# EV 101

## BEV vs. PHEV
- BEV = no gas
- BEV = less maintenance
- PHEV runs on electricity first
- 40+ models

## Basics of EV charging / cost
- Level 1
- Level 2
- DC fast charge

## General EV knowledge in CA
- No significant difference from 2014 to 2017
- Consumers don’t see charging stations

## Purchase incentives
- Federal tax credit
- CVRP rebate
- Utility rebates and reduced rates

## Barriers to EV adoption
- Charging infrastructure
- High purchase cost
- Dealer inventory and knowledge
- Registration fees
MARKET TRENDS

- California remains a strong market
- Public policy support and purchase incentives
- High sales and market share

### Total Sales by ATV Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEV</td>
<td>273,656</td>
</tr>
<tr>
<td>PHEV</td>
<td>232,952</td>
</tr>
<tr>
<td>All</td>
<td>506,608</td>
</tr>
</tbody>
</table>

### Top States by ATV Sales

<table>
<thead>
<tr>
<th>State</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>46,397</td>
</tr>
<tr>
<td>New York</td>
<td>41,459</td>
</tr>
<tr>
<td>Florida</td>
<td>30,548</td>
</tr>
<tr>
<td>Texas</td>
<td>36,230</td>
</tr>
<tr>
<td>Georgia</td>
<td>33,947</td>
</tr>
<tr>
<td>New Jersey</td>
<td>26,945</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>22,824</td>
</tr>
<tr>
<td>Illinois</td>
<td>22,475</td>
</tr>
<tr>
<td>Oregon</td>
<td>21,453</td>
</tr>
<tr>
<td>Colorado</td>
<td>19,738</td>
</tr>
<tr>
<td>Michigan</td>
<td>18,434</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>18,384</td>
</tr>
</tbody>
</table>

Data include 50 states and Washington D.C.

### Market Share by ATV Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCEV</td>
<td>0.04%</td>
</tr>
<tr>
<td>BEV</td>
<td>2.35%</td>
</tr>
<tr>
<td>PHEV</td>
<td>1.94%</td>
</tr>
<tr>
<td>All</td>
<td>4.34%</td>
</tr>
</tbody>
</table>

### Top States by ATV Market Share

<table>
<thead>
<tr>
<th>State</th>
<th>Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>2.40%</td>
</tr>
<tr>
<td>Washington</td>
<td>2.11%</td>
</tr>
<tr>
<td>Hawaii</td>
<td>1.33%</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>1.31%</td>
</tr>
<tr>
<td>Vermont</td>
<td>1.24%</td>
</tr>
<tr>
<td>Georgia</td>
<td>1.18%</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>1.04%</td>
</tr>
<tr>
<td>Connecticut</td>
<td>1.01%</td>
</tr>
<tr>
<td>Utah</td>
<td>0.90%</td>
</tr>
<tr>
<td>Maryland</td>
<td>0.86%</td>
</tr>
</tbody>
</table>

Data include 50 states and Washington D.C.
MARKET TRENDS

Leading California markets

- Tend to have higher proportion of BEVs
- Metropolitan areas with the most extensive public charging networks tend to have the highest electric vehicle market share

EV sales continue to grow across the US
CHARGING INFRASTRUCTURE

Level 2
14 Stations
22 Ports

Additional stations coming soon

DC Fast Charger
1 Station
2 Ports
CHARGING STATION UPGRADE

64% Cumulative Increase!

EV Station Electrical Usage

- February (2018): 3200 kWh
- March (2018): 3300 kWh
- April (2018): 3400 kWh
- May (2018): 3500 kWh
- June (2018): 3600 kWh
- February (2019): 4900 kWh
- March (2019): 4700 kWh
- April (2019): 4500 kWh
- May (2019): 4400 kWh
- June (2019): 4300 kWh

- 2018 (Blink) - 2019 (ChargePoint)
CHARGING STATION UPGRADE

ChargePoint Average Revenue: $0.153/kWh
Blink Average Revenue: $0.158
EV DISCOUNT PROGRAM

2019 Nissan LEAF
SIMPLY AMAZING
Starting MSRP: $29,990

Up to $3,500 Special Nissan LEAF Rebate

Eligible customers can receive $3,500 rebate off MSRP on 2019 LEAF

+ up to $7,500 potential Federal tax incentive

+ up to $2,500 potential California State Incentive

Up to $13,500 in Total Savings!

More Range, More Power, More Confidence

Join us in making a difference.

As part of our effort to accelerate electric vehicle transportation alternatives throughout the United States, Nissan North America, Inc. is offering eligible faculty, students, staff and retirees of San Diego State University a special opportunity to purchase the 100% electric, Nissan LEAF. Take advantage of these special rebate offers and potential Federal, state, and local benefits that may be available to you!

How to get this exclusive offer:

Simply bring to your participating Nissan dealership (i) a copy of this flyer, (ii) proof of eligible residency, and (iii) your Student ID, proof of employment or proof of pension with USISL. Must be presented at the time of purchase. This exclusive offer expires September 30, 2019.

See your local participating Nissan Dealer for complete details: NissanUSA.com/nissandealers
Disclaimers

The transaction is solely between dealer and buyer – SDSU assumes no liability and is not obligating the buyer to use these discounts

Buyer is encouraged to solicit other offers for the vehicle(s) before committing

Discounts and expiration dates for discounts may be modified by the dealers at any time

Additional Incentives (courtesy of the UCSD electric vehicle discount program)

- HOV access – for most vehicles
- Center for Sustainable Energy Clean Vehicle Rebate Project – up to $2,500
- $2,500–$7,500 federal tax credit
- Clean Vehicle Assistance Program – provides grants and affordable financing to help low-income Californians purchase a new or used hybrid or electric vehicle
- SDG&E’s Electric Vehicle Climate Credit – annual credit available to current plug-in EV drivers in SDG&E’s service area (San Diego and southern Orange counties), typically open for applications near the beginning of each calendar year
- SDG&E Time-of-Use Program – Save money by charging your EV between midnight and 6 a.m.
The PlugStar team trains salespeople on the basics of EVs including charging and purchase incentives.

PlugStar online shopping tool

- Shows all current models, prices, and purchase incentives by zipcode
- Information on available charging stations for each vehicle and prices
- Connects shoppers with EV events and local dealers
PLUG IN AMERICA’S WORK – EV TEST DRIVE EVENTS

<table>
<thead>
<tr>
<th>18+ test drive events this year</th>
</tr>
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<tbody>
<tr>
<td>Focus on disadvantaged communities</td>
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<tr>
<td>More than 1,200 test drives and rides executed between 2018 and 2019</td>
</tr>
</tbody>
</table>

Key trends

- Little to no knowledge on basics of EVs
- Impressed by vehicle’s performance and cost-saving benefits

Challenges / lessons learned

- Standalone test drive event makes it difficult to generate high attendance
- Test drive incentives make a big difference
- Test drive route should include real driving experiences
- Brand loyalty in specific communities
VALUE OF EV TEST DRIVE EVENTS

Do you expect to consider a plug-in hybrid electric vehicle for your next vehicle purchase or lease?

- Overall Pre-Drive (N = 1634):
  - Definitely not: 4%
  - Plan to not: 8%
  - Do not expect: 4%
  - Don’t know: 11%
  - Expect to consider: 43%
  - Expect to purchase: 7%
  - Will purchase: 16%

- Overall Post-Drive (N = 1559):
  - Definitely not: 4%
  - Plan to not: 6%
  - Do not expect: 4%
  - Don’t know: 7%
  - Expect to consider: 47%
  - Expect to purchase: 10%
  - Will purchase: 13%

73% expect to consider a PHEV (up from 61%)

Do you expect to consider a pure electric vehicle for your next vehicle purchase or lease?

- Overall Pre-Drive (N = 1634):
  - Definitely not: 4%
  - Plan to not: 10%
  - Do not expect: 23%
  - Don’t know: 37%
  - Expect to consider: 3%
  - Expect to purchase: 14%
  - Will purchase: 19%

- Overall Post-Drive (N = 1559):
  - Definitely not: 3%
  - Plan to not: 7%
  - Do not expect: 14%
  - Don’t know: 41%
  - Expect to consider: 3%
  - Expect to purchase: 13%
  - Will purchase: 19%

74% expect to consider an AEV (up from 61%)

Data courtesy of National Renewable Energy Laboratory.
FACTORS AFFECTING EV ADOPTION

- Charging station awareness
  - Those unaware of charging stations reported the greatest increase in expectation to consider.
  - Passing charging stations regularly may be more important than specific store availability.
  - Willingness to consider an AEV was highest amongst those that regularly pass charging stations.

- Technology tested
  - Willingness to consider increased more for the specific technology tested.
  - Willingness to consider a PHEV rose the most (18%) for those that tested only a PHEV.
  - Willingness to consider a AEV rose the most (16%) for those that tested only an AEV.
  - Those testing only an PHEV reported a much lower willingness to consider an AEV.

- Data courtesy of National Renewable Energy Laboratory.
NATIONAL DRIVE ELECTRIC WEEK / DRIVE ELECTRIC EARTH DAY

- National Drive Electric Week Sept. 14-22, 2019
  - Events across all 50 states
  - EV parades, booths by local utilities/charging companies, dealer test drives, and more
  - Engaged with local officials and showcased local EV programs and initiatives
- Drive Electric Earth Day (every April)
  - 188 events in 171 cities, 44 US states, and 5 countries
  - 2,000+ test drives and rides, 200+ volunteers, 2,000+ registered vehicles in attendance
- NDEW / DEED Event Resources
  - Registered events receive free online event page, printed materials, banner, and online resources
DRIVE ELECTRIC WEEK/SUSTAINABLE TRANSPORTATION FAIR
RESOURCES TO ORGANIZE EV DISPLAY ON CAMPUS

<table>
<thead>
<tr>
<th>Connect</th>
<th>Partner</th>
<th>Invite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect with EV owners to display their vehicle and share their experience</td>
<td>Partners</td>
<td>Invite local dealers</td>
</tr>
<tr>
<td>• Plug In America’s network of EV owners</td>
<td>• Community-based organizations</td>
<td>• Incentivize salesperson with a gift card</td>
</tr>
<tr>
<td>• Local Electric Auto Association chapter</td>
<td>• Local utility</td>
<td>• Create discount for campus employees or students</td>
</tr>
<tr>
<td>• Find local EV clubs on Facebook</td>
<td>• Reach out to local Clean Cities Coalition</td>
<td>• Weekdays are less busy for dealerships</td>
</tr>
<tr>
<td></td>
<td>• Partner with cycling groups (interest in clean air) and other potential exhibitors</td>
<td>• Dealers are generally unavailable toward the end of the month</td>
</tr>
</tbody>
</table>
FUNDING OPPORTUNITIES

- SCAQMD
  - Air Quality Investment Program
  - Clean Fuels Program – Technology Advancement Funding
  - Other
    - California Energy Commission (CEC) administers the Alternative and Renewable Fuel and Vehicle Technology Program
    - Hybrid and Zero Emission Truck and Bus Voucher Incentive Project
    - Plug-In Hybrid and Zero Emission Light-Duty Public Fleet Vehicle Fleet Rebates
    - California Public Utilities Commission Electric Vehicle Supply Equipment (EVSE) Pilot Programs
    - CALeVIP Electric Vehicle Supply Equipment (EVSE) Incentive Program Support
    - SCIP Electric Vehicle Supply Equipment (EVSE) Rebate - Southern California

- Additional resources
  - US DOE workplace charging challenge
  - Plug In America’s Model Policy Toolkit
QUESTIONS AND COMMENTS

Tom Abram
Energy and Sustainability Officer
San Diego State University
619.594.0550
tabram@sdsu.edu

Kylie Morgan
Program Coordinator
Plug In America
323.333.0570
kmorgan@pluginamerica.org

SAN DIEGO STATE UNIVERSITY

Sustainability Starts Here
sustainable.sdsu.edu

Plug In America

@sustainablesdus