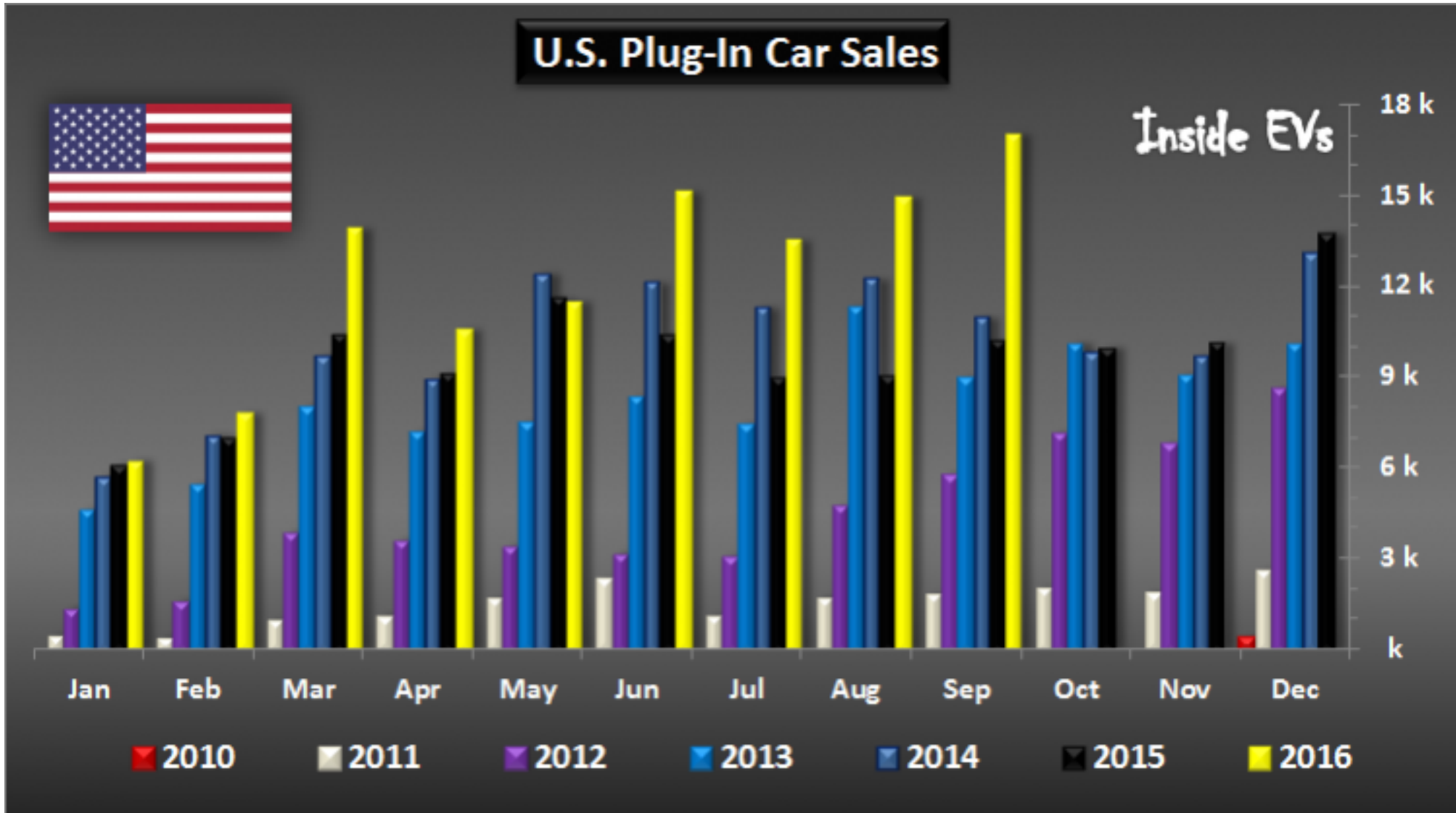


# FSEC Advisory Board

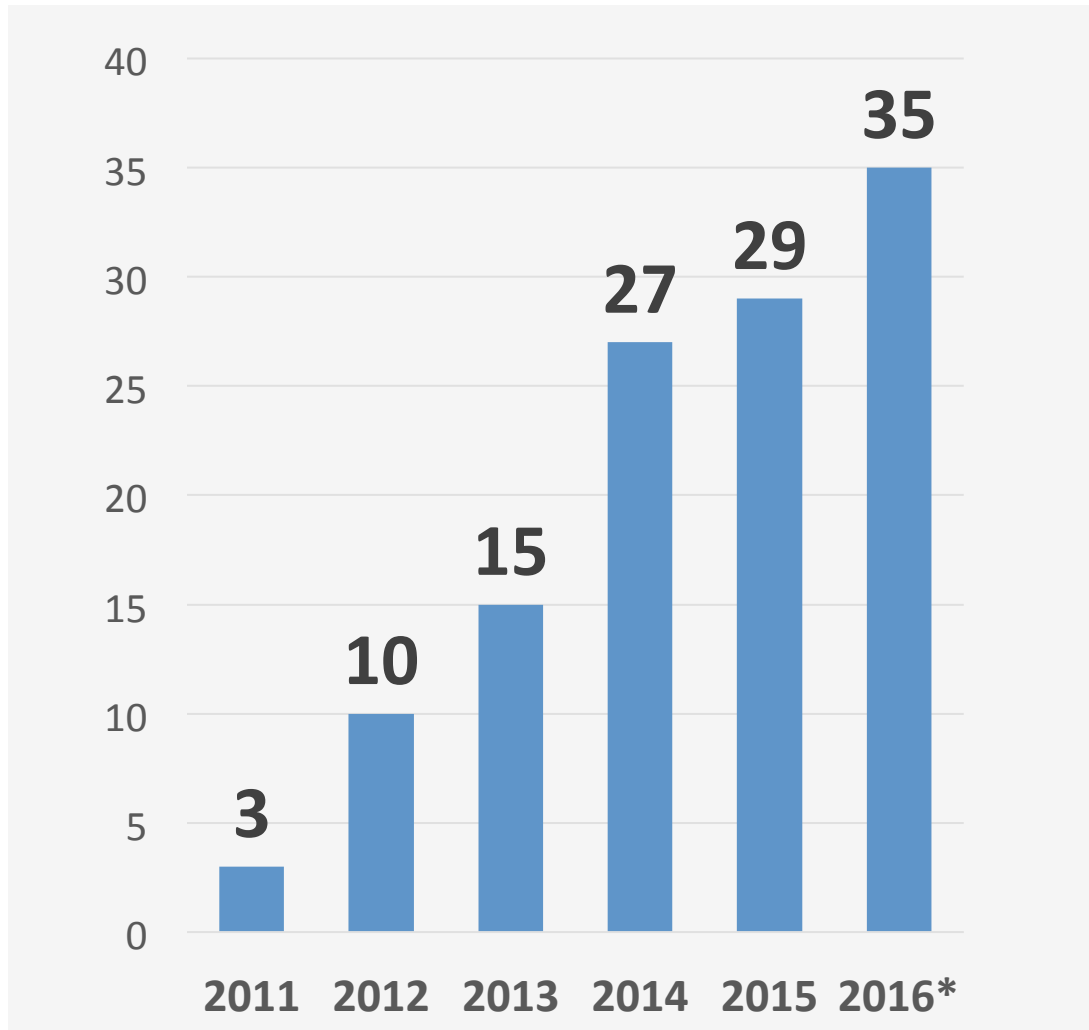
**Britta K. Gross**  
GM, Director Advanced Vehicle  
Commercialization Policy



# Continued Growth in the EV Market



# More ZEV Models



EPA Vehicle Category	Number of Models
Mini-compact Car	1
Two-Seater	1
Subcompact Car	7
Compact Car	5
Midsize Car	6
Large Car	3
Small Station Wagon	1
Small SUV	1
Standard SUV AWD	5
Mini-Van (end of CY2016)	1

Source: Auto Alliance

\* Expected models by the end of 2016

# ZEV Models Available in 2016

## BEV

13

**BMW i3 BEV**

**Chevrolet Bolt \***

**Chevrolet Spark EV**

**Fiat 500e**

**Ford Focus Electric**

**Kia Soul Electric**

**Mercedes-Benz B250**

**Mitsubishi i-MiEV**

**Nissan Leaf**

**Smart fortwo EV**

**Tesla Model S**

**Tesla Model X**

**Volkswagen e-Golf**

## PHEV

19

**Audi A3 e-tron**

**BMW i3 REX**

**BMW i8**

**BMW 330e**

**BMW X5 xDrive40e**

**BMW 740e PHV \***

**Cadillac ELR**

**Chevrolet Volt**

**Chrysler Pacifica PHV \***

**Ford C-MAX Energi PHV**

**Ford Fusion Energi PHV**

**Hyundai Sonata Plug-in Hybrid**

**Mercedes-Benz GLE550e**

**Mercedes S550H PHV**

**Mercedes C350e PHV \***

**Porsche Cayenne S E-Hybrid**

**Porsche Panamera S E-Hybrid**

**Toyota Prius PHV**

**Volvo XC90 AWD PHEV**

## FCEV

3

**Hyundai Tucson**

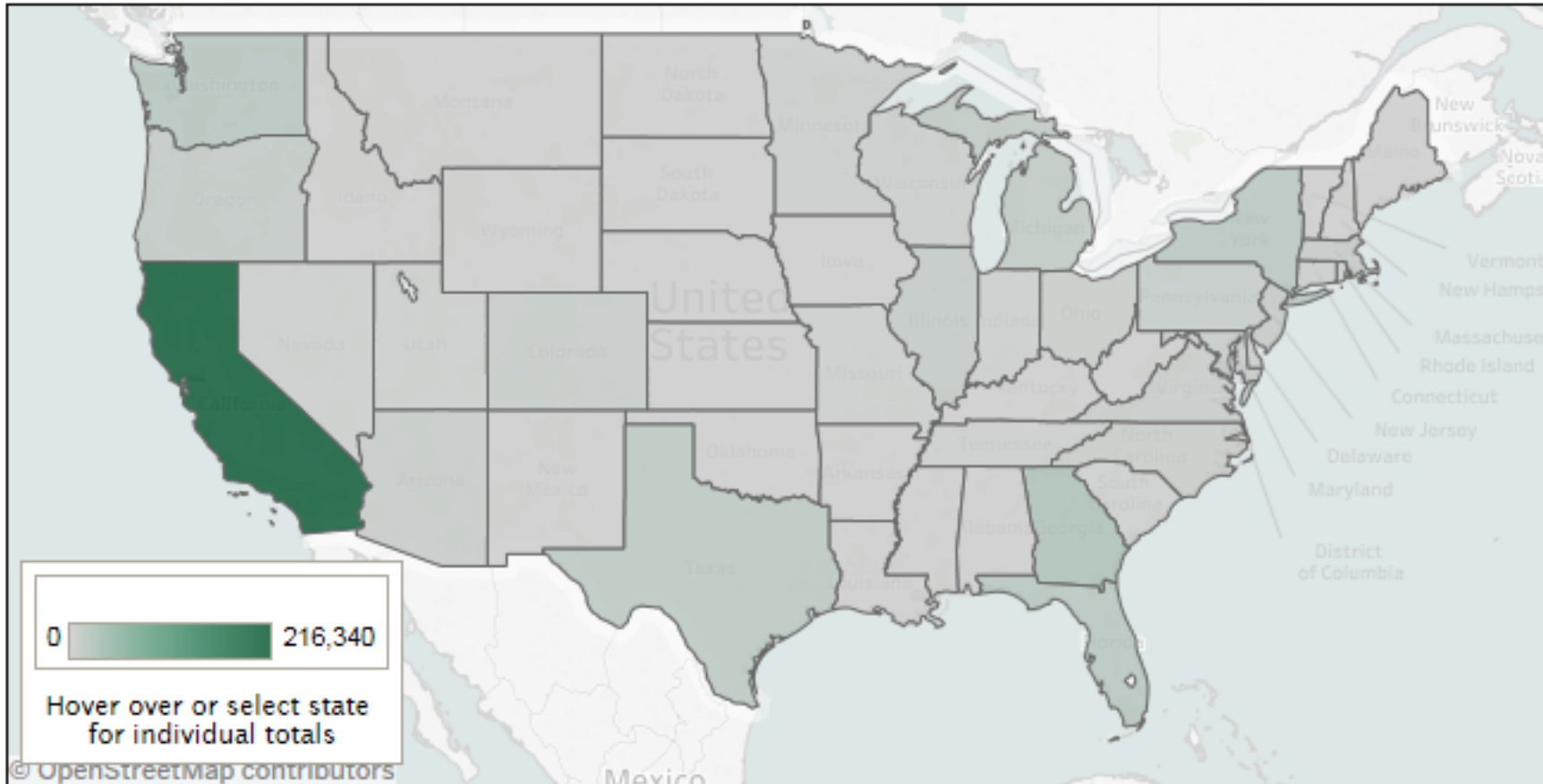
**Toyota Mirai**

**Honda Clarity \***

\* Arriving in 2016

# Half a million EVs sold in the U.S. (status thru June '16 below)

## ZEV Sales by State



## Sales by ZEV Category

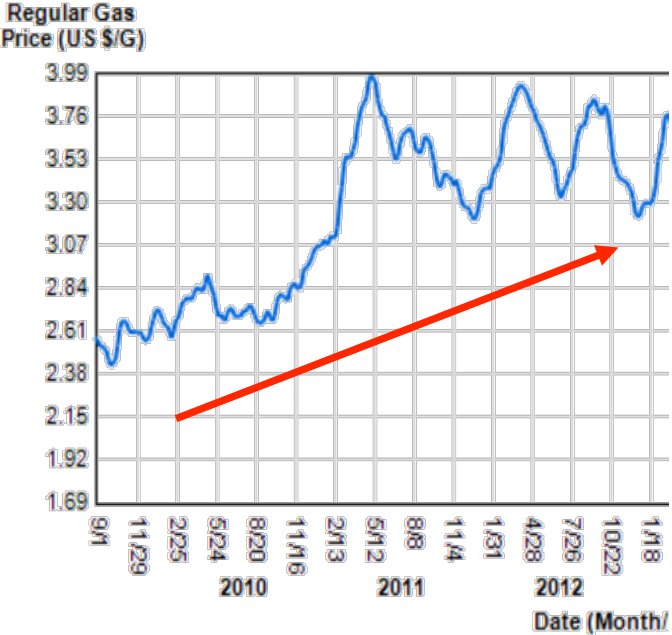
**BEV** **223,574**

**FCEV** **423**

**PHEV** **222,622**

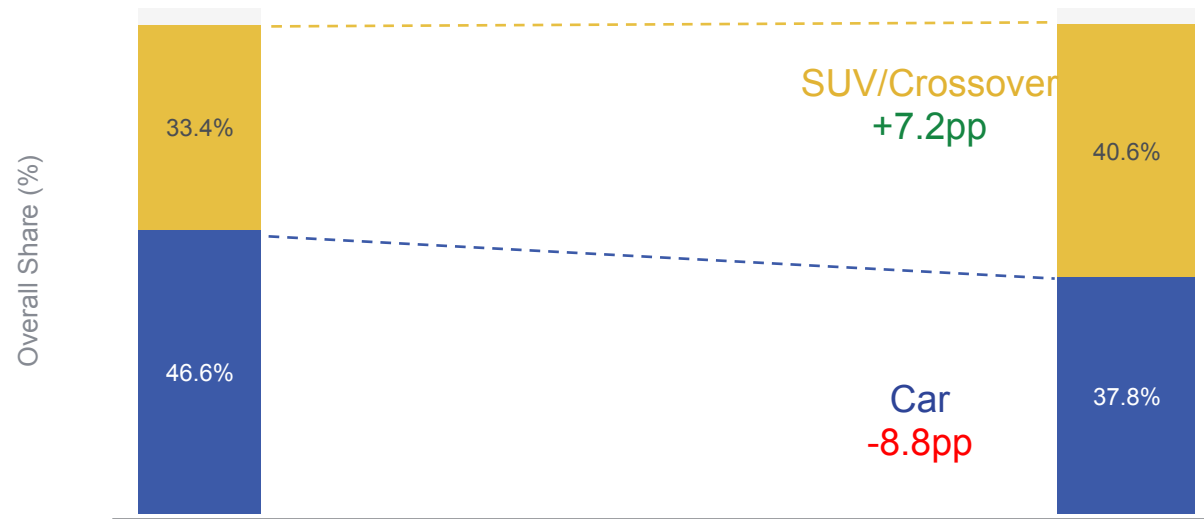
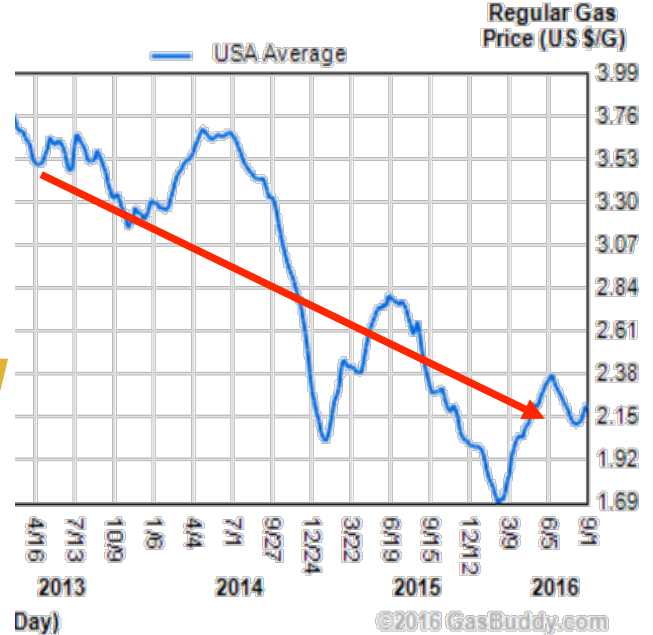
**Grand Total** **446,619**

# Environment Today



THEN

NOW



# 1<sup>st</sup> to 2<sup>nd</sup> Generation EREV Improvements: Chevrolet Volt

1 <sup>st</sup> Gen Volt	Metric	2 <sup>nd</sup> Gen Volt
38	EV Range (miles)	53
382	Total Range (EV+gas miles)	420
37	Fuel Economy (gas mpg)	41
16.5	Battery (kWh)	18.4
4	Passenger Capacity	5
3.4 sec*	0 to 30	2.6 sec
9 sec	0 to 60	8.4 sec
273	Torque (ft-lb)	294
3.3	Charger (kW)	3.6
80%	EV-only Trips	90% (exp)
900	Miles between gas fill-ups	1000 (exp)



**Gen 1 Volt**



**Gen 2 Volt**

\* Edmunds

# 1<sup>st</sup> to 2<sup>nd</sup> Generation BEV Improvements: Chevrolet Bolt

1 <sup>st</sup> Gen EV (Spark EV)	Metric	2 <sup>nd</sup> Gen EV (Bolt EV)
82 miles	EV Range	238 miles
19 kWh	Battery	60 kWh
4	Passenger Capacity	5
86.3 ft <sup>3</sup>	Passenger Volume	94.4 ft <sup>3</sup>
3 sec	0 to 30	< 3
7.2 sec	0 to 60	< 7
3.3 kW	Charger	7.2 kW
3 states	Availability	50 states



**Spark EV**



**Bolt EV**



**238** **MILES**  
EPA-ESTIMATED  
RANGE



The media coverage of the range announcement was phenomenal, reaching more than 20 million people.

# Ride-Sharing and EVs

## Lyft and GM's Express Drive Expands to Colorado and California

Welcomes Chevrolet Bolt EV in California

2016-07-11

...Express Drive's California members will have access to vehicles from the **largest electric vehicle fleet in ridesharing**, including the 2017 Chevrolet Bolt EV (available late 2016) and the extended-range electric 2016 Chevrolet Volt...

### Goal is to create largest EV fleet in ridesharing

- **High mileage** application for ZEV technology
- **High exposure** for riders and drivers alike to the benefits of EVs
- **Express Drive** (GM rentals to Lyft drivers) operates in Chicago, Boston, DC, Baltimore, SF, LA. Denver planned.



### Express Drive

Allows ride-share drivers to make extended rentals of a quality vehicle at a great value including insurance and maintenance



A Bolt EV in a rideshare fleet will provide real-world experience with ZEV technology for a large, much more diverse number of drivers and passengers.

# Car-Sharing and EVs

## GM's car-sharing service launched this year

- Operates in Ann Arbor, NYC, Chicago, Boston, DC
- Announced San Francisco, LA, Denver

City: **MAVEN**

Maven is an open sharing model allowing members to make reservations for station-based round-trip use of a variety of vehicles located around the city

Community: **MAVEN+**

Maven+ is an exclusive offering featuring a dedicated fleet for residential communities with added white-glove service and member perks



**MAVEN**



**Volt is one of the most popular vehicles in the Maven fleet and will help drive broader EV awareness and market acceptance**

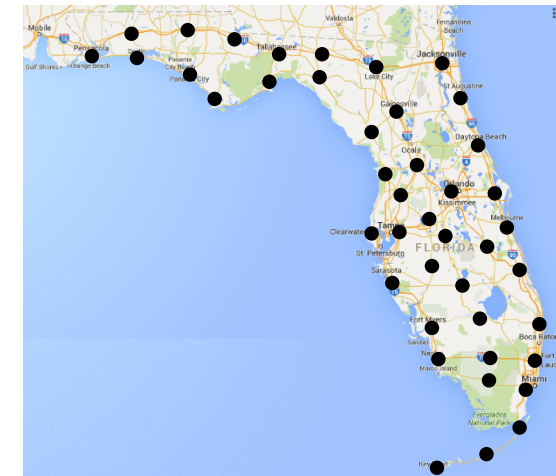
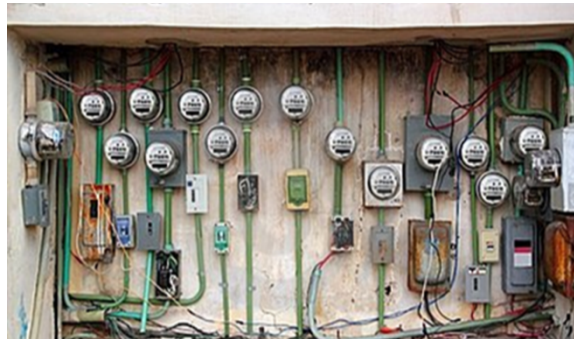
# DC Fast-Charging Strategies

1. Consumer perception of limited EV range  
→ requires long, **connected EV corridors**
2. New urban transportation models  
→ require **dense urban coverage**
3. Consumers in Multi-Unit Dwellings (MUDs)  
→ require targeted **“corner gas station”** coverage to expand customer base

“EVs really can take me anywhere”

“I need to be able to get in and out fast”

“This solves my problem. I can consider an EV now!”



# GM Beyond Transportation

## THE POWER OF COMMITMENT

**350** FACILITIES *IN* **59** COUNTRIES → **100%** RENEWABLE ENERGY

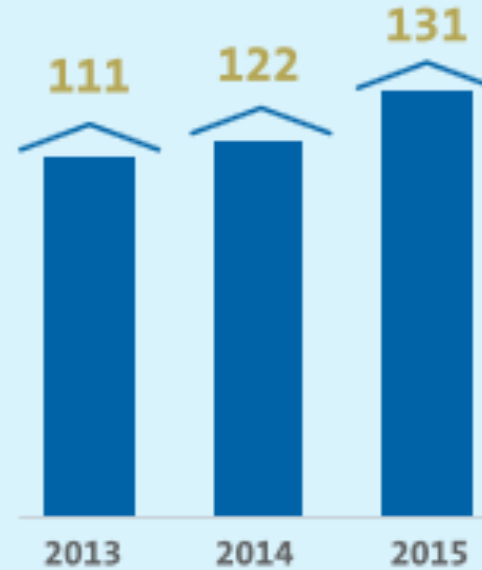
**BY 2050**



GM will meet its 2020 goal to use 125 megawatts of renewable energy by the end of this year (2016).

**Doing business with a greater sense of purpose**

## GM's Landfill-Free Sites



## GM's Wildlife Habitats

