City of Long Beach
Green Fleet Program

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Agenda

- Fleet Overview
- Current Metrics, Goals, and Initiatives
- Alternative Fuels
- Technology
- Future Outlook

Fleet Overview

- Total fleet size: approximately 2,200 units (1,680 motorized)
- Typical purchase: about 200 vehicles per year
- Fuel use: about 2 million gallons per year
- Ranked #3 in the Top Public Fleets in North America – 2020 Leading Fleets Program
- Ranked #14 in the 100 Best Government Fleets – 2020 Tom C. Johnson Green Fleet Award Program
- One of the Top 20 Green fleets in the country; Heavy Duty Trucking Magazine, 2020

Current Metrics and Goals

- Currently, 49% of motorized fleet is alternative fuel; 69% non-safety
  - Successfully surpassed our 2020 goal of 45%
- 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
  - Green Business Certified
- Implementing Battery Electric Vehicle Policy (AR 37-1)
  - Interdepartmental BEV Task Force
  - Infrastructure in progress
  - 70 EV sedans ordered through Climate Mayors EV Purchasing Collaborative

Current Sustainability Initiatives: GHG Reductions

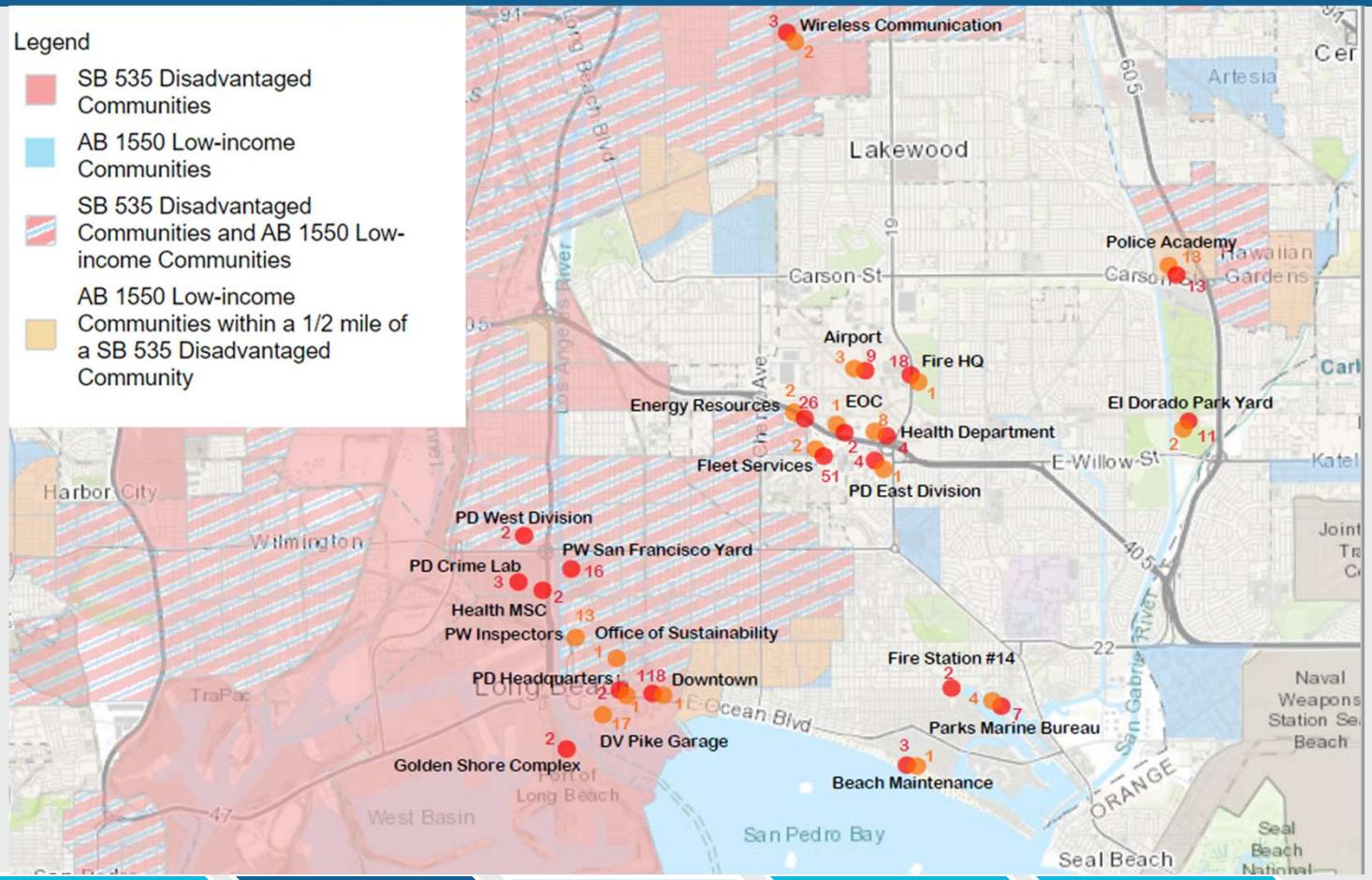
- GHG Reductions by Initiative
  - CNG Station – 3,399 tons of GHG
  - EV Charging Stations – 288 tons of GHG
  - BEV Taskforce and EV Adoption – 41 tons of GHG
  - Hybrid Van/PHEV Truck Pilot Testing – 35 tons of GHG

- Total GHG Reduction = 3,763 tons of GHG Emissions

Upcoming CARB Regulation: Advanced Clean Fleets

- New CARB Regulation
  - Starting in 2024, half of all new fleet truck purchases at or above a gross vehicle weight of 8,500 pounds to be ZEVs.
  - 410 Medium and Heavy-Duty Vehicles
  - Challenges

Current and Planned EV Charging Infrastructure



FLEET SERVICES

Fleet Overview | Metrics and Goals | Alternative Fuels | Technology | Future Outlook

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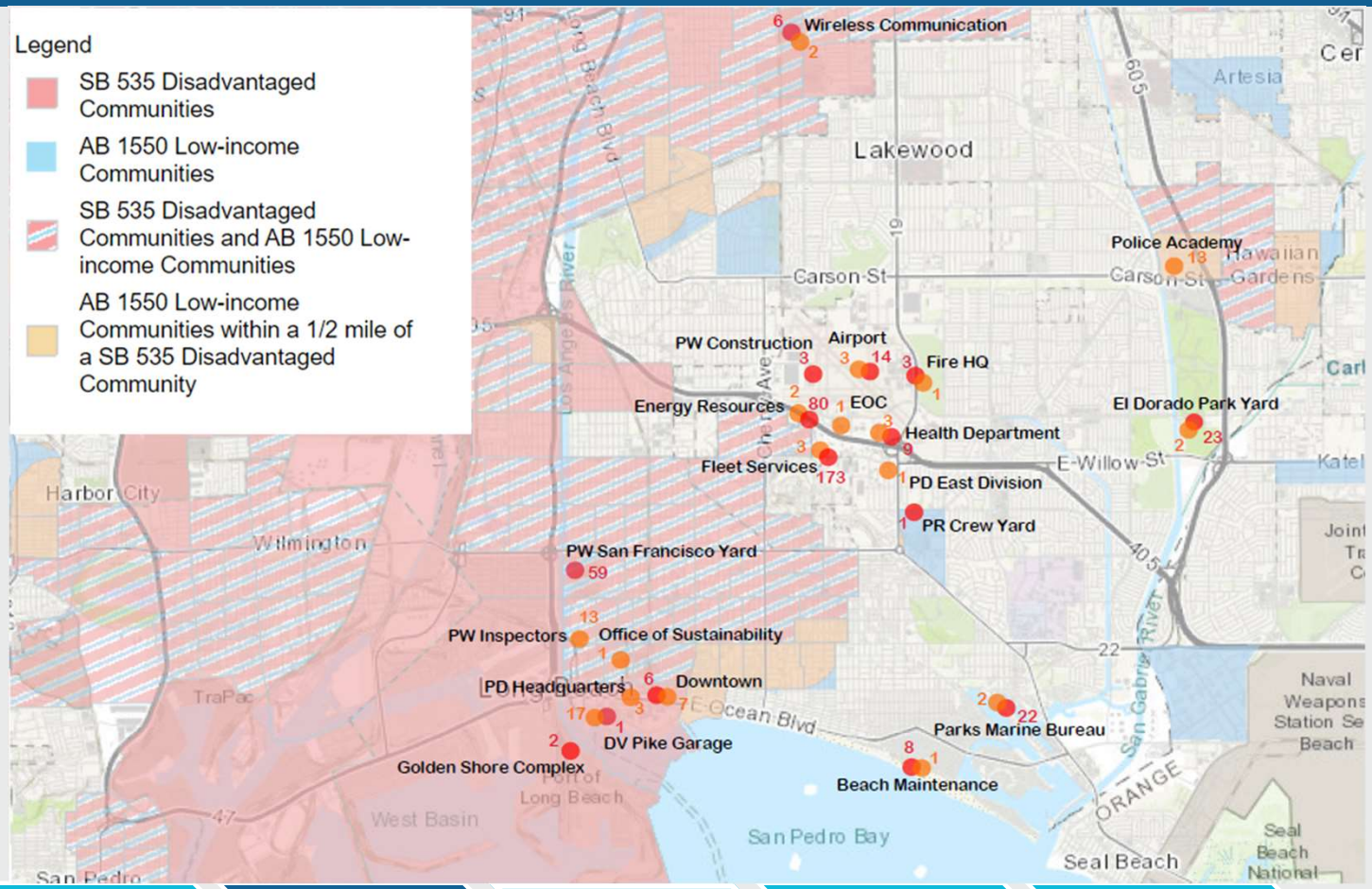
Current EV Deployment and CARB ACF



Alternative Fuels: Renewables

- Renewable Natural Gas
  - Liquefied Natural Gas (LNG), 33 vehicles
    - Reduced emissions, issues with equipment availability on the market
  - Compressed Natural Gas (CNG), 275 vehicles
    - Reduced emissions, cost savings, equipment readily available
- Renewable Diesel (RND), 164 vehicles
  - A “drop-in” fuel, reduces organic petroleum use, cleaner burn
    - 50-90% GHG emission benefits over traditional diesel, plus 9% less NOx
- 2021 fuel use projected to be 54% renewable, saving 8,200 tons of GHGs

Alternative Fuels: Natural Gas

- $3.9M time-fill CNG station opened May 1, 2017
  - Supports up to 100 refuse trucks and street sweepers
  - 11,483 tons of GHG emissions have been avoided

Alternative Fuels: Hybrid Electric

- 204 conventional hybrids and 15 plug-in hybrids (PHEV)
- 46 Ford Escapes (PHEV) on order
- Benefits: reduced maintenance, fuel use, and emissions
- Challenges: infrastructure costs and planning for plug-ins

Alternative Fuels: Hybrid Electric

- 2019 Truck and Van pilot test of this technology
- 8 XL Hybrids PHEV F-150s and 11 Hybrid Vans

Alternative Fuels: Hybrid Electric

- Police pursuit vehicles
  - Ford Responder hybrid sedans – 5 units
    - Rated at 38 mpg, idling fuel use less than half of non-hybrid
  - 2020 hybrid Police Interceptor (SUV) – Up to 385 units
    - Rated at 24 mpg, idling fuel use less than half of non-hybrid

Alternative Fuels: Battery Electric

- Nissan Leaf (150 mile range)
- Chevy Bolt (238 mile range)
- BEV Savings

Alternative Fuels: Chargers

- Level 2 Chargers – 93 Ports
  - Infrastructure Support
  - 4-8 Hour Charge
  - Positive Air Quality Impact

Alternative Fuels: Solar Charging

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

Alternative Fuels: Future Options

- Hydrogen Fuel Cell
- Medium and Heavy-Duty Battery Electric

Technology Initiatives

- Active telematics, currently on about 691 City vehicles
  - Upgraded with a state-of-the-art system
  - Expanding to idling, driver behavior, utilization, MPG
- Fuel Focus – passive telematics as well as fuel tracking
  - Covers the remaining 1,000 powered vehicles
- These initiatives support a data-driven fleet
  - Expect reporting to departments starting in 2021
- Fleet Cost Optimization through full application of telematics

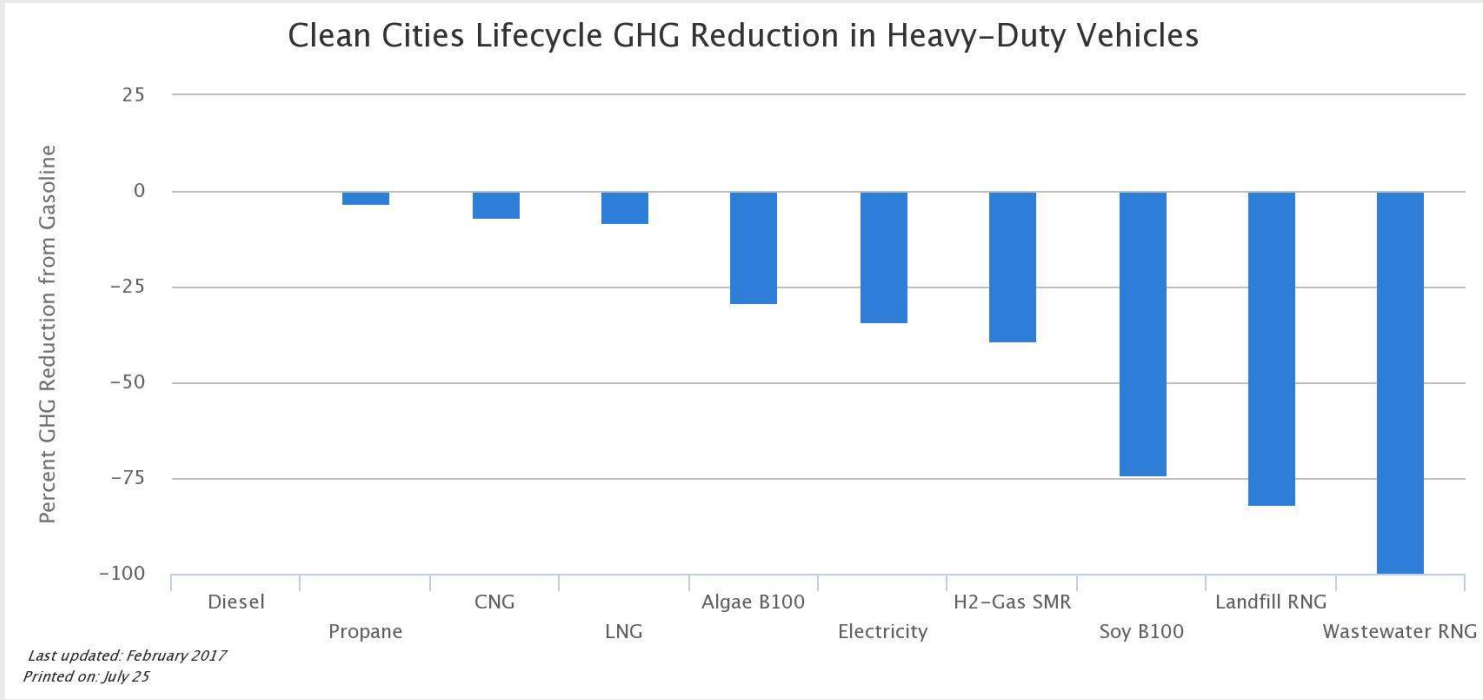
Future Outlook…

- 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



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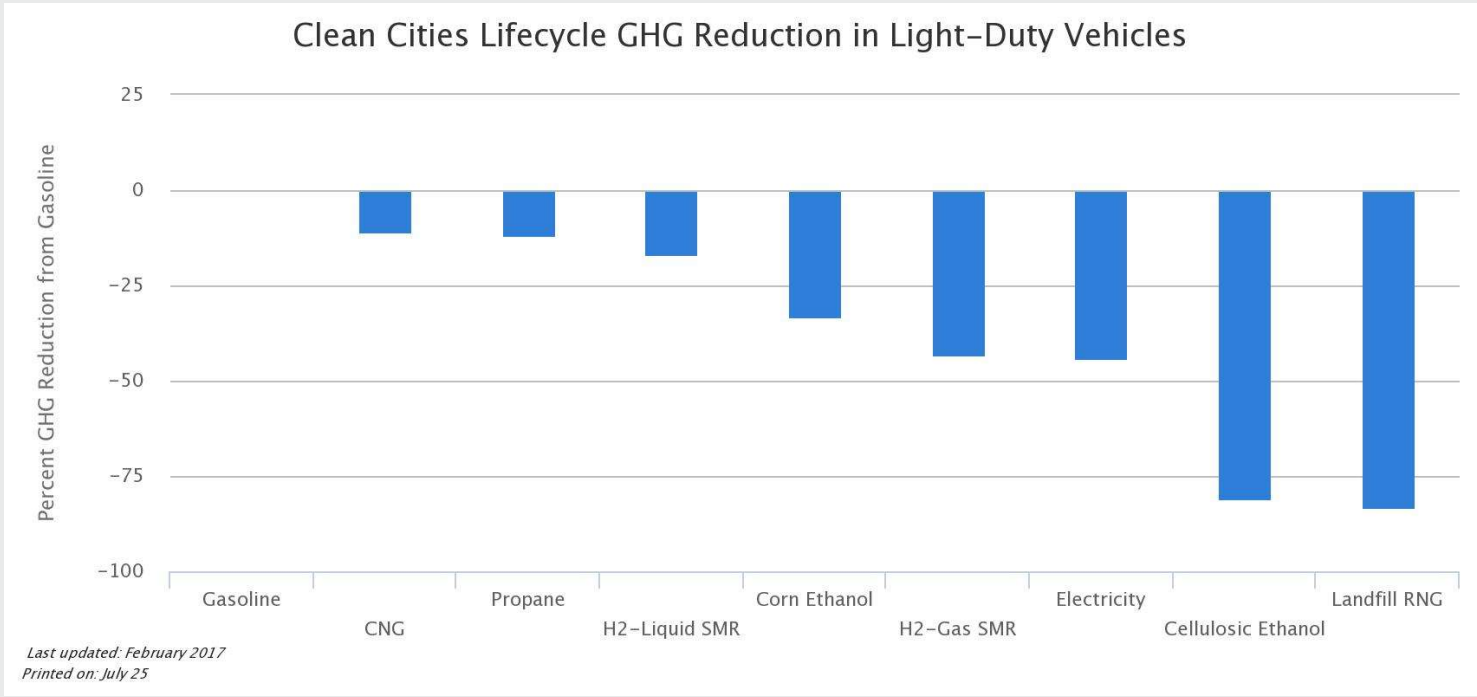


Appendix B: Biodiesel vs. Renewable Diesel

- 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 C: 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 C: 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 C: 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.

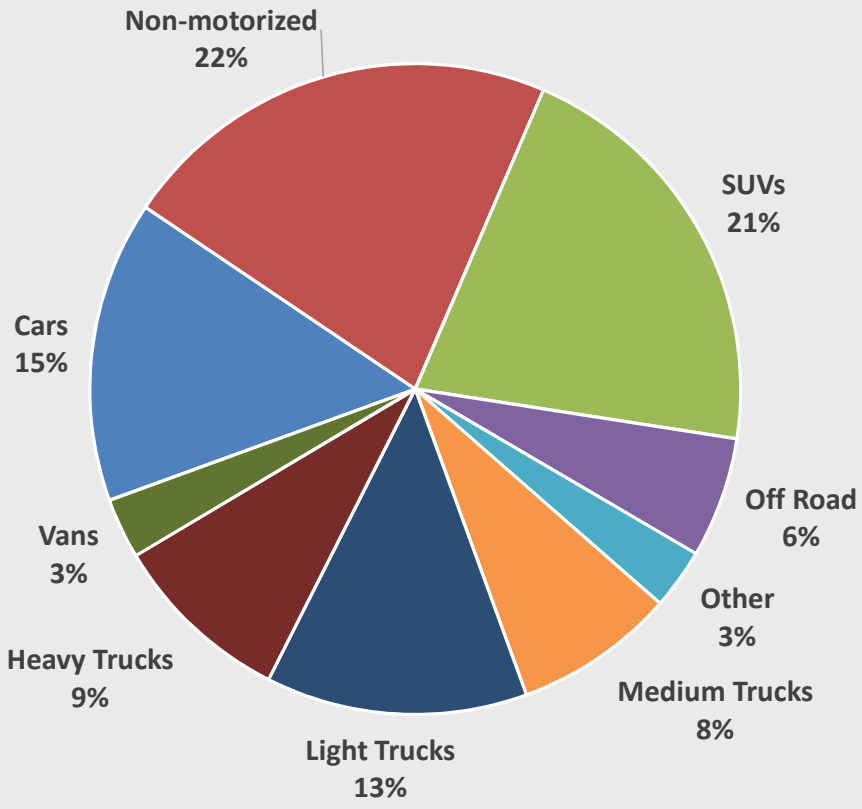
We do not own any oil palm plantations, nor operate any palm oil refineries. Instead, we source CPO from carefully screened, responsible producers in Malaysia and Indonesia that are committed to certification and principles of sustainability. We source certified palm oil directly from the producer companies 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.

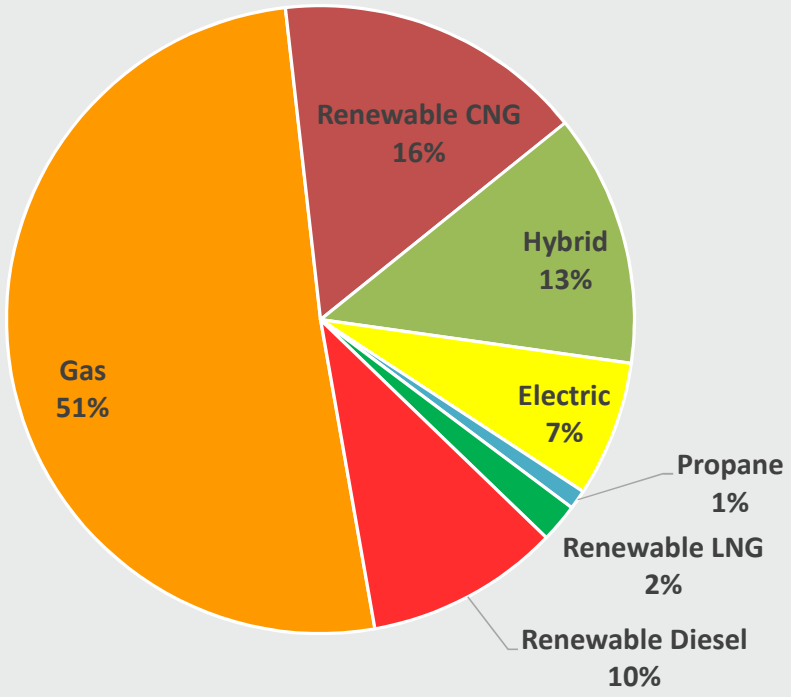
Neste.com – Sustainably Produced Palm Oil

Appendix D, Current Metrics and Goals

Total Fleet by Vehicle Type



Motorized Fleet by Fuel Type



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