals

Total Fleet by Vehicle Type



Motorized Fleet by Fuel Type

