









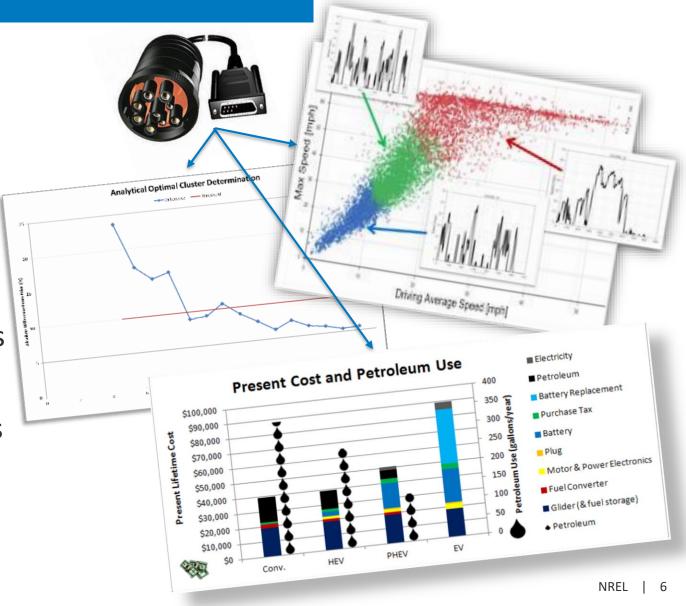
Data Analytics & Connectivity: Technologies & Peer Fleet Experiences

Lauren Lynch, Mechanical Engineer Vehicle Technology Integration National Renewable Energy Laboratory

Midwest Green Transportation September 19th, 2019

Data Analytics & Connectivity

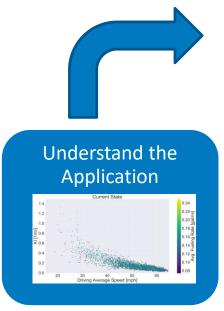
- Define the Fleet Objective
 - Improve Efficiency
 - Fuel
 - Route
 - Operator
 - Maximize ROI
 - Fuel Economy Improvements
 - Minimize Lifecycle Costs
 - Minimize Maintenance Costs
 - Meeting the Demand
 - Appropriate Technologies



IDENTIFY THE ANALYSIS

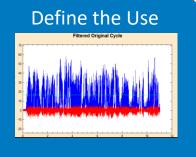
Data Capture:

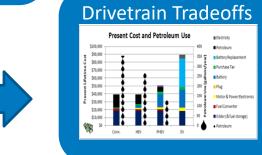
- Return on Investment
 - Fuel
 - Maintenance
 - Productivity
- Productivity
 - Telematics data software
- Application Analysis
 - Contracting Services













NREL FLEET ANALYSIS

https://www.nrel.gov/transportation/data-tools.html

FLEET DNA — Provides data summaries and visualizations to helps users understand the broad operational range of commercial vehicles across vocations and weight classes

FASTSim — Simulate vehicle design and use scenarios with fuel economy, performance, battery life, and cost calculations.

DRIVE — Produce drive cycles from realworld vehicle data to cut evaluation and analysis time.

AFLEET — Calculate a fleet's petroleum use, cost of ownership, and air pollutant and greenhouse gas emissions

