The Florida Senate

BILL ANALYSIS AND FISCAL IMPACT STATEMENT

(This document is based on the provisions contained in the legislation as of the latest date listed below.)

Prepared By: The Professional Staff of the Committee on Infrastructure and Security

BILL:	SPB 7018
INTRODUCER:	For consideration by the Committee on Infrastructure and Security
SUBJECT:	Electric Vehicle Charging Station Infrastructure
DATE:	December 2, 2019 REVISED:

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Price	Miller		**Pre-meeting**

I. Summary:

SPB 7018 requires the Public Service Commission (PSC), in coordination with the Department of Transportation and the Department of Agriculture and Consumer Services, to develop and recommend a plan for the development of electric vehicle (EV) charging station infrastructure along the State Highway System (SHS). The bill sets out a number of Legislative findings, as well as the nonexclusive goals and objectives of the recommended plan.

The proposed bill requires the recommended plan to be developed and submitted to the Governor, the Senate President, and the House Speaker by July 1, 2021. The plan must include recommendations for legislation and may include other recommendations as determined by the PSC. The bill also requires the PSC, by December 1, 2020, to file a status report containing any preliminary recommendations, including recommendations for legislation.

The proposed bill presents an indeterminate negative fiscal impact in the short-term but an expected positive, indeterminate fiscal impact in the long-term. See the "Fiscal Impact Statement" heading below for details.

The bill takes effect July 1, 2020.

II. Present Situation:

Burning fossil fuels such as gasoline and diesel releases carbon dioxide into the atmosphere. Increased levels of carbon dioxide, along with other greenhouse gas levels, warm the earth's atmosphere, resulting in documented effects such as sea-level rise, storm surge intensity, and increased rainfall and intensity.[1] According to information released in February of this year by the United States Energy Information Administration, of the 230.1 million metric tons (MMTs)

[1] Florida Division of Emergency Management, *Enhanced State Hazard Mitigation Plan*, *State of Florida*, 106, 141 (2018) available *at* https://www.floridadisaster.org/globalasset (last visited November 16, 2019).

of carbon dioxide produced in Florida in 2016, the transportation sector accounted for 103.6 MMTs.[2]

Electric vehicles (EVs) offer a cleaner fuel source, and interest in EV use has been driven in part by their potential for reduction in greenhouse gas emissions. However, their relative high cost compared to conventional fuel-powered vehicles and their relative limited range have restricted the commercial viability of EVs.[3] Yet, while advancements in EV-related technology are continuing, EV manufacturing is rising, and EV prices have been dropping, representatives in both the government and the private sector suggest that successful adoption of EV use is heavily dependent on the accessibility of charging stations.[4]

Types of EVs

The U.S. Department of Energy's Alternative Fuels Data Center (AFDC) uses the term, "electric-drive vehicles," to collectively refer to hybrid electric vehicles (HEVs), plug-in hybrid electric vehicles (PHEVs), and all-electric vehicles (AEVs). According to the AFDC:

- HEVs are primarily powered by an internal combustion engine that runs on conventional or alternative fuel and an electric motor that uses energy stored in a battery. The battery is charged through regenerative braking and by the internal combustion engine and is not plugged in to charge.
- PHEVs are powered by an internal combustion engine that can run on conventional or alternative fuel and an electric motor that uses energy stored in a battery. The vehicle can be plugged in to an electric power source to charge the battery. Some can travel nearly 100 miles on electricity alone, and all can operate solely on gasoline (similar to a conventional hybrid).
- AEVs use a battery to store the electric energy that powers the motor. AEV batteries are charged by plugging the vehicle in to an electric power source.[5]

EV Charging Equipment

EV charging equipment is generally classified based on the rate at which the equipment charges the EV batteries. Charging times vary, depending on the depletion level of the battery, how much energy the battery holds, the type of battery, and the type of supply equipment. According to the AFDC, charging times can range from less than 20 minutes to 20 hours or more, depending on the identified factors. Potential driving distance ranges from:

- Two to five miles of range per one hour of charging for AC Level 1 supply equipment;
- Ten to twenty miles per one hour of charging for AC Level 2 supply equipment; and

[2] U.S. Energy Information Administration, *Energy-Related Carbon Dioxide Emissions By State, 2005-2016* (February 2019), Table 4., available at https://www.eia.gov/environment/emissions/state/analysis/pdf/stateanalysis.pdf (last visited November 16, 2019).
[3] *See* the Federal Highway Administration's *FHWA NHTS Brief, Electric Vehicle Feasibility*, July 2016, pp. 1-2, available at https://nhts.ornl.gov/briefs/EVFeasibility20160701.pdf (last visited November 16, 2019).
[4] *Id.* at p. 2. *See also* CBSChicago, *Electric Vehicle Sales on the Rise, But More Charging Stations Needed To Keep the Trend Going*, September 19, 2019, available at https://chicago.cbslocal.com/2019/09/19/electric-vehicles-super-fast-charging-stations/ (last visited November 16, 2019).
[5] *See* the AFDC's website available at: https://www.afdc.energy.gov/vehicles/electric.html. (Last visited November 20, 2017.)

- Sixty to eighty miles per twenty minutes of charging for DC fast charging supply equipment.[6]

According to the AFDC, for most drivers, charging currently occurs at home or at fleet facilities.[7]

More specifically, Level 1 (home) charging cords come as standard equipment on new EVs, only require a standard 120-volt outlet, and can add about 50 miles of range in an overnight charge. Level 1 charging is sufficient for low- and medium-range PHEVs and all AEVs for drivers with relatively low daily driving.[8]

Level 2 (home and public) charging commonly requires a charging unit on a 240-volt circuit, such as is used to run a household clothes dryer, with the charging rate dependent on the rate at which a vehicle can accept a charge and the maximum current available. An eight-hour charge will add about 180 miles of range with a typical 30-amp circuit. This method may require the purchase of a home charging unit and modifications to a home electric system but charges from two to eight times faster than a Level 1, depending on the amperage and the vehicle. These chargers are said to be the most common at public charging places like offices, grocery stores, and parking garages.[9]

DC Fast Chargers (public charging) can typically add 50 to 90 miles in 30 minutes, depending on the charging station's power capacity and the make of the EV. These chargers are best used for longer travel distances; vehicles used the major portion of a day, such as taxis; and for vehicles whose drivers have limited access to home charging.[10]

Tesla recently opened a "next-generation" EV charging station in Las Vegas supporting a peak rate of up to 250 kilowatts capable of charging up to 1,500 vehicles per day. However only one Tesla vehicle can charge at the peak rate, resulting in up to 180 miles of range in 15 minutes on a Tesla Model 3 Long Range. [11]

Additional charging options are under development, such as an industry standard for higher rates of charging using power levels common at commercial and industrial locations in the United States. The standard's target is power levels far exceeding currently typical voltages.[12]

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[6] *Id.*

[7] AFDC, *Developing Infrastructure to Charge Electric Plug-In Vehicles*, available at https://afdc.energy.gov/fuels/electricity_infrastructure.html (last visited November 16, 2019).

[8] UCSUSA, *Electric Vehicle Charging, Types, Time, Cost and Savings*, (March 2018) available at https://www.ucsusa.org/resources/electric-vehicle-charging-types-time-cost-and-savings (last visited November 18, 2019).

[9] *Id.*

[10] *Id.*

[11] *See* TechCrunch*, Tesla's new V3 Supercharger can charge up to 1,500 electric vehicles a day*, Korosec, K., (July 2019), available at https://techcrunch.com/2019/07/18/teslas-new-v3-supercharger-can-charge-up-to-1500-electric-vehicles-a-day/2019/07/18/teslas-new-v3-supercharger-can-charge-up-to-1500-electric-vehicles-a-day/.

[12] *Supra* note 7.

Current Availability of EV Charging Stations in Florida

Section 377.815, F.S., authorizes, but does not require, the Florida Department of Agriculture and Consumer Services to post information on its website relating to alternative fueling stations (including electric vehicle charging stations) that are available for public use in this state. The Department's website contains addresses by city and county on EV charging station locations in Florida reflecting 930 charging station locations by specific address.[13] The AFDC currently totals the number of public EV charging stations in Florida at 1,324, representing 3,518 charging outlets.[14]

As a tool against the effects of climate change, whether the currently available charging stations are sufficient (in number, location, and charging capability) to encourage expansion of EV use in Florida, by individuals and by commercial fleets, is in question.

III. Effect of Proposed Changes:

The proposed bill requires development of a recommended plan for the development of EV charging station infrastructure along the SHS.[15]

The bill recites the following Legislative findings:

- Climate change may have significant impacts to the State of Florida which will require the development of avoidance, adaptation, and mitigation strategies to address these potential impacts on future state projects, plans, and programs;
- A significant portion of the carbon dioxide emissions in Florida are produced by the transportation sector;
- EVs can help reduce these emissions, thereby helping to reduce the impact of climate change on the state;
- Use of EVs for non-local driving requires adequate, reliable charging stations to help with electric vehicle battery range limitations;
- Having adequate, reliable charging stations along the SHS will also help with evacuations during hurricanes or other disasters;
- Ensuring the prompt installation of adequate, reliable charging stations is in the public interest; and
- A recommended plan for electric vehicle charging station infrastructure should be established to address changes in the emerging electric vehicle market and necessary charging infrastructure.

[13] *See* the Florida Department of Agriculture and Consumer Services website, select *Electricity*, available at https://www.fdacs.gov/Energy/Florida-Energy-Clearinghouse/Transportation (last visited November 16, 2019).
[14] AFDC, *Alternative Fueling Station Counts By State*, available at https://afdc.energy.gov/stations/states (last visited November 16, 2019).
[15] Section 334.03(24), F.S., defines the SHS as "the interstate system and all other roads within the state which were under the jurisdiction of the state on June 10, 1995, and roads constructed by an agency of the state for the State Highway System, plus roads transferred to the state's jurisdiction after that date by mutual consent with another governmental entity, but not including roads so transferred from the state's jurisdiction. These facilities shall be facilities to which access is regulated."

The Public Service Commission (PSC),[16] in coordination with the Department of Transportation and the Department of Agriculture and Consumer Services, is directed to develop and recommend a plan for current and future plans for the development of EV charging station infrastructure along the SHS. The PSC is authorized to consult with other agencies as it deems appropriate.

The proposed bill requires the recommended plan to be developed and submitted to the Governor, the Senate President, and the House Speaker by July 1, 2021. The plan must include recommendations for legislation and may include any other recommendations as determined by the PSC.

The proposed bills sets out the following goals and objectives of the plan, including, but not limited to:

- Projecting the increase in use of EVs in the state over the next 20 years and determining how to ensure an adequate supply of reliable EV charging stations to support and encourage this growth in a manner supporting a competitive market with ample consumer choice;
- Evaluating and comparing the types of EV charging stations available at present and in the future, including the technology and infrastructure incorporated in such stations, along with the circumstances within which each type of station and infrastructure is typically used, including fleet charging, for the purpose of identifying any advantages to developing particular types or uses of these stations;
- Considering strategies to develop this supply of charging stations, including, but not limited to, methods of building partnerships with local governments, other state and federal entities, electric utilities, the business community, and the public in support of EV charging stations;
- Identifying the types or characteristics of locations along the SHS to support a supply of electric vehicle charging stations that will:
  - Accomplish the goals and objectives of this section;
  - Support both short-range and long-range electric vehicle travel;
  - Encourage the expansion of EV use in this state; and
  - Adequately serve evacuation routes in this state;
- Identifying any barriers to the use of EVs and EV charging station infrastructure both for short- and long-range EV travel along the SHS;
- Identifying an implementation strategy for expanding electric vehicle and charging station infrastructure use in this state;
- Identifying the type of regulatory structure for the delivery of electricity to EVs and charging station infrastructure, including competitive neutral policies and the participation of public utilities in the marketplace; and

[16] Sections 350.011, 366.04, and 366.05, F.S., set out the jurisdiction, powers, and duties of the PSC. With respect to the PSC's current regulation of electric industries, the PSC regulates investor-owned electric companies and matters such as rates and charges, meter and billing accuracy, electric lines up to a meter, reliability of electric service, new construction safety code compliance for transmission and distribution; territorial agreements and disputes, and the need for certain power plants and transmission lines. The PSC does not regulate rates and adequacy of services provided by municipally-owned and rural cooperative electric utilities, except for safety oversight; electrical wiring inside a customer's building; taxes on the electric bill; physical placement of transmission and distribution lines; damages claims; right of way matters, or physical placement or relocation of utility poles. *See* PSC, *When to Call The Florida Public Service Commission*, available at http://www.psc.state.fl.us/Files/PDF/Publications/Consumer/Brochure/When_to_Call_the_PSC.pdf (last visited November 25, 2019).

- Reviewing emerging technologies in the electric and alternative vehicle market, including alternative fuel sources.

Lastly, the proposed bill requires the PSC, by December 1, 2020, to file a status report with the Governor, the Senate President, and the House Speaker containing any preliminary recommendations, including recommendations for legislation.

The bill takes effect July 1, 2020.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

D. State Tax or Fee Increases:

None.

E. Other Constitutional Issues:

None.

V. Fiscal Impact Statement:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

To the extent that development of the required plan increases the number of EV charging stations in the state, residents, businesses, and tourists are expected to benefit from increased availability of EV charging stations, facilitating mobility and commerce and reducing costs related to EV travel time. To the extent that increased EV use is encouraged, the state may realize reduced greenhouse gas emissions, thereby contributing to the overall health of the state's residents and environmental resources. Indeterminate but positive economic, environmental, and social benefits may be realized.

C. Government Sector Impact:

The PSC will incur expenses in unknown amounts associated with developing and submitting the required status report and recommended plan and legislation. The Departments of Transportation and of Agriculture and Consumer Services will incur indeterminate expenses relating to the required coordination in developing the recommended plan. Increased availability of EV charging stations is expected to produce positive fiscal impacts through increased mobility and commerce and reduction of costs related to EV travel time, as well as reducing greenhouse gas emissions, thereby contributing to the overall health of the state's residents and environmental resources. Indeterminate but positive economic, environmental, and social benefits may be realized.

VI. Technical Deficiencies:

None.

VII. Related Issues:

None.

VIII. Statutes Affected:

This bill creates the following section of the Florida Statutes: 366.945.

IX. Additional Information:

A. Committee Substitute – Statement of Changes:
(Summarizing differences between the Committee Substitute and the prior version of the bill.)

None.

B. Amendments:

None.