LAS Fleet Assessment Service: The Role of Telematics in Green Fleet Management

CAC Green Fleets Workshop

September 2017

Tanner Watt

Three Common Fleet Challenges with EV Adoption

RANGE

Will it have enough range to do the job?

COST

Government report says electric cars don't make economic sense

By Steve Mac Donald / May 8, 2015 / No Comments

SAVINGS MYTHS UNPLUGGED: A new report from the federal government shows just how long it takes for hybrids and electric vehicles to save you money

Can we afford them? What is my payback?

INFRASTRUCTURE

FleetNews NEWS FLEET TOOLS FLEET MANAGEMENT CARS SUPPLI

Electric cars: Finding the right charging point, card, and cables

29/07/2015 in Environment

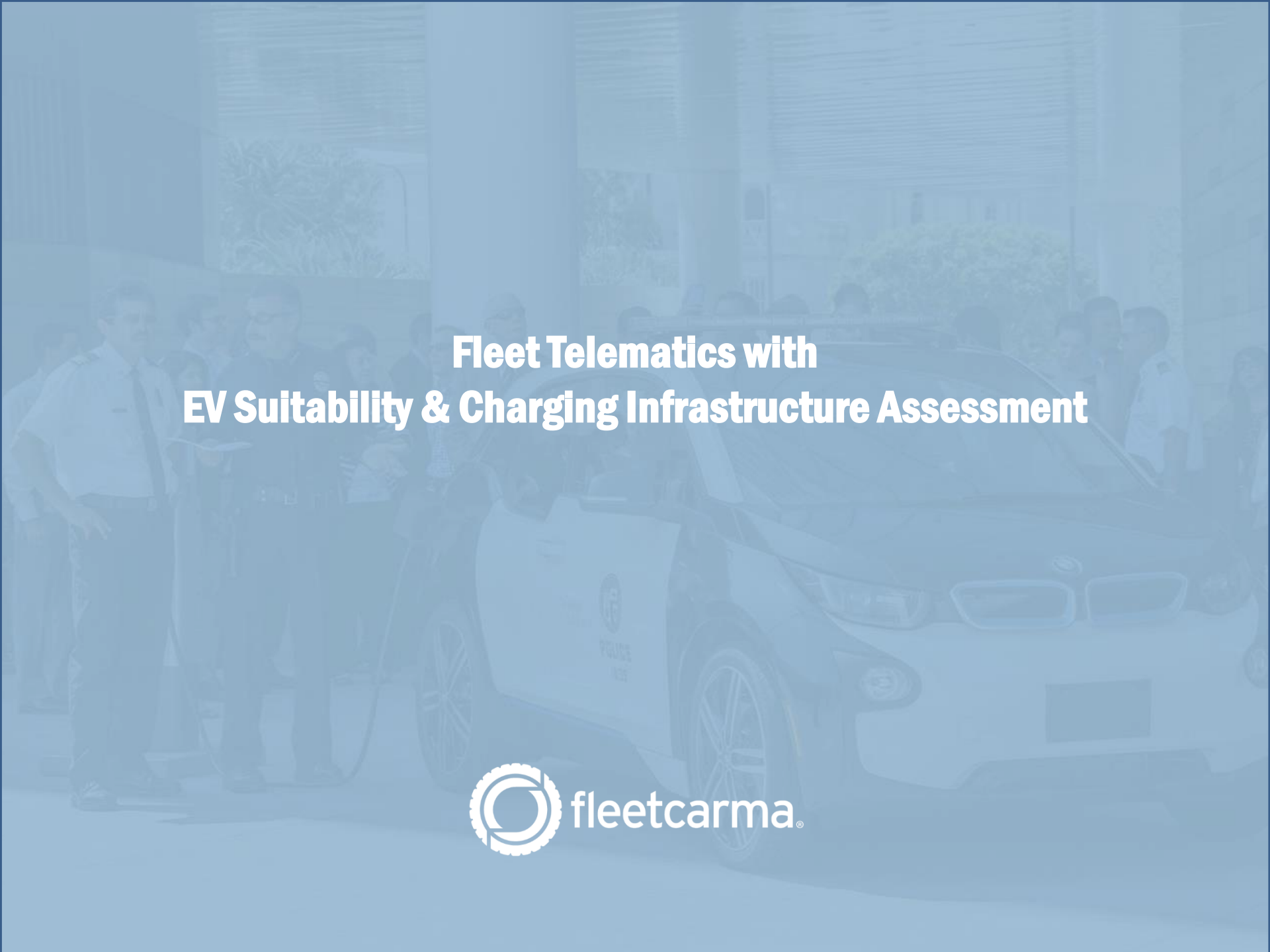
Format wars aren't a new phenomenon. The 1980s saw VHS versus Betamax, and the 1990s brought CD versus mini-disc, to name but two.

In both cases, a clear winner emerged and the unsuccessful rival disappeared into obscurity.

However, at the moment, at least, the

How do we deal with the charging infrastructure?

Fleet Telematics with EV Suitability & Charging Infrastructure Assessment



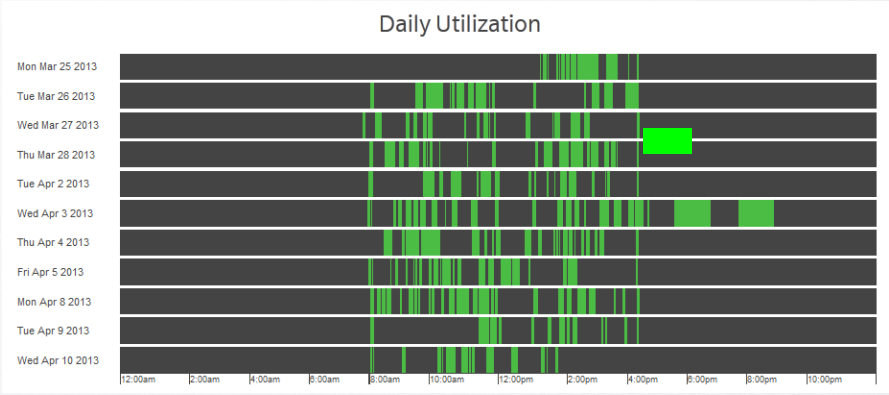
fleetcarma®

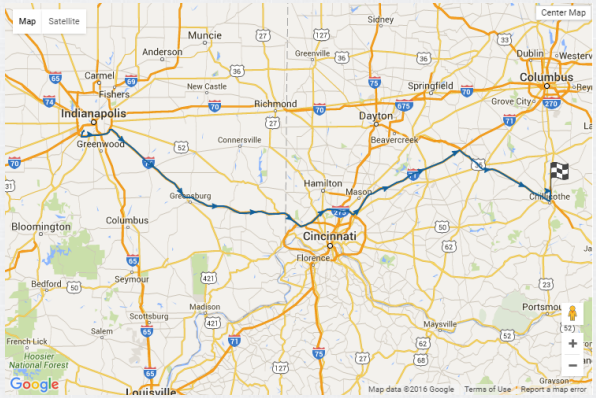
Benchmarking ICE Vehicle Duty Cycles

FleetCarma C2 Vehicle Monitoring Device Clipped Into OBD II Port

Fleet:	
Depot:	
Vehicle:	2010 Ford Fusion
Unit Id:	1442
Description:	
Log Dates:	March 25 - April 10 2013
Logtime:	16 Days, 0 Hours
Operation Hours:	27.5 (1.7 h/operating days)
Time Idling:	318.8 min (19.3%)
Total Distance Travelled:	632 mi
Longest Single Day:	194 mi

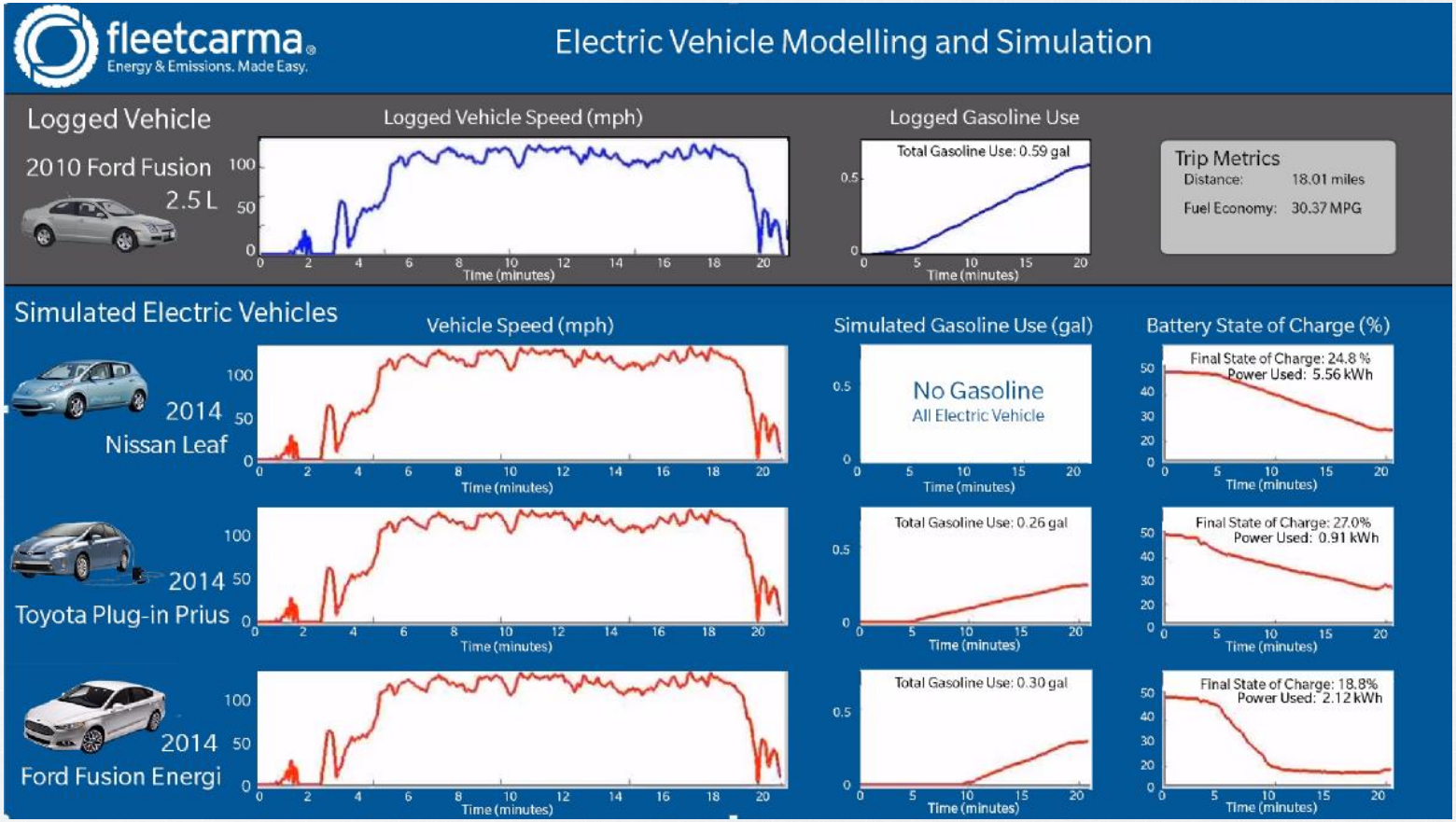
Consumption:	21 MPG
	1,572 Wh/mi
Carbon Emissions:	1.20 lb/mi





Date	Duration	Trip Distance (mi)	Fuel Consumed (gal)	Fuel Consumption (MPG)	Ambient Temperature (°F)	Average Speed (MPH)	Eco Driving Score	% Hard Acceleration	% Hard Braking	% Time Idle	Number of Idle Events	Idle Fuel Use (gal)
April 13 2016 08:19:35 PM	01:19:00	63.48	8.2	7.78	53.5	48.21	100	0	0	18 %	2	0.17
April 13 2016 05:14:32 PM	02:29:13	148.59	18.7	7.94	59.7	59.74	100	0	0	3 %	4	0.05
April 13 2016 12:17:08 PM	04:00:59	211.94	29.9	7.09	58	52.77	100	0	0	17 %	5	0.08

EV Modelling & Simulation Demonstration Video



Matching the Best-Fit EV to Each Duty Cycle

Baseline vehicle

Fleet:	
Depot:	
Vehicle:	2010 Ford Fusion
Unit Id:	1442
Description:	
Log Dates:	March 25 - April 10 2013
Logtime:	16 Days, 0 Hours
Operation Hours:	27.5 (1.7 h/operating days)
Time Idling:	318.8 min (19.3%)
Total Distance Travelled:	632 mi
Longest Single Day:	194 mi

Consumption:	21 MPG
	1,572 Wh/mi
Carbon Emissions:	1.20 lb/mi

Simulated results of plug-in vehicles

	Range Capable	Charge Capable	Energy	Emissions	Annual Cost	FleetCarma Score	Details
2010 Ford Fusion	-	-	21 MPG_{eq}	1.20 lb/mi	$9,341	-	-
2012 Toyota Prius-Plugin	✓	✓	70% ↓	71% ↓	$6,886	65	▼
2012 Chevrolet Volt	✓	✓	73% ↓	76% ↓	$6,943	66	▼
2012 Nissan Leaf	◔	✓	85% ↓	89% ↓	$5,736	61	▼
2013 Ford Focus EV	◔	✓	88% ↓	92% ↓	$6,477	56	▼

Potential Fleet Electrification Impact

Baseline vehicles	vs.	Recommended replacements
$2,869,515	Projected lifetime cost of ownership **21% reduction**	$2,253,867
301,353 gallons	Projected lifetime fuel usage **70% reduction**	89,456 gallons
5,243 tons of CO_2e	Projected lifetime CO_2e emissions **57% reduction**	2,259 tons of CO_2e

EV Fleet Management System

fleetcarma®

Dashboard

Vehicle Overview

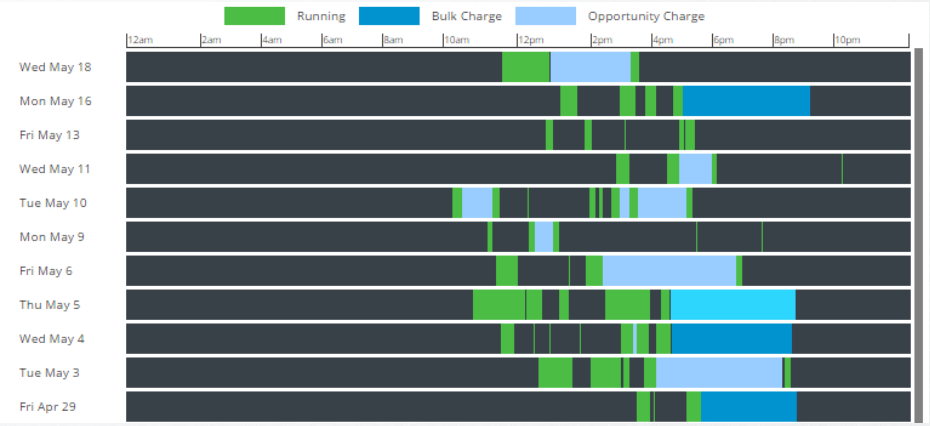
1501
2011 Chevrolet Volt
F4059C

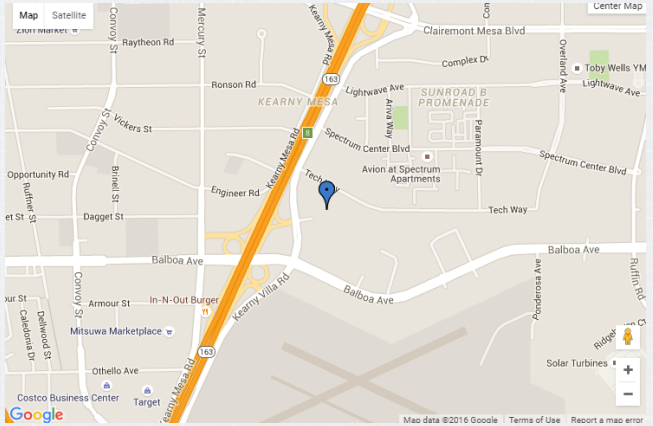
72,691 mi Measured Odometer	1,207 mi Distance Logged	31 Percent Idle Fraction	19 gal Fuel Consumed
64 MPG Fuel Consumption	0 gal Idle Fuel Consumption	0 gal Idle Event Fuel Consumption	81 Rating (out of 100) Driver Score
0 lb/mi Total CO2 Emissions	140 kWh Electricity Consumed	72 Wh/mi Electricity Consumption	27 kWh Charger Loss
100 Percent Battery Health	47 Percent Electric Fraction		

Vehicle Charging Reports

Vehicle Overview

161 kWh	72 Wh/mi	82 Percent	40 Percent
Total Charging	Electricity Consumption	Average Starting SOC	Average Ending SOC



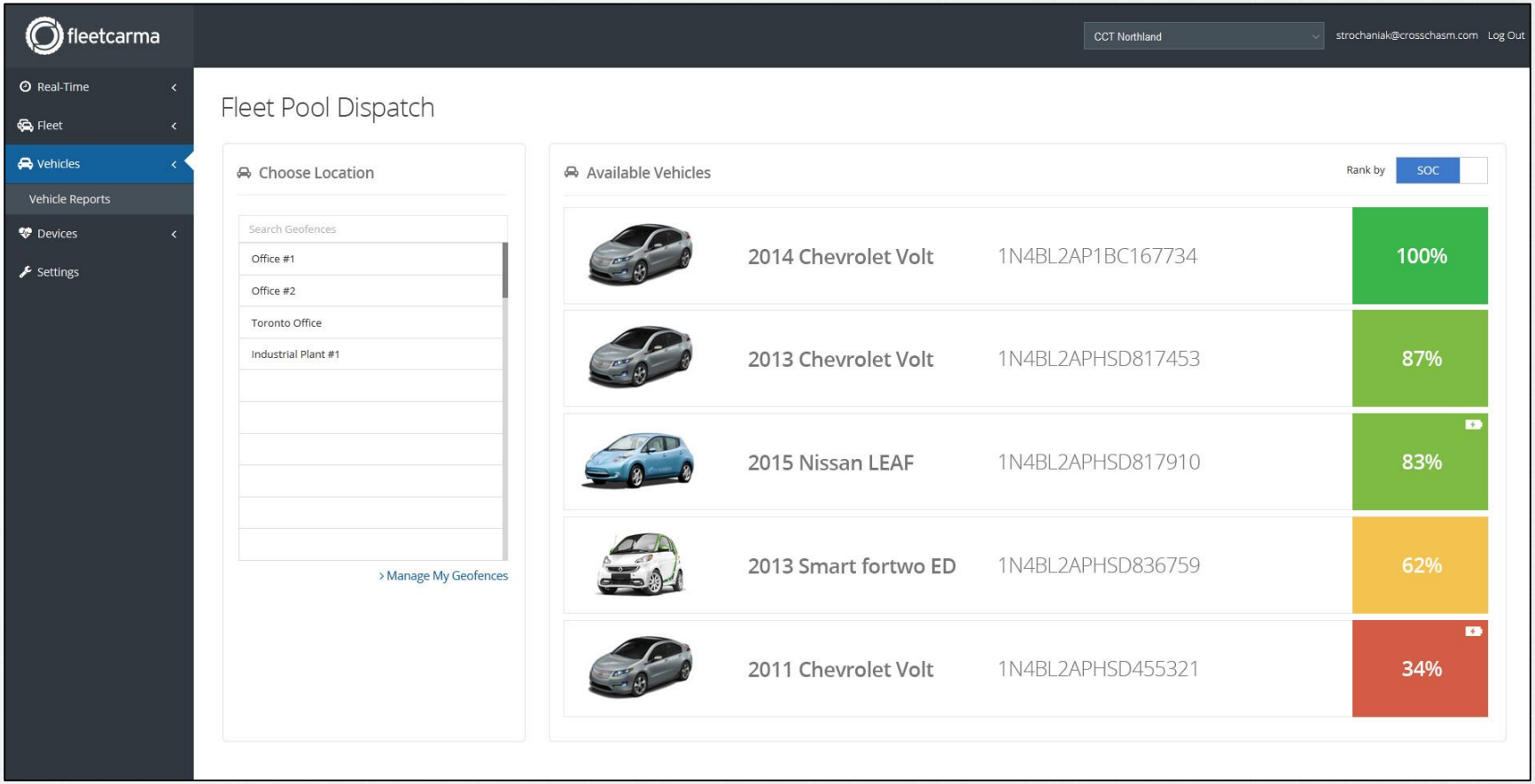


Trip Log | Charge Log | Alerts

Tools

Start Date	Duration	Charging Power	Charger Energy (kWh)	Charger Loss (kWh)	Start SOC (%)	End SOC (%)	Latitude	Longitude
May 10 2016 10:10:11 AM	00:54:00	2	2.73	0.4	73.29	99.61	32.7867	-117.1308
May 09 2016 12:28:52 PM	00:34:00	2	1.49	0.26	83.53	99.61	32.8234	-117.144
May 06 2016 02:33:21 PM	04:06:32	2	11.74	1.96	0.78	99.61	32.8239	-117.1426
May 05 2016 04:37:48 PM	03:49:02	2	11.19	1.75	0.39	99.61	32.8239	-117.1427

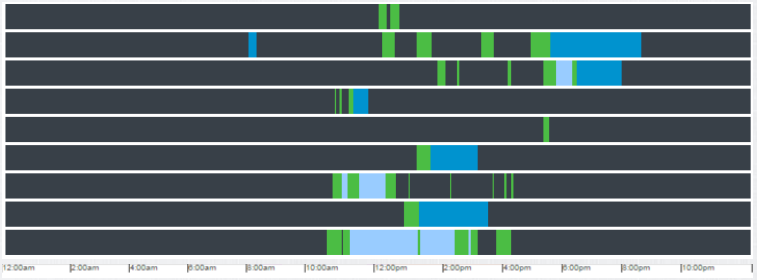
EV Motor Pool & Dispatch Portal



Maximizing Electric Vehicle Miles Traveled (eVMT)

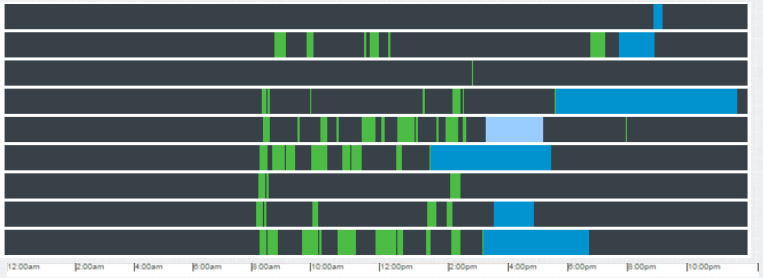
LOW UTILIZATION

Average Ending SOC: 64%
Avg. Daily Distance: 30 miles



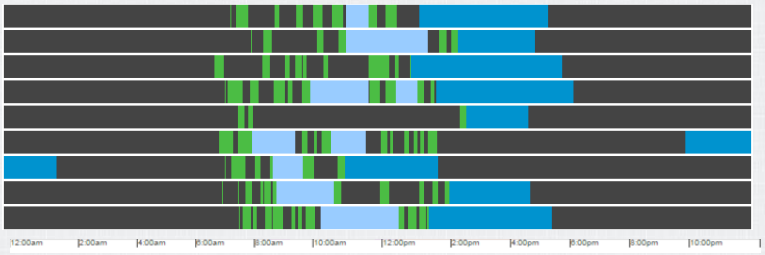
HIGHER UTILIZATION

Average Ending SOC: 39%
Avg. Daily Distance: 51 miles



HIGH UTILIZATION + OPPORTUNITY CHARGING

Average Ending SOC: 31%
Avg. Daily Distance: 92 miles



Contact Us!

Tanner Watt
Municipal Energy Specialist
tswatt@amo.on.ca
647-456-5516

Mark Goody
Manager, EV Programs
mgoody@fleetcarma.com
800-975-2434