State of the ZEV Market in Massachusetts
Massachusetts ZEV Commission Meeting

July 28, 2016
What We Do

Energy Programs
Public Sector Services
Workforce Training
• Electric Vehicle Sales
• Growth of Market
• Vehicle Models
• MOR-EV Program Participation
• Survey Results
• Charging
• Outreach Strategy
New EV sales represent .47% of light-duty vehicle sales in MA and have increased up from .40% in the last year.

Cumulative Electric Vehicle Sales by Vehicle Type

Cumulative Registrations by City/Town – July 2015

Top 5 Cities
1. Boston: 353
2. Newton: 280
3. Cambridge: 141
4. Lexington: 121
5. Brookline: 105

Source: MassDOT Registry of Motor Vehicles
Cumulative Registrations by City/Town – March 2016

Top 5 Cities
1. Boston: 371
2. Newton: 315
3. Cambridge: 161
4. Lexington: 144
5. Brookline: 122

Source: MassDOT Registry of Motor Vehicles
Per Capita EV Registrations by City/Town

Top 5 Cities Per Capita
1. Chilmark: 8.08
2. Lincoln: 6.76
3. Concord: 6.51
4. Weston: 6.30
5. Harvard: 5.52

Per Capita EV registrations: Vehicles/1,000 residents
EV registration source: MassDOT Registry of Motor Vehicles
Population source: US Census Bureau, 2010
Top 5 Vehicle Models Registered in MA

- **8%** Ford C-MAX Energi
- **23%** Tesla Model S
- **11%** Ford Fusion Energi
- **14%** Nissan LEAF
- **14%** Chevrolet Volt

Source: MassDOT Registry of Motor Vehicles
Top 5 Vehicle Models Registered in MA

- **8%** Ford C-MAX Energi
- **23%** Tesla Model S
- **14%** Nissan LEAF
- **11%** Ford Fusion Energi
- **14%** Chevrolet Volt

**All Other Models** 30%

Source: MassDOT Registry of Motor Vehicles
29 Models Currently in Massachusetts

- Audi A3 e-tron
- BMW i3
- BMW i3 REx
- BMW i8
- BMW X5 xDrive40e
- Cadillac ELR
- Chevrolet Volt
- FIAT 500E
- Ford C-MAX Energi
- Ford Focus Electric
- Ford Fusion Energi
- Honda Accord Plug-In
- Honda Fit EV
- Hyundai Sonata Plug-in Hybrid
- Mercedes-Benz B-Class Electric Drive
- Mercedes-Benz S-Class 550e
- Mitsubishi i-MiEV
- Nissan LEAF
- Porsche 918 Spyder
- Porsche Cayenne S E-Hybrid
- Porsche Panamera S E-Hybrid
- Smart Electric Fortwo (Cabriolet or Coupe)
- Tesla Model S (various battery sizes)
- Tesla Model X
- Tesla Roadster
- Toyota Prius Plug-In Hybrid
- Toyota RAV4 EV
- Volkswagen e-Golf
- Volvo XC90 T8

Source: MassDOT Registry of Motor Vehicles
MOR-EV participation: the percentage of registered eligible vehicle models that received a rebate since program launch (June 2014)

Rebate source: MOR-EV Program Data
EV registration source: MassDOT Registry of Motor Vehicles
New EV Registrations Since MOR-EV Launch

Source: MassDOT Registry of Motor Vehicles
Program Participation by Vehicle Type

Overall MOR-EV Participation Rate: 68%

- BEV: 74%
- PHEV: 41%
- PHEV+: 87%

Rebate source: MOR-EV Program Data
EV registration source: MassDOT Registry of Motor Vehicles
<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Vehicle Model</th>
<th>Total Registrations</th>
<th>Percent Rebated</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEV</td>
<td>Smart Electric Fortwo</td>
<td>120</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Volkswagen e-Golf</td>
<td>104</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>Nissan LEAF</td>
<td>402</td>
<td>84%</td>
</tr>
<tr>
<td></td>
<td>Tesla Model S</td>
<td>660</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>Mercedes-Benz B250</td>
<td>45</td>
<td>73%</td>
</tr>
<tr>
<td></td>
<td>Tesla Model X</td>
<td>23</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td>Ford Focus Electric</td>
<td>38</td>
<td>61%</td>
</tr>
<tr>
<td></td>
<td>BMW i3 REx</td>
<td>193</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>BMW i3</td>
<td>76</td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>BMW X5 xDrive 40e</td>
<td>13</td>
<td>54%</td>
</tr>
<tr>
<td>PHEV</td>
<td>Ford C-MAX Energi</td>
<td>238</td>
<td>43%</td>
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<tr>
<td></td>
<td>Ford Fusion Energi</td>
<td>305</td>
<td>42%</td>
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<tr>
<td></td>
<td>Toyota Prius Plug-In Hybrid</td>
<td>40</td>
<td>30%</td>
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<tr>
<td></td>
<td>Audi A3 e-tron</td>
<td>26</td>
<td>27%</td>
</tr>
<tr>
<td></td>
<td>BMW i3</td>
<td>43</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>Chevrolet Volt</td>
<td>404</td>
<td>95%</td>
</tr>
<tr>
<td>PHEV+</td>
<td>Cadillac ELR</td>
<td>35</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>Porsche Cayenne S E-Hybrid</td>
<td>29</td>
<td>21%</td>
</tr>
</tbody>
</table>

Note: Table includes all eligible vehicle models with 10 or more total registrations
Rebate source: MOR-EV Program Data
EV registration source: MassDOT Registry of Motor Vehicles
Demographics Summary

- **Average Age:** 52 years old
- **Sex:** 80% male
- **Median Household Income:** $150,000 to $174,999
- **Highest Level of Education:** 89% have at least a 4 year degree and over half have a graduate degree.
- **Single-Family Homeowners:** 83%
- **Installation of Solar:** Only 20% have installed solar PV, 24% are interested but 60% have no interest in solar

Source: MOR-EV Program Survey Analysis
Motivations of Drivers

Primary Motivation for Purchase/Lease

- Reducing environmental impacts: 34%
- Saving money on fuel: 22%
- Desire newest technology: 11%
- Vehicle performance: 11%
- Supporting EV technology: 10%
- Energy independence: 7%
- Other: 5%

Source: MOR-EV Program Survey Analysis
67% of adopters say the MOR-EV rebate was an “extremely” or “very” important factor in the decision making process to acquire an EV.

Source: MOR-EV Program Survey Analysis
Residential Charging

- 37% have or plan to install a Level 2 charger.
- 63% do not have a charger.

Plans to Install a Charger by Vehicle Type:
- BEV: 450 Yes, 228 No
- PHEV: 73 Yes, 99 No
- PHEV+: 161 Yes, 77 No

Plans to Install a Charger by Residence Type:
- Detached house (single family home): 583 Yes, 320 No
- Attached house (townhome or duplex): 59 Yes, 31 No
- Apartment/Condo: 30 Yes, 47 No

Source: MOR-EV Program Survey Analysis
Workplace Charging

Do you have access to charging at your workplace?

- Yes: 34%
- I don't work or I work from home: 4%
- No, but I would use if available: 18%
- No, and I would NOT use if available: 42%
- I'm not sure: 2%

Source: MOR-EV Program Survey Analysis
Open, publically accessible electric vehicle charging station locations in Massachusetts as of August 15, 2014:
52 DC Fast Charging Stations
390 Other EV Charging Stations

Open, publically accessible electric vehicle charging station locations in Massachusetts as of July 18, 2016:
Outreach Strategy

Dealer Outreach
• Coordination with MSADA
• Webinars
• Available training

Consumer Outreach
• On the ground public events
• Ride and drive participation
• Program hotline, dedicated email address and website

Future Outreach
• Dealership information kits
• Targeted outreach to Western and Central MA
Questions?

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