

Crafting Incentives, Developing Policies, and Building Consumer Awareness

- Moderator
 - **Charles Knutson**, Senior Policy Advisor, Office of Governor Jay Inslee
- Speakers:
 - **Janea Scott**, Vice Chair, California Energy Commission
 - **David Bauer**, Senior Manager of Government Affairs, Hyundai Motors
 - **J.R. DeShazo, Ph.D.**, Director, Luskin Center for Innovation, UCLA



Crafting Incentives, Developing Policies, and Building Consumer Awareness

Janea Scott, Vice Chair, California Energy Commission

#WeTheStates



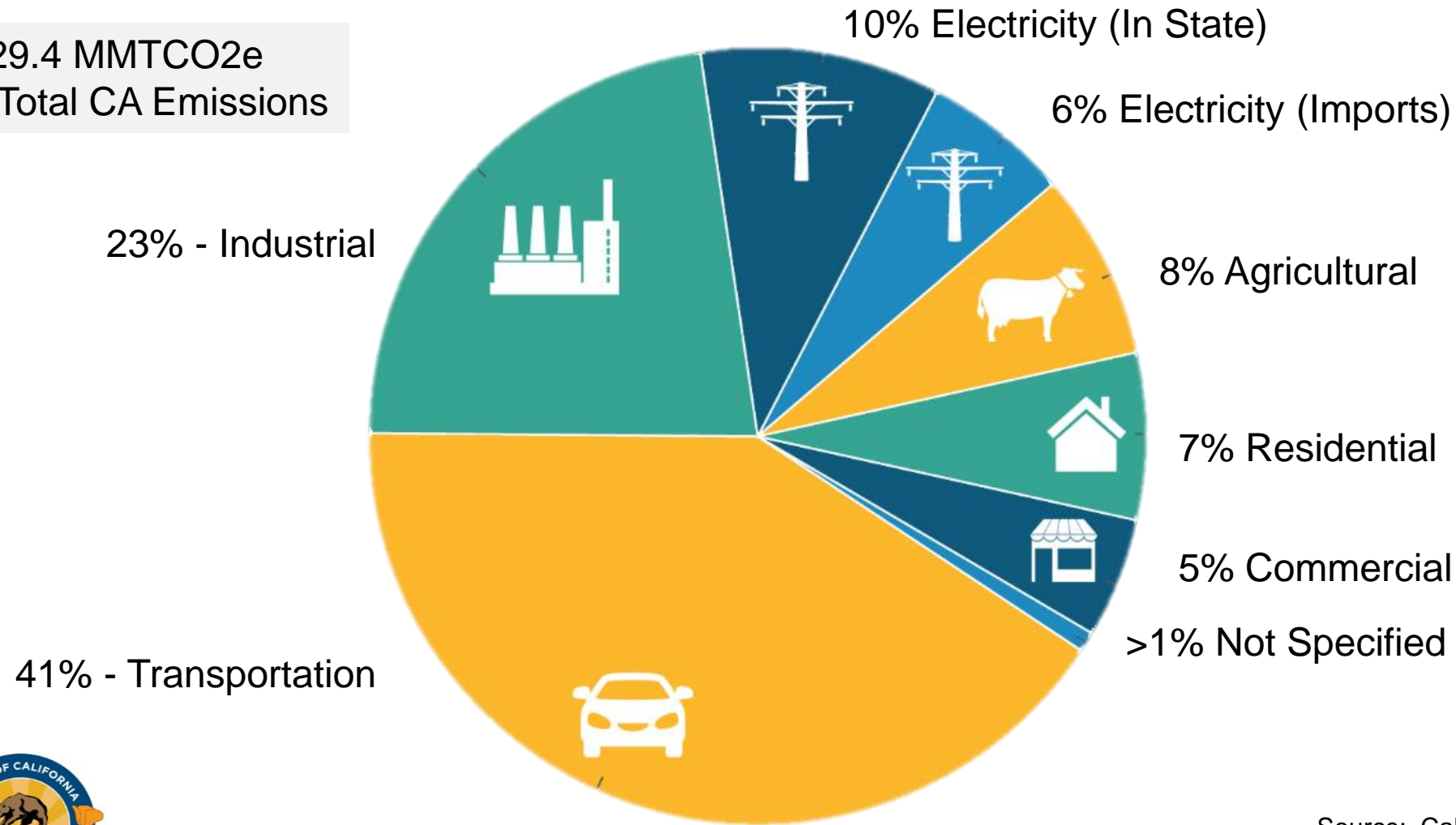
Decarbonizing California's Transportation Sector

National Governors Association
West Regional Transportation Electrification Workshop

Janea A. Scott
California Energy Commission
April 4, 2019

Background: California's GHG Emissions by Sector

429.4 MMTCO₂e
2016 Total CA Emissions

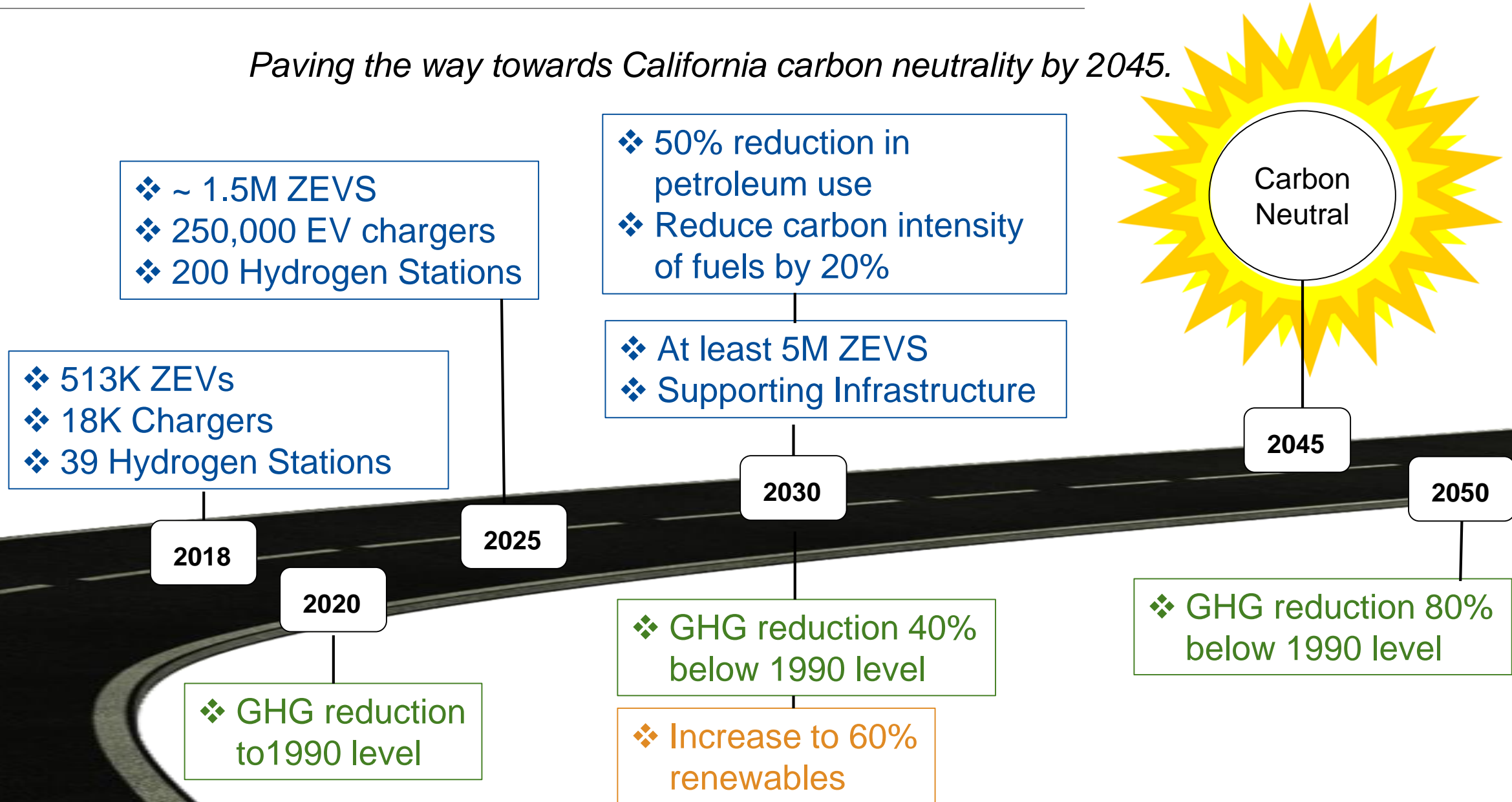


Source: California Air Resources Board



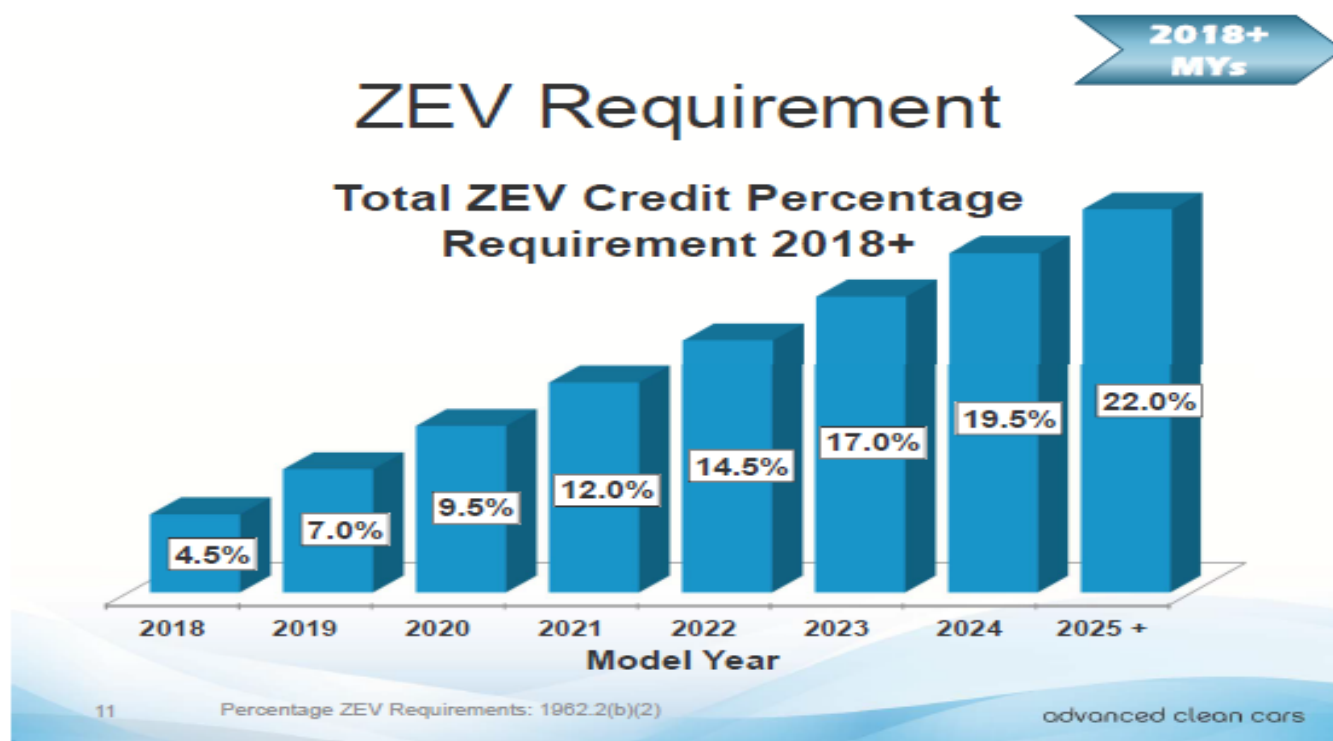
Policies: California's Low Carbon and Zero-Emissions Targets

Paving the way towards California carbon neutrality by 2045.



Regulations: California's Zero-Emission Vehicle Mandate

California's ZEV Mandate: Requirement for auto manufactures to produce a number of ZEVs and plug-hybrids each year based on the total numbers of vehicles sold by each manufacture.



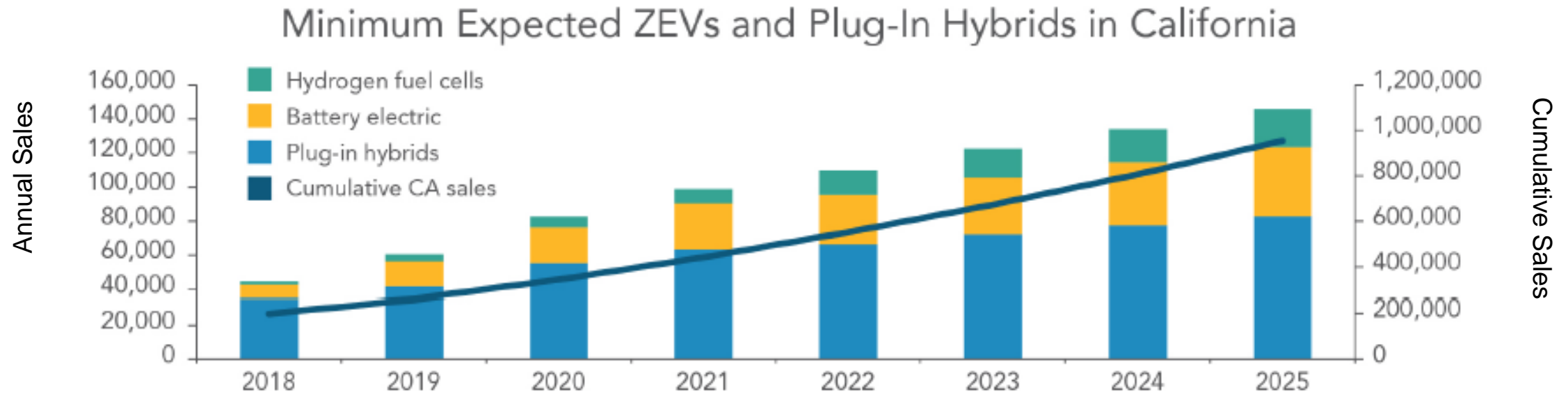
How do automakers earn credits?

Credits = vehicle sales x credits per vehicle*

*Per vehicle credit based on vehicle range (longer range battery gets higher credit)



Regulations: California's Zero-Emission Vehicle Mandate



Source: CARB

Incentives: California Invests in Transforming Transportation

California's Cap-and-Trade Program: Sets statewide emission limits on sources responsible for greenhouse gases and creates incentives to reduce greenhouse gas emissions below allowable levels. Proceeds are invested in programs and projects that further the state's climate goals. Over the past 5 years over \$1.2 B has gone to low carbon transportation investments.

State Investment Programs:

Low Carbon Transportation Program (Cap and Trade)

- *\$455 M for vehicle incentives, transportation equity projects, and heavy duty pilots*

Air Quality Improvement Program

- *\$28 M for transportation projects that reduce criteria pollutants*

Alternative and Renewable Fuel and Vehicle Technology Program

- *\$100 M annually to support low-carbon fuels and advanced vehicle technologies*

School Bus Replacement Program

- *\$75 M to replace oldest and most polluting school buses*



Infrastructure: Energizing an EV Infrastructure Network

The California Energy Commission is California's lead agency for ZEV infrastructure planning

- Since 2009, CEC has invested nearly **\$95 million** to install **9,655 charging connectors in California**.
 - residential, multifamily, public, corridor, fleet, workplace, corridor/urban metro
- Targeted incentives to address specific regions' EV charging needs.
- Modeling for the quantity and types of charging infrastructure needed at local level.
- California State Legislature had directed the Energy Commission to:
 - Conduct a statewide assessment of ZEV infrastructure need to meet state ZEV goals.
 - Ensure equitable deployment of ZEV infrastructure.



Infrastructure: Spurring the Development of a Robust Charging Network

Electric Utility Investments:

Investments in PEV Infrastructure - \$2 B requested with over \$1 B approved to date

Other Investments:

Volkswagen Infrastructure Settlement - \$800 M over 10 years for ZEV investments through Electrify America (Appendix C)

Evgo - \$100 M in electric vehicle infrastructure

New Energy and Industrial Technology Development Organization-
Installation of 55 DCFC

Air Districts - Providing incentives ranging from \$2,000 – \$25,000 for charging infrastructure

Tesla – Installation of over 3,500 charging stations



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT



SMUD



San Joaquin Valley
Air Pollution
Control District



New Energy and Industrial Technology
Development Organization



Thank You!

Janea A. Scott
California Energy Commission
Janea.Scott@energy.ca.gov



Crafting Incentives, Developing Policies, and Building Consumer Awareness

David Bauer, Senior Manager of Government Affairs,
Hyundai Motors

#WeTheStates



Hyundai Washington Office



**Hyundai Motor Company
Presentation to the West Regional
Transportation Electrification Workshop:
National Governors Association**

Charter Hotel, Seattle WA

April 4, 2019

Hyundai Snapshot

- Hyundai Motor America established in 1986
- Hyundai Motor Company is part of the 5th Largest Auto Group in the World by sales volume
- American HQ in Fountain Valley, California
- R&D Center in Ann Arbor, MI and Chino, CA



National Market



NATIONAL SALES OVERVIEW



2.0%

Market share of
new EV sales
nationwide
January-
December 2018



1.9%

Market share of
new EV sales in
9 ZEV States
January-
December 2018



8.5%

Market share of
new EV sales in
California
January-
December 2018



47%

Percent of national
EV sales that
occurred in
California
January-
December 2018

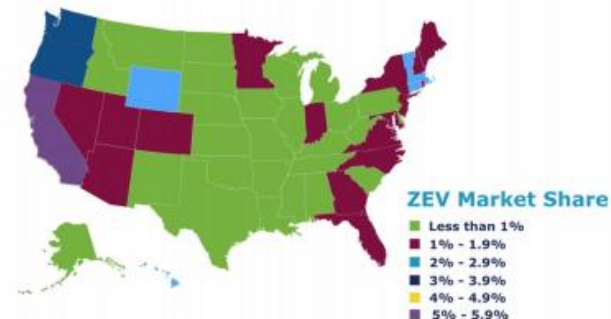


NEW VEHICLE SALES MARKET SHARE

January - December 2018

Several factors affect EV sales in different states: investment in infrastructure and consumer incentives; consumer awareness; consumer preference; and climate and geography. **California and nine other states require that 8% to 10% of new vehicle sales be EVs in 2025.**

New Vehicle Sales



Source: IHS Automotive Vehicle Registration Data

Overall New Car Sales Market: ZEVS

TABLE – COMPARISON OF NEW VEHICLE SALES – BY PERCENTAGE

Jurisdiction	Electric Vehicle Market Share	AWD vs. 2WD Sales	Car vs. Truck Sales
California	10.2%	27/73	47/53
Western S177 States	6.0%	68/32	30/70
Colorado	3.7%	75/25	26/74
Oregon	6.3%	65/35	30/70
Washington	8.1%	64/36	34/66
Eastern S177 States	2.7%	67/33	31/69
Connecticut	3.2%	74/26	33/67
District of Columbia	6.3%	49/51	47/53
Delaware	2.9%	55/45	34/66
Massachusetts	3.5%	21/29	31/69
Maryland	3.6%	51/49	37/63
Maine	3.1%	78/22	22/78
New Jersey	2.2%	64/36	36/64
New York	2.6%	71/29	29/71
Pennsylvania	2.3%	68/32	30/70
Rhode Island	2.4%	68/32	22/67
Vermont	3.8%	80/20	23/77
All 50 States	3.4%	45/55	33/67

Policy Incentives

- ☐ Rebates: Cash on the Hood
- ☐ Exemption from vehicle inspection
- ☐ Discount on toll prices
- ☐ Reduced rates for EV charging
- ☐ Tax credit for home charging installation
- ☐ HOV lane access: Some “buy the sticker and get a car”
- ☐ Workplace charging
- ☐ Federal \$7,500 tax credit: Sustained funding = Consumer confidence
- ☐ Equal treatment between BEV and FCEV = Consumers will choose based on needs (climate, lifestyle)
- ☐ Utilities: reduced rates based on time-of-usage
- ☐ *Don't forget about dealers....*



CALIFORNIA
CLEAN VEHICLE
REBATE PROJECTSM





Company Incentives Require Creativity



Hyundai Washington Office

IONIQ UNLIMITED+



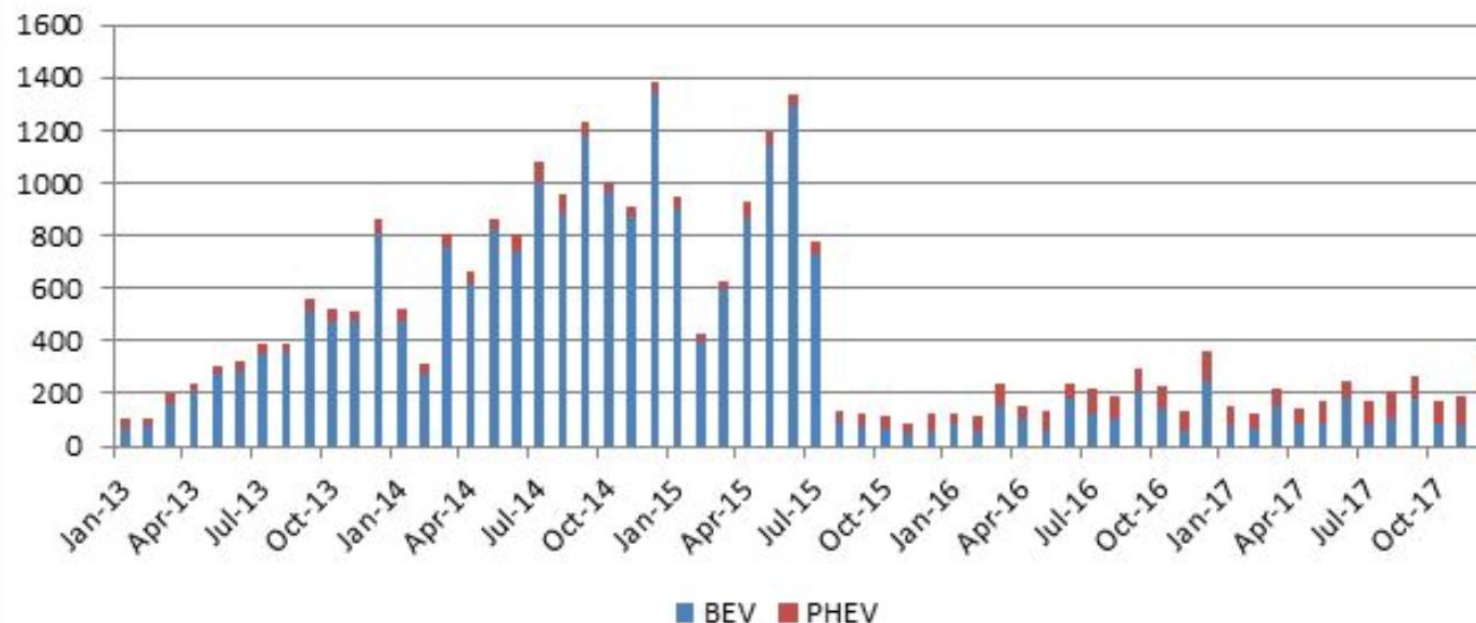
Progress

State	EVs sold since 2011 (cumulatively)	ZEV target by 2025 (cumulatively)	Progress made toward target
California	506,931	1,500,000	<div><div></div></div>
Connecticut	10,805	154,000	<div><div></div></div>
Maine	2,473	65,000	<div><div></div></div>
Maryland	17,849	289,000	<div><div></div></div>
Massachusetts	22,768	302,000	<div><div></div></div>
New Jersey	25,776	635,000	<div><div></div></div>
New York	46,645	843,000	<div><div></div></div>
Oregon	21,384	133,000	<div><div></div></div>
Rhode Island	1,948	43,000	<div><div></div></div>
Vermont	3,324	35,000	<div><div></div></div>

Note: Through December 2018

Learning Curve: The story of Georgia

U.S.A (Georgia) Electric Vehicle Sales



YEAR	BATTERY-RUN ELECTRIC VEHICLE REGISTRATIONS
2014	9,948
2015	6,259
2016	1,522
2017*	1,025

*DATA FOR 2017 IS INCOMPLETE
SOURCE: IHS/POLK



NEXO PRODUCT OVERVIEW

KONA ELECTRIC PRODUCT OVERVIEW



2019 Kona Electric



Best-in class range:
258mi



Advanced Hyundai
SmartSense



EV-Unique Features



Remote Charging via
Hyundai Blue Link®



Smart Regenerative
Braking System





THANK YOU!



Crafting Incentives, Developing Policies, and Building Consumer Awareness

J.R. DeShazo, Ph.D., Director, Luskin Center for
Innovation, UCLA

#WeTheStates

UCLA Luskin Center for Innovation

The Benefits of Targeting and Tiering Clean Vehicle Rebates

J.R. DeShazo
Director, UCLA Luskin Center for Innovation

Why target and tier rebates

- **Target income groups** with different rebate levels
 - Rebates have larger incentive effect on lower income consumers—increase incremental purchases—so more cost effective: incremental vehicle sold per \$ spent
 - Achieves equity goals: largest % of rebates go to relatively lower income households
- **Tier rebates** by expected environmental benefits per sale—more cost effective: emissions reduced per \$ spent

Two Examples

1. New Car Rebate Program

2. Moderate & Low-income
Clean Vehicle Program



New Car Rebate Program (CA)

Annual household income must be at or below **the income caps** listed below.

\$150,000/single filers

\$204,000/head-of-household filers

\$300,000/joint filers

Income Category <i>See income levels in Step 2 and 3</i>	Vehicle Type		
	PHEV	BEV	FCEV
Standard Rebate	\$1,500	\$2,500	\$5,000
Rebate for Lower-Income Consumers	\$3,500	\$4,500	\$7,000

	Match Annual Income with Household Size							
Annual income limit for lower income households	1	2	3	4	5	6	7	8
	35,640	48,060	60,480	72,900	85,320	97,740	110,190	122,670

*For families/households with more than eight persons, add \$12,480 for each additional person.
Based on 2016 Federal Poverty Guidelines.*

Moderate & Low-income Clean Vehicle Program (CA)

Income Eligibility	Program	Eight Years Old or Newer					
		Conventional Vehicle 20+ MPG	Hybrid 20+ MPG	Hybrid 35+ MPG	Plug-In Hybrid Electric Vehicle (PHEV)	Battery Electric Vehicle (BEV)	Alternative Transportation Mobility Options
Low Income \leq 225% FPL	Total	\$4,000	\$6,500	\$7,000	\$9,500	\$9,500	\$4,500
Moderate Income 226% - 300% FPL	Total			\$5,000	\$7,500	\$7,500	\$3,500
Above Moderate Income 301% - 400% FPL	Total				\$5,500	\$5,500	\$2,500