



Southeast Regional Transportation Electrification Workshop

March 11 – 12, 2019

**National Governors Association
Center for Best Practices**

WIFI:

Network: Hutton Meetings

Password: nga19

#WeTheStates



Welcome & Opening Remarks

Sue Gander, Division Director, Environment, Energy & Transportation,
National Governors Association

#WeTheStates

Energy, Environment & Transportation

Division Focus

Power Sector Modernization

Energy Policy Institute
Grid Modernization Retreats
Global Energy Solutions Summit

Resiliency

State Energy Risk Assessment & Planning
Tool and State Resilience Retreats
Grid Emergency Exercises
State/Utility Coordination Workshop
Housing Resiliency Experts Roundtable

Smarter States, Smarter Communities

Learning Lab
Roadmap
Policy Academy Kick Off

Support for New Governors

Boot Camps and Webinars
Energy Advisors
Transportation Advisors
Water Advisors
Governors Guide to Energy Policy

Technical Assistance on Demand

Research
Policy Memos
Consultations

Transportation Modernization

Traffic Safety Learning Labs
Electric Vehicle (EV) Regional Workshops
Innovation Workshops
Transportation Policy Institute

Energy Efficiency

Lead By Example Workshop
Energy Efficiency Experts Roundtable
Energy Efficiency Roadmap for Governors

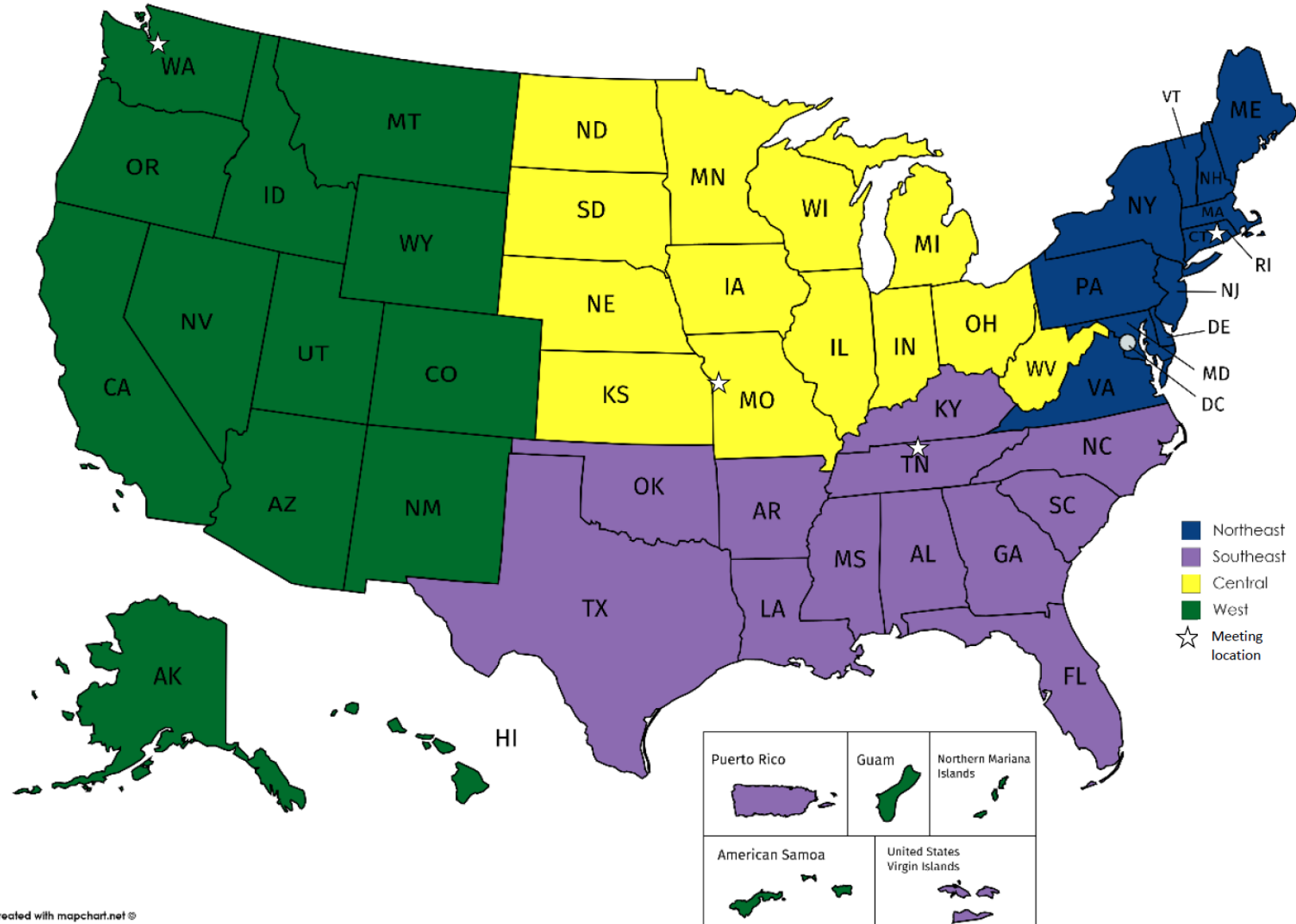
Nuclear Weapons Waste

Federal Facilities Task Force Meeting
Intergovernmental Meeting
Governors Guide to Nuclear Weapons
Waste Cleanup

Water Policy Learning Network

Water Policy Institute
Webinar Series
Delaware River Basin Retreats

Regional Transportation Electrification Workshops



Created with mapchart.net ©

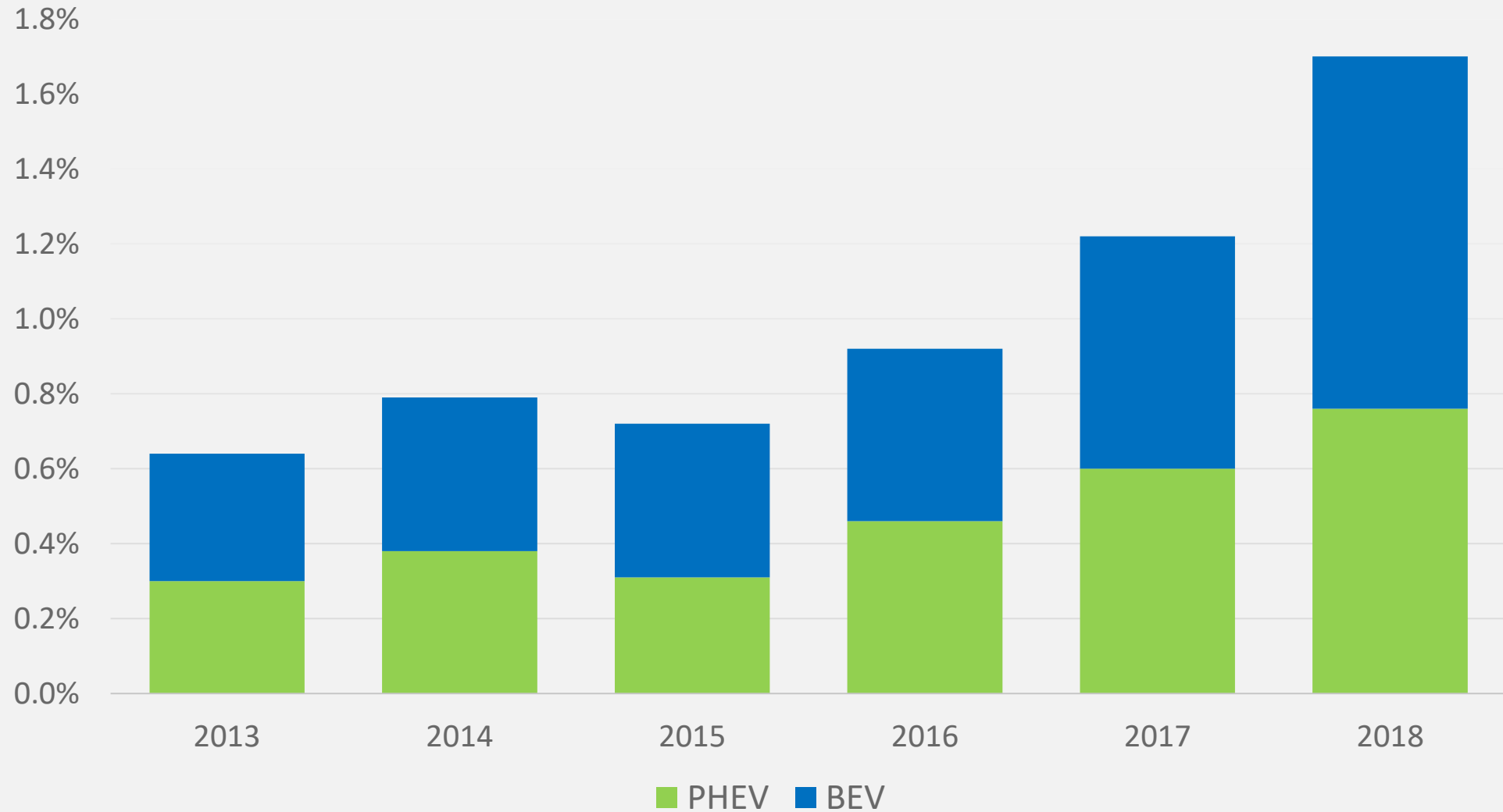


The Electric Vehicle Landscape

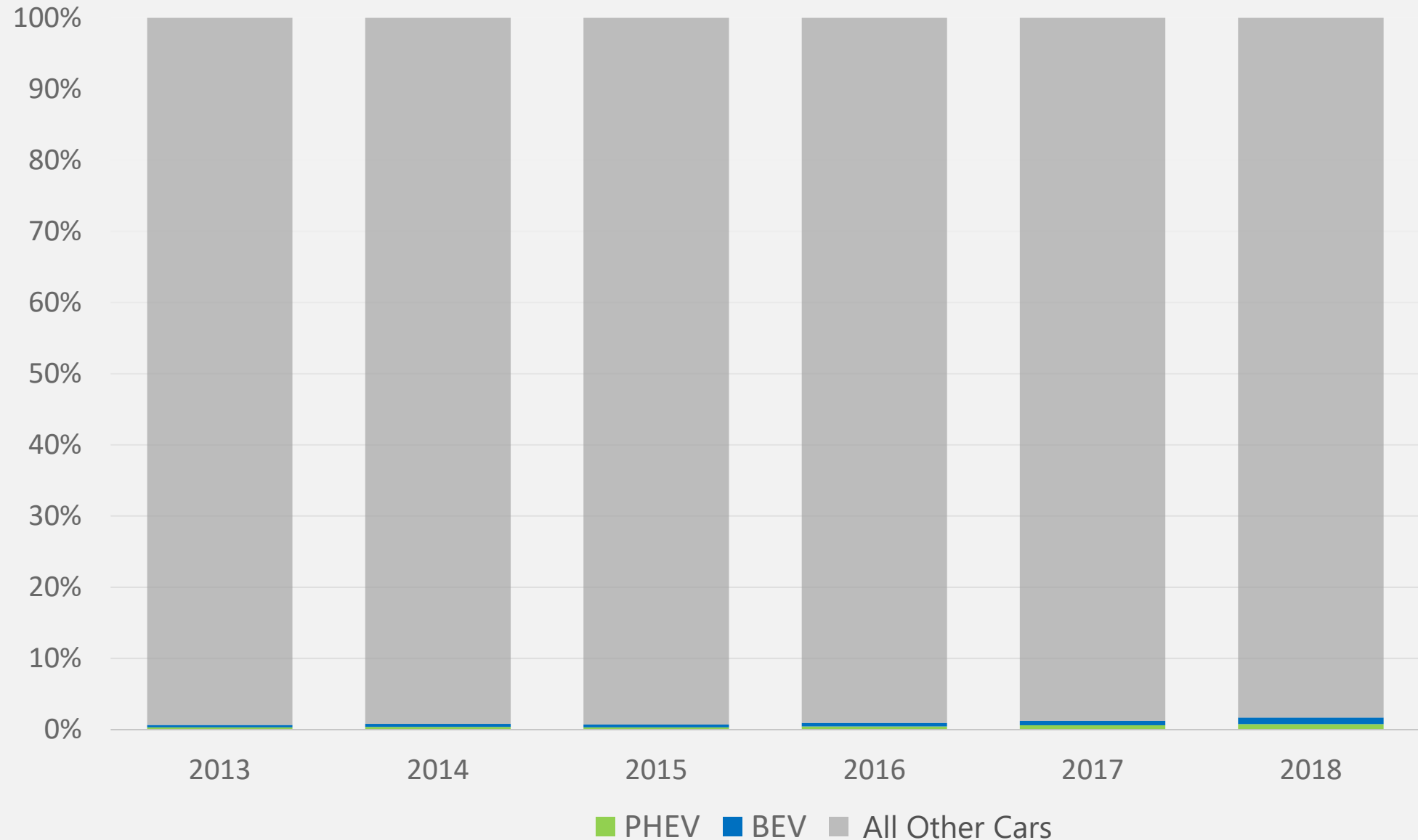
Patricio Portillo
National Governors Association

#WeTheStates

Why are you here?



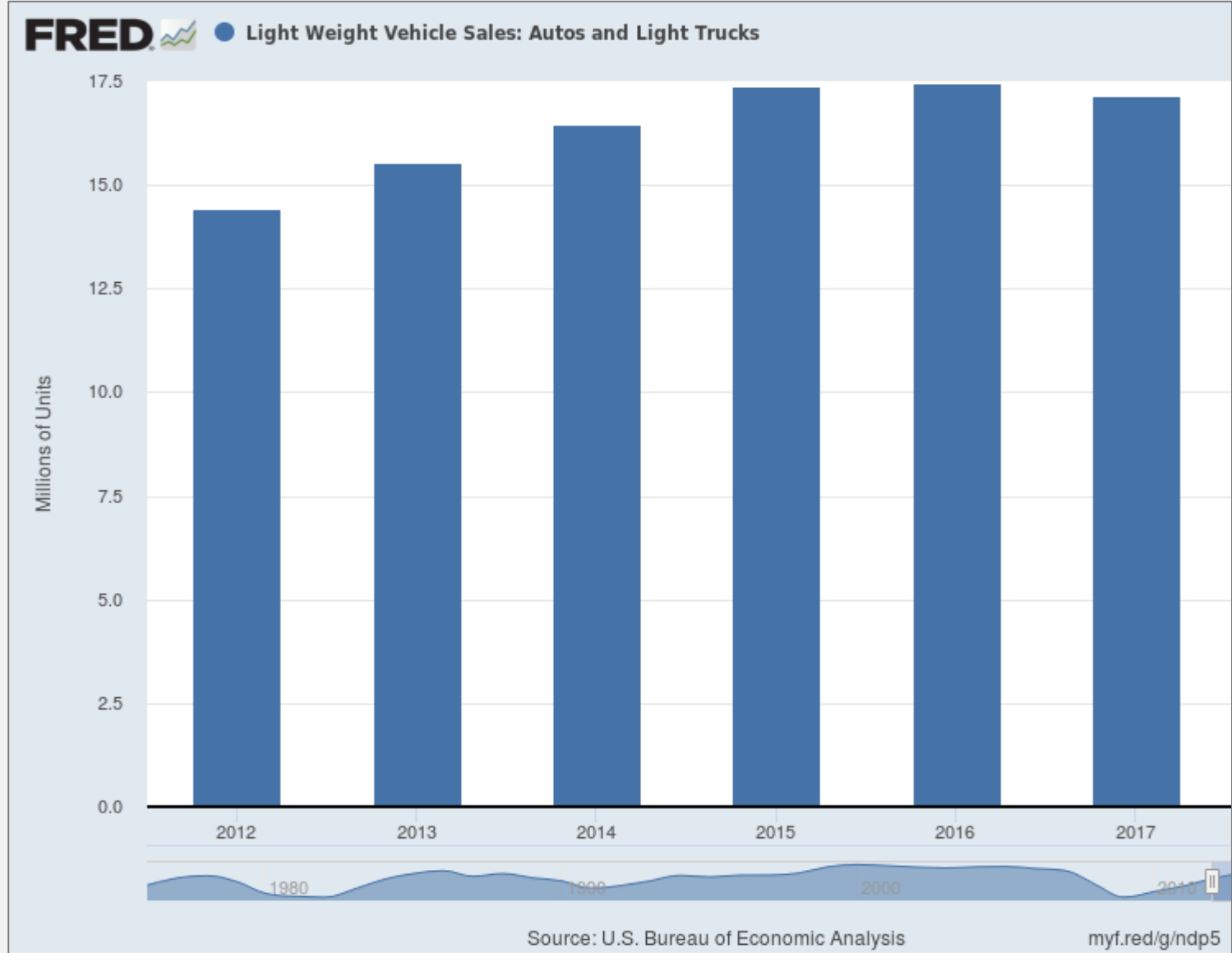
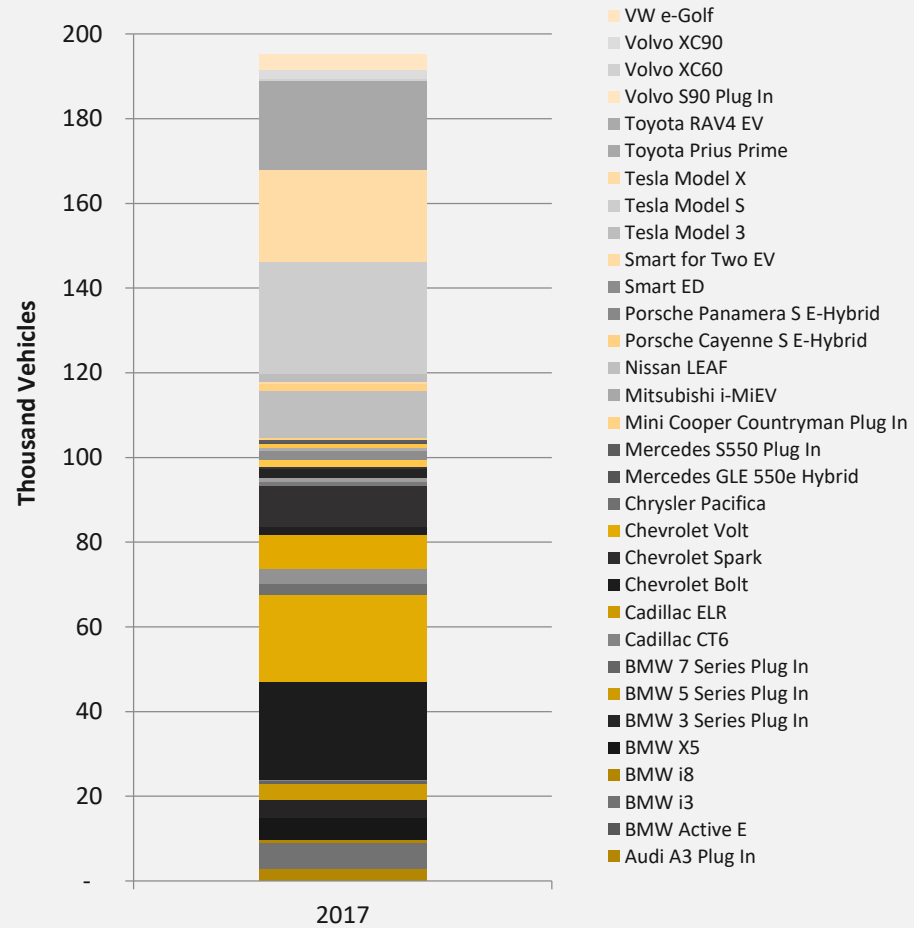
Why are you here?



Alliance of Automobile Manufacturers (2018). Advanced Technology Vehicles Sales Dashboard. Data compiled by the Alliance of Automobile Manufacturers using information provided by HIS Markit. Data last updated 11/5/2018. Retrieved 3/7/2018 from alliance.org/energy-environment/advanced-technology-vehicle-sales-dashboard/

Why are you here?

U.S. Plug-in Electric Vehicle Sales by Model



Why are you here?

INSIDE EVs

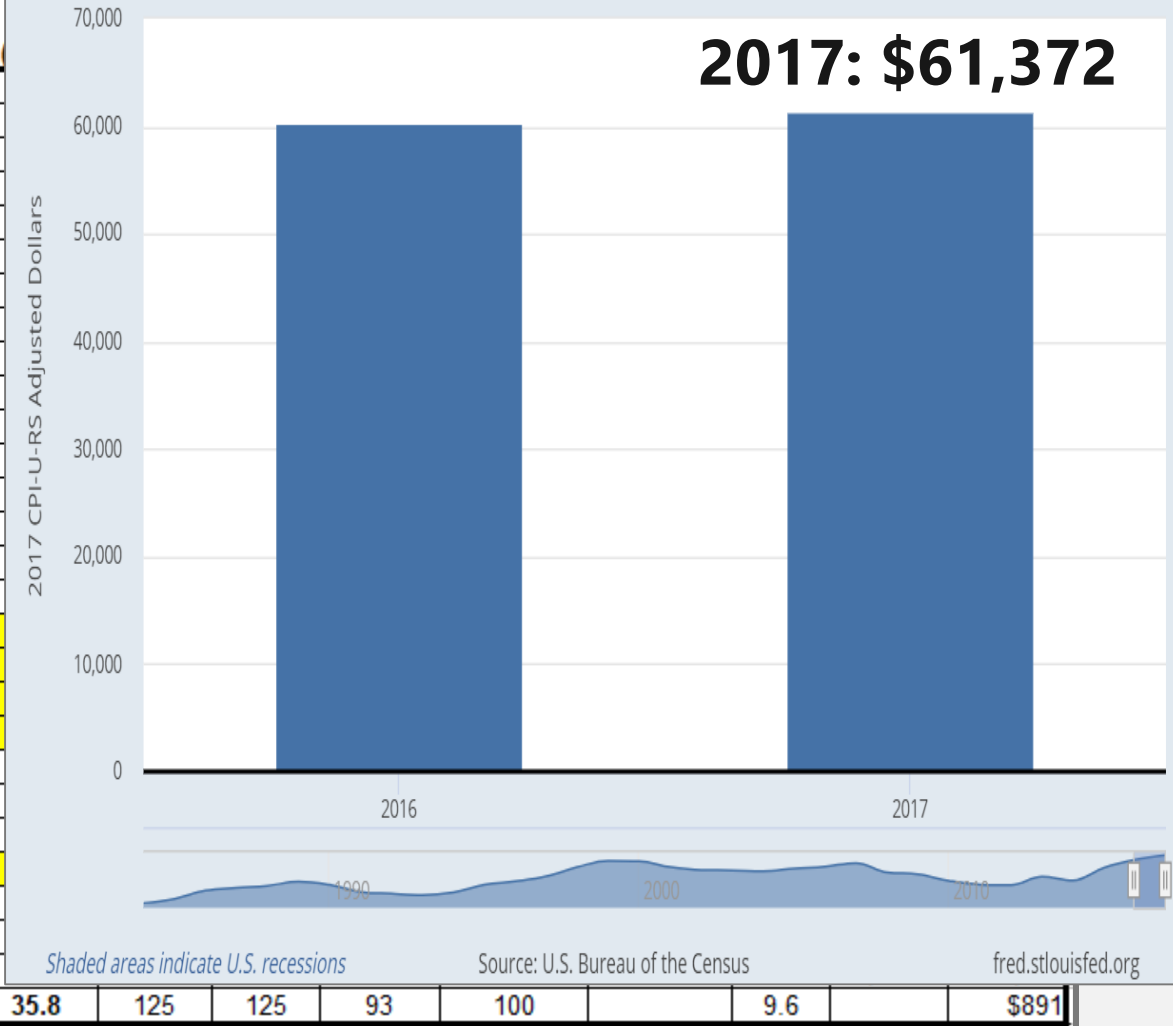
All-Electric Car Comparisons - US

Updated 2019-01-01

FRED

Real Median Household Income in the United States

Brand	Model	Base Price (MSRP)	Dest. Charge	Tax Credit	Price After Tax Credit
Audi	e-tron (2019)	\$ 74,800	\$ 995	\$ 7,500	\$ 68,295
BMW	i3 (2019)	\$ 44,450	\$ 995	\$ 7,500	\$ 37,945
BMW	i3s (2019)	\$ 47,650	\$ 995	\$ 7,500	\$ 41,145
Chevrolet	Bolt EV (2018)	\$ 36,620	\$ 875	\$ 7,500	\$ 29,995
Fiat	500e (2019)	\$ 32,995	\$1,295	\$ 7,500	\$ 26,790
Honda	Clarity Electric (2019)	lease only		\$ 7,500	
Hyundai	IONIQ Electric (2019)	\$ 30,315	\$ 920	\$ 7,500	\$ 23,735
Hyundai	Kona Electric (2019)	\$ 36,450	\$1,045	\$ 7,500	\$ 29,995
Jaguar	I-PACE	\$ 69,500	\$1,025	\$ 7,500	\$ 63,025
Kia	e-Niro (2019)			\$ 7,500	
Kia	Soul EV (2019)	\$ 33,950	\$ 995	\$ 7,500	\$ 27,445
Kia	Soul EV (2020)			\$ 7,500	
Nissan	LEAF (40 kWh) (2019)	\$ 29,990	\$ 885	\$ 7,500	\$ 23,375
Nissan	LEAF (62 kWh) (2019)			\$ 7,500	
smart	EQ fortwo Coupe (2019)	\$ 23,900	\$ 750	\$ 7,500	\$ 17,150
smart	EQ fortwo Cabrio (2019)	\$ 28,100	\$ 750	\$ 7,500	\$ 21,350
Tesla	Model 3 Mid Range RWD (2019)	\$ 42,900	\$1,200	\$ 3,750	\$ 40,350
Tesla	Model 3 Long-Range AWD (2019)	\$ 49,900	\$1,200	\$ 3,750	\$ 47,350
Tesla	Model 3 Performance LR AWD (2019)	\$ 60,900	\$1,200	\$ 3,750	\$ 58,350
Tesla	Model S (2019)	\$ 85,000	\$1,200	\$ 3,750	\$ 82,450
Tesla	Model S Extended Range (2019)	\$ 93,000	\$1,200	\$ 3,750	\$ 90,450
Tesla	Model S Performance (2019)	\$ 112,000	\$1,200	\$ 3,750	\$ 109,450
Tesla	Model S Performance LM (2019)	\$ 132,000	\$1,200	\$ 3,750	\$ 129,450
Tesla	Model X (2019)	\$ 88,000	\$1,200	\$ 3,750	\$ 85,450
Tesla	Model X Extended Range (2019)	\$ 96,000	\$1,200	\$ 3,750	\$ 93,450
Tesla	Model X Performance (2019)	\$ 117,000	\$1,200	\$ 3,750	\$ 114,450
Tesla	Model X Performance LM (2019)	\$ 137,000	\$1,200	\$ 3,750	\$ 134,450
Volkswagen	e-Golf (2019)	\$ 31,895	\$ 895	\$ 7,500	\$ 25,290



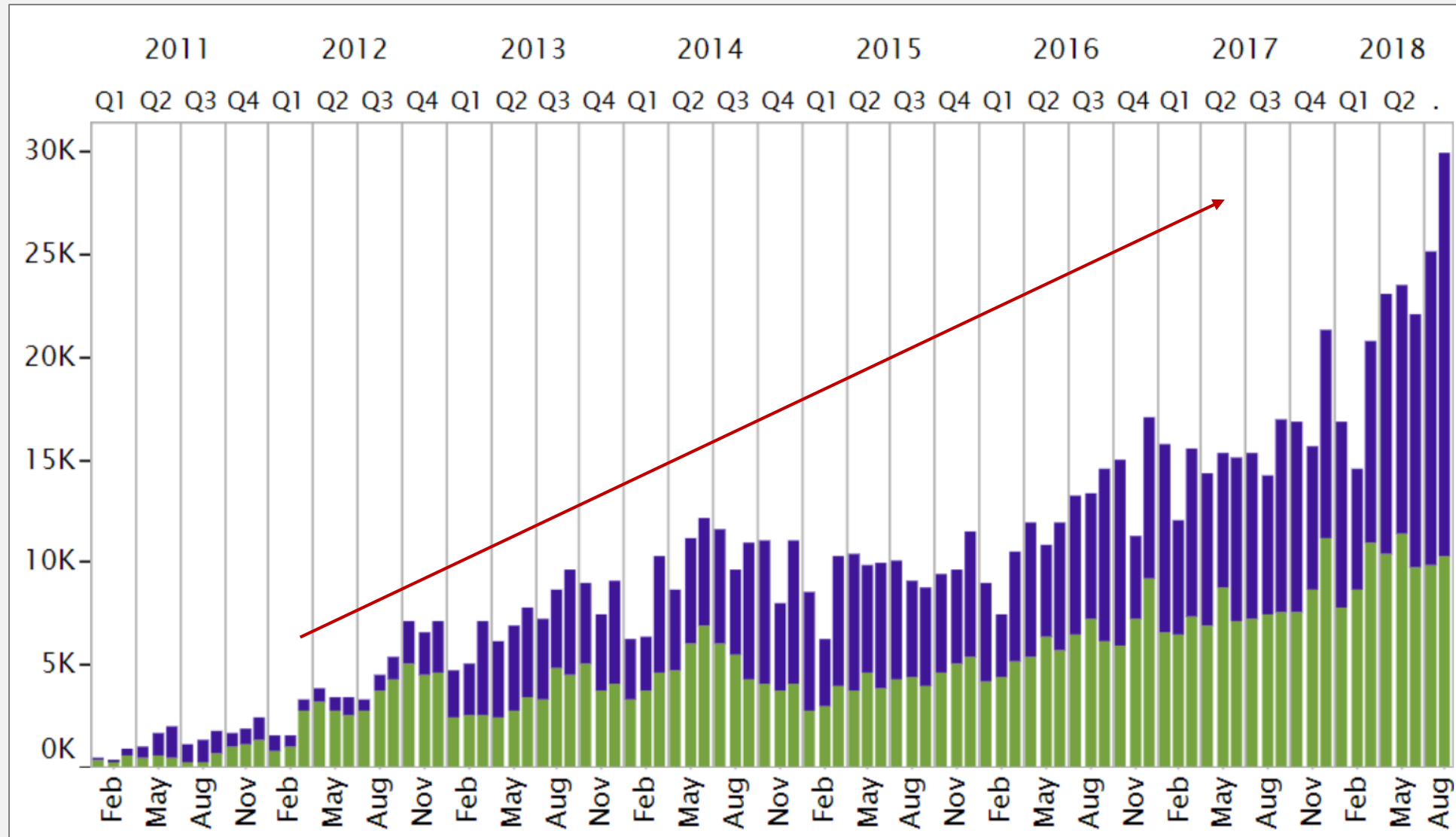
Why are you here?

Technology adoption:

- ~~Static snapshot~~
- Trend analysis!

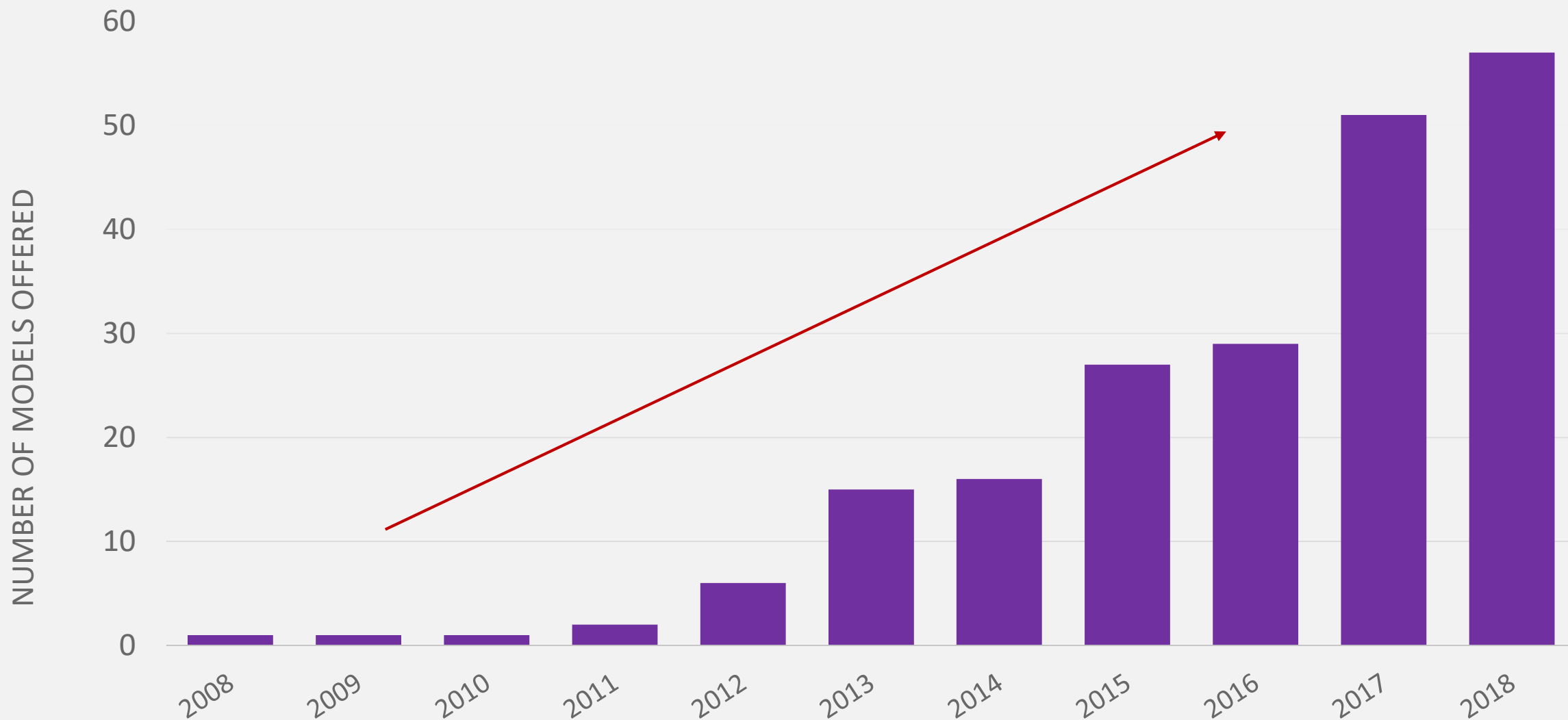


Monthly Sales of BEV + PHEV

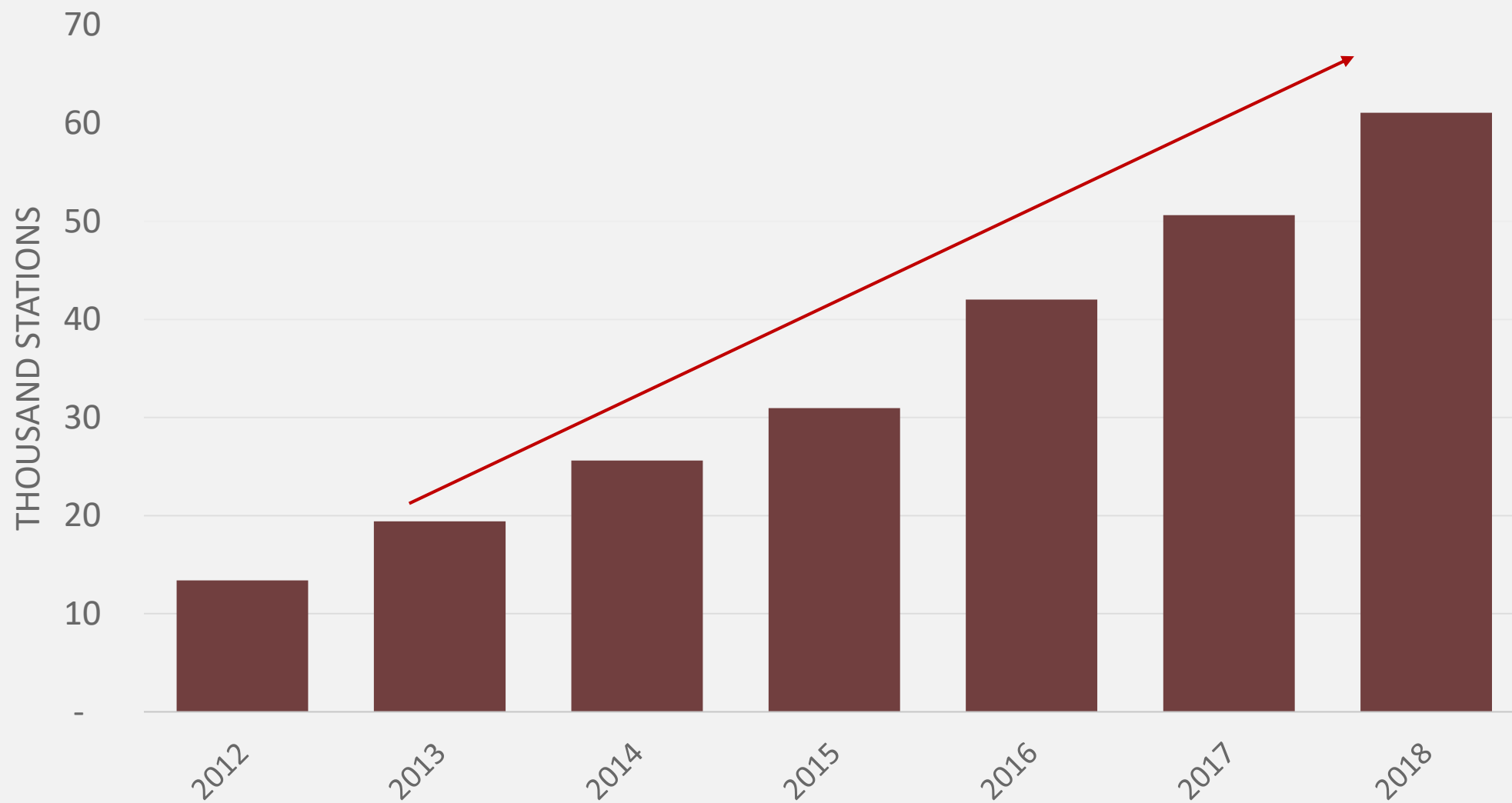


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BEV + PHEV Light Duty Model Offerings 2008-2018

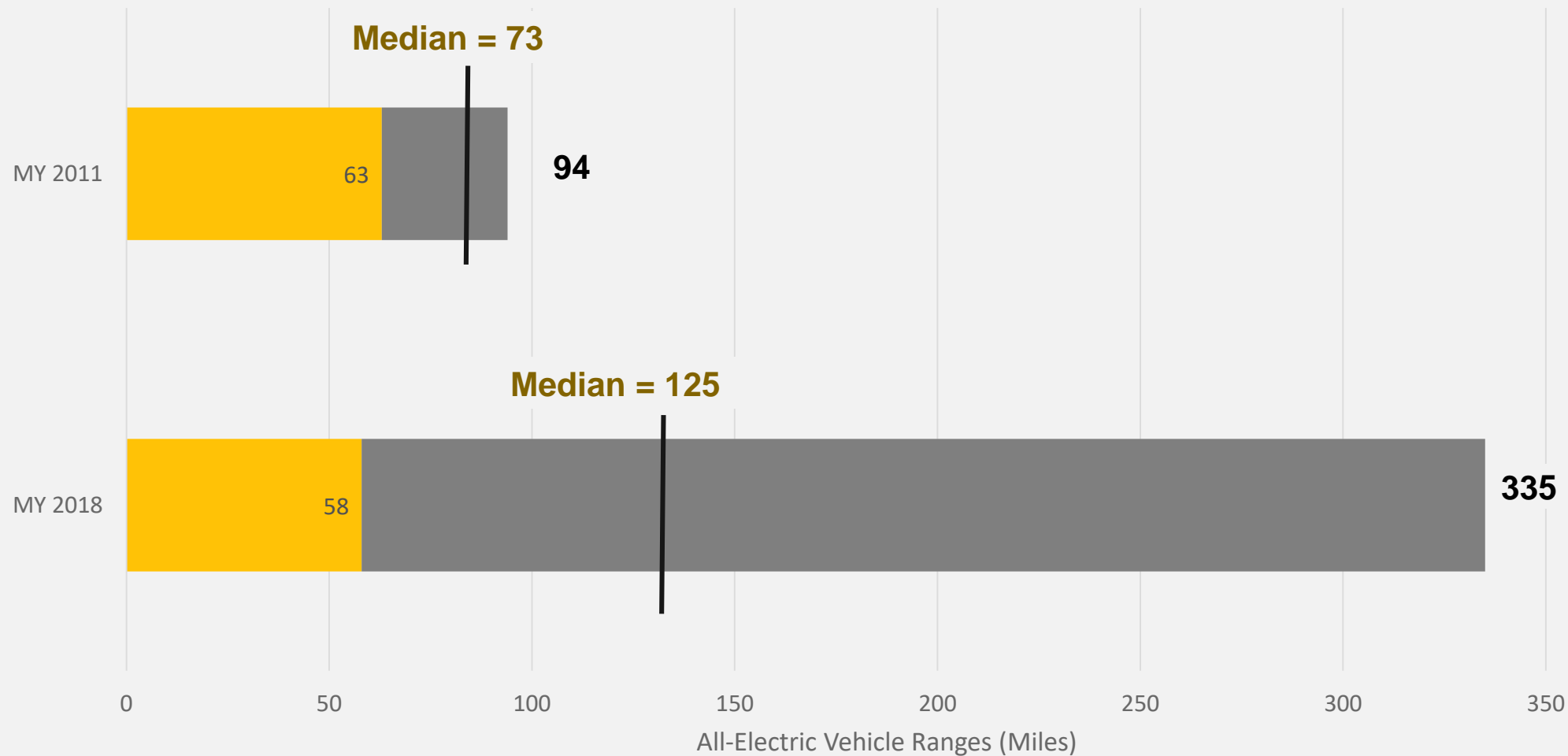


Electric Fueling Station Count

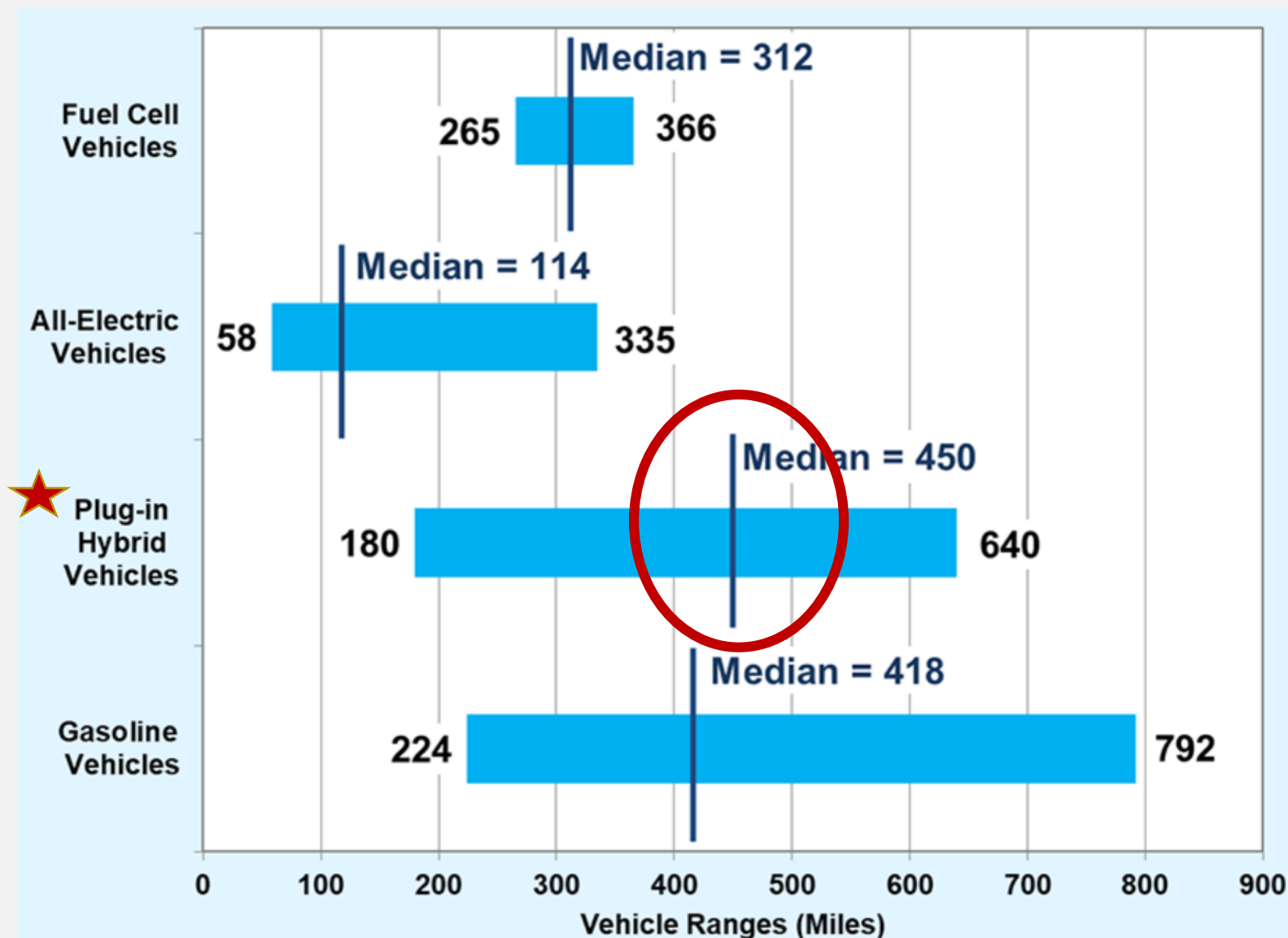


Median BEV Range

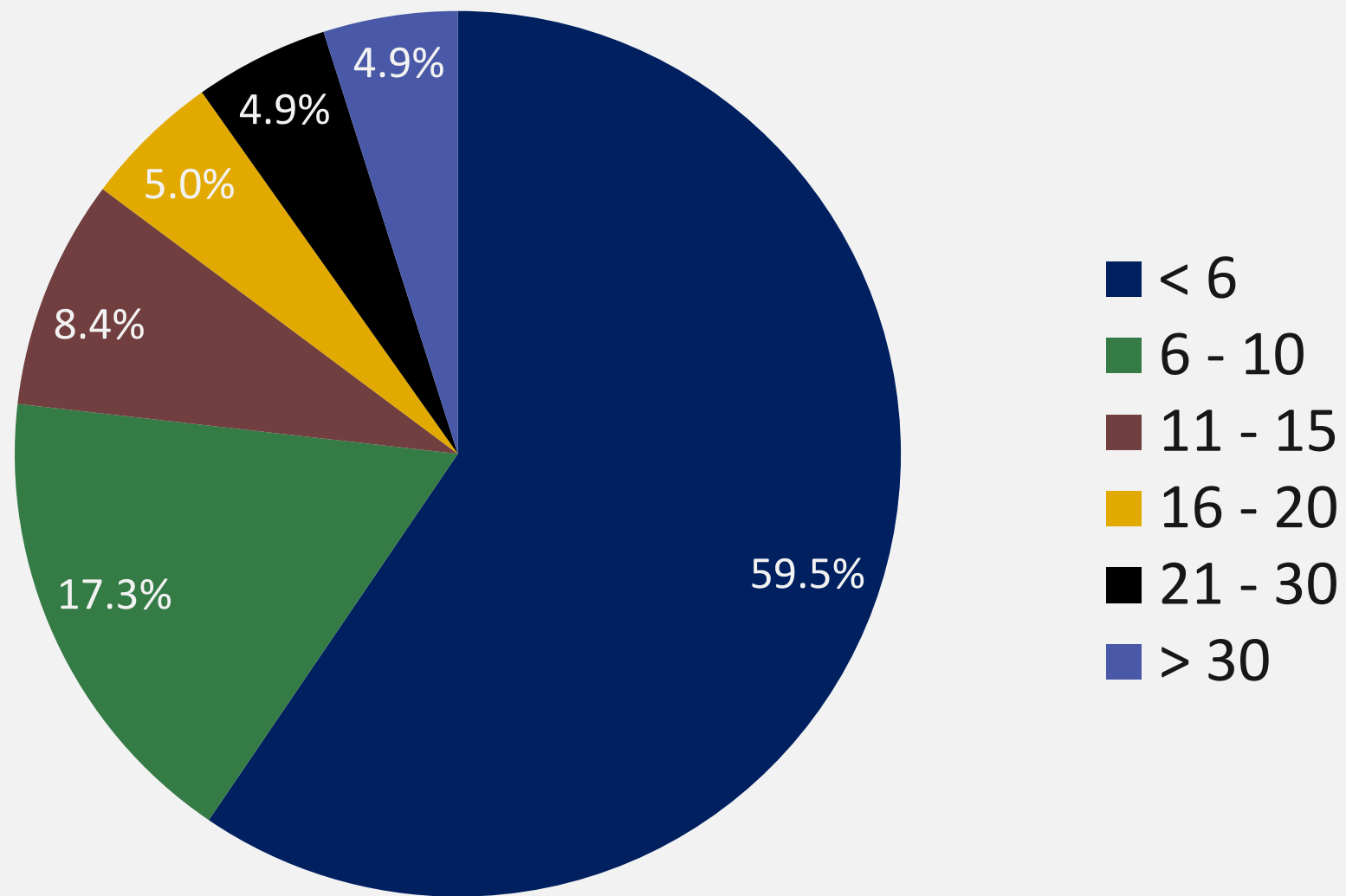
Breadth of AEV Ranges, MY 2011 and 2018



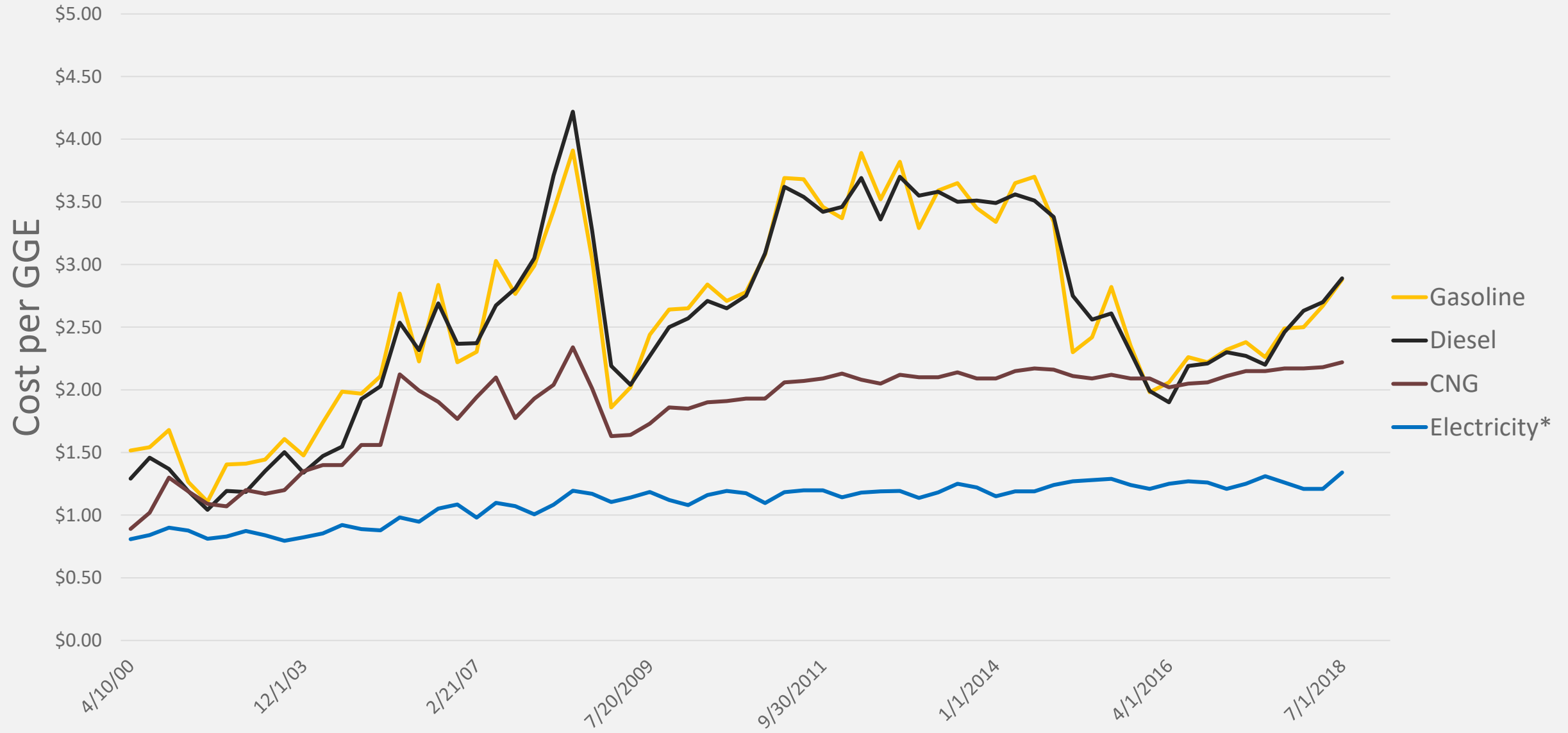
Range Comparison with ICE Vehicles



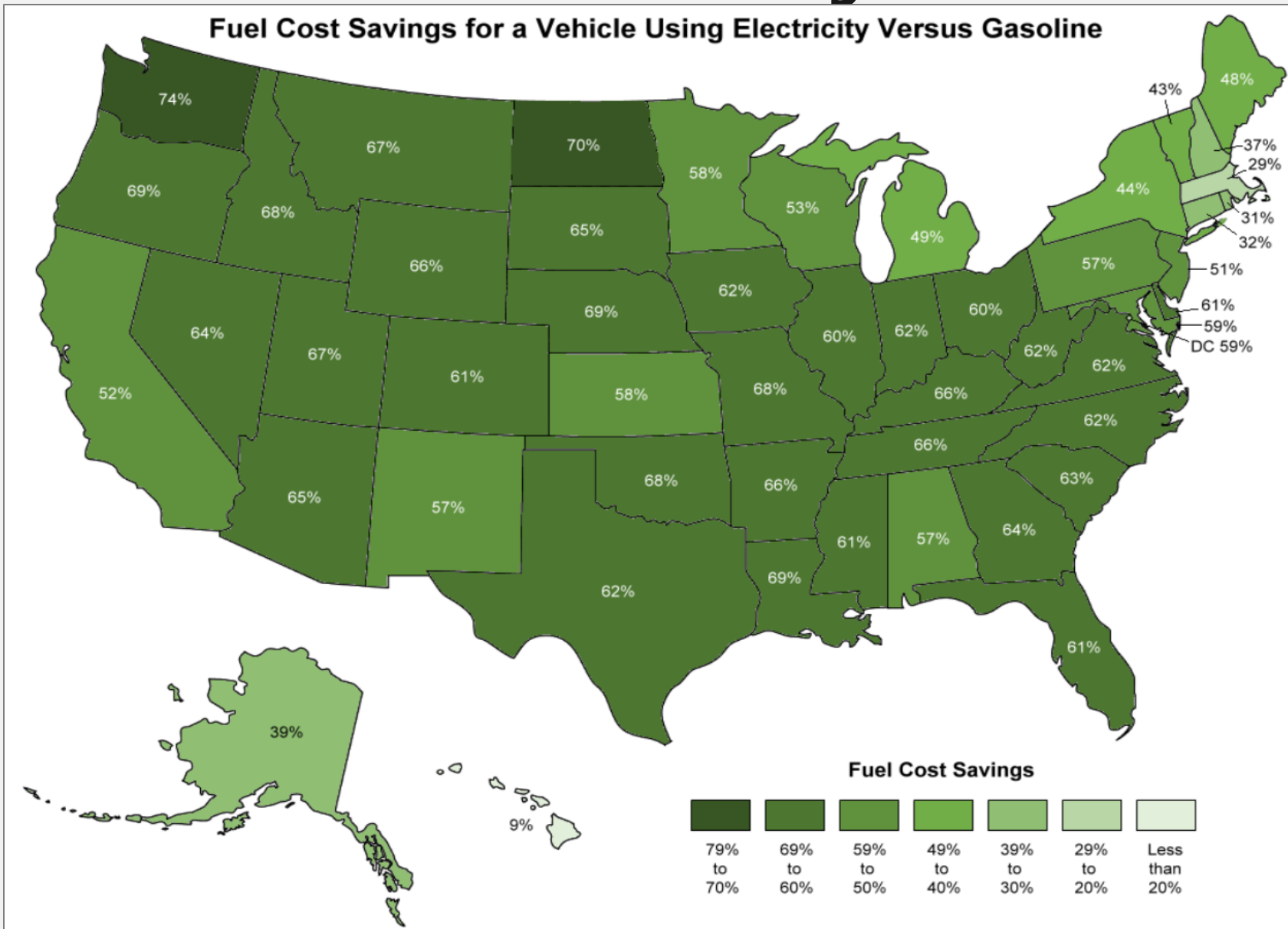
Vehicle Trips by Length (miles)



U.S. Average Retail Fuel Prices



Fuel Cost Savings



FOTW #1033, June 11, 2018: Washington State Has the Greatest Fuel Cost Savings for an Electric Vehicle Versus a Gasoline Vehicle (JUNE 11, 2018). Retrieved 3/7/2018 from <https://www.energy.gov/eere/vehicles/articles/fotw-1033-june-11-2018-washington-state-has-greatest-fuel-cost-savings>

Total Cost of Ownership by Drivetrain and Fuel

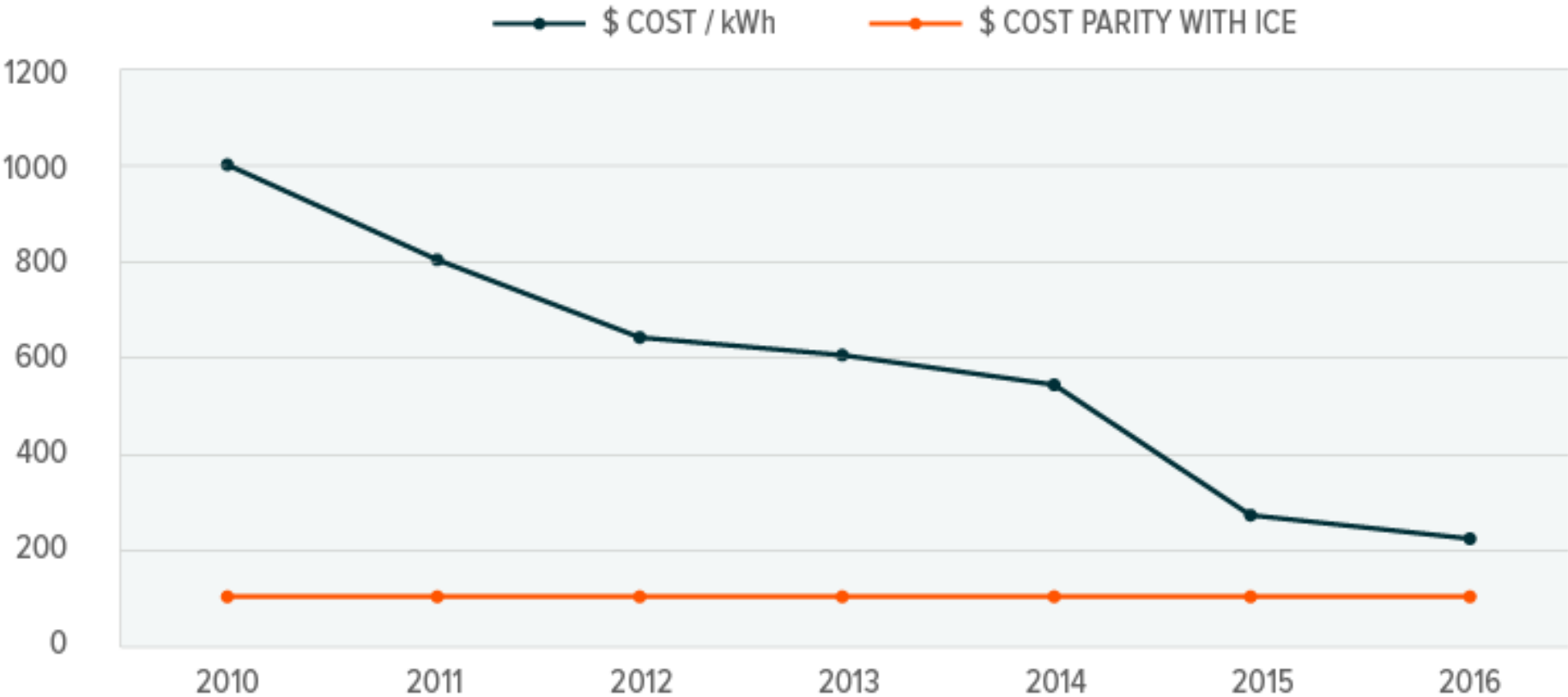


Alternative Fuel Toolkit (2017). AFV Cost Calculator. An initiative by the Federal Highway Administration and Oregon Department of Transportation (2015-2018). Retrieved 3/7/2018 from <http://altfueltoolkit.org/materials/afv-cost-calculator/>

Battery Cost (\$/kWh)

BATTERY COSTS (\$ COST/KILOWATT-HOUR)

Source: McKinsey, "Electrifying Insights: How Automakers can Drive Electrified Vehicle Sales and Profitability," January 2017.



Electrified Transportation

Key Trends



U.S EV SALES GROWTH



VEHICLES SOLD IN 2017



OEM PLANS
40-70 million EVs by 2025



VEHICLE COSTS



CUSTOMER CHOICE



"RANGE ANXIETY"
Record investment; VW

Electrified Transportation

Benefits

- Lowering & shifting emissions
- Electricity market benefits
- Minimizing household expenditures
- Reducing petroleum dependence

Concerns

- Obsolescence risk
- Equity issues
- Impact on oil markets
- Revenue depletion
- Resource constraints
- State & federal incentives

Challenges

- System stress
- Affordability
- Infrastructure deployment
- Cost considerations
- Range anxiety





Questions?

Patricio Portillo

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National Governors Association



@NatlGovsAssoc
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