



Telematics for fleets with electric vehicles

ROI that makes you smile TM



fleetcarma[®]

Getting a Positive ROI on Green Fleet Initiatives



Turning off the light



Behavior management

Installing LED bulbs



Technology switching

If you were an energy conservation manager and your metric of success was energy savings, which strategy would you allocate your budget towards?

From a vehicle GHG reduction potential perspective...



Smoother
Acceleration and Braking

1 %

to

8 %

Reduction of
Idling

12 %

to

34 %

Using Electric Vehicles instead of
Petroleum Vehicles

60 %

to

99 %

Most telematics systems will help ...



- Track vehicle location in real-time
- Notify you if there is an issue with the vehicle
- Track idling and driving behavior
- Schedule preventative maintenance
- Prevent fuel theft
- Prevent vehicle theft
- Track hours of service
- Improve productivity through enhanced dispatch

Technology differentiation is to help fleets:

1.
INCREASE
EV
ADOPTION

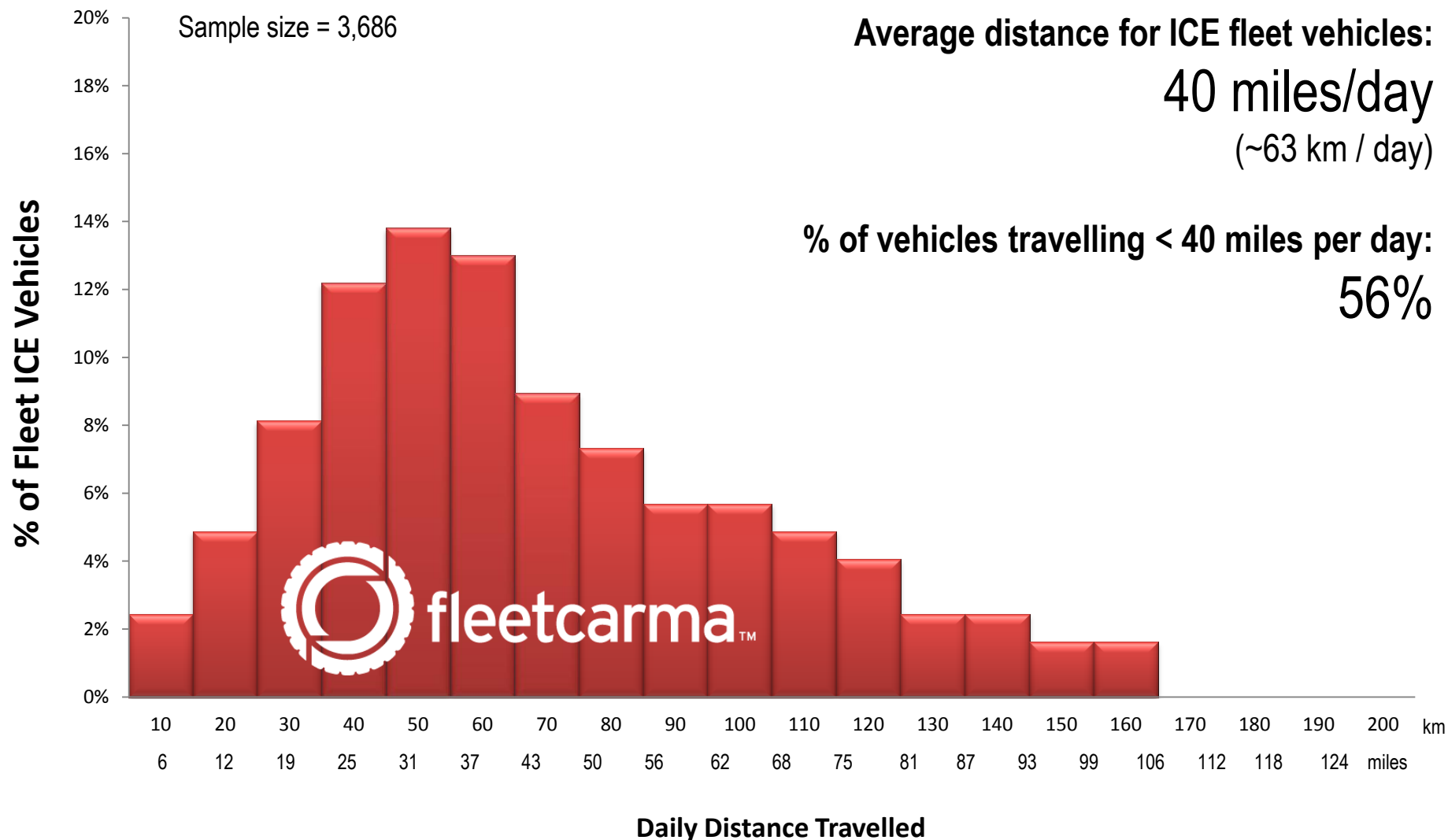
**General telematics
with
EV suitability modelling software**

2.
MAXIMIZE
EV
ROI

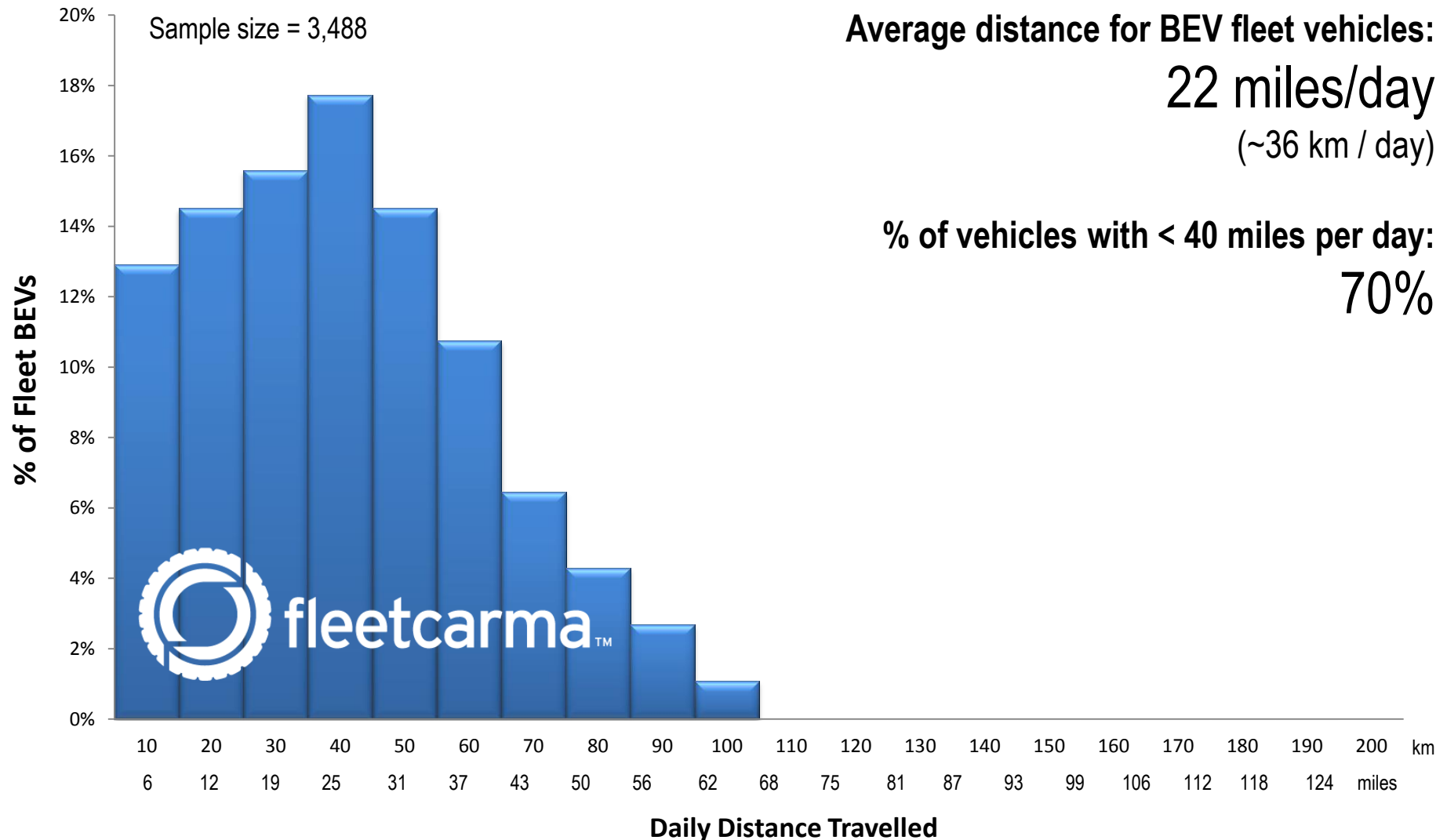
**EV monitoring with utilization goals
&
EV smart charging technology**



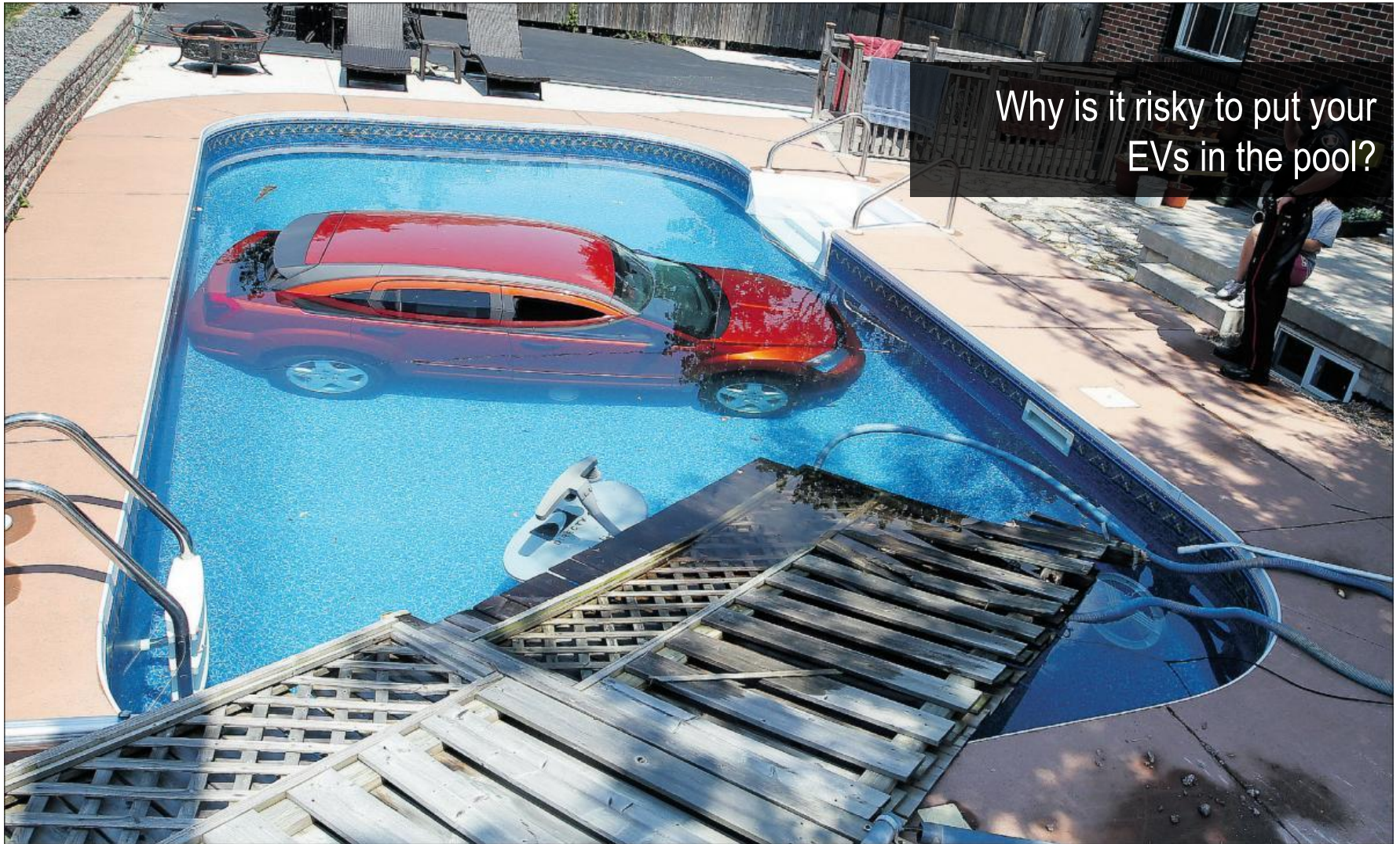
ICE Vehicles: Utilization as Average Daily Distance



EV: Utilization as Average Daily Distance



The Fleet Electric Vehicle Pool



FleetCarma Modelling Video Demonstration



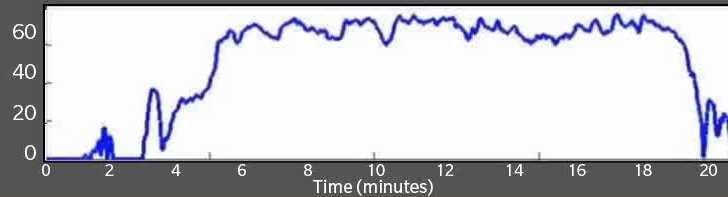
Electric Vehicle Modelling and Simulation

Logged Vehicle

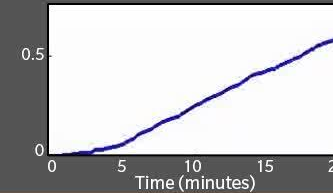
2010 Ford Fusion
2.5 L



Logged Vehicle Speed (mph)



Logged Gasoline Use



Trip Metrics

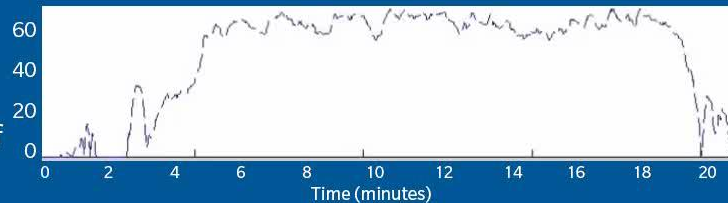
Distance: 18.01 miles
Fuel Economy: 30.37 MPG

Simulated Electric Vehicles



2014
Nissan Leaf

Vehicle Speed (mph)



Simulated Gasoline Use (gal)



Battery State of Charge (%)



2014
Toyota Plug-in Prius



2014
Ford Fusion Energi



Telematics for fleets with electric vehicles



FleetCarma Modelling Video Demonstration



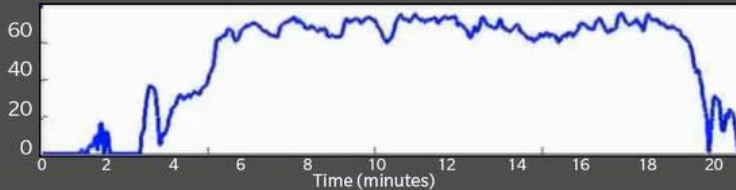
Electric Vehicle Modelling and Simulation

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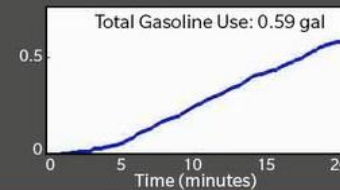
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Logged Vehicle Speed (mph)



Logged Gasoline Use



Trip Metrics

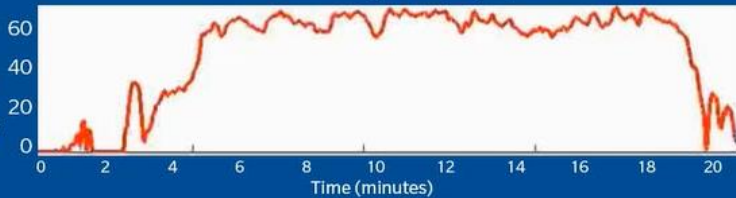
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Simulated Electric Vehicles



2014
Nissan Leaf

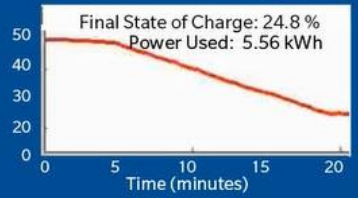
Vehicle Speed (mph)



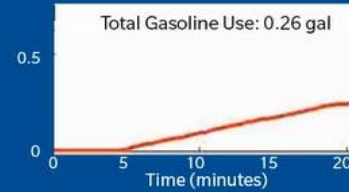
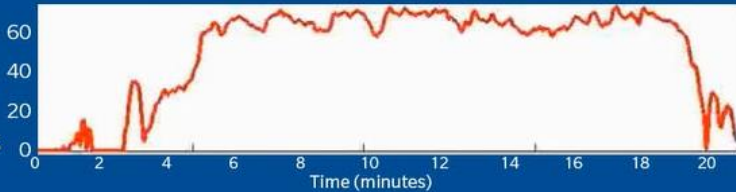
Simulated Gasoline Use (gal)



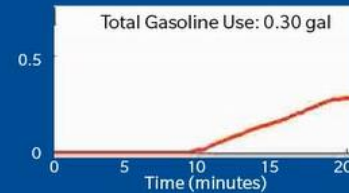
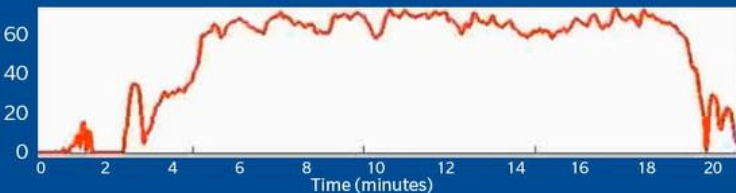
Battery State of Charge (%)



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Toyota Plug-in Prius



2014
Ford Fusion Energi

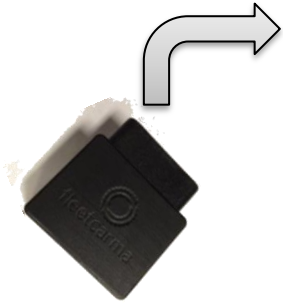


Telematics for fleets with electric vehicles



Benchmark this duty cycle

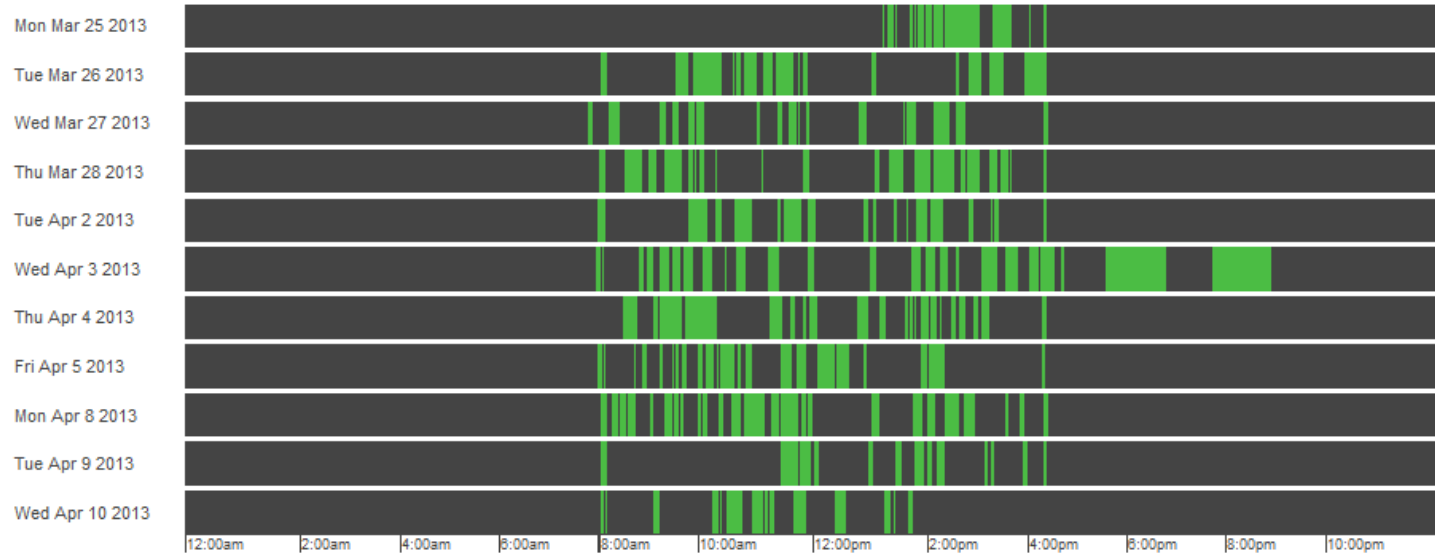
Data logger



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

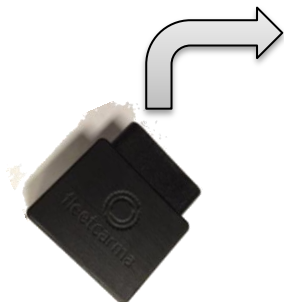
Consumption: 21 MPG
1,572 Wh/mi
Carbon Emissions: 1.20 lb/mi

Daily Utilization



Monitoring ICE vehicles to plan for EV adoption






























FleetCarma Device



Fleet:
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Baseline vehicle

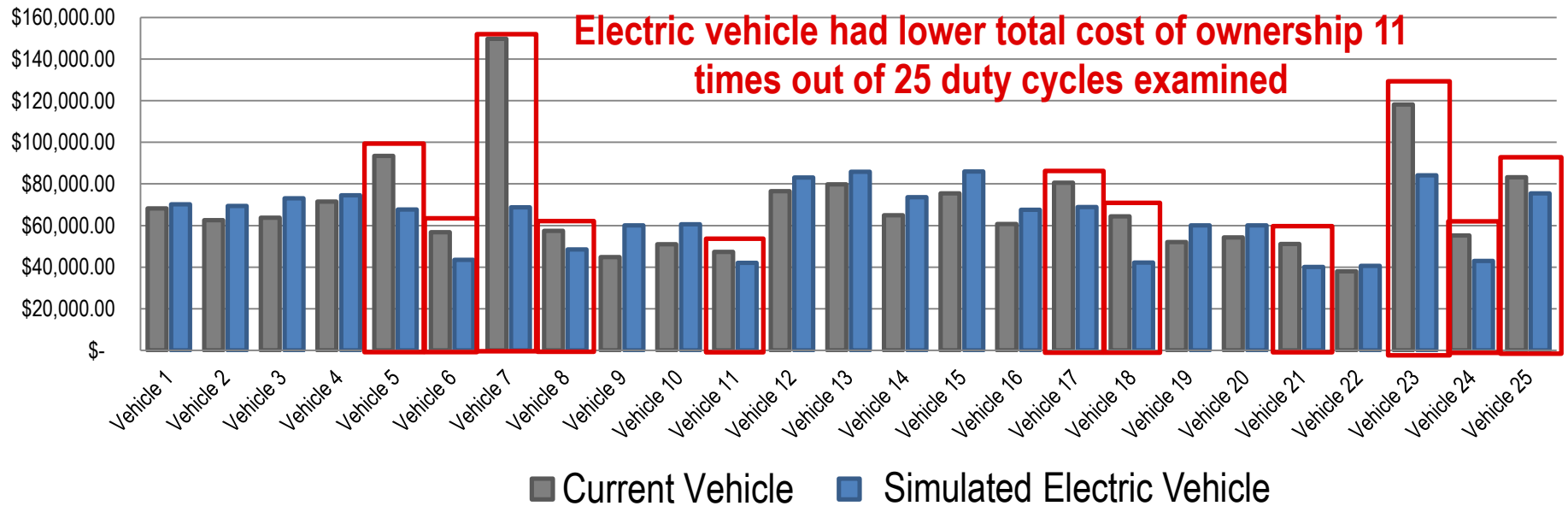
	Range Capable	Charge Capable	Energy	Emissions	Annual Cost	FleetCarma Score	Details
 2010 Ford Fusion	-	-	21 _{MPG_{eq}}	1.20 lb/mi	\$9,341	-	-
 2012 Toyota Prius-Plugin			70% 	71% 	\$6,886	 65	
 2012 Chevrolet Volt			73% 	76% 	\$6,943	 66	
 2012 Nissan Leaf			85% 	89% 	\$5,736	 61	
 2013 Ford Focus EV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

Simulated results of plug-in vehicles

Sample fleet assessment results



TCO (\$) Total Cost of Ownership Current Vehicles vs. Electric Vehicle



Financial Savings:

16% ↓

\$233,559

Duty cycles suitable for EV:

44%



Fuel Reductions:

64% ↓

45,282 gallons

Avg. savings/vehicle changed:



GHG Emissions Reductions:

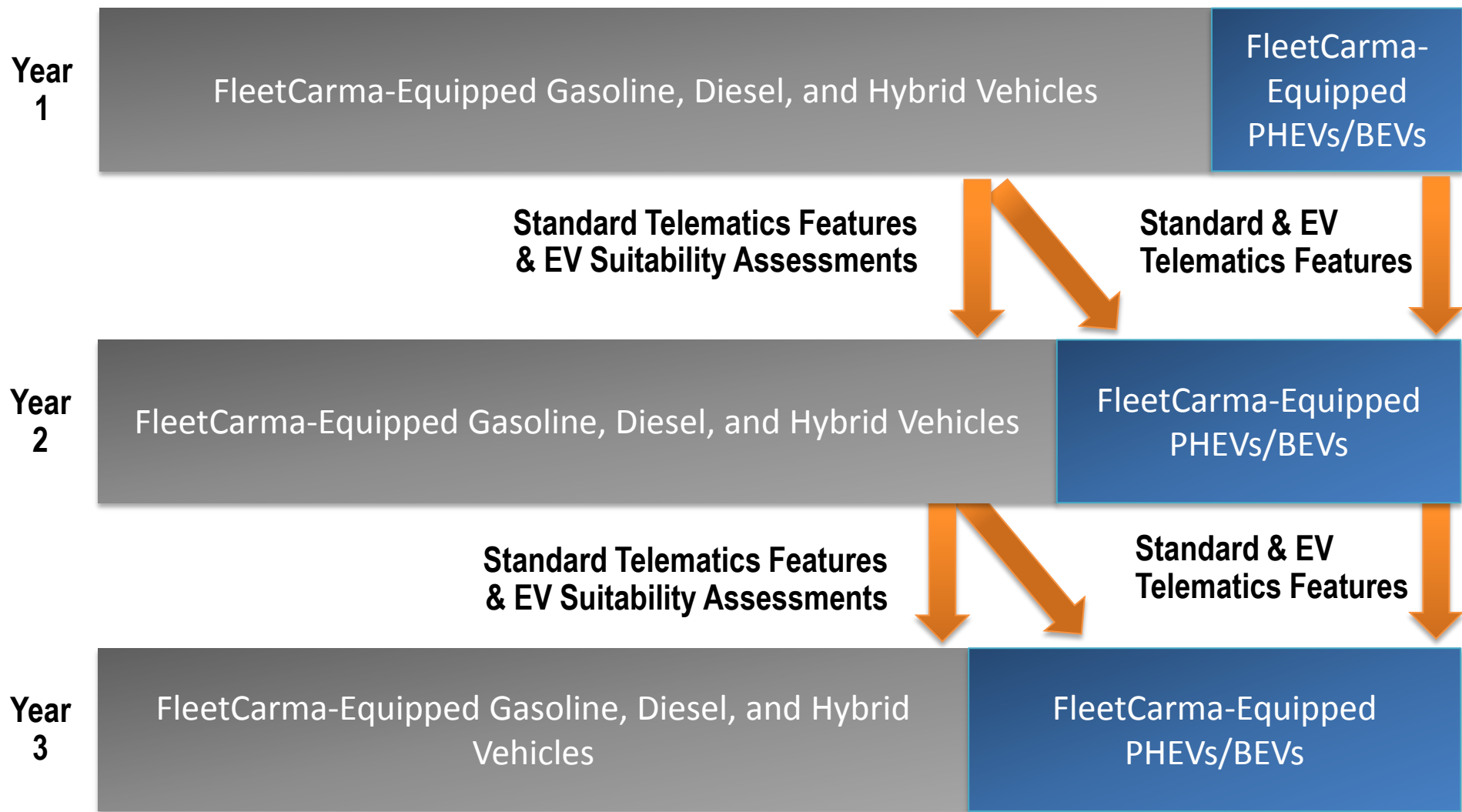
67% ↓

524 tons CO₂

\$21,232

(\$252/month)

Telematics system for fleets that want EVs



> 40 Electric Vehicle Models Supported in Firmware

- Altec JEMS HD trucks
- BMW i3
- Cadillac ELR
- Chevrolet Volt
- Chevrolet Spark EV
- Citroen C-Zero
- Coda Sedan
- EVI F550 PHEV
- Fiat 500e
- Ford Transit Connect EV
- Ford Focus EV
- Ford CMAX Energi
- Ford Fusion Energi
- Honda Fit EV
- Honda Accord PHEV
- Kia Soul EV
- Mitsubishi i-MiEV
- Mitsubishi Outlander PHEV
- Modec Delivery Van
- Navistar eStar
- Nissan LEAF
- Nissan eNV200
- Opel Ampera
- Peugeot iOn
- Phoenix e-shuttle bus
- Porsche Panamera e-Hybrid
- Renault Fluence
- Renault Kangoo
- Renault Twizy
- Renault ZOE
- Smart fortwo electric drive
- Smith Newton
- Tesla Model S
- Transpower e-trucks and buses
- Toyota Prius Plug-in
- Toyota RAV4EV
- Via Motors EREV truck
- Via Motors EREV van
- Volvo V60 PHEV

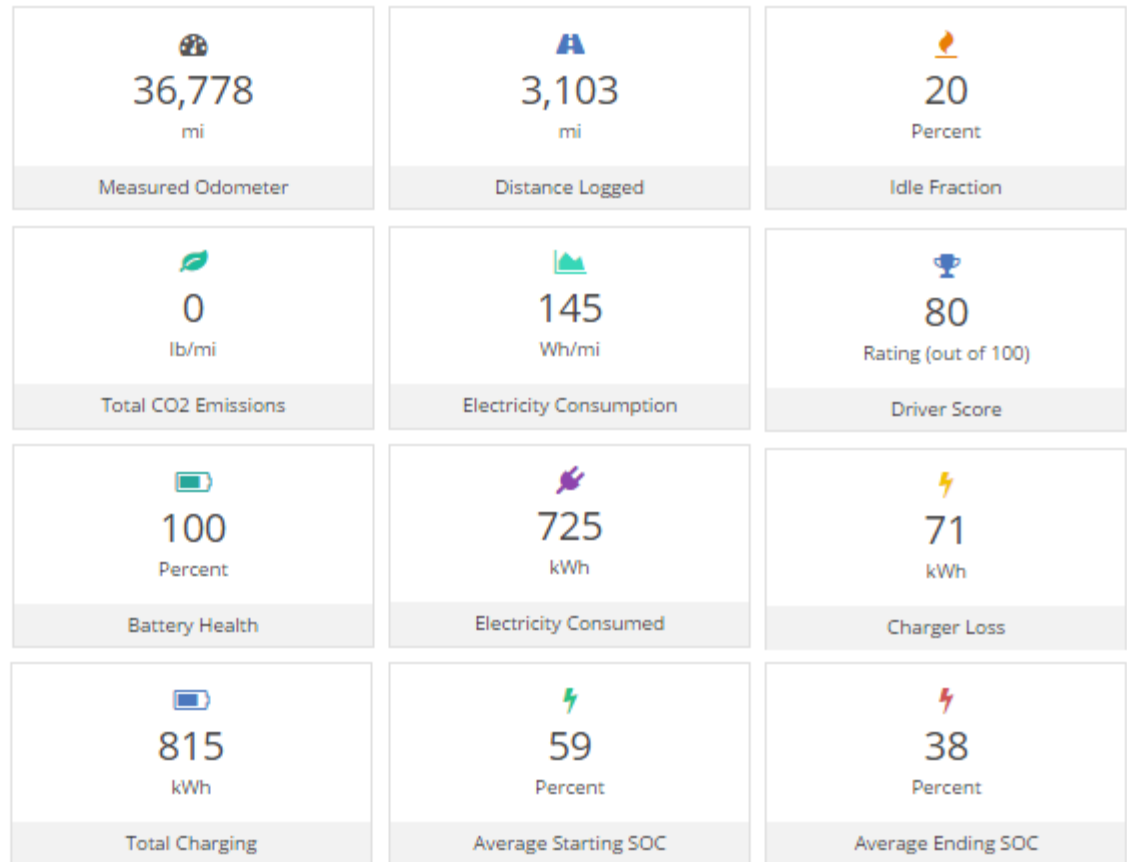
... and more being added frequently



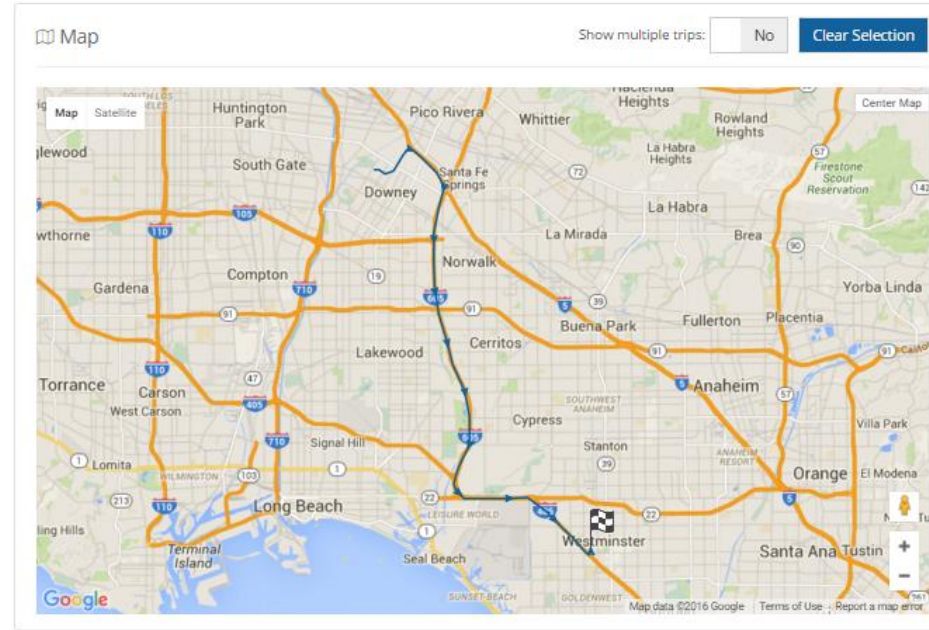
Ford Focus EV – Vehicle Dashboard



42312
2012 Ford Focus EV
F5332C



Vehicle Utilization Dashboard



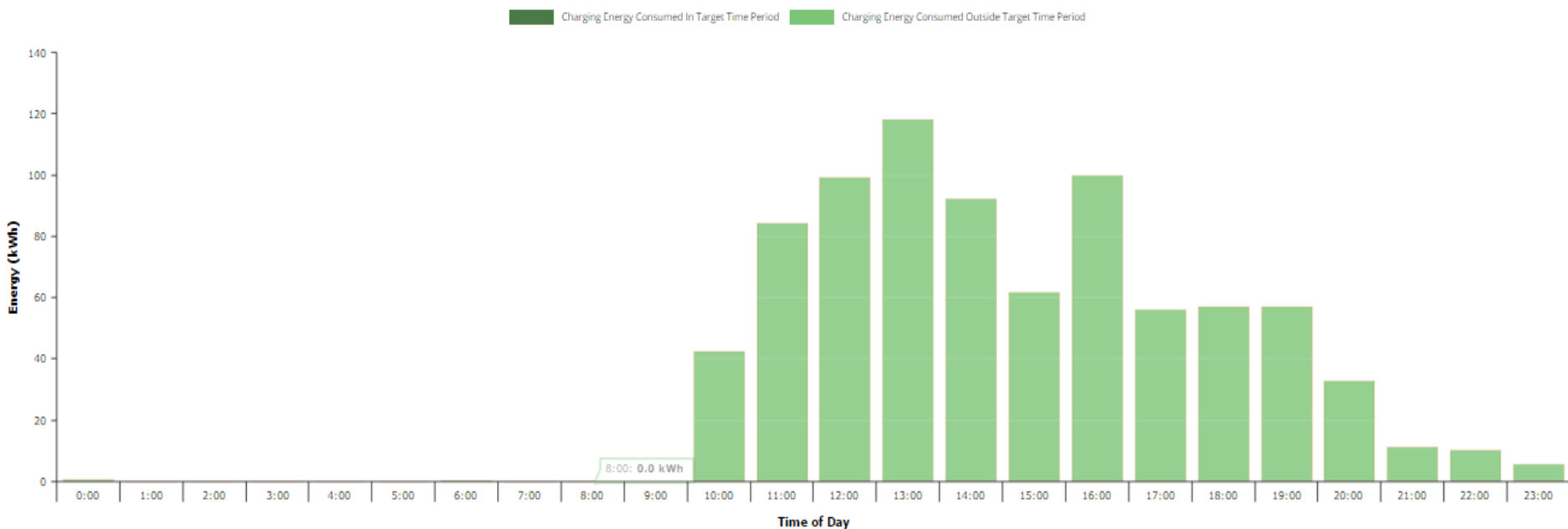
Trip Log

Date	Duration	Trip Distance (mi)	Electricity Consumed (kWh)	Total Energy Consumption (MPGe _{eq})	Start SOC	End SOC	Ambient Temperature (°F)	Average Speed (MPH)	Eco Driving Score	% Hard Acceleration	% Hard Braking	% Time Idle	Number of Idle Events
March 02 2016 10:01:36 AM	00:46:58	22	4.57	162	60.4	35.9	57.8	28.11	80	0	0	20 %	6
March 01 2016 08:37:01 PM	00:54:09	32.12	6.19	175	100	60.4	70.3	35.58	80	0	0	12 %	5
March 01 2016 04:10:39 PM	00:11:27	2.85	0.26	369	79.9	77.3	83.6	14.91	66	0	0	22 %	2

Charging Histogram Dashboard



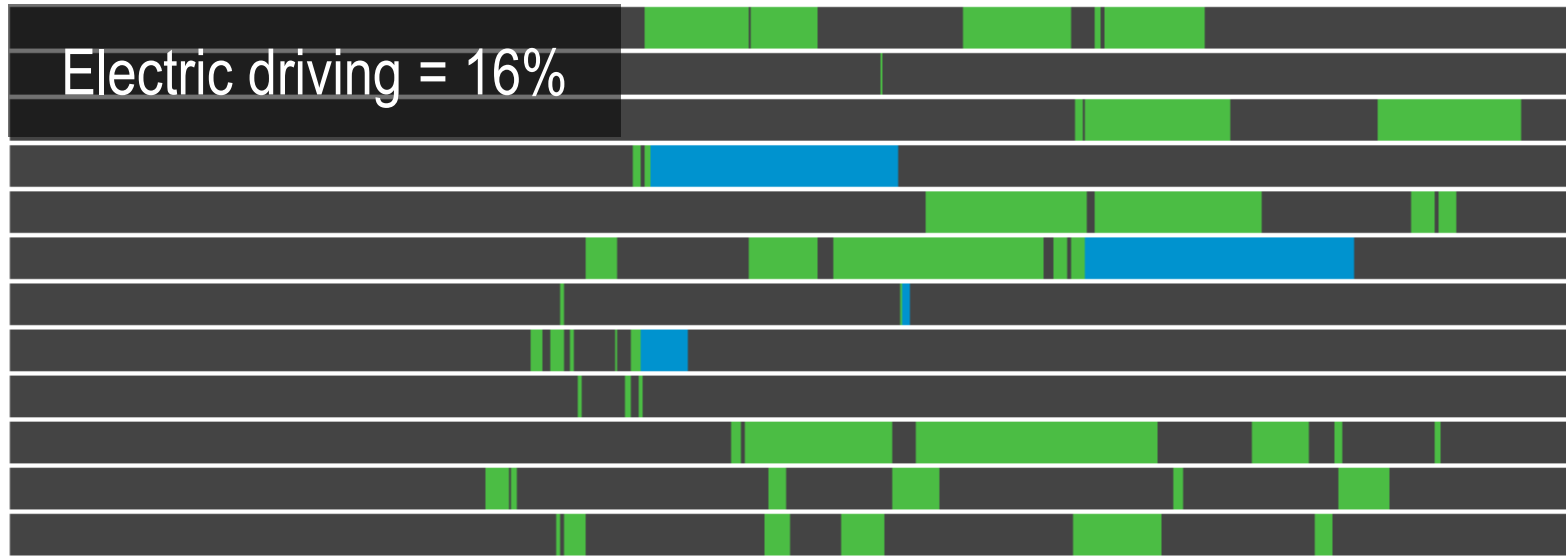
⚡ Charging by Time of Day



Daily Utilization of Trips and Charge Events



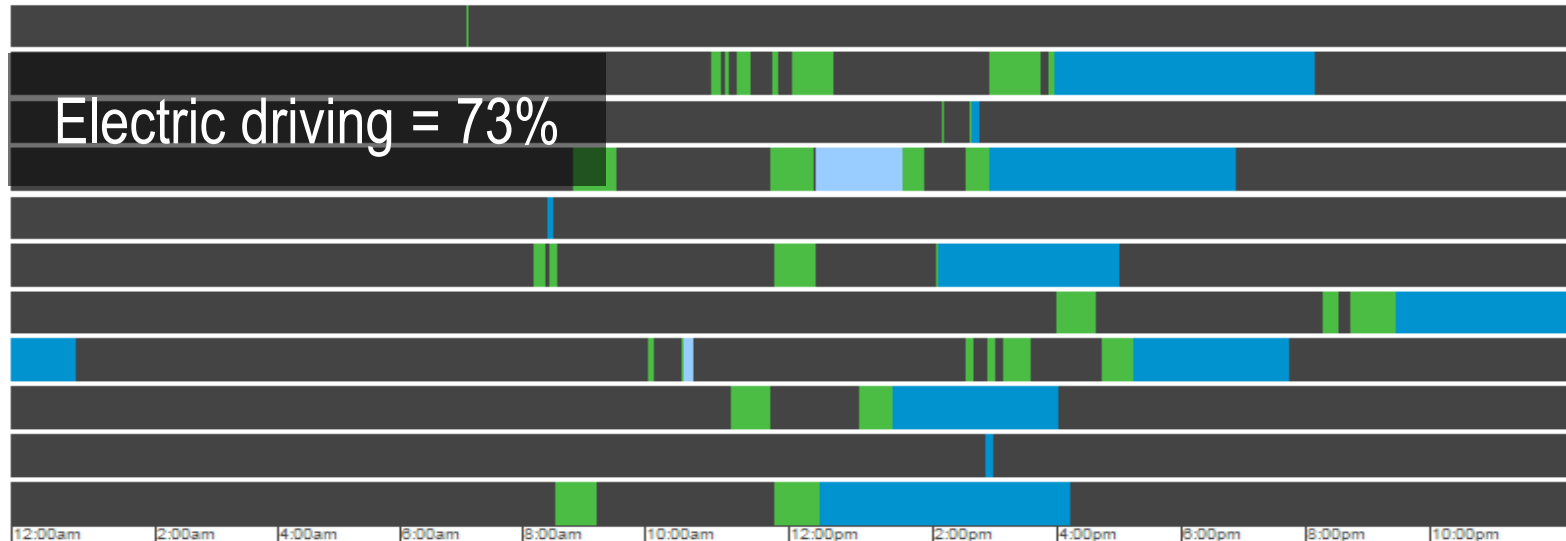
Electric driving = 16%



Before plug-in
compliance policy
and management



Electric driving = 73%



After plug-in
compliance policy
and management

12:00am 2:00am 4:00am 6:00am 8:00am 10:00am 12:00pm 2:00pm 4:00pm 6:00pm 8:00pm 10:00pm

Fleet Electrification: ROI that makes you smile

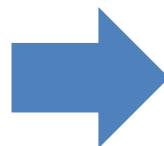
Customers that use FleetCarma to monitor their PHEVs are able to see a return on investment in a number of ways including ensuring that vehicles are being plugged-in and maximizing the electric vehicle miles travelled as a proportion of total miles.

Prior to Plug-in Compliance Policy



Energy Cost: \$8.30 per
100 miles

Payback Period: 4.1 years
Electric fraction: 16%



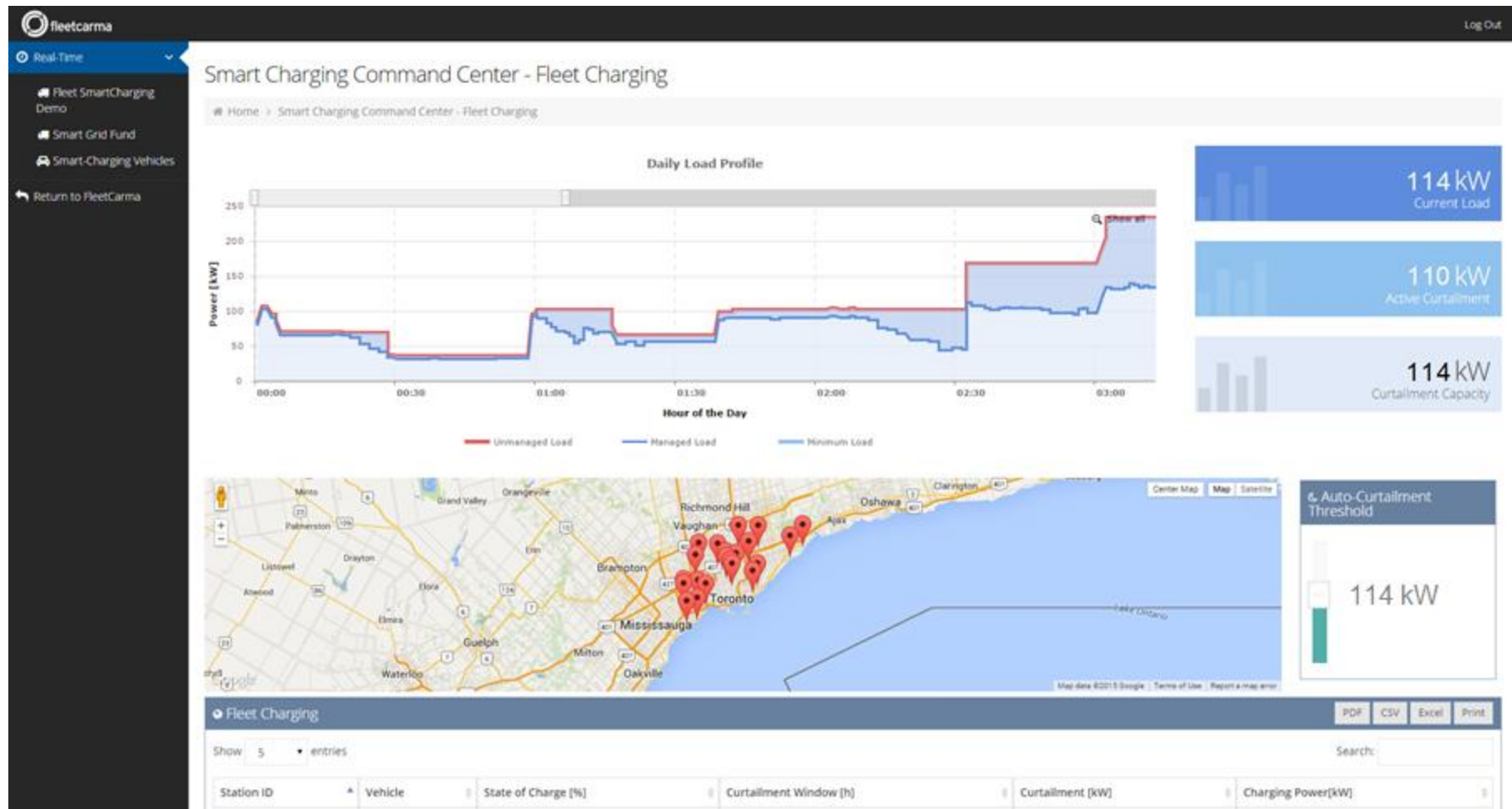
After Plug-in Compliance Policy



Energy Cost: \$4.20 per
100 miles

Payback Period: 2.6 years
Electric fraction: 73%
Energy Savings: \$60.66 / month

Smart Charging Web Portal



Contact Information



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