



EV Infrastructure Master Plan

Stakeholder Webinar – 11/12/2020





Agenda

- Housekeeping
- Purpose
- Status Update
- Preliminary Recommendations
- Discussion





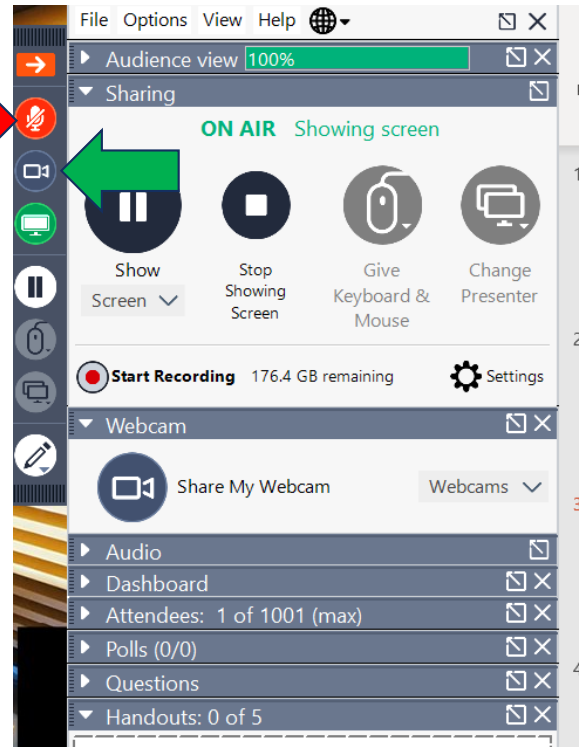
Housekeeping / Logistics / How to Interact / Polling Intro

- **Please enter your PIN to join with audio if you are not using computer audio.**
- **If you experience any technical difficulties, please:**
 - Try logging in again, or
 - Contact email - Makarand.Gawade@hdrinc.com
- **Please avoid placing webinar on hold or taking another call, since the hold music will play in the background.**

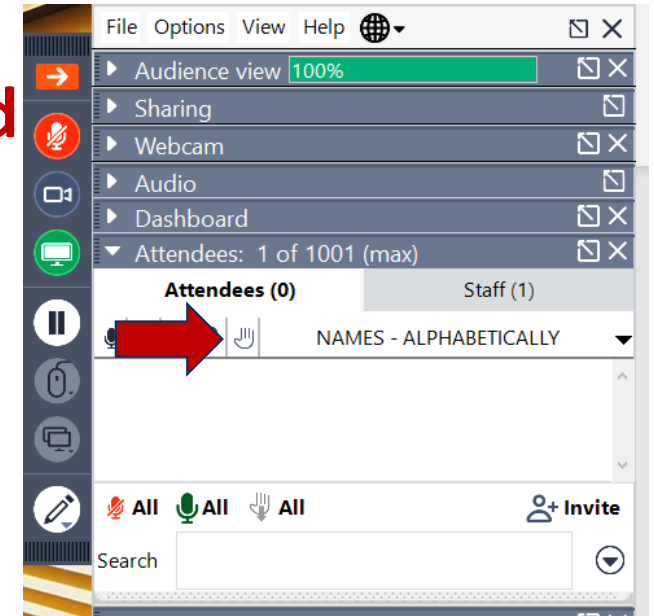


Housekeeping / Logistics / How to Interact / Polling Intro

- You are **muted** and your video is **disabled** upon entry.

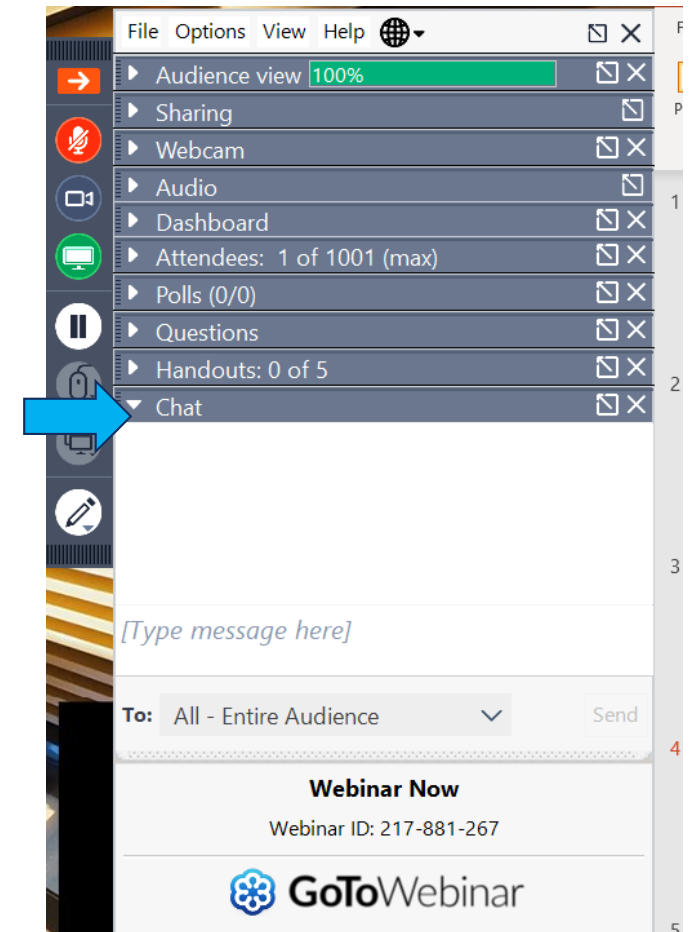


- Attendees can use the **“raised hand”** feature during the discussion to ask a question or provide comments.



Housekeeping / Logistics / How to Interact / Polling Intro

- 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](https://www.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



Purpose – Electric Vehicle Infrastructure Master Plan (EVMP)



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.

120 Section 3. Section 339.287, Florida Statutes, is created to
121 read:
122 339.287 Electric vehicle charging stations; infrastructure
123 plan development.—
124 (1) The Legislature finds that:
125 (a) Climate change may have significant impacts to this
126 state which will require the development of avoidance,
127 adaptation, and mitigation strategies to address these potential
128 impacts on future state projects, plans, and programs;
129 (b) A significant portion of the carbon dioxide emissions
130 in this state are produced by the transportation sector;
131 (c) Electric vehicles can help reduce these emissions,
132 thereby helping to reduce the impact of climate change on this
133 state;
134 (d) The use of electric vehicles for non-local driving
135 requires adequate, reliable charging stations to address
136 electric vehicle battery range limitations;
137 (e) Having adequate, reliable charging stations along the
138 State Highway System will also help with evacuations during
139 hurricanes or other disasters;
140 (f) Ensuring the prompt installation of adequate, reliable
141 charging stations is in the public interest; and
142 (g) A recommended plan for electric vehicle charging
143 station infrastructure should be established to address changes



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

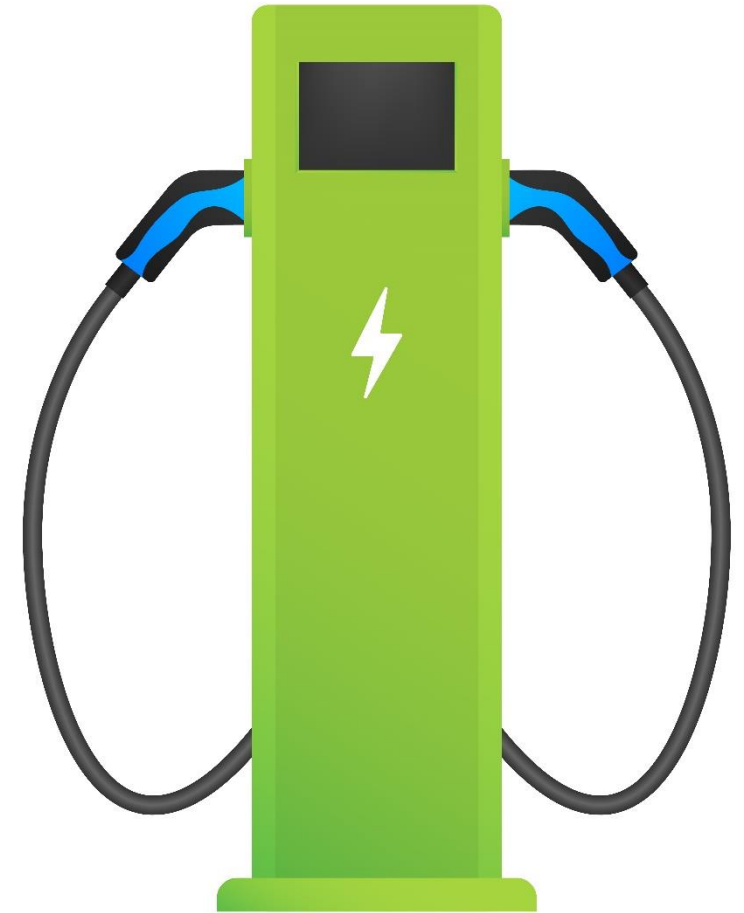
(aka, charging stations)

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)

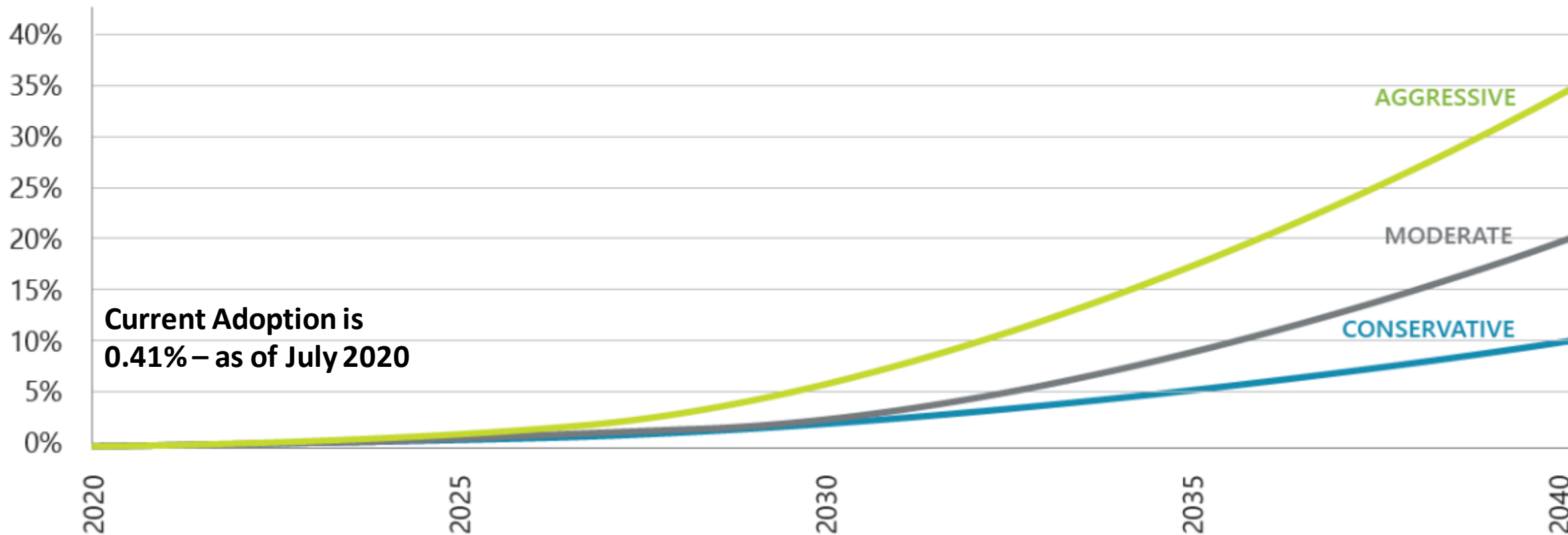
- Not limited in range by electricity – backup Internal Combustion Engine (ICE) automatically starts

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)





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



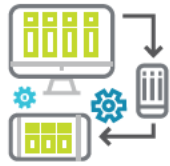
EVSE charging speed –
function of power delivery
of EVSE & how much power
an EV can accept



Service Providers locate
EVSEs where EV adoption
is highest – gaps of EVSEs
in rural and emergency -
critical areas



Utility demand
charges



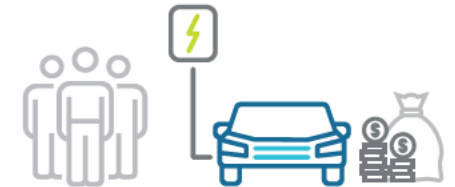
Lack of site-specific
back-end utility
infrastructure for DCFC
stations, especially in
rural areas



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



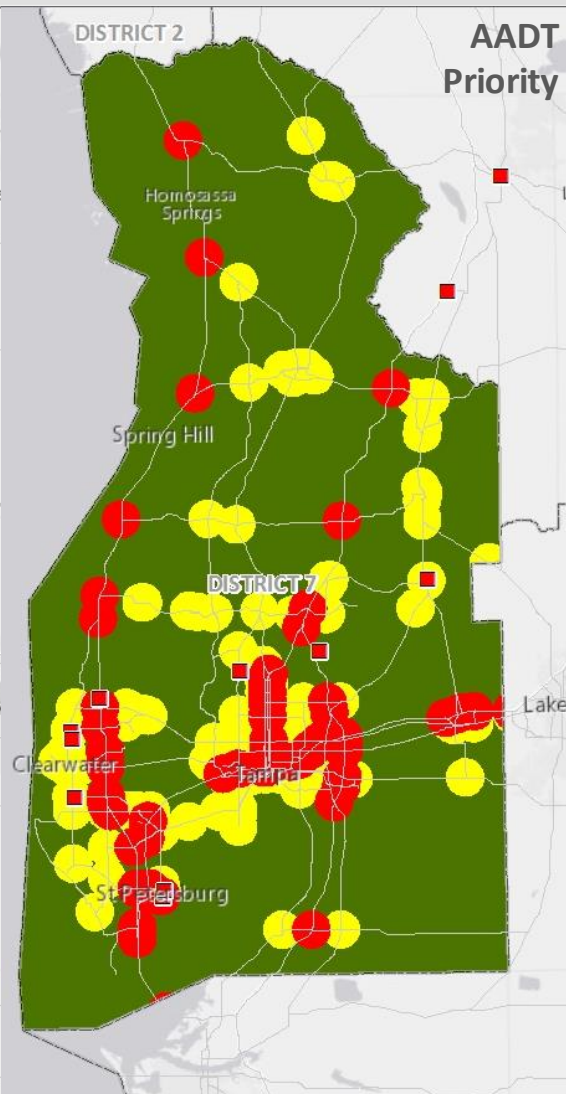
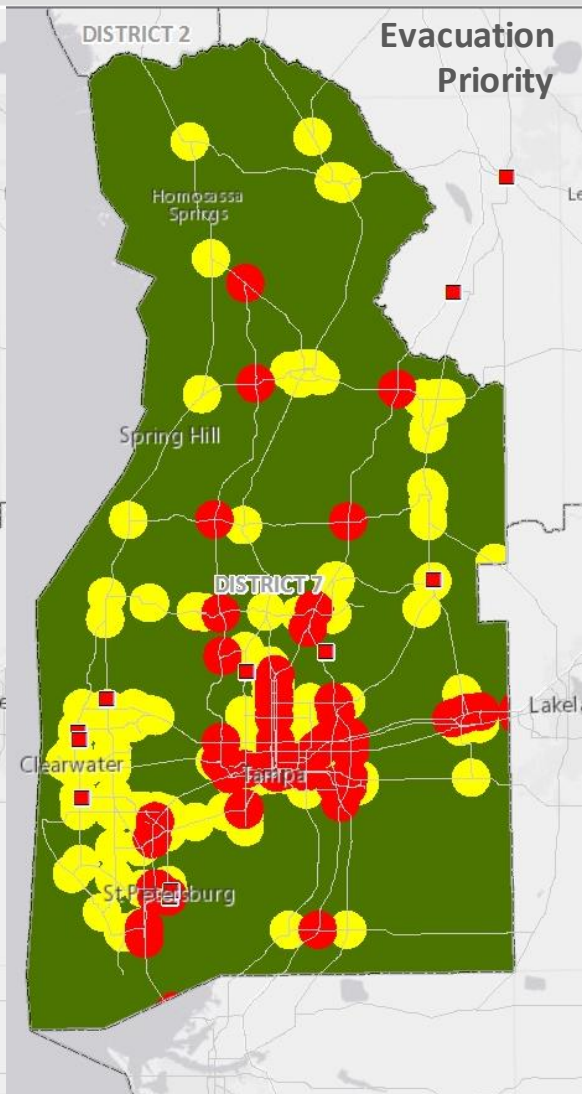
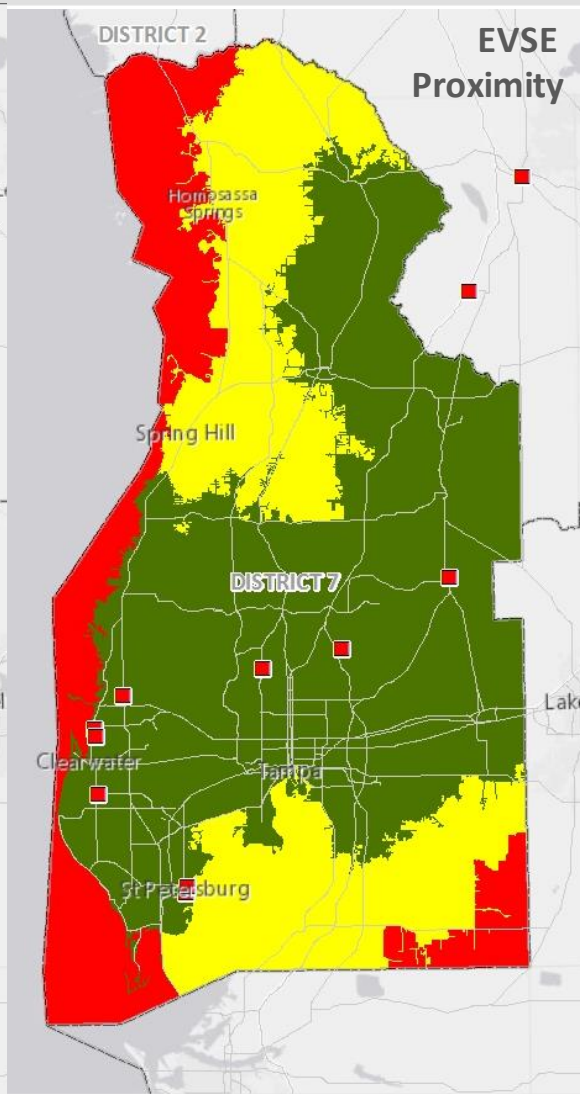
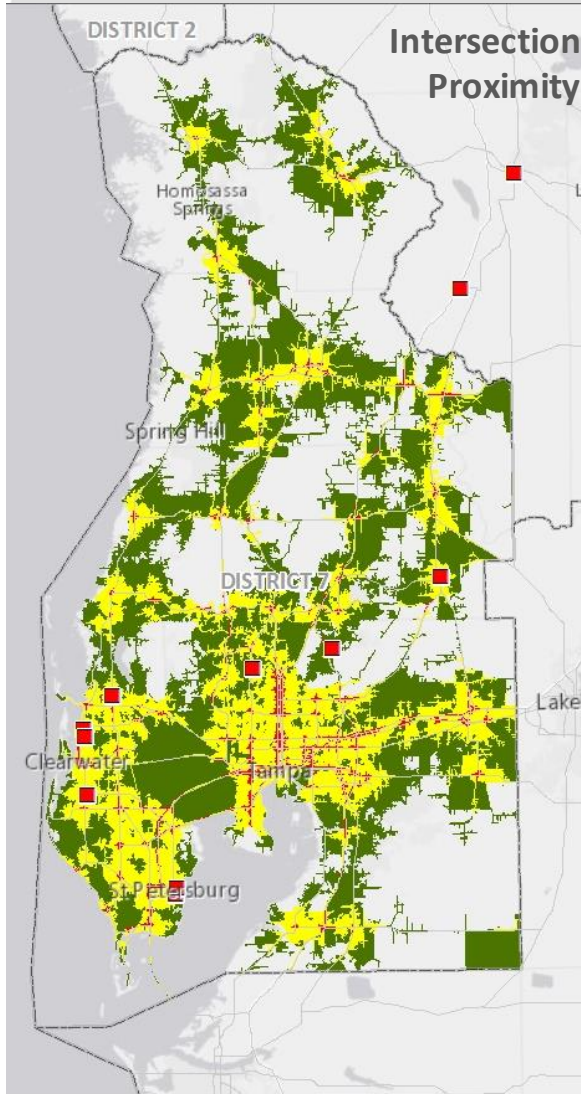


Poll Question

- 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





Potential New DCFC Locations

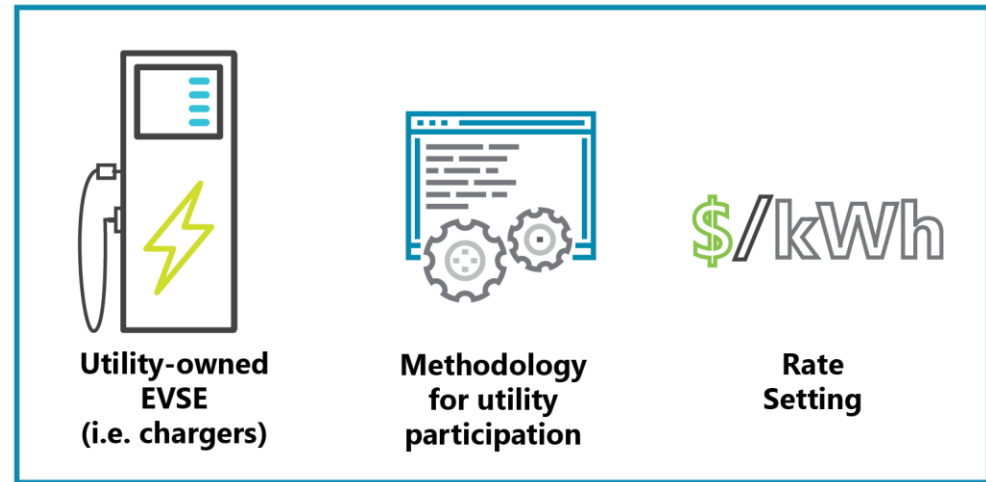
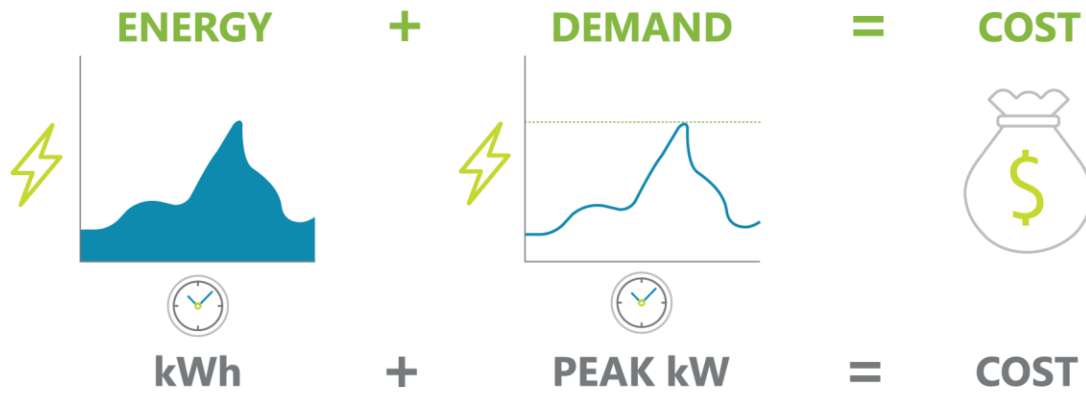
- Fill existing gaps for long-range & evacuation travel
- Identifies general areas for potential new EVSE locations
- **Prioritization plan to build out EVSE network over time**



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)



Potential Business Models



**Make-Ready
Utility Investment**



**Third-Party
Profit-sharing
Public Investment**



**Utility
Owner-Operator**



**EVSE
Rebate**





Poll Question

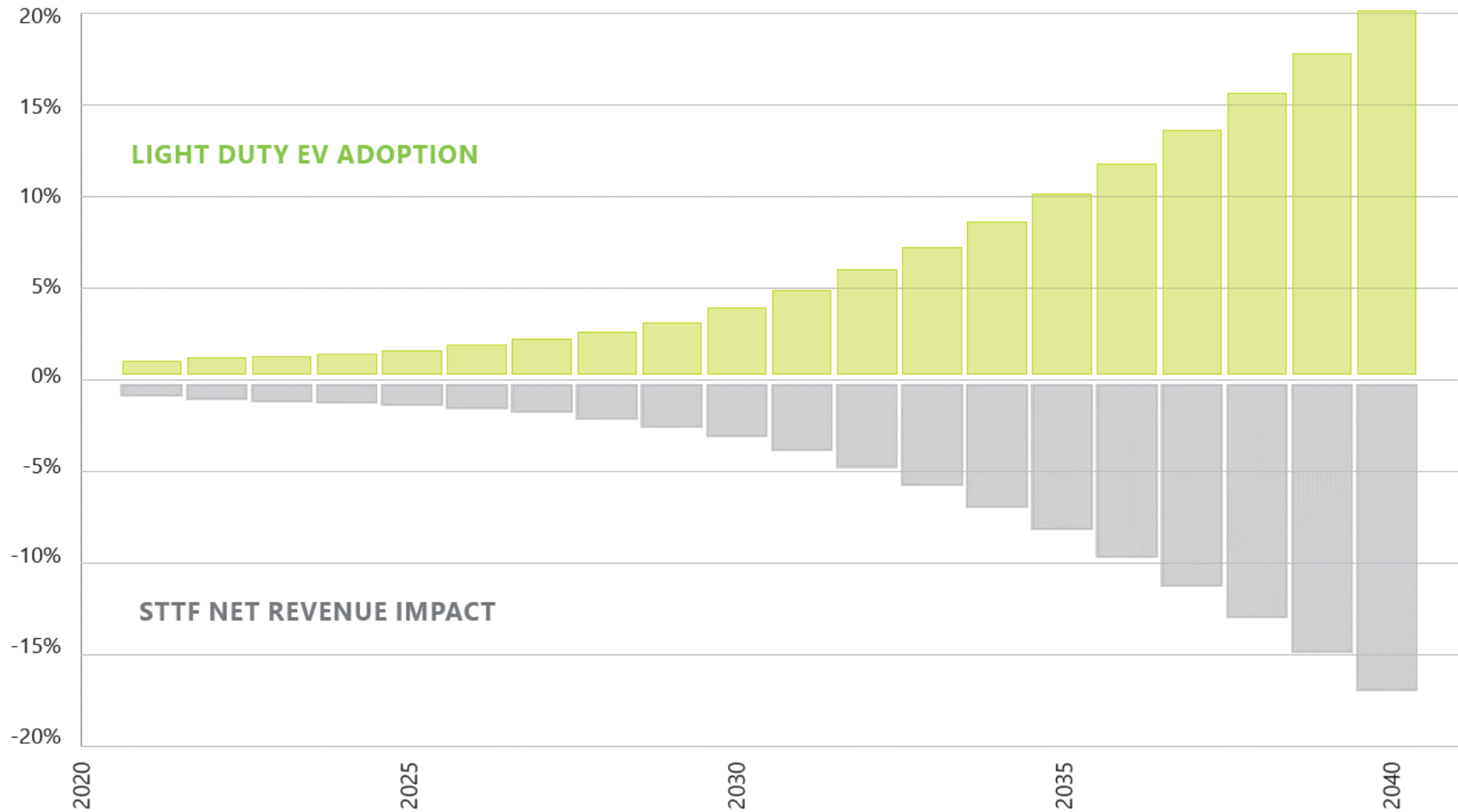
- What regulatory hurdles are you seeing in the industry?



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



	EV Registration Fee	Road Usage Fee	EV Electricity Connection Fee	EV Electricity Usage Fee
Definition	Addition to annual registration fee (may or may not be tied to inflation)	Per mile fee for EV usage	Flat fee per charge	Charge per kWh (e.g., utility to service provider fee) Similar fee structure used in other fuel markets
Range in Cost	\$32.50 to \$213.88 per year	\$.01 to \$.03 per mile	TBD	TBD
Example Deployments	26 states	Pilot projects in California, Delaware, Oregon, Utah, and Washington	Not yet deployed at a statewide level	Not yet deployed



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



Preliminary Recommendations for Consideration



Area of Focus	Strategies/Potential Action Items
1 Develop Goals and Targets	Develop goals and objectives in line with state statute and existing agency priorities
	Establish targets for share of alternative fuels, EV adoption, and deployment of EVSE
2 Promote Installation of EVSE Infrastructure	Develop EVSE funding and grant programs
	Require publicly EVSE to be open to all users regardless of membership to a specific charging network
	All DCFC should maintain an open-source data protocol
	Allow private businesses to advertise EVSE availability on state-owned signage
3 Encourage Private EV Adoption	Develop EV purchase incentive program
	Incentivize EV adoption in rental fleets
	Consider EV sales requirement to incentivize automakers to provide a wider range of vehicles for sale in Florida
	Support development of secondary EV market for used vehicles

Area of Focus	Strategies/Potential Action Items
4 Encourage Public EV Adoption	Develop transit and school bus EV transition plan
	Incentivize purchase of EVs for state and local fleets
	Establish minimum EV targets for state fleet purchases
5 Provide Guidance and Best Practices to Local Jurisdictions and Agencies	Provide guidance on incorporation of EVs into long range transportation plans
	Develop model building and zoning codes to incorporate EVSE
	Expand language restricting condominium associations from banning EVSE to include multi-family rental developments
	Require local jurisdictions to adopt streamlined and fast-tracked permitting for EVSE
	Establish minimum standards for the functionality of EVSE installed in public parking facilities
	Mandate minimum parking requirements or incentives for designated EVSE parking
6 Mitigate Revenue Impacts	Evaluate potential EV registration fee structure
	Study potential for EV electricity surcharges
	Evaluate mileage-based fee structure



Preliminary Recommendations for Consideration (cont.)



Area of Focus	Strategies/Potential Action Items
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)

Area of Focus	Strategies/Potential Action Items
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