Agenda

- Housekeeping
- Purpose
- Status Update
- Preliminary Recommendations
- Discussion
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  • Contact email - Makarand.Gawade@hdrinc.com

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• Attendees can use the “raised hand” feature during the discussion to ask a question or provide comments.
• Please utilize the “Chat” box to type in comments or questions throughout the webinar. Questions will be answered after the presentation during the Q&A session.

• Access the survey questions throughout the presentation at menti.com.
Poll Question

• Who/what organization do you represent?
  • EV Service Provider
  • Local agency/MPO
  • Advocacy group/Lobbyist/Attorney
  • Consultant
  • State agency
  • Utility
  • General Interest
  • Attorney
  • Other
Section 339.287, FS requires FDOT to coordinate, develop, and recommend a Master Plan for the development of electric vehicle charging station infrastructure along the State Highway System (SHS).

**Goals and objectives:**

- Support both short-range and long-range electric vehicle travel;
- encourage the expansion of electric vehicles use in this state; and
- adequately serve evacuation routes in this state.
Statutory Requirements

**FDOT:**
1) Potential EVSE locations on SHS
2) Barriers to EV & EVSE adoption
3) Implementation strategies
4) STTF impact

**PSC:**
5) EV adoption (20-year horizon)
6) EVSE types & use cases
7) Partnerships / business models
8) Regulatory structure
9) Emerging technologies
Electric Vehicle Supply Equipment (EVSE)

**EVSE = EV Infrastructure**
(aka, charging stations)

**Level 2**
- Slower charging speed (>2 hours – full charge)
- Short-range travel (commuting, intra-regional)
- Currently dominant

**Direct Current Fast Charger (DCFC)**
- Fast charging speed (~30 min. – full charge)
- Long-range travel (evacuation, inter-regional)
- Future-oriented
Electric Vehicle (EV) Types

Plug-In Hybrid Electric Vehicle (PHEV)
• Not limited in range by electricity – backup Internal Combustion Engine (ICE) automatically starts

Battery Electric Vehicle (BEV)
• Battery-only propulsion, no ICE backup
• 40-300 mile range, depending on make/model
Florida EV Market Adoption Projections (Light-Duty Vehicles)

Current Adoption is 0.41% – as of July 2020
Barriers to EV Adoption

- EV cost parity with ICE vehicles - expected to occur 2025-2030.
- Range anxiety during longer trips
- Lack of EV models available on the market - >50% of vehicles registered in FL are truck/SUV
- Lack of dealership knowledge/willingness to suggest EVs; Lack of EVs available at FL dealerships
Barriers to EVSE Adoption

- Low EV customer base / Lack of public awareness regarding EVSE locations
- EVSE charging speed – function of power delivery of EVSE & how much power an EV can accept
- Service Providers locate EVSEs where EV adoption is highest – gaps of EVSEs in rural and emergency-critical areas
- Utility demand charges
- Lack of site-specific back-end utility infrastructure for DCFC stations, especially in rural areas
- Additional costs when providing back-up power for emergency-critical EVSE locations
- Lack of state-level public funding to deploy EVSEs, especially in low-utilization areas
- Perception is that gasoline is cheap and/or familiarity with ICE vehicles
Poll Question

- What are the challenges facing your organization when it comes to deploying EVSE?

- What are some opportunities you see when it comes to EV/EVSE adoption?
GIS Analysis Process – Identification of Suitable Locations

- EVSE Proximity
- Intersection Proximity
- Evacuation Priority
- AADT Priority
Potential New DCFC Locations

- Fill existing gaps for long-range & evacuation travel
- Identifies general areas for potential new EVSE locations
- Prioritization plan to build out EVSE network over time
Regulatory Structure Considerations

Demand charges, especially for low-utilization sites, are one of the largest challenges for EVSE Service Providers (i.e., operators of charging stations).

\[
\text{ENERGY} \quad + \quad \text{DEMAND} \quad = \quad \text{COST}
\]

- **kWh**
- **PEAK kW**
- **Utility-owned EVSE** (i.e. chargers)
- **Methodology for utility participation**
- **$/\text{kWh}$**
- **Rate Setting**
Potential Business Models

- Make-Ready Utility Investment
- Third-Party Profit-sharing Public Investment
- Utility Owner-Operator
- EVSE Rebate
Poll Question

• What regulatory hurdles are you seeing in the industry?
STTF Net Revenue Impact Projection (Moderate Scenario)

Year 2040 Impacts:
Best Case Scenario: -8.4%
Moderate Scenario: -16.6%
Worst Case Scenario: -30.0%
# Potential Strategies to Mitigate STTF Revenue Loss

<table>
<thead>
<tr>
<th>Definition</th>
<th>EV Registration Fee</th>
<th>Road Usage Fee</th>
<th>EV Electricity Connection Fee</th>
<th>EV Electricity Usage Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Addition to annual registration fee (may or may not be tied to inflation)</td>
<td>Per mile fee for EV usage</td>
<td>Flat fee per charge</td>
<td>Charge per kWh (e.g., utility to service provider fee)</td>
</tr>
<tr>
<td>Range in Cost</td>
<td>$32.50 to $213.88 per year</td>
<td>$.01 to $.03 per mile</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Example Deployments</td>
<td>26 states</td>
<td>Pilot projects in California, Delaware, Oregon, Utah, and Washington</td>
<td>Not yet deployed at a statewide level</td>
<td>Not yet deployed</td>
</tr>
</tbody>
</table>
Implementation Strategies

1. Develop Goals & Targets
2. Promote the Installation of EVSE infrastructure
3. Encourage Private EV Adoption
4. Encourage Public EV Adoption
5. Provide Guidance and Best Practices to Local Jurisdictions & Agencies
6. Mitigate Revenue Impacts
7. Develop an Outreach, Education, & Marketing Strategy
8. Coordinate Electrification Efforts
9. Establish Agency Roles & Responsibilities
10. Reexamine Utility Roles & Rates
11. Identify Funding Options
12. Prioritization Plan for Deploying EVSE

Identify Potentially Responsible Agencies

Logos: Florida Department of Transportation (FDOT), Florida Department of Education (FLDOE), CareerSource Florida, Florida Department of Management Services (FLDMS), Florida Public Service Commission (FPSC), Florida Department of Environmental Protection (FDEP), Florida Highway Safety and Motor Vehicles (FHSMV), MPOAC, DEO, FLDOE, CareerSource Florida, Florida Department of Economic Opportunity (FDEO), Florida Department of Revenue (FDR), Florida Department of Agriculture and Consumer Services (FDACS).
## Preliminary Recommendations for Consideration

<table>
<thead>
<tr>
<th>Area of Focus</th>
<th>Strategies/Potential Action Items</th>
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</thead>
<tbody>
<tr>
<td><strong>1 Develop Goals and Targets</strong></td>
<td>Develop goals and objectives in line with state statute and existing agency priorities</td>
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<tr>
<td></td>
<td>Establish targets for share of alternative fuels, EV adoption, and deployment of EVSE</td>
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<tr>
<td><strong>2 Promote Installation of EVSE</strong></td>
<td>Develop EVSE funding and grant programs</td>
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<td></td>
<td>Require publicly EVSE to be open to all users regardless of membership to a specific charging network</td>
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<td></td>
<td>All DCFC should maintain an open-source data protocol</td>
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<td></td>
<td>Allow private businesses to advertise EVSE availability on state-owned signage</td>
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<tr>
<td><strong>3 Encourage Private EV Adoption</strong></td>
<td>Develop EV purchase incentive program</td>
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<tr>
<td></td>
<td>Incentivize EV adoption in rental fleets</td>
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<td></td>
<td>Consider EV sales requirement to incentivize automakers to provide a wider range of vehicles for sale in Florida</td>
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<td>Support development of secondary EV market for used vehicles</td>
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<tr>
<td><strong>4 Encourage Public EV Adoption</strong></td>
<td>Develop transit and school bus EV transition plan</td>
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<td></td>
<td>Incentivize purchase of EVs for state and local fleets</td>
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<td></td>
<td>Establish minimum EV targets for state fleet purchases</td>
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<tr>
<td><strong>5 Provide Guidance and Best Practices to Local Jurisdictions and Agencies</strong></td>
<td>Provide guidance on incorporation of EVs into long range transportation plans</td>
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<td>Develop model building and zoning codes to incorporate EVSE</td>
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<td>Expand language restricting condominium associations from banning EVSE to include multi-family rental developments</td>
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<td>Require local jurisdictions to adopt streamlined and fast-tracked permitting for EVSE</td>
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<td>Establish minimum standards for the functionality of EVSE installed in public parking facilities</td>
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<td>Mandate minimum parking requirements or incentives for designated EVSE parking</td>
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<tr>
<td><strong>6 Mitigate Revenue Impacts</strong></td>
<td>Evaluate potential EV registration fee structure</td>
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<td>Study potential for EV electricity surcharges</td>
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<td>Evaluate mileage-based fee structure</td>
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## Preliminary Recommendations for Consideration (cont.)

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</table>
| 7 Develop an Outreach, Education, & Marketing Strategy | Develop a consumer-focused outreach, education, and marketing program  
Conduct training for automotive dealerships and service shops |
| 8 Coordinate Electrification Efforts | Partner with other states in the Southeast to harmonize interstate corridor electrification efforts  
Convene a Florida EV stakeholder and inter-agency work group that includes Federal, state, local, private, and research organizations  
Develop memorandum of understanding with other states in the Southeast on the development of a regional EVSE network and other shared goals |
| 9 Establish Agency Roles & Responsibilities | Initiate program charter that identifies the roles and responsibilities of each stakeholder involved in statewide EV planning  
Develop structure to harmonize statewide EV planning with regional and local efforts  
Initiate report to evaluate the benefits and impacts of incorporating EVs into the electricity grid (such as vehicle-to-grid charging) |
| 10 Reexamine Utility Roles & Rates | Evaluate the process and regulations related to investor-owned utility investments in EVSE  
Work with utility industry stakeholders to develop proposals for new rate structures that address transportation electrification |
| 11 Identify Funding Options | Continuously monitor Federal funding options and pursue funding when it aligns with the program’s needs  
Identify alternative state funding and financing programs  
Develop model policy for establishing public-private partnerships to encourage EVSE investment |
| 12 Prioritization Plan for Deploying EVSE | Create a prioritization process for infrastructure implementation  
Establish evacuation charging program, including mobile charging stations |
Poll Question

• What is your single best idea for increasing the use of EVs in this state?
Questions / Discussion / Thank You
FDOT.EVMP@dot.state.fl.us