GENERAL MOTORS

CHEVROLET

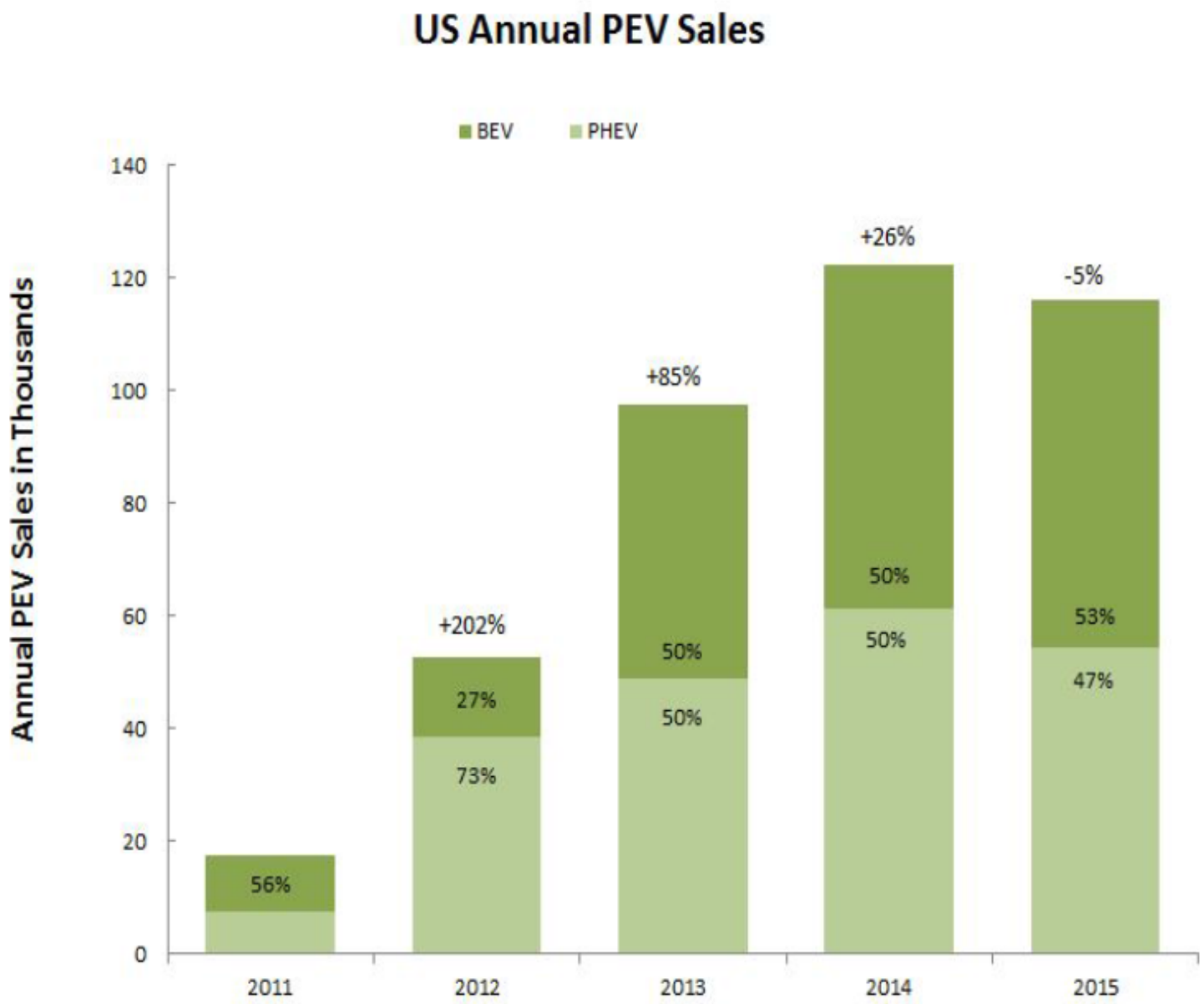
Southeast Florida Clean Cities

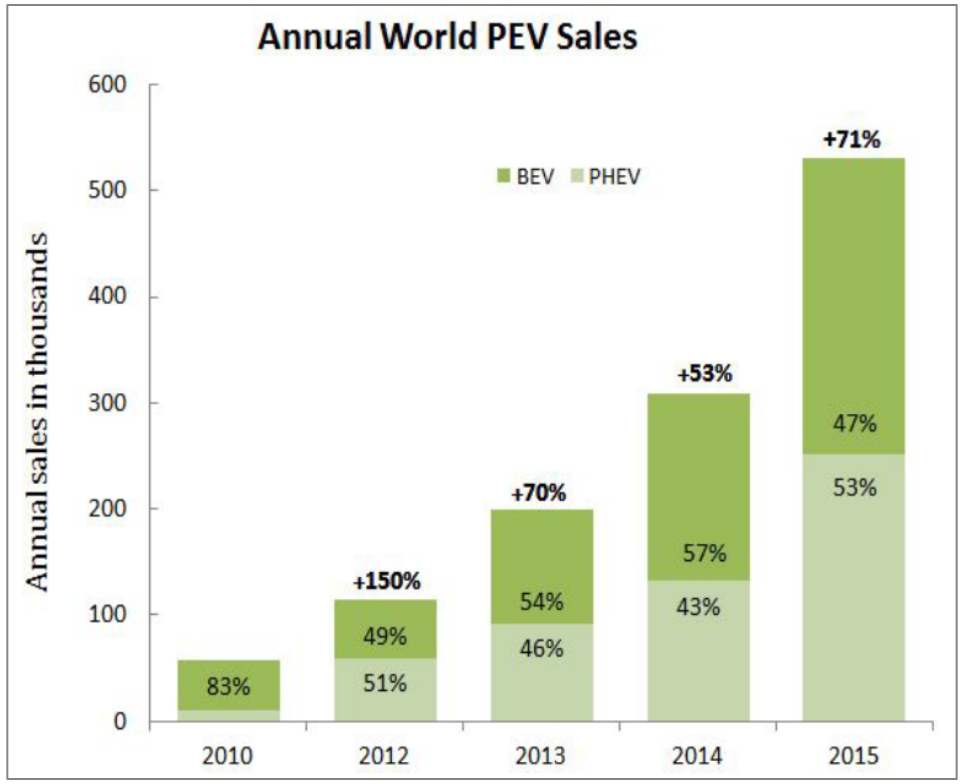
Hollywood, FL

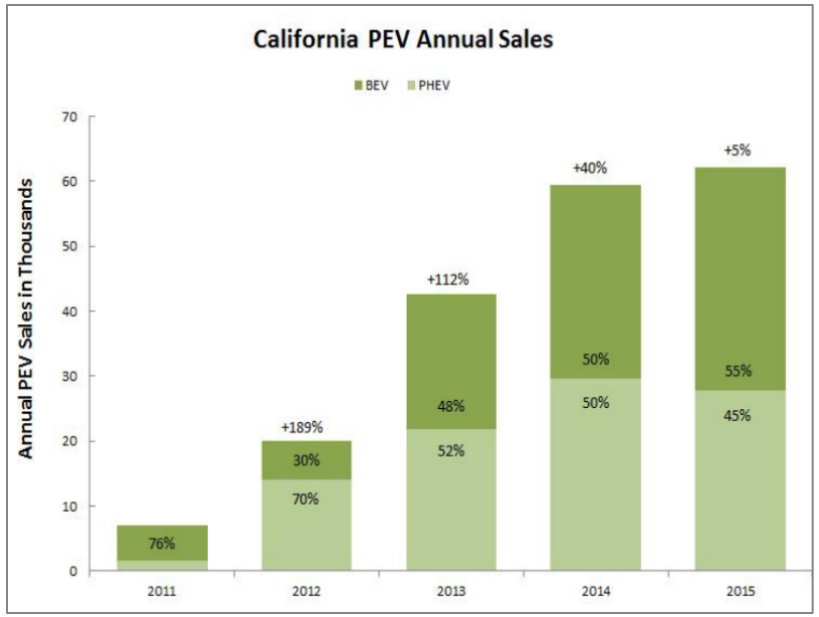
8 April, 2016

BRITTA K. GROSS

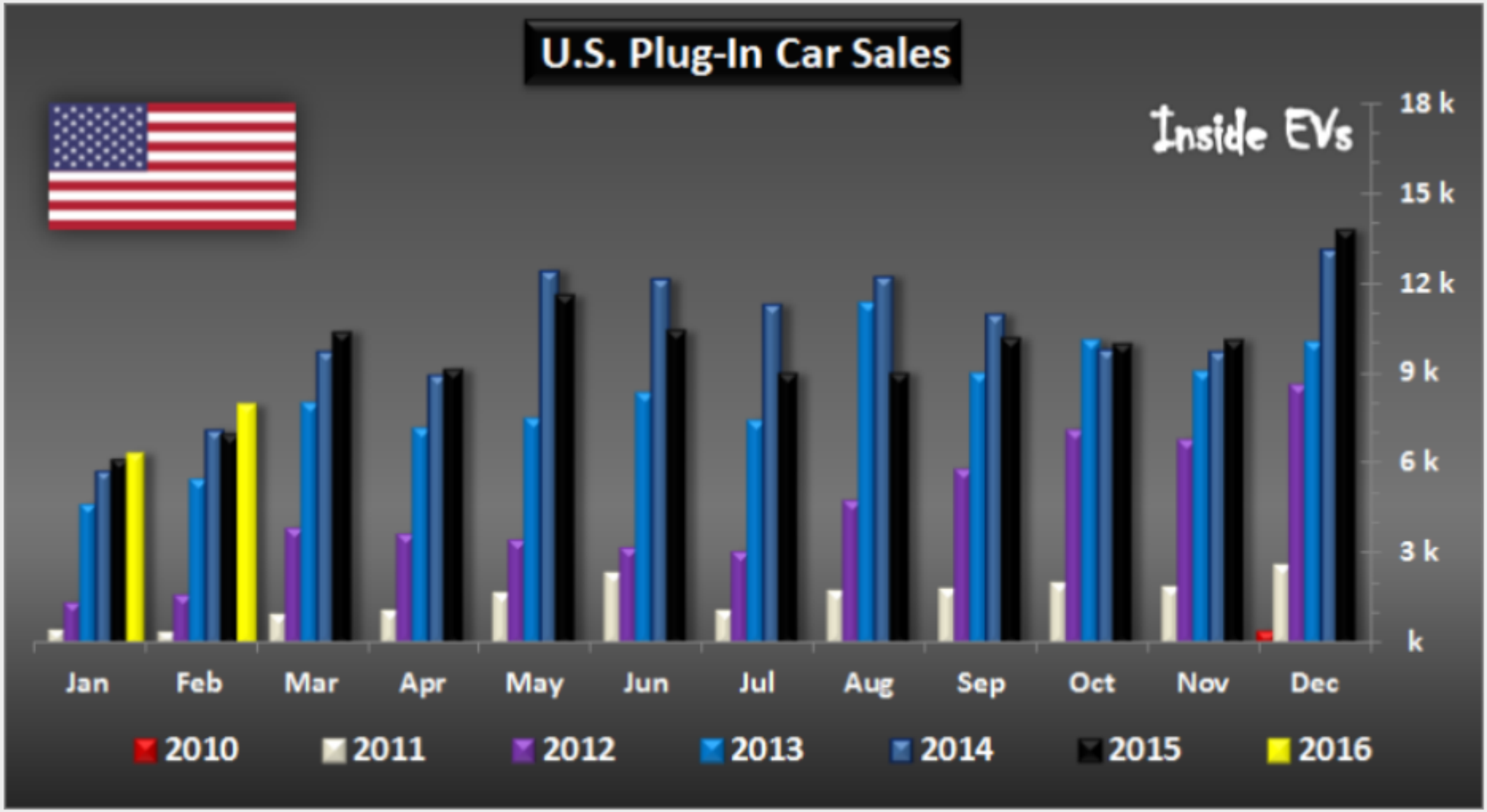
DIRECTOR, Advanced Vehicle Commercialization Policy







Source: UC Davis, Turrentine



U.S. Plug-In Car Sales Currently On 4th Consecutive Monthly Record (Data Through February 2016)

Plug-in Electric Vehicles (PEVs):

Includes PHEVs, EREVs and BEVs

PHEV	EREV	BEV
Plug-in Hybrid Electric Vehicle	Electric Vehicle with "Extended-Range"	Battery Electric Vehicle

Plug-in Prius

Honda Accord Plug-in

Chevrolet Volt

Chevy Spark EV

Nissan Leaf

Ford C-MAX Energi

Ford Fusion Energi

Cadillac ELR

Tesla S

Ford Focus

10-20 EV miles	40-60 EV miles	80-200 EV miles

2nd Generation EREV: Chevrolet Volt (Fall 2015)

- **More range ➔** 420 mile total range -- **53 EV miles** (40% improvement)
- **More fuel economy ➔** 41 MPG / 102 MPGe
- **More performance ➔** 0 to 30 in 2.6 seconds (19%);
  0 to 60 in 8.4 seconds (7%)
- $33,995 **($26,495** after federal incentives)
- Gen 2 Volt owners may expect…
  - Nearly **90% of trips will be all EV**
    (in moderate climates, such as CA, TX and FL)
  - More than **1,100 miles between gasoline fill ups**
  - To displace 25% more gasoline

Current MY17 Volt Inventory in Florida

Status: 4/3/2016

Orlando – 11

Starling Chevrolet - 2
Carl Black Chevrolet - 3
David Maus Chevrolet – 6

Miami – 10

Miami Lakes Chevrolet – 1
Lorenzo Bomnin Chevrolet – 4
Autonation Chevrolet Pembroke Pines – 2
Grand Prize Chevrolet – 1
Ed Morse Sawgrass Chevrolet - 1
Autonation Chevrolet Ft. Lauderdale - 1

Jacksonville - 2

Nimnicht Chevrolet – 1
Coggin Chevrolet - 1

Tampa – 32

Ferman Chevrolet – 7
Gordon Chevrolet – 1
Autonation Clearwater – 1
Dimmitt Chevrolet – 7
Maher Chevrolet - 14
Stingray Chevrolet – 1
Ferman Chevrolet Tarpon Springs - 1

Pensacola – 3

Sandy Sansing Chevrolet – 2
Lou Sobh's Milton Chevrolet - 1

Also, note…

Atlanta - 30301

Steve Rayman Chevrolet – 2
Jim Ellis Chevrolet - 1
Rick Hendrick Chevrolet - 3

2nd Generation BEV: Chevrolet Bolt EV (Fall 2016)

Industry-changing Battery Electric Vehicle

- **More range ➔** 200 mile range (2.5x improvement)
- **More availability ➔** 50-state availability
- $30,000 (net federal incentives)
- To be built in Michigan at Orion Assembly

Chevrolet Volt Battery Cell Quality

- **Total Miles Driven = 1 Billion miles**
- **EV Miles Driven = 700 Million miles**
- **Fuel Saved = 36 Million gallons**

+

- **22 Million battery cells produced**
- **Fewer than 2 problems per million cells produced**

"Pharmaceutical-level quality"

Industry-leading battery quality

Volt Customers Describe Their Car

J.D. Power APEAL winner for satisfied customers for three years

Consumer Charging - Behaviors

- **Home Charging: ($1.70 per night for 40 miles of EV driving – U.S. avg)**
  - **60-80%** of all charging is done at the home
  - 50% of Volt buyers use a 120V outlet (L1) to charge overnight

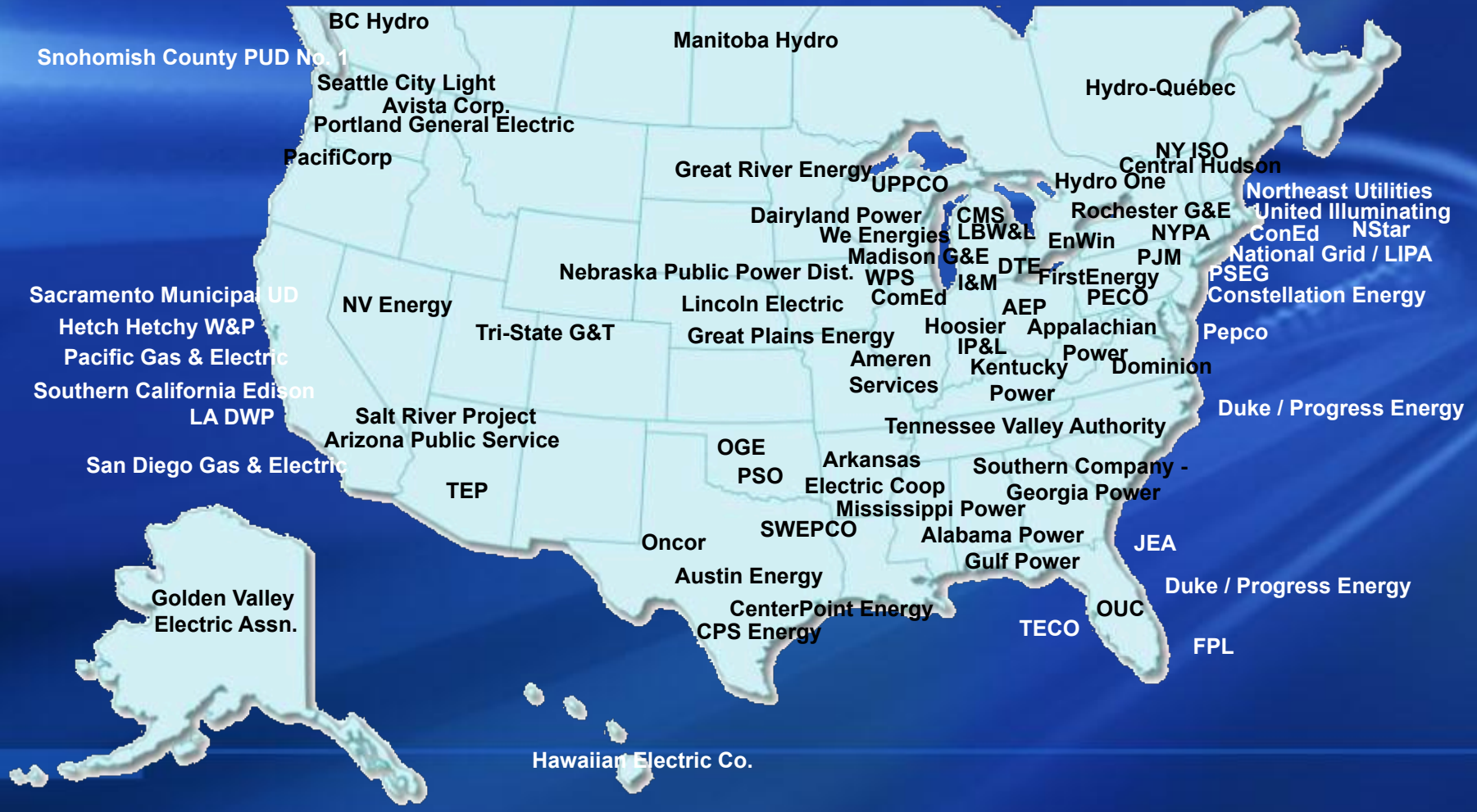
- **Workplace Charging:**
  - **30-40%** of all charging is done at work (if they offer workplace charging)
  - DOE data shows employees with access to workplace charging are 6X more likely to purchase an EV (both L1 and L2 charging can make sense)
  - Proving to be the most helpful promoter of PEVs through awareness and incentive
- **Public Charging:**
  - **3-4%** of all charging is done in public
  - DC Fast-Charging as a Home-Charging Alternative for MDUs (apartments,…)
  - DC Fast-Charging as a solution for longer range driving (perception matters)

Consumer Charging – Why do we need to do more?

- **Home Charging:**
  - Because this is where most charging is done
- **Workplace Charging:**
  - Because this is the most helpful way to directly influence EV adoption
- **Public Charging:**
  - Because this tells a story consumers understand

GM / EPRI / Utility Collaboration:

- Largest existing auto-utility collaborative effort -- formed in 2007
- Over 50 utility members and the Electric Power Research Institute (EPRI)
- Focus areas: Aligned Messaging and Policy Priorities, Customer Outreach and Infrastructure, Vehicle-to-Grid Technology, New Business Opportunities



Role of Utilities | Customer Engagement

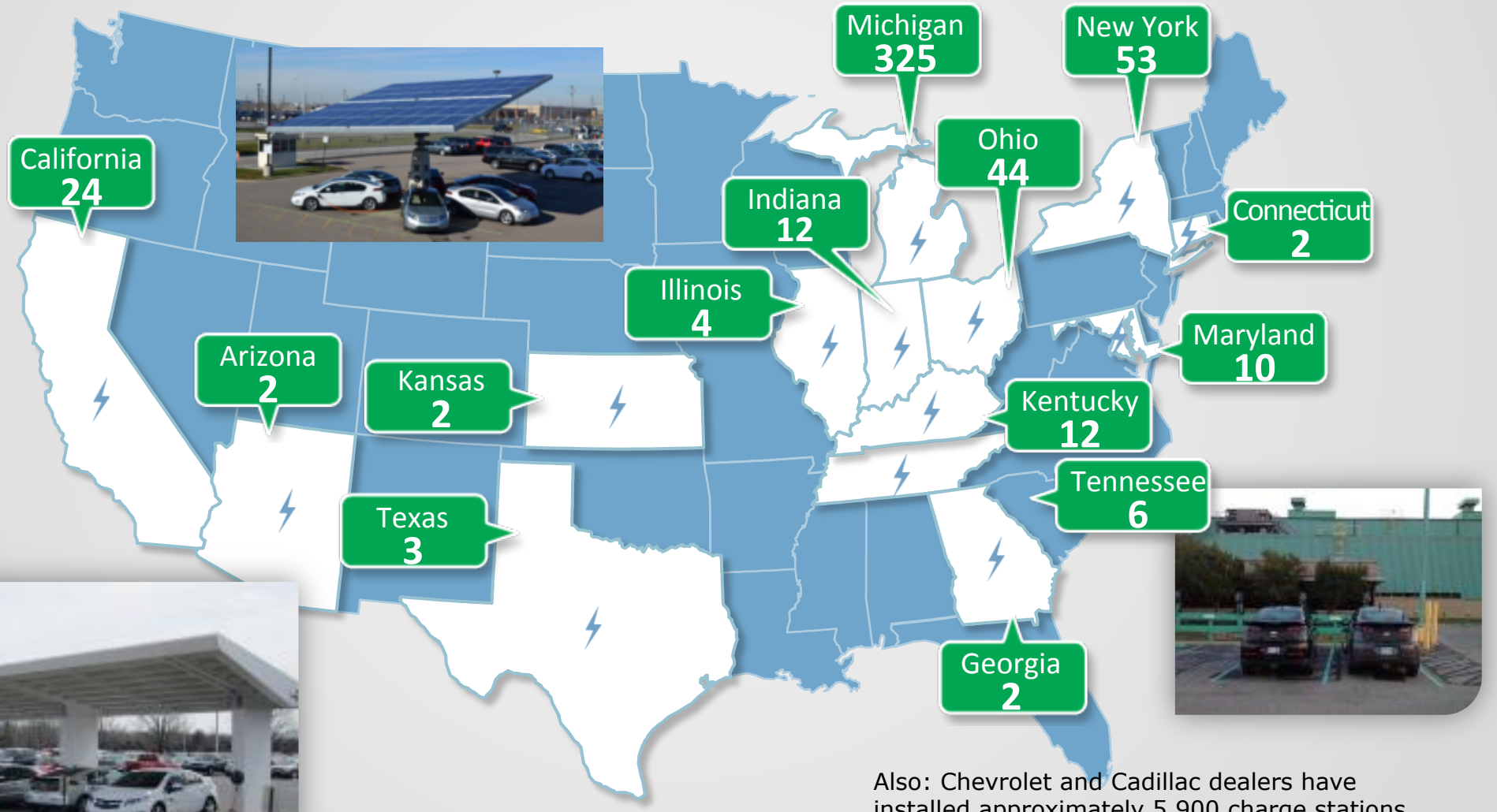
Examples of Meaningful Engagement – Central/Eastern U.S.

- **DTE and Consumers Energy (MI):** $2,500 home 240V rebate (5,000)
- **Green Mountain Power:** $3,000 employee EV rebate + $2,000 as 6mo EV ambassador
- **PSE&G (NJ):** Workplace Charging – 150 free 240V EVSE's to businesses
- **KCP&L (MO, KA):** Install & Operation 1,000+ charging stations
- **Jacksonville Energy Authority (FL):** $1,000 vehicle rebate
- **Alabama Power (AL):** $1,000 rebate - $750 to PEV buyer; $250 to dealership
- **FPL (FL):** 2013 -- 100 outreach and events
  - 57 outreach - presentations, meetings with customers
  - 80 events (includes ride and drives, booths, electric vehicle display)

The education, awareness, and promotion value of these efforts magnifies the incentive value.

501 GM WORKPLACE CHARGING STATIONS
Including 25 Assembly Plants

(19% Solar; 2 ADA friendly; 400 add'l private; 66% 240V and 33% 120V)



Also: Chevrolet and Cadillac dealers have installed approximately 5,900 charge stations at their locations for owner use – 17 of these dealerships use solar charging canopies.

Public Charging: Why a Retailer Might Just be Interested

"RetailCo's" 9-month study of a California location with EV charging:

- 1,134 unique charging sessions took place
- Average customer in-store dwell time increased from 22 to 72 minutes (327% increase)
- Cost of electricity = $430
- Gross revenue increased approximately $56,000 (average spend at RetailCo is $1 per minute)
- Nationwide rollout of EV charging now underway

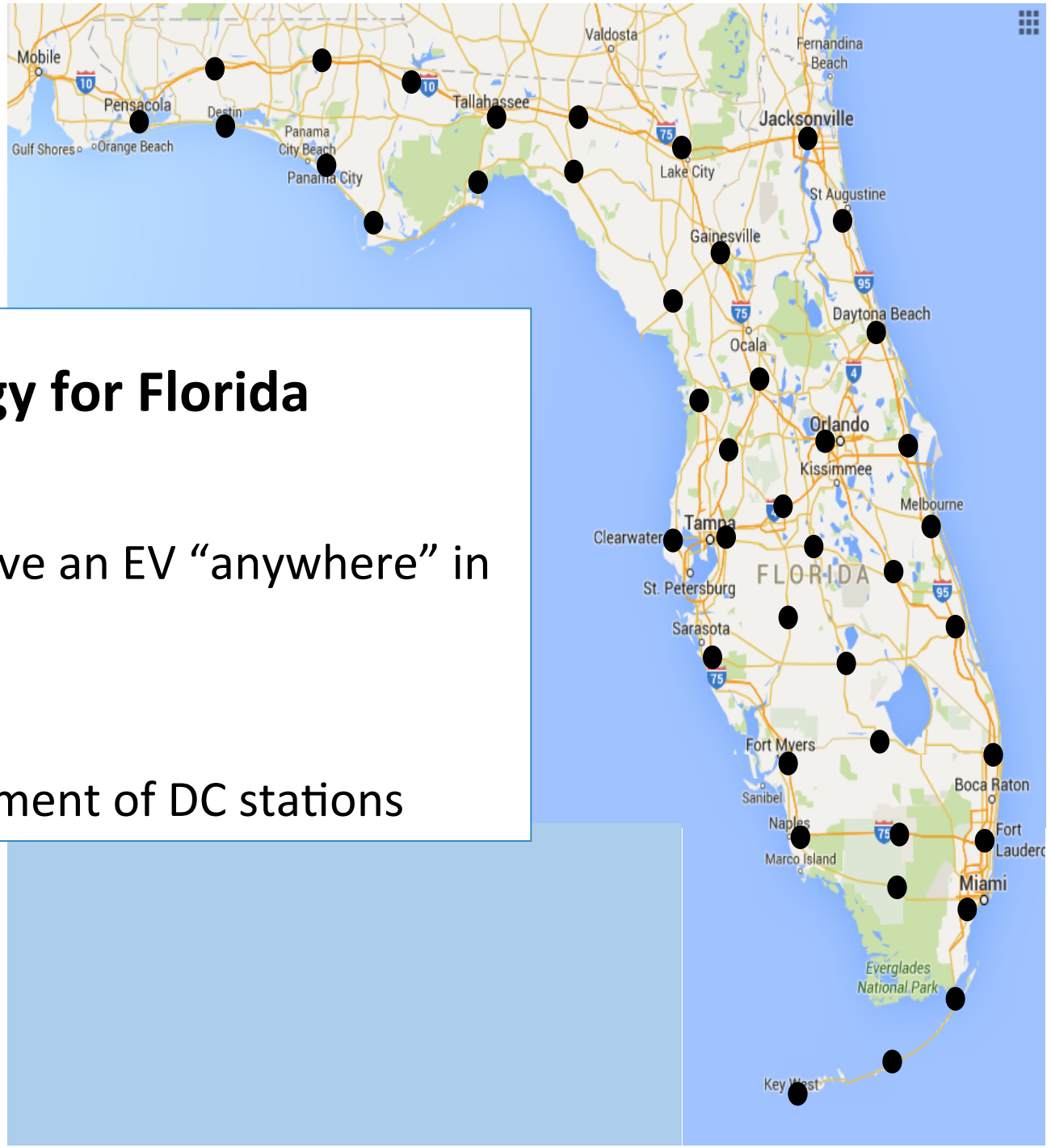
EV charging at a national retailer's store increased in-store dwell time from 22 to 72 minutes (327%)

Source: http://www.chargepoint.com/files/casestudies/73-001053-01-2-CS-Retail-Retail-01.pdf

DC Fast-Charge Infrastructure Strategy for Florida

(43 DC sites shown - illustrative)

- Build consumer confidence in ability to drive an EV “anywhere” in Florida
- Show Florida leadership
- Strategic, methodical, cost-effective placement of DC stations

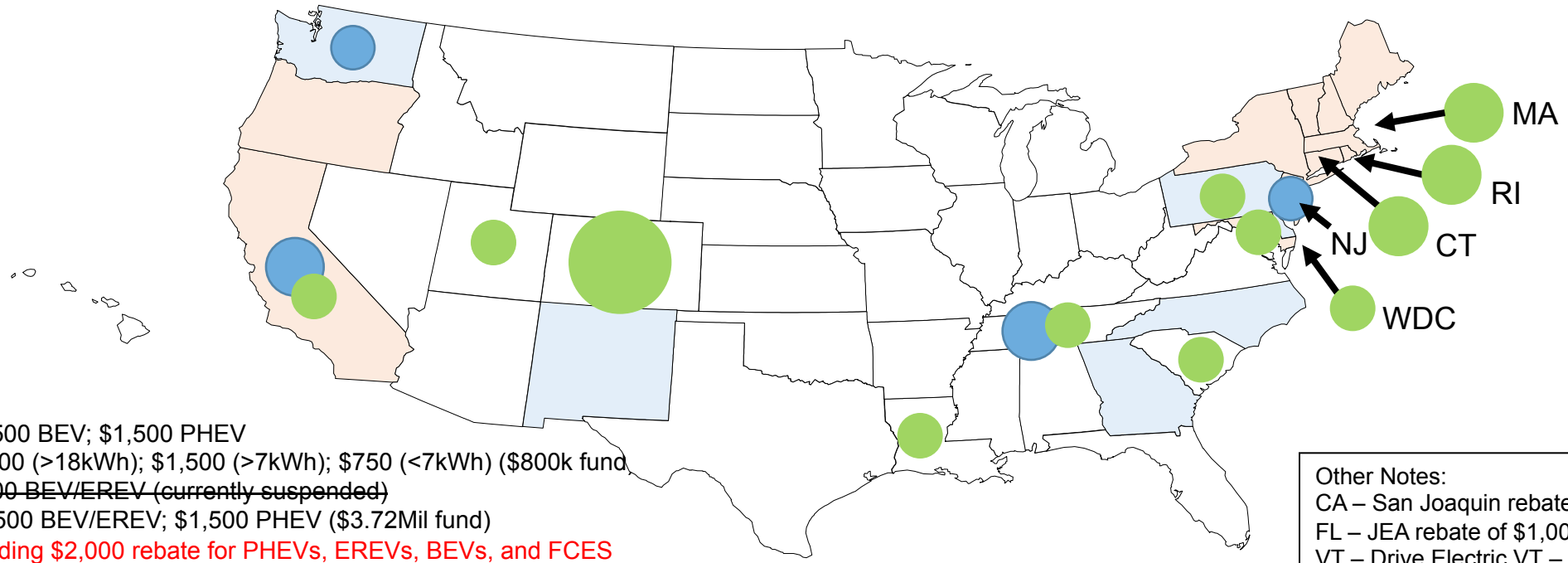


“Tell a Story”

4/4/2016

Current Key EV (vehicle) Incentives by State

13 States (plus WDC) offer vehicle incentives: rebates, state income tax credits or sales/excise tax exemptions



Expiration Dates:
PA – 12/31/2015
UT – 12/31/2016
SC – 2017
MD – 6/30/2017
WA – July 1, 2019
CO – 2021
CA – annual review
MA – no sunset
LA – no sunset
DC – no sunset
IL – suspended 3/2015
TX – expired 6/26/2015
GA – ended 7/1/2015
RI – til funds expire

Rebate:
CA – $2,500 BEV; $1,500 PHEV
CT - $3,000 (>18kWh); $1,500 (>7kWh); $750 (<7kWh) ($800k fund
~~IL – $4,000 BEV/EREV (currently suspended)~~
MA – $2,500 BEV/EREV; $1,500 PHEV ($3.72Mil fund)
NY – pending $2,000 rebate for PHEVs, EREVs, BEVs, and FCES
PA – $2,000 BEV/EREV (>10kWh); $1,000 (<10kWh) (250 limit)
RI - $2,500 BEV/EREV (>18kWh); $1,500 (<$18kWh) ($200k fund)
TN - $2,500 BEV; $1,500 PHEV ($682.5k fund)
~~TX – $2,500 BEV/EREV (>4kWh) (2,000 limit)~~

Other Notes:
CA – San Joaquin rebate of $3,000 BEV; $2,000 EREV
FL – JEA rebate of $1,000 BEV/EREV (>15kWh)
VT – Drive Electric VT – was $500; Phase 2 planned

State Income Tax Credit:
CO – $6,000 BEV/EREV
~~GA - $5,000 BEV~~
LA – $1,500 BEV/EREV
SC – $2,000 PHEV only? (>9mi)
UT – $1,500 BEV/EREV (>10kWh); $1,000 PHEV

Sales Tax Exemption:
DC – $2,400 value (Volt)
MD – $2,300 value (Volt)
NJ - $2,000 value BEV only
WA - $2,000 value (BEV/EREV) – pending proposal – exempt tax up to $32k for EV MSRP <$42,500 (max 7,500 EVs)

Green is BEV/EREV (Volt/ELR)
Blue is BEV only

ZEV States = CA, OR, NY, NJ, VT, ME, MA, CT, RI, MD
Add'l Section 177 States = WA, DE, PA, GA, NC, NM
HOV = AZ, CA, FL, GA, HA, MD, NV, NJ, NY, NC, TN, UT, VA

What will it take to Grow the PEV Market?

- **Drive Consumer Demand!**
  - Keep a Laser-like Focus on the Vehicles
- **Build Awareness**
  - National Awareness Campaign
  - Ride and Drives → Butts-in-Seats
- **Install Charging Infrastructure at a faster pace (incl. role for utilities)**
  - **Workplace Charging**
  - **Public DC (SAE Combo)**
- **Governments**
  - Grow and maintain incentives near term to drive private investment
  - Stay steady until we reach a meaningful tipping point

THANK YOU